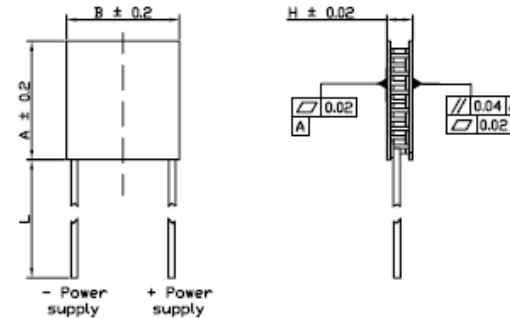
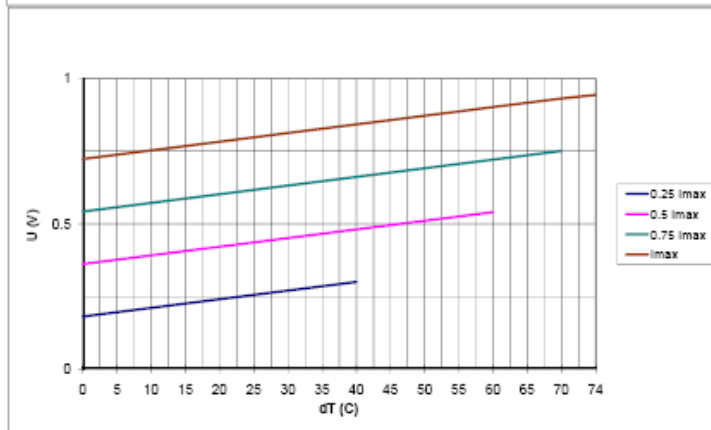
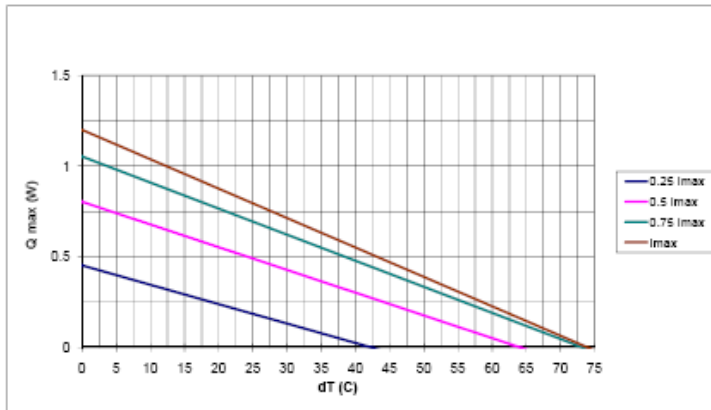


# ET-007-08-15-RS

4901193

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
2.2	0.9	1.2	74	0.4	6	6	3.8	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max dT is reduced by 2-3K for silicon sealed and 1-2K for epoxy sealed versions.



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and Q=0W
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

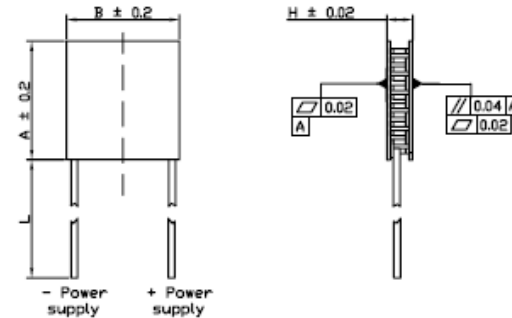
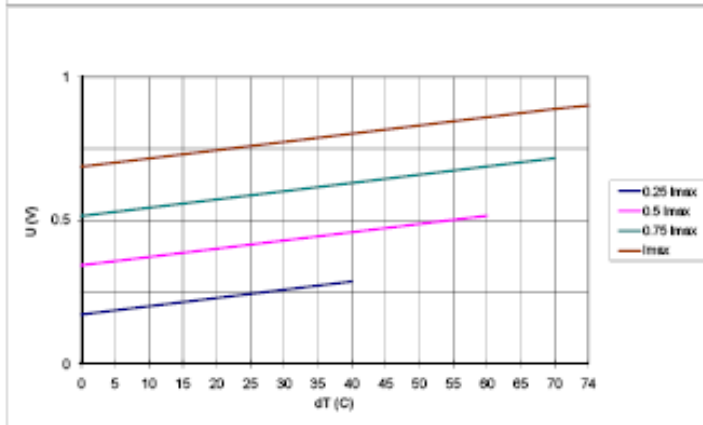
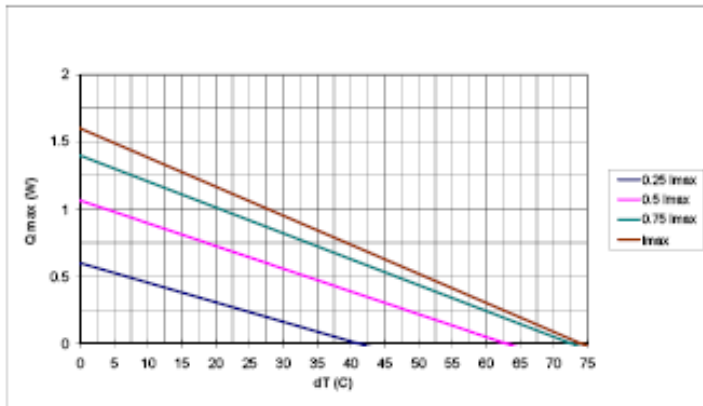
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ET-007-10-15-RS

4901200

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
3.2	0.9	1.6	74	0.23	8	8	3.8	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max dT is reduced by 2-3K for silicon sealed and 1-2K for epoxy sealed versions.



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0W$
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

- High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity
- Operation temperature up to 90°C for long lifetime; up to 110°C for short periods
- With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible
- Preferable application; high cooling capacity at high temperatures / cycling

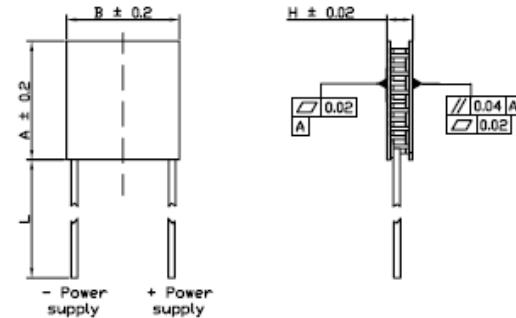
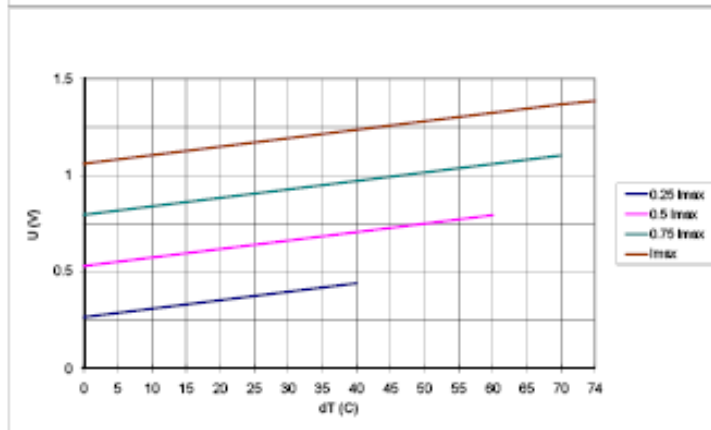
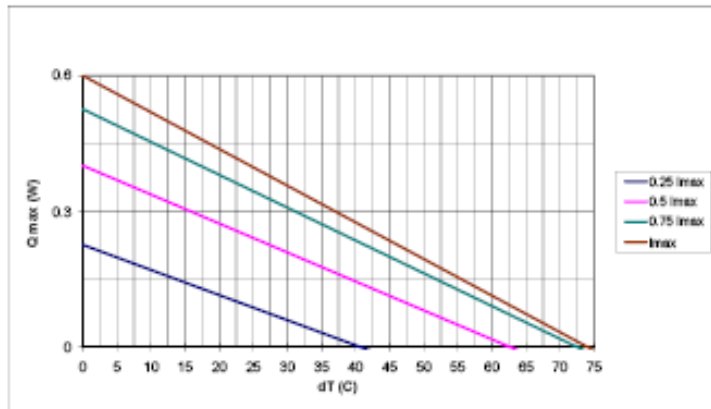
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ET-011-05-15-RS

4901216

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	ΔT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
0.8	1.4	0.6	74	1.5	6	4	3	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max ΔT is reduced by 2-3K for silicon sealed and 1-2K for epoxy sealed versions.



Note 1 - Maximum current at  $\Delta T_{max}$

Note 2 - Maximum voltage at  $\Delta T_{max}$

Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$

Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0W$

Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P

The solder melting point of thermoelectric module 140°C

Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

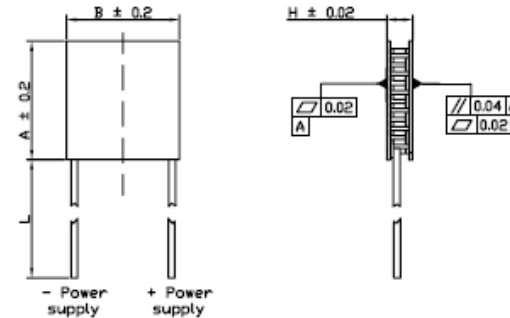
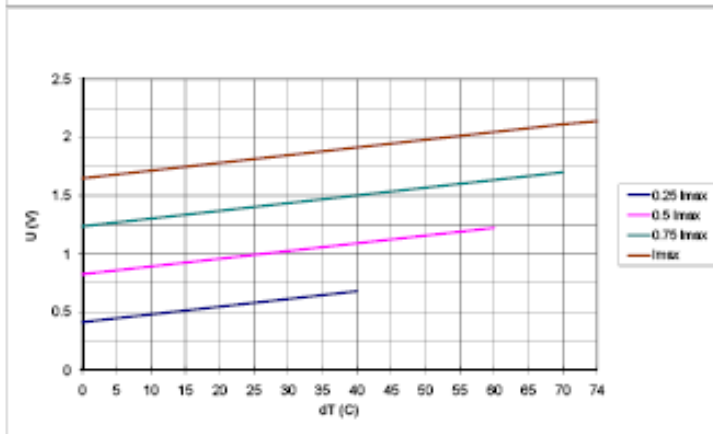
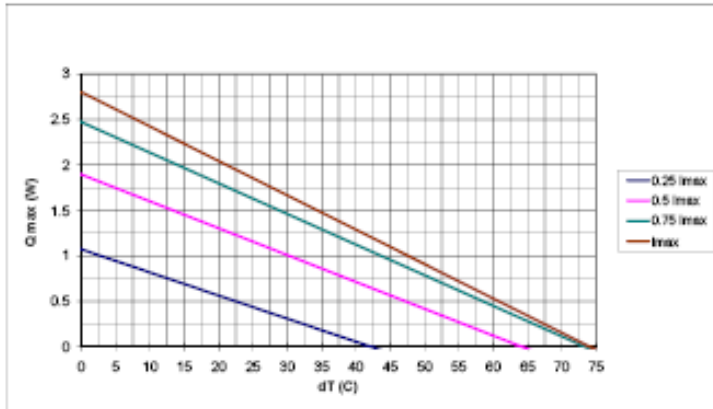
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ET-017-08-15-RS

4901238

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
2.2	2.1	2.8	74	0.86	9	9	3.8	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max dT is reduced by 2-3K for silicon sealed and 1-2K for epoxy sealed versions.



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0W$
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

- High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity
- Operation temperature up to 90°C for long lifetime; up to 110°C for short periods
- With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible
- Preferable application; high cooling capacity at high temperatures / cycling

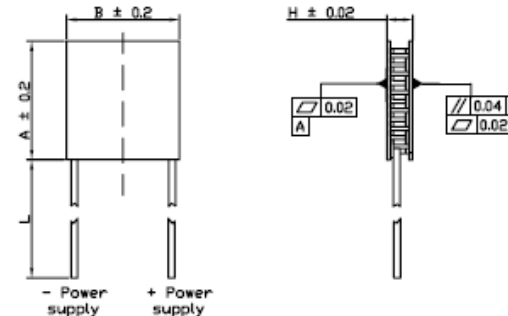
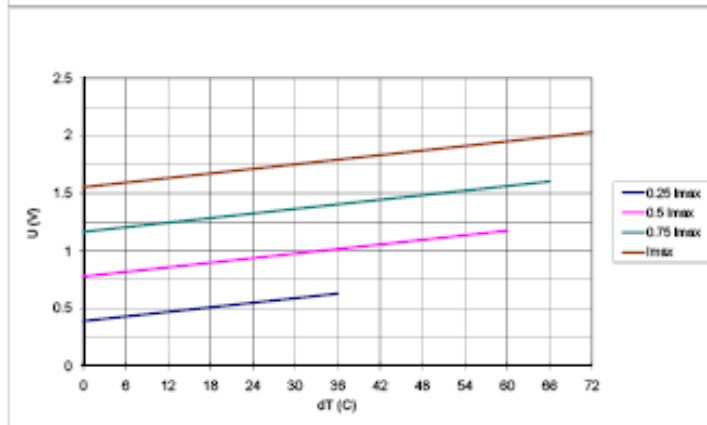
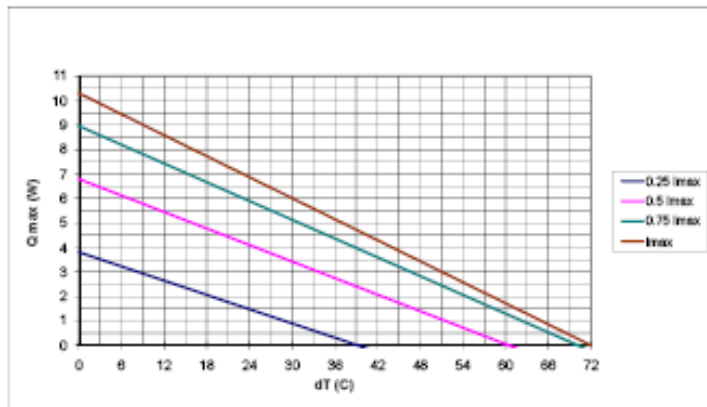
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ET-017-14-11-RS

4901244

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	ΔT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
8.5	2.1	10.3	72	0.21	15	15	3.8	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max ΔT is reduced by 2-3K for silicon sealed and 1-2K for epoxy sealed versions.



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^\circ\text{C}$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and Q=0W
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

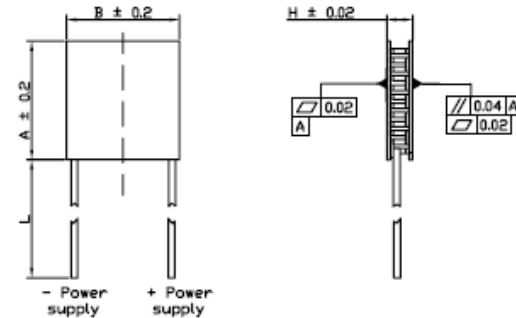
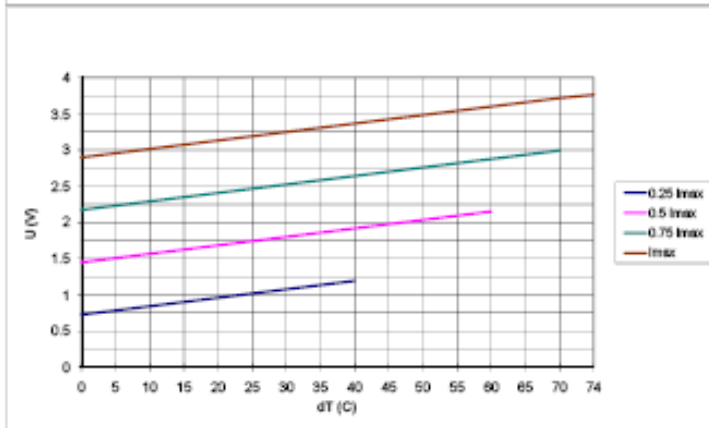
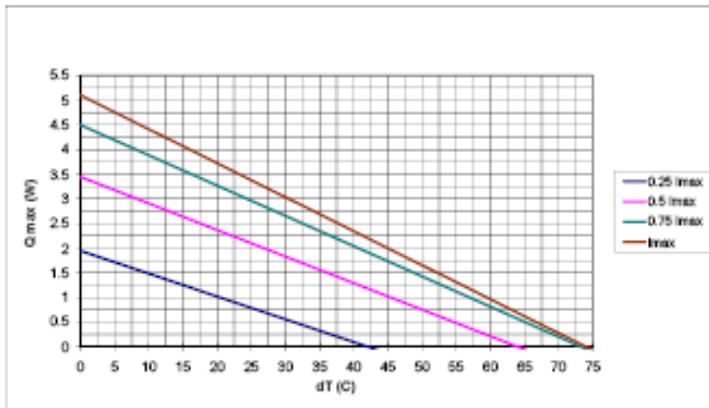
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ET-031-08-15-RS

4901250

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	ΔT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
2.2	3.8	5.1	74	1.6	13	13	3.8	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max ΔT is reduced by 2-3K for silicon sealed and 1-3K for epoxy sealed versions.



Note 1 - Maximum current at ΔT<sub>max</sub>

Note 2 - Maximum voltage at ΔT<sub>max</sub>

Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and ΔT=0°C

Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and Q=0W

Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P

The solder melting point of thermoelectric module 140°C

Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

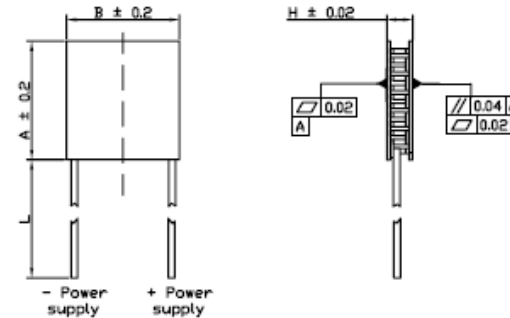
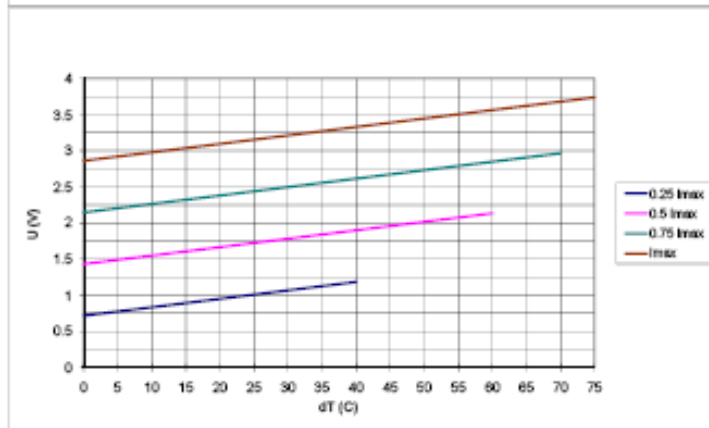
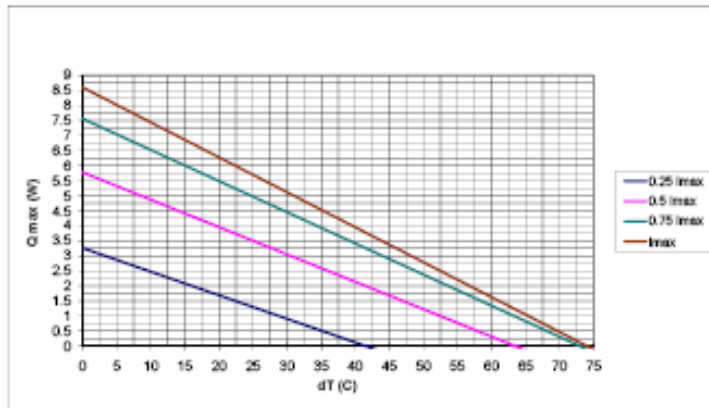
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ET-031-10-13-RS

4901266

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
3.9	3.8	8.6	74	0.89	15	15	3.6	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max dT is reduced by 2-3K for silicon sealed and 1-2K for epoxy sealed versions.



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0W$
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

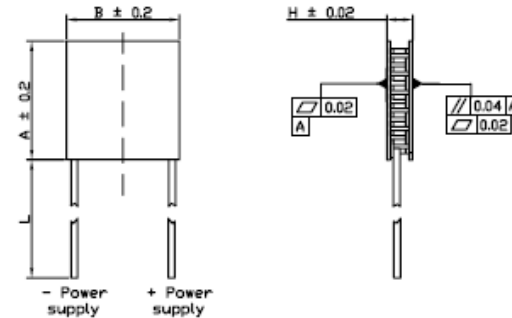
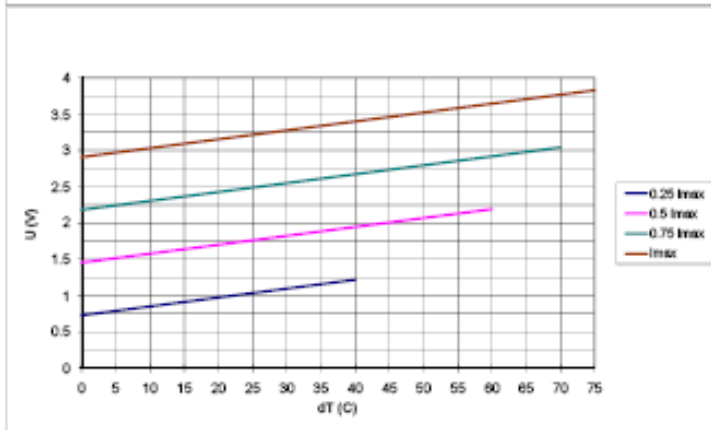
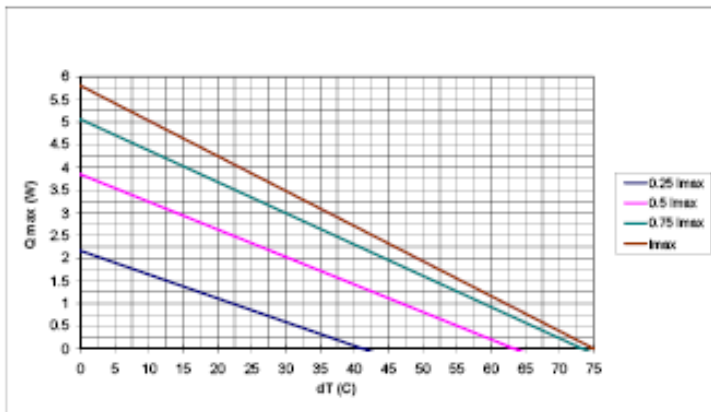
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ET-031-10-20-RS

4901272

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	ΔT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
2.5	3.8	5.8	75	1.31	15	15		n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max ΔT is reduced by 2-3K for silicon sealed and 1-2K for epoxy sealed versions.



- Note 1 - Maximum current at ΔT<sub>max</sub>
- Note 2 - Maximum voltage at ΔT<sub>max</sub>
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and ΔT=0°C
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and Q=0W
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

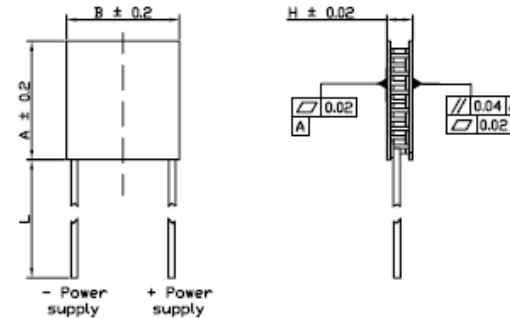
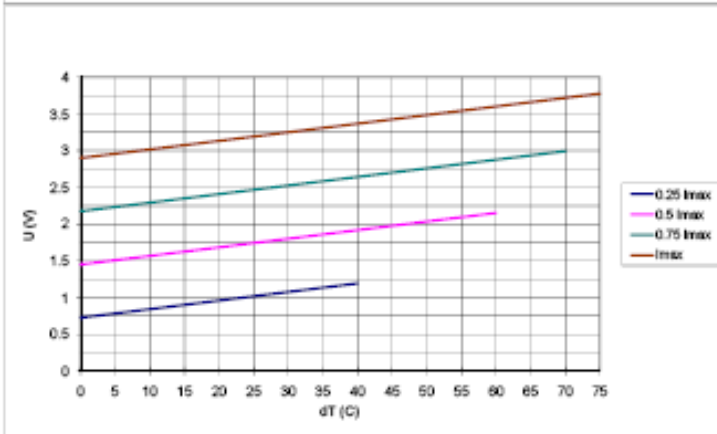
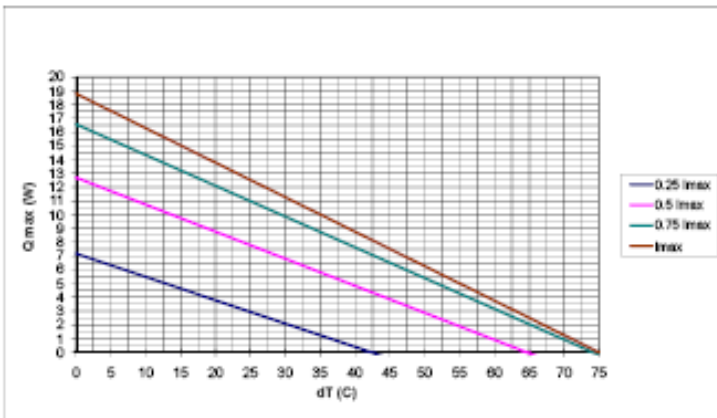


# ET-031-20-25-RS

4901288

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
8	3.8	18.8	75	0.43	30	30	5.6	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max dT is reduced by 2-3K for silicon sealed and 1-3K for epoxy sealed versions.



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at  $I_{max}$ ,  $V_{max}$ , and  $\Delta T=0^\circ\text{C}$
- Note 4 - Maximum temperature difference at  $I_{max}$ ,  $V_{max}$ , and  $Q=0\text{W}$
- Note 5 - Measured by AC 4-terminal method at  $25^\circ\text{C}$

Maximum parameters are measured in a vacuum  $1.3\text{P}$   
 The solder melting point of thermoelectric module  $140^\circ\text{C}$   
 Recommended maximum compression (not destruction limit)  $1000\text{Kpa}$

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to  $90^\circ\text{C}$  for long lifetime; up to  $110^\circ\text{C}$  for short periods

With operation current close to  $0.5 I_{max}$  extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

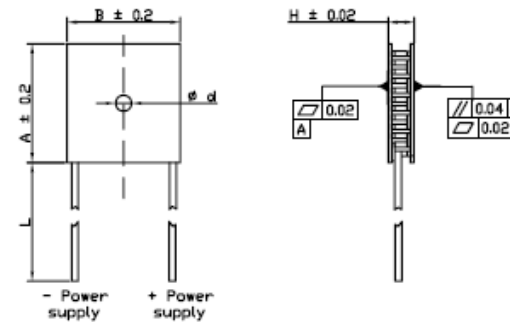
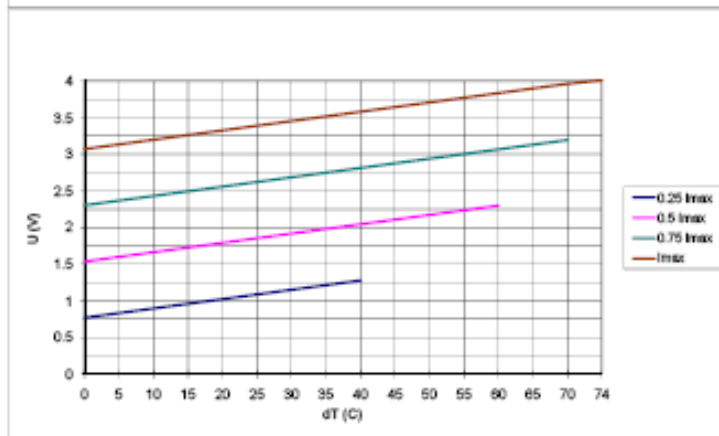
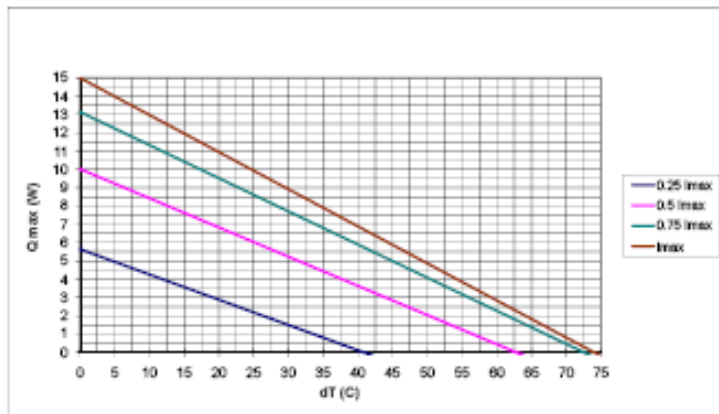
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# ET-032-14-15-RH-RS

4901294

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
6	4	15	74	0.55	55	44	3.9	27
Note 1	Note 2	Note 3	Note 4	Note 5				

Max dT is reduced by 2-3K for silicon sealed and 1-2K for epoxy sealed versions.



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0W$
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

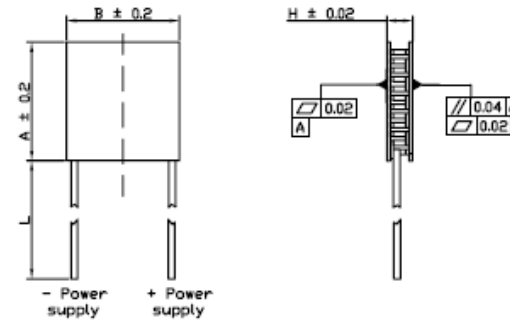
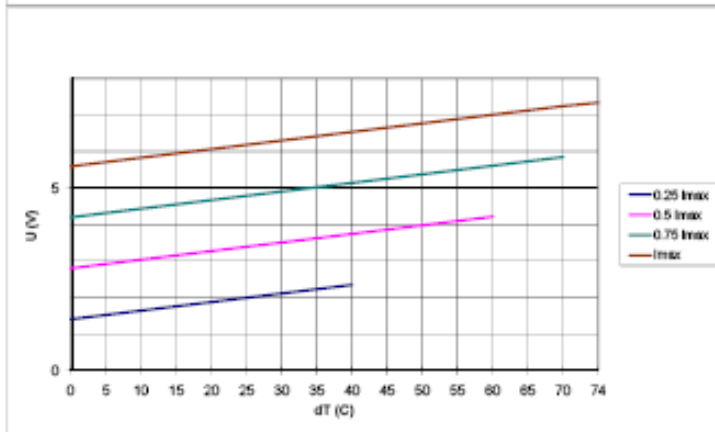
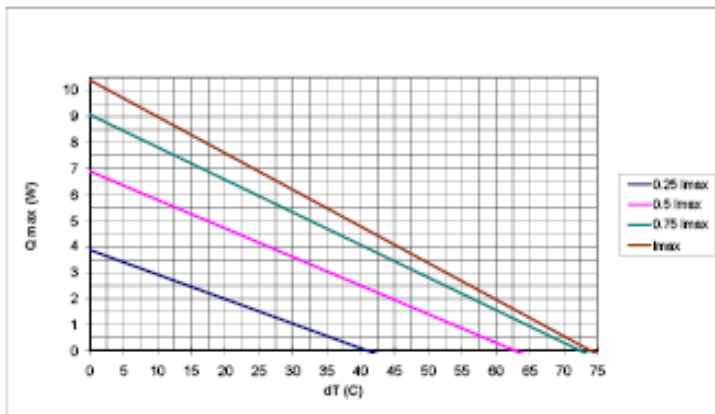
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ET-063-08-15-RS

4901301

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	ΔT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
2.2	7.8	10.4	74	3.3	25	12	3.8	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max ΔT is reduced by 2-3K for silicon sealed and 1-2K for epoxy sealed versions.



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0W$
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

- High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity
- Operation temperature up to 90°C for long lifetime; up to 110°C for short periods
- With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible
- Preferable application; high cooling capacity at high temperatures / cycling

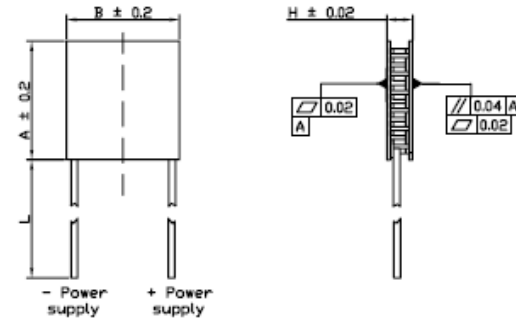
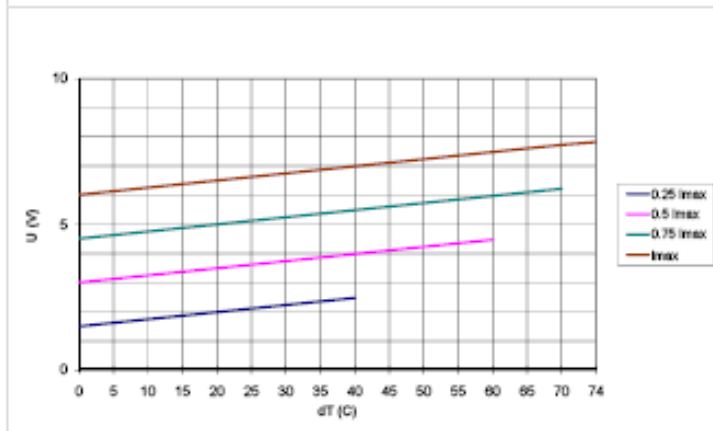
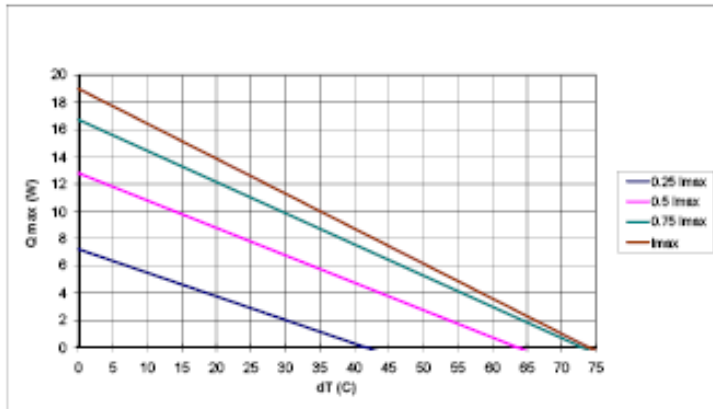
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ET-063-10-13-RS

4901317

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	ΔT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
3.9	7.8	19	74	1.8	30	15	3.6	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max ΔT is reduced by 3-3K for silicon sealed and 4-2K for epoxy sealed versions.



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0W$
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

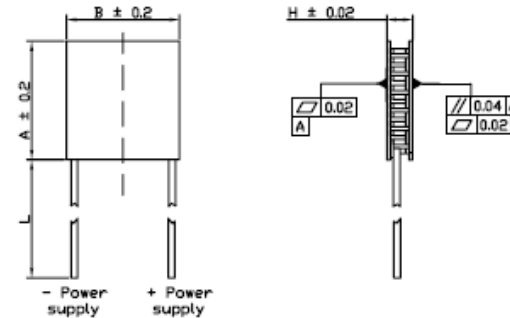
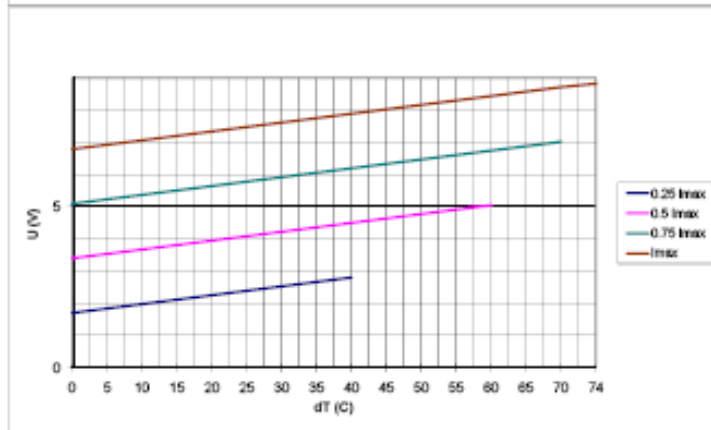
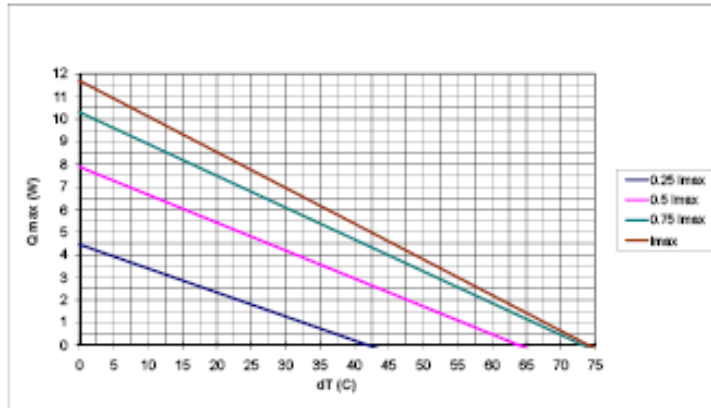
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ET-071-08-15-RS

4901323

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
2.2	8.8	11.7	74	3.7	18	18	3.8	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max dT is reduced by 2-3K for silicon sealed and 1-3K for epoxy sealed versions.



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^\circ\text{C}$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0\text{W}$
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

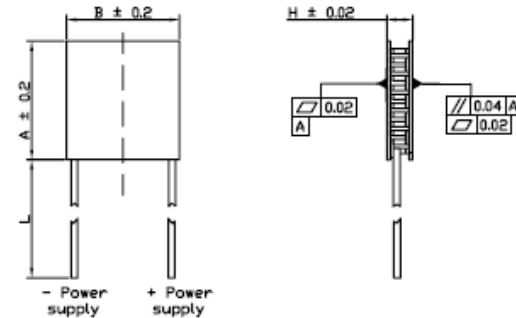
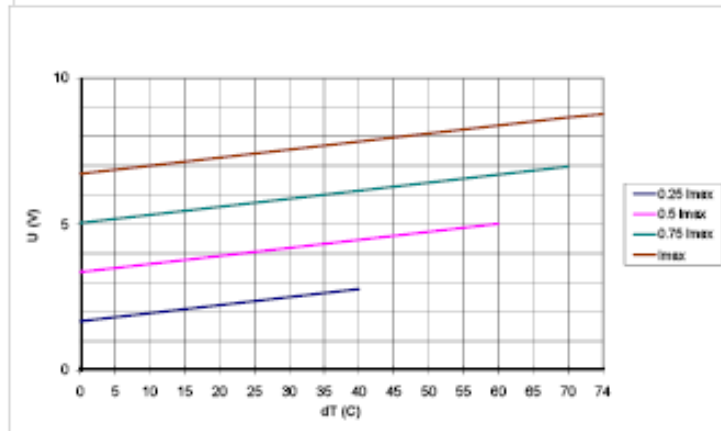
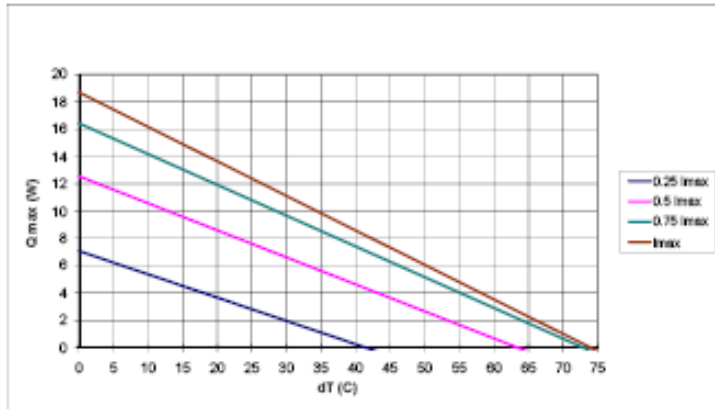
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ET-071-10-13-RS

4901339

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
3.9	8.8	18.7	74	2.0	20	20	3.6	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max dT is reduced by 3-3K for silicon sealed and 4-2K for epoxy sealed versions.



Note 1 - Maximum current at  $\Delta T_{max}$

Note 2 - Maximum voltage at  $\Delta T_{max}$

Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^\circ\text{C}$

Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0\text{W}$

Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P

The solder melting point of thermoelectric module 140°C

Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

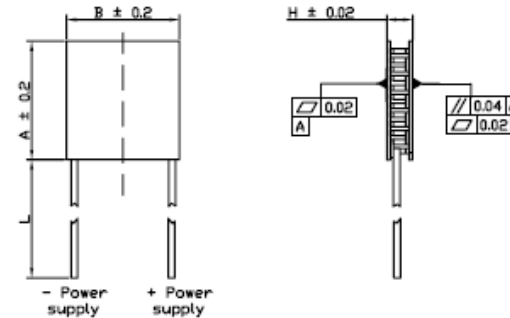
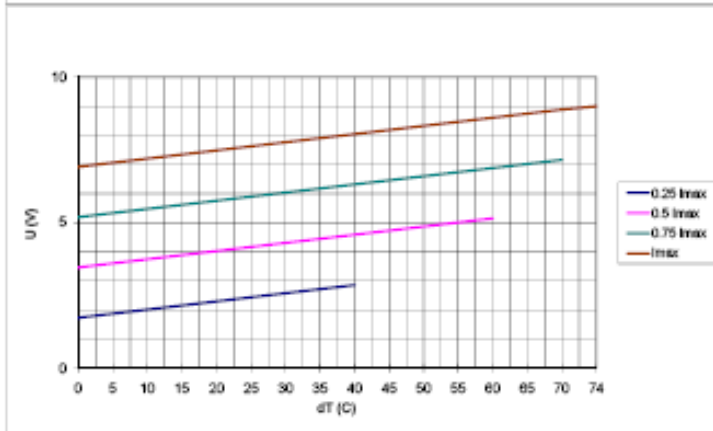
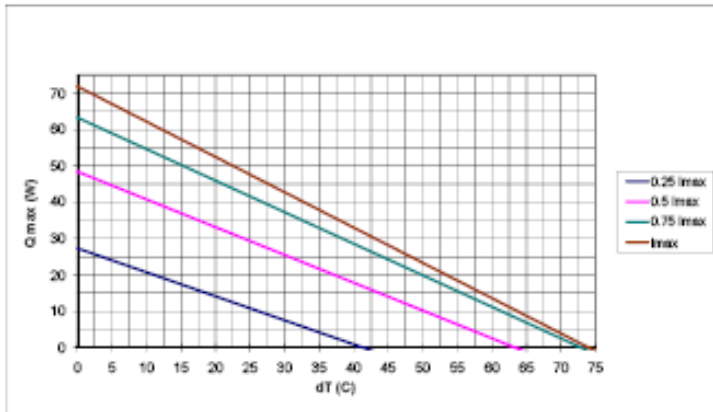
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# ET-071-20-15-RS

4901345

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	ΔT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
13.1	8.8	71.9	74	0.57	40	40	4.6	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max ΔT is reduced by 2-3K for silicon sealed and 1-2K for epoxy sealed versions.



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0W$
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

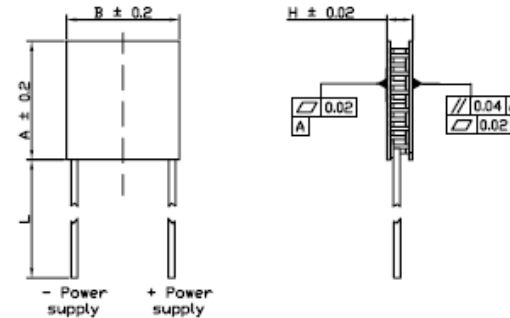
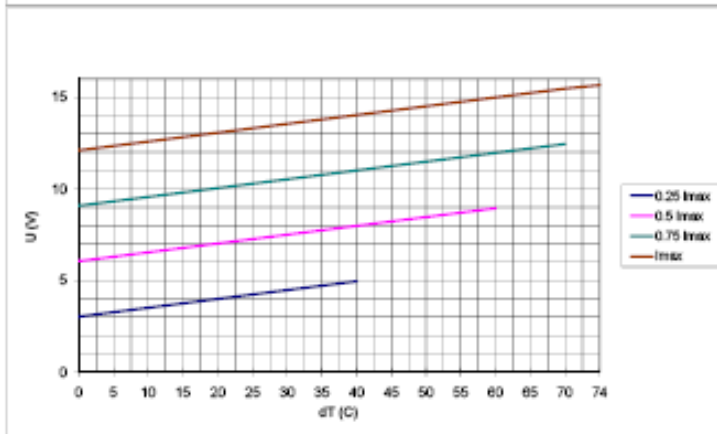
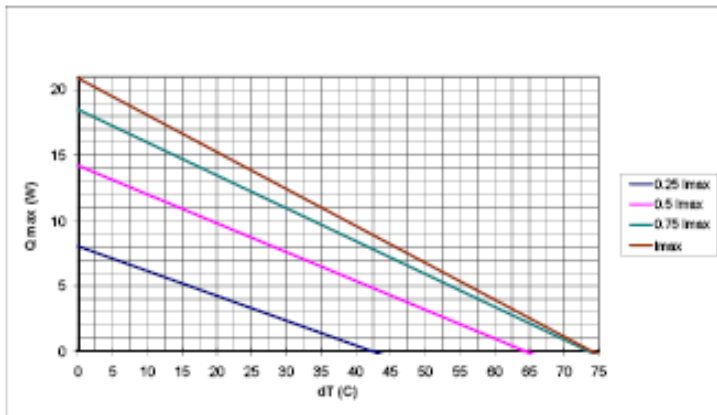
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# ET-127-08-15-RS

4901351

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	ΔT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
2.2	15.7	20.9	74	6.6	25	25	3.8	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max ΔT is reduced by 2-3K for silicon sealed and 1-2K for epoxy sealed versions.



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0W$
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

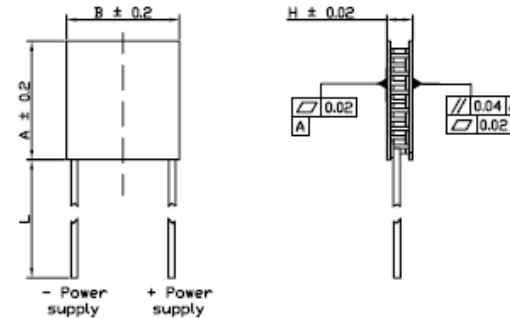
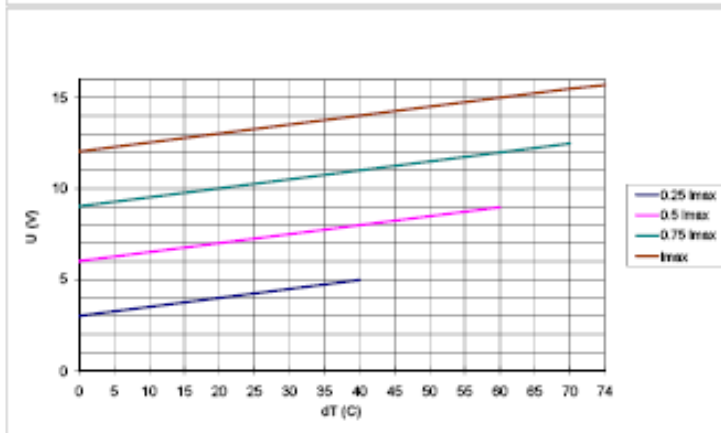
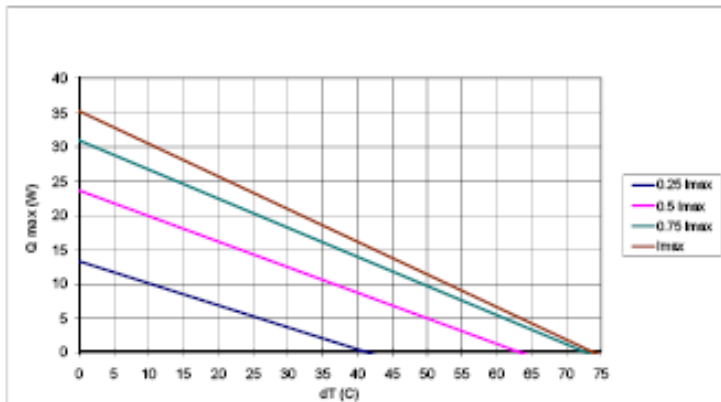


# ET-127-10-13-RS

4901367

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	ΔT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
3.9	15.7	35.2	74	3.6	30	30	3.6	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max ΔT is reduced by 2-3K for silicon sealed and 1-2K for epoxy sealed versions.



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0W$
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

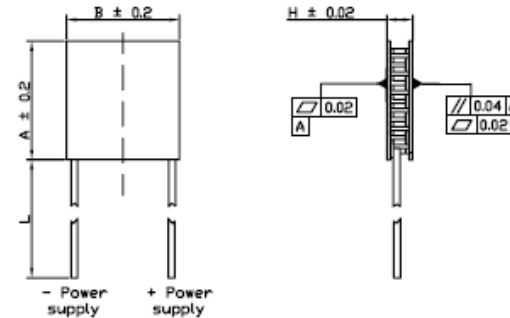
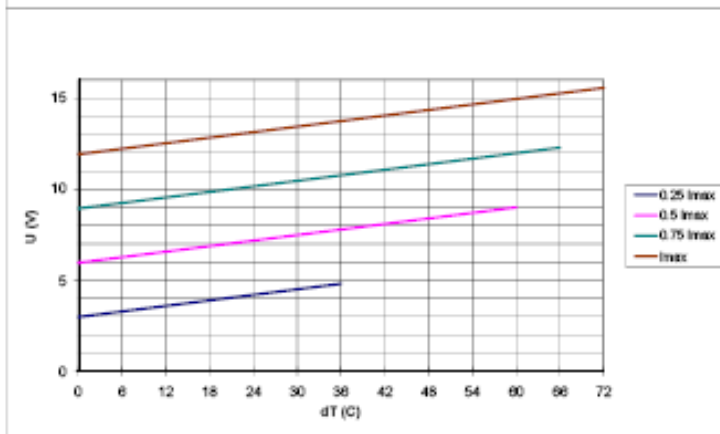
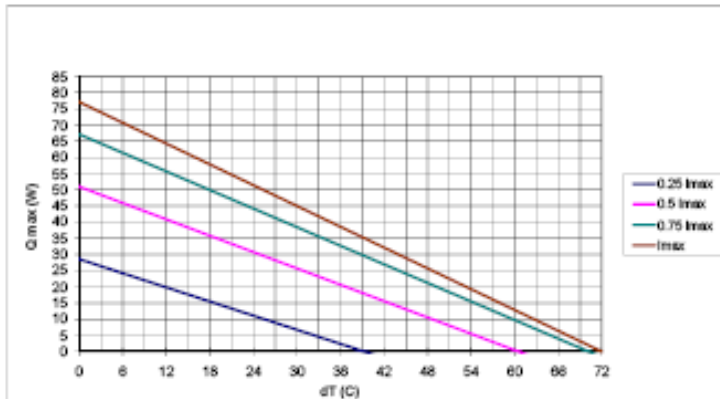
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# ET-127-14-11-RS

4901373

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
8.5	15.7	77.1	72	1.59	40	40	3.8	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max dT is reduced by 2-K for silicon sealed and 1-K for epoxy sealed versions.



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^\circ\text{C}$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and Q=0W
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

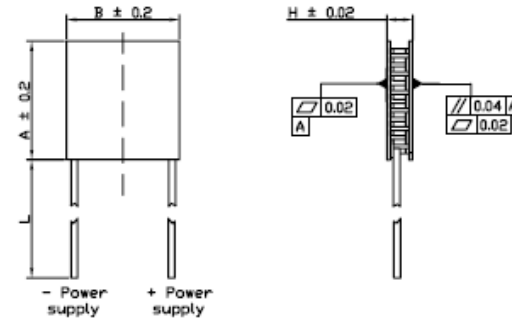
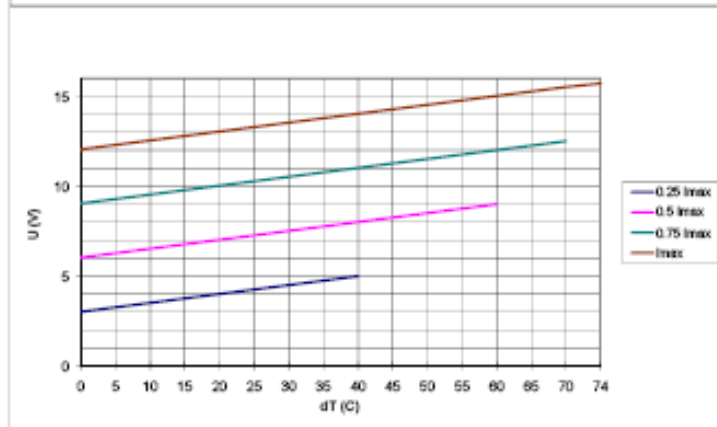
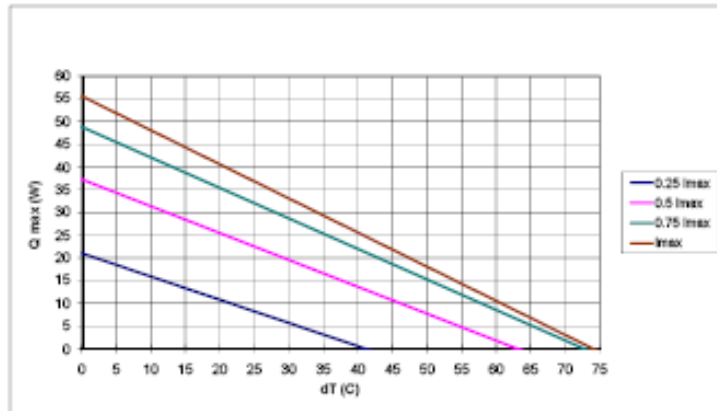
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ET-127-14-15-RS

4901395

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
6	15.7	55.6	74	2.5	40	40	3.9	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max dT is reduced by 2-3K for silicon sealed and 1-2K for epoxy sealed versions.



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0W$
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

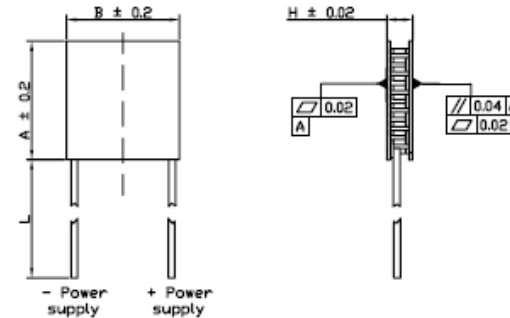
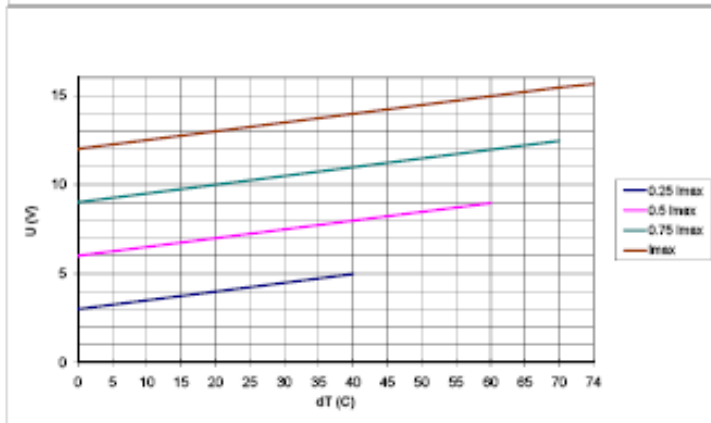
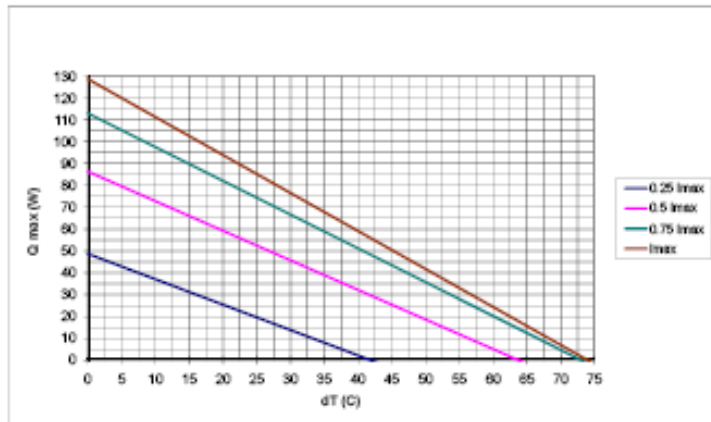
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ET-127-20-15-RS

4901402

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
13.1	15.7	128.7	74	1.1	55	55	4.6	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max dT is reduced by 2-3K for silicon sealed and 1-5K for epoxy sealed versions.



Note 1 - Maximum current at  $\Delta T_{max}$

Note 2 - Maximum voltage at  $\Delta T_{max}$

Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}\text{C}$

Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0\text{W}$

Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P

The solder melting point of thermoelectric module 140°C

Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

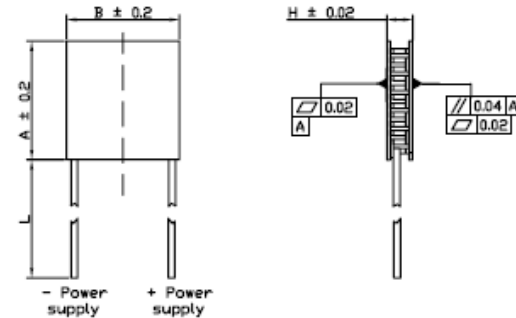
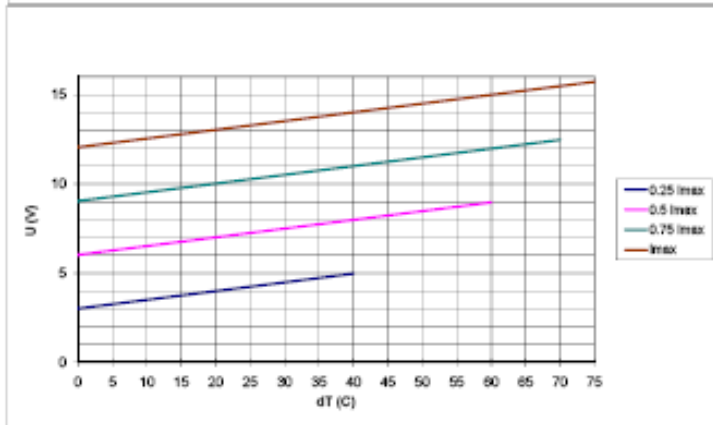
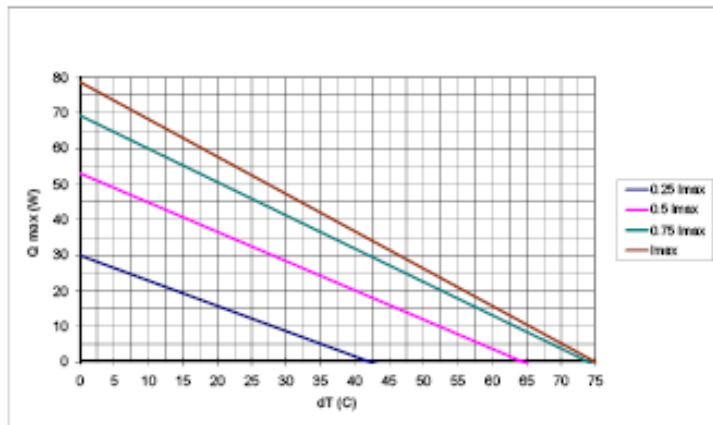
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ET-127-20-25-RS

4901418

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
8	15.7	78.7	75	1.75	55	55	5.6	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max dT is reduced by 2-3K for silicon sealed and 1-2K for epoxy sealed versions.



Note 1 - Maximum current at  $\Delta T_{max}$

Note 2 - Maximum voltage at  $\Delta T_{max}$

Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$

Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0W$

Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P

The solder melting point of thermoelectric module 140°C

Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

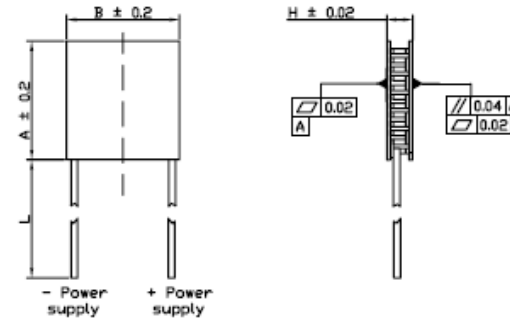
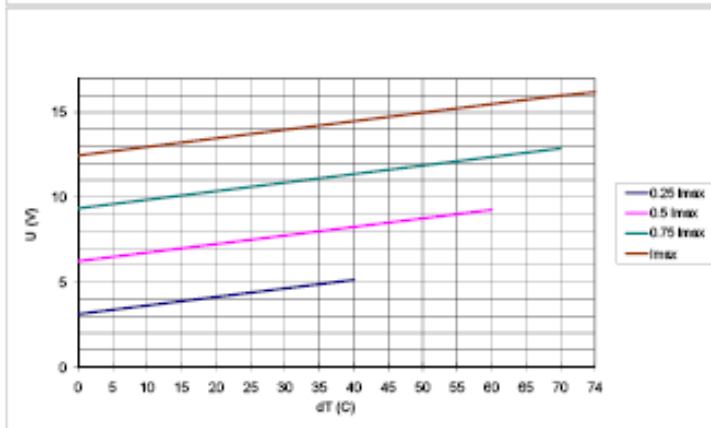
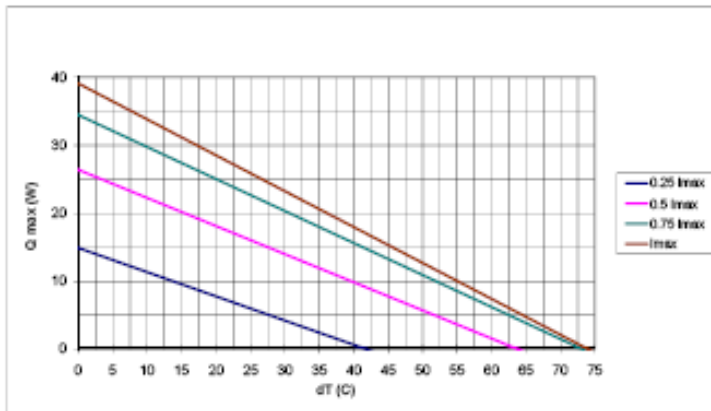
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ET-131-10-13-S-RS

4901424

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	ΔT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
3.9	16.2	39.1	74	3.6	40	23	3.6	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max ΔT is reduced by 2-3K for silicon sealed and 1-3K for epoxy sealed versions.



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^\circ\text{C}$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0\text{W}$
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

Recommended operation current not higher than 0.7 I<sub>max</sub>

Preferable application; high cooling capacity at high temperatures / cycling

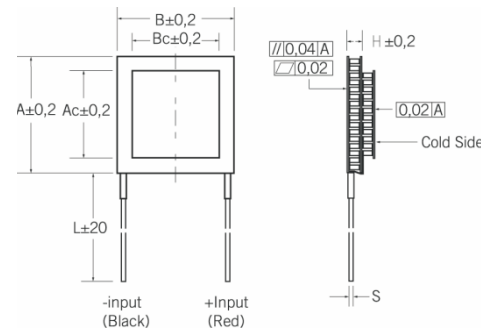
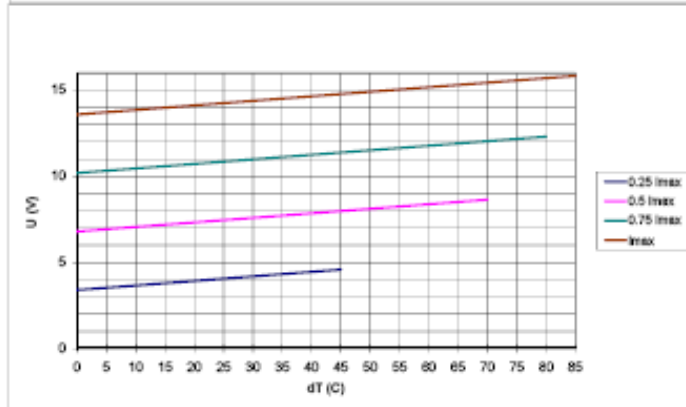
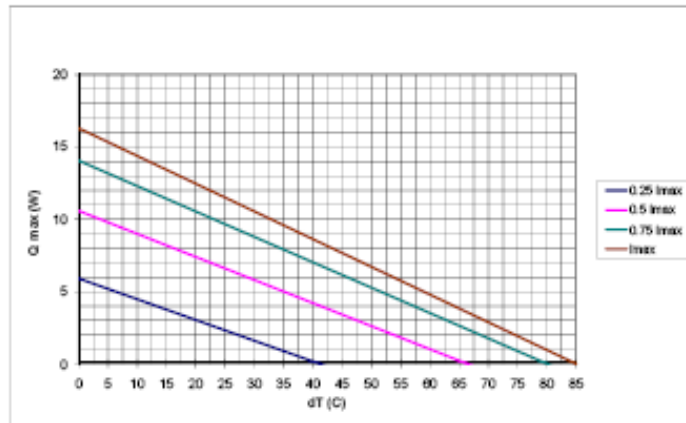
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# ET-190-1010-1212-RS

4901430

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	ΔT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
2.8	15.7	16.4	85	4.78	30	30	6.5	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max ΔT is reduced by 2-3K for silicon sealed and 1-2K for epoxy sealed versions.



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T = 0^\circ C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and Q=0W
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1000Kpa

### Recommendations

- High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity
- Operation temperature up to 90°C for long lifetime; up to 110°C for short periods
- Recommended operation current not higher than 0.7 I<sub>max</sub>
- Use in cooling mode only
- Preferable application; high cooling capacity at high temperatures / cycling

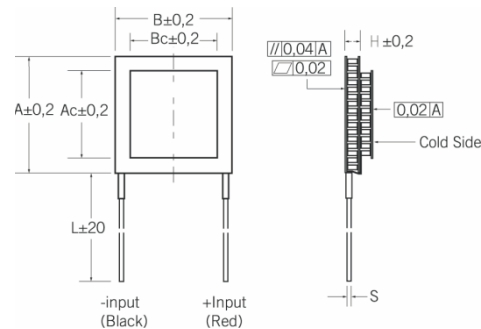
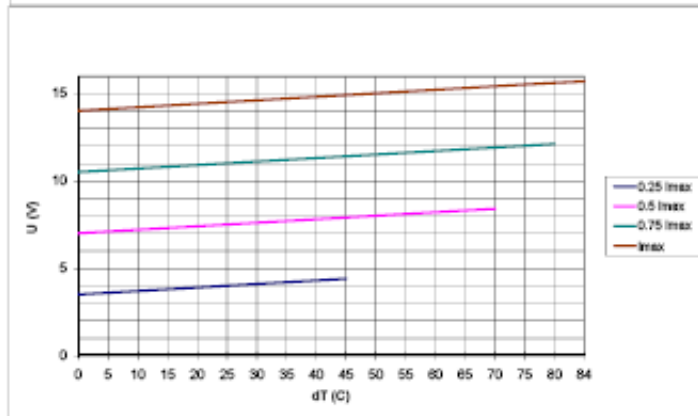
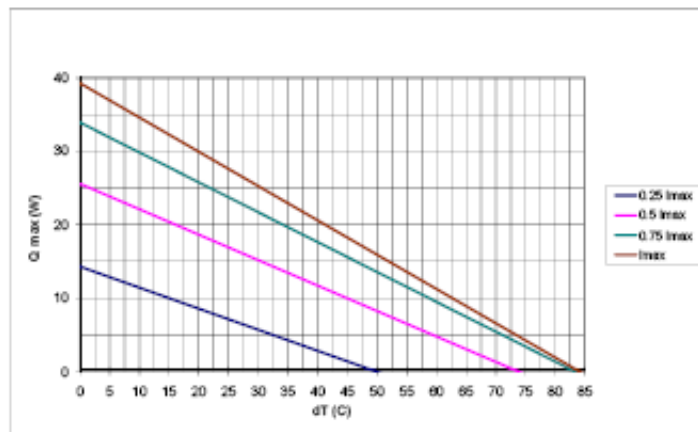
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ET-192-1420-1118-RS

4901452

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
6.7	15.6	39.3	84	2.24	40	40	8.1	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max dT is reduced by 2-3K for silicon sealed and 1-2K for epoxy sealed versions.



Note 1 - Maximum current at  $dT_{max}$

Note 2 - Maximum voltage at  $dT_{max}$

Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub> and  $dT=0^{\circ}C$

Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub> and  $Q=0W$

Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P

The solder melting point of thermoelectric module 140°C

Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Use in cooling mode only

Preferable application; high cooling capacity at high temperatures / cycling

**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

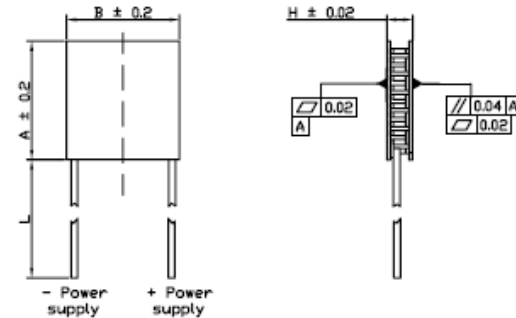
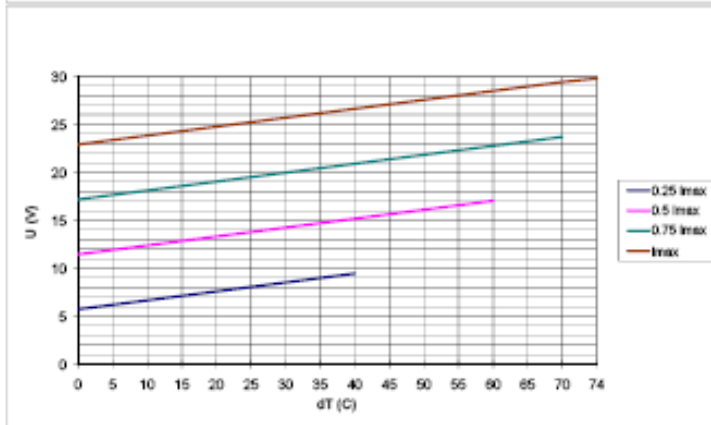
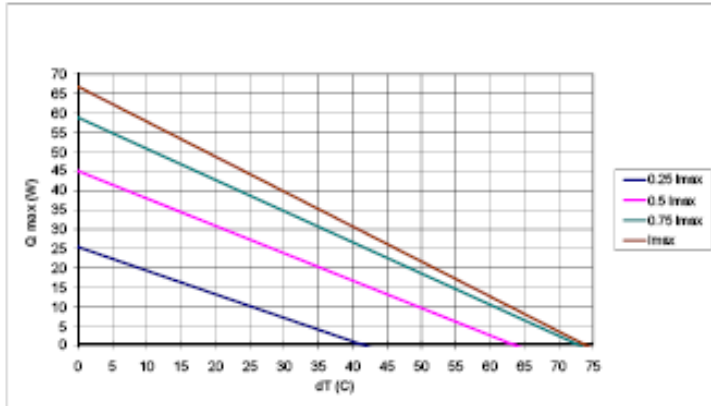


# ET-241-10-13-RS

4901468

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	ΔT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
3.9	29.8	66.8	74	6.9	40	40	3.6	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max ΔT is reduced by 2-3K for silicon sealed and 1-2K for epoxy sealed versions.



Note 1 - Maximum current at ΔT<sub>max</sub>

Note 2 - Maximum voltage at ΔT<sub>max</sub>

Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and ΔT=0°C

Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and Q=0W

Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P

The solder melting point of thermoelectric module 140°C

Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

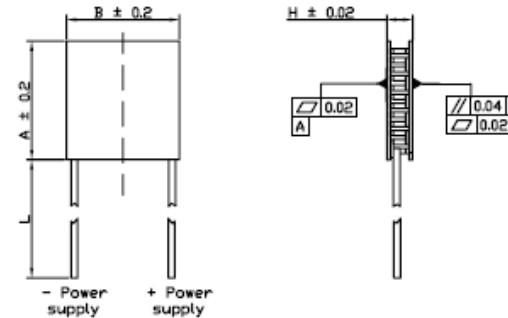
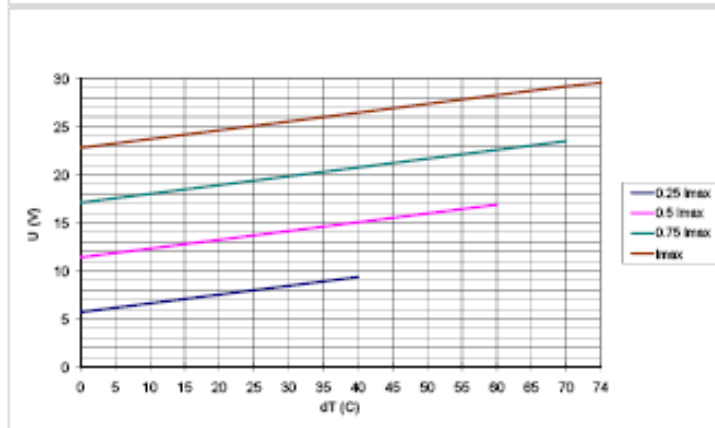
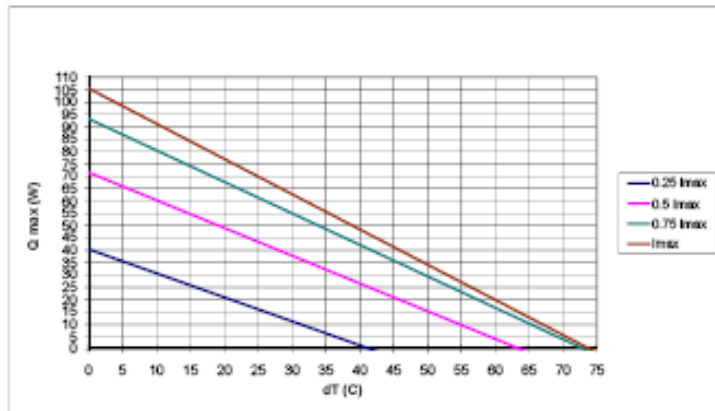
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ET-241-14-15-RS

4901474

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	ΔT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
6	29.8	105.5	74	4.33	55	55	3.9	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max ΔT is reduced by 2-3K for silicon sealed and 1-2K for epoxy sealed versions.



Note 1 - Maximum current at ΔT<sub>max</sub>

Note 2 - Maximum voltage at ΔT<sub>max</sub>

Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and ΔT=0°C

Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and Q=0W

Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P

The solder melting point of thermoelectric module 140°C

Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

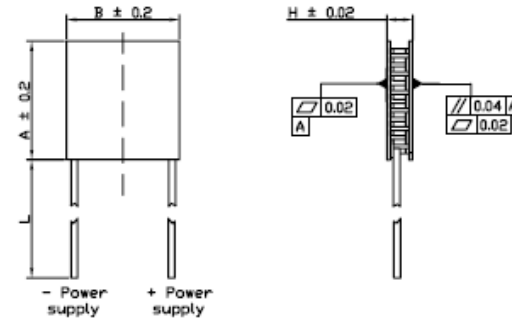
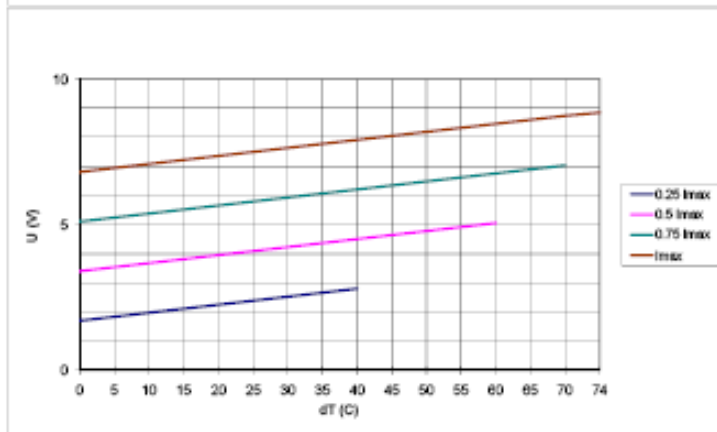
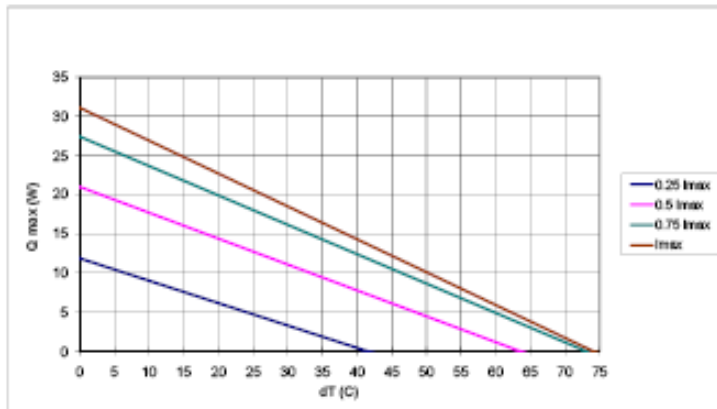
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ETH-071-14-15-RS

4901480

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	ΔT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
6	8.8	31.1	74	1.3	30	30	3.9	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max ΔT is reduced by 2-3K for silicon sealed and 1-2K for epoxy sealed versions.



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0W$
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 232°C  
 Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

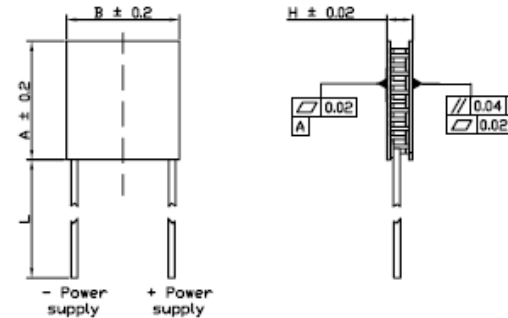
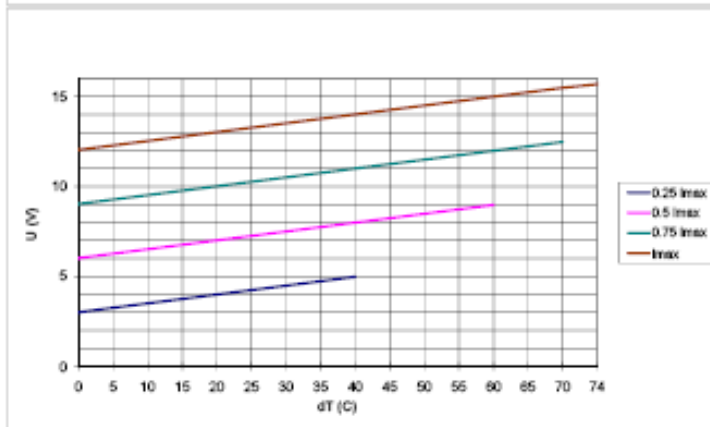
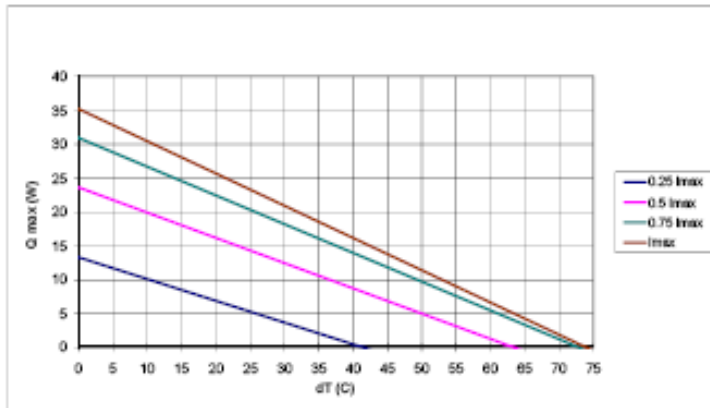
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ETH-127-10-13-RS

4901496

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
3.9	15.7	35.2	74	3.6	30	30	3.6	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max dT is reduced by 2-K for silicon sealed and 1-K for epoxy sealed versions.



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^\circ\text{C}$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0\text{W}$
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 232°C  
 Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

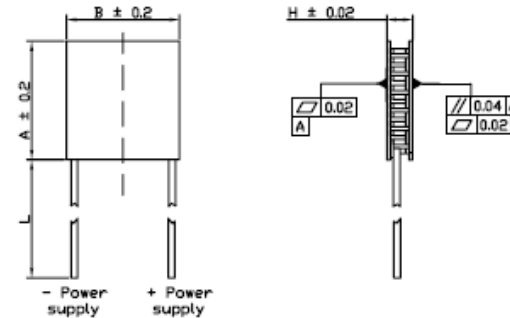
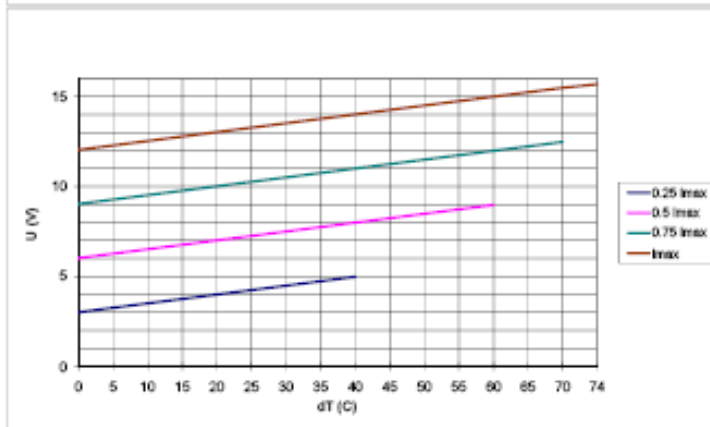
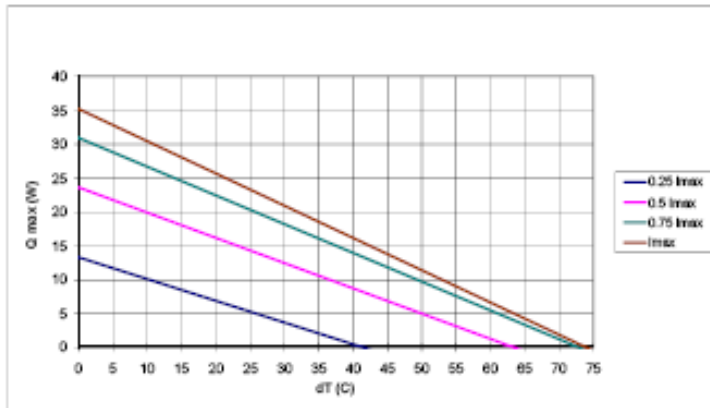
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ETH-127-10-13-S-RS

4901519

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
3.9	15.7	35.2	74	3.6	30	30	3.6	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max dT is reduced by 2-K for silicon sealed and 1-K for epoxy sealed versions.



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^\circ\text{C}$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0\text{W}$
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 232°C  
 Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

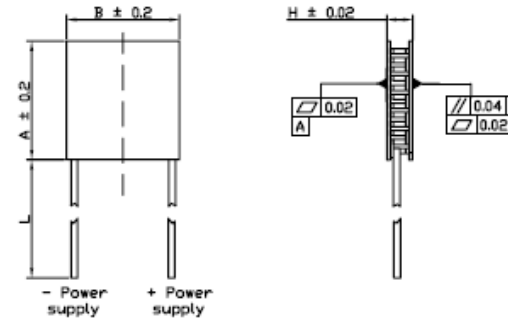
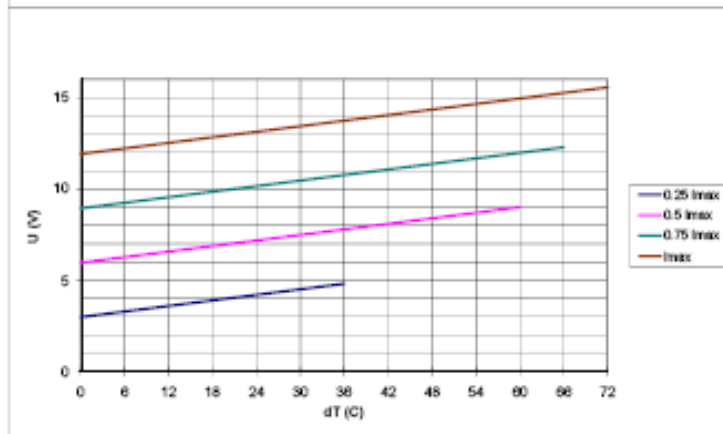
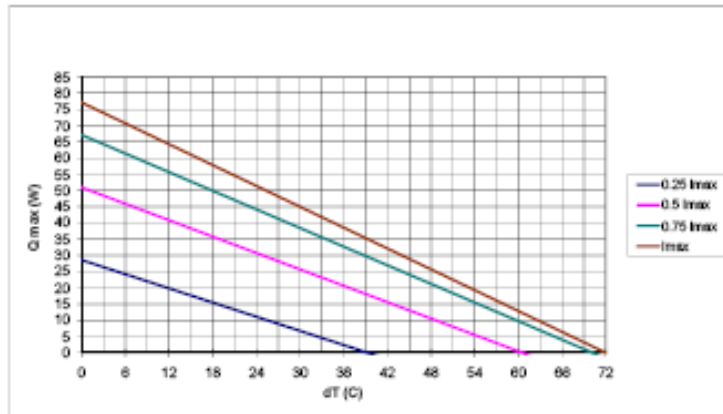
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ETH-127-14-11-S-RS

4901525

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	ΔT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
8.5	15.7	77.1	72	1.59	40	40	3.8	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max ΔT is reduced by 2-3K for silicon sealed and 1-2K for epoxy sealed versions.



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0W$
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 232°C  
 Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

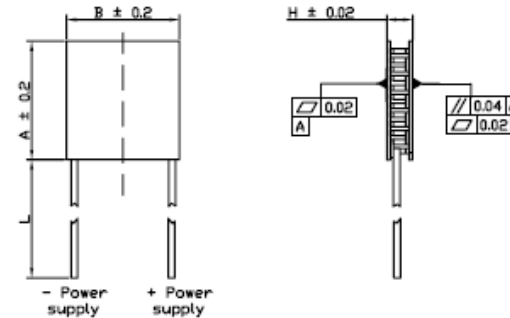
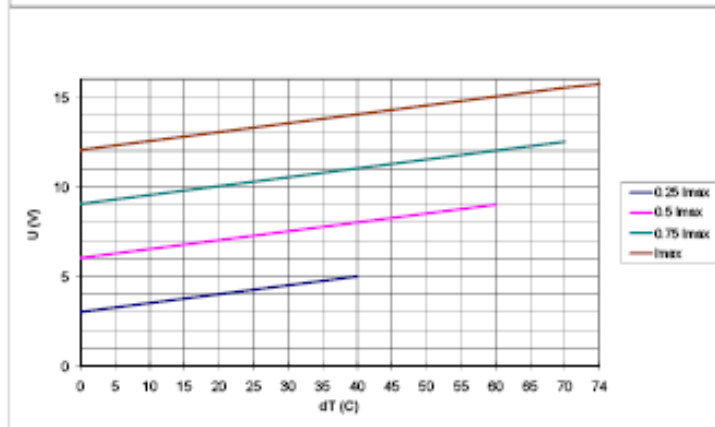
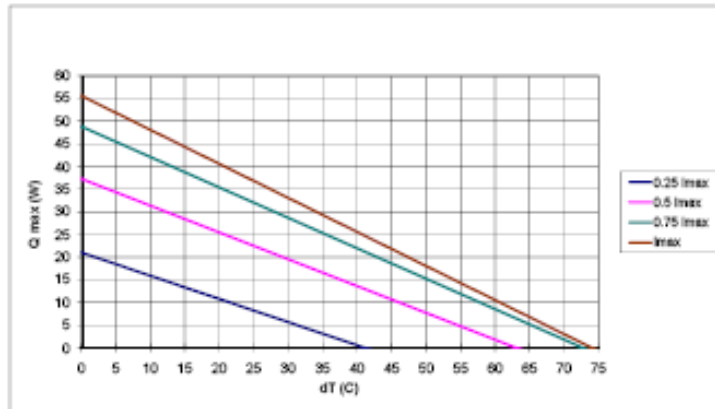
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ETH-127-14-15-RS

4901531

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	ΔT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
6	15.7	55.6	74	2.5	40	40	3.9	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max ΔT is reduced by 2-3K for silicon sealed and 1-2K for epoxy sealed versions.



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0W$
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 232°C  
 Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

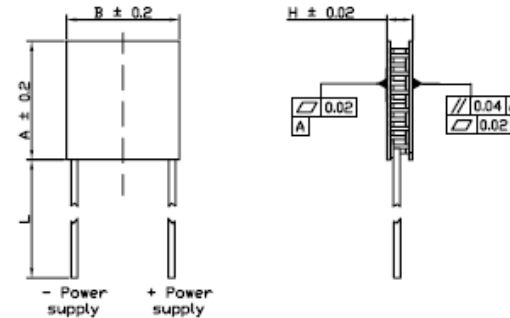
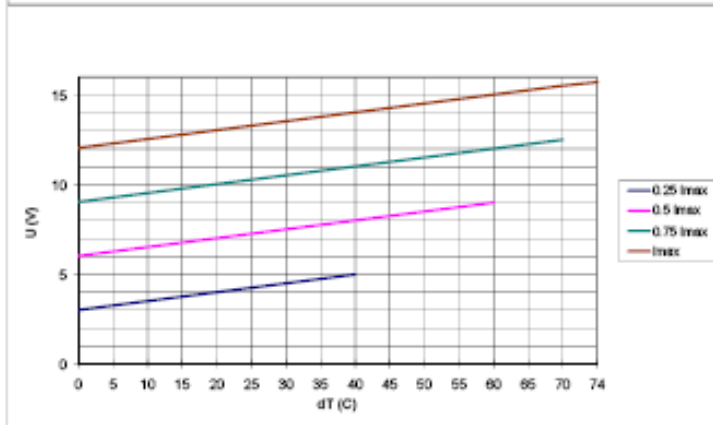
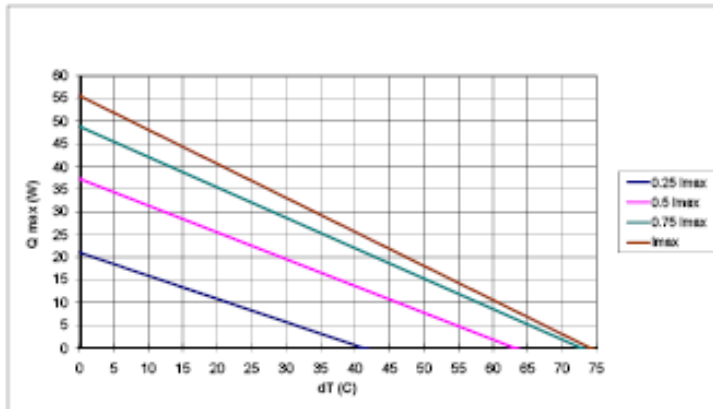
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ETH-127-14-15-S-RS

4901547

Thot=27 °C (300 °K)					Dimensions, mm			
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	ΔT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	B	H	d
6	15.7	55.6	74	2.5	40	40	3.9	n/a
Note 1	Note 2	Note 3	Note 4	Note 5				

Max ΔT is reduced by 2-3K for silicon sealed and 1-2K for epoxy sealed versions.



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^\circ\text{C}$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0\text{W}$
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 232°C  
 Recommended maximum compression (not destruction limit) 1000Kpa

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

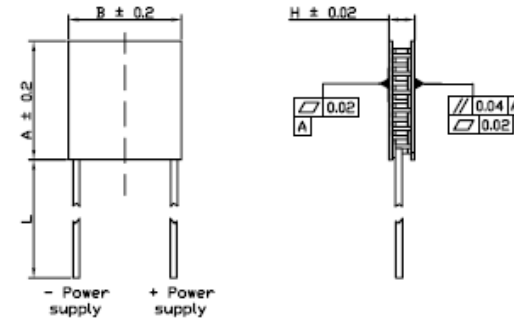
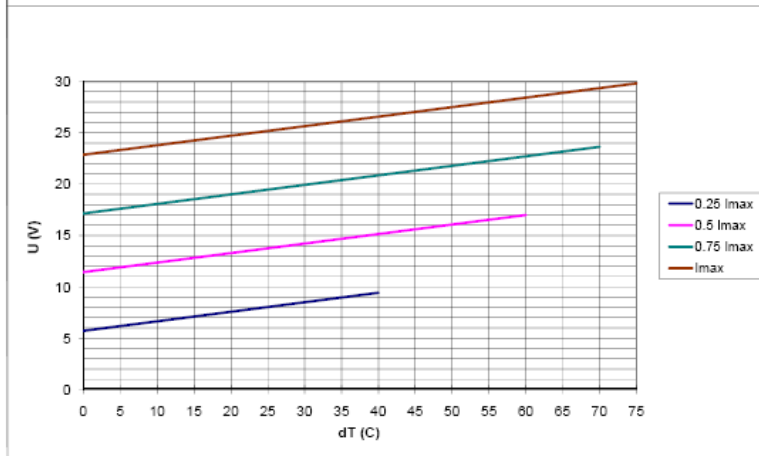
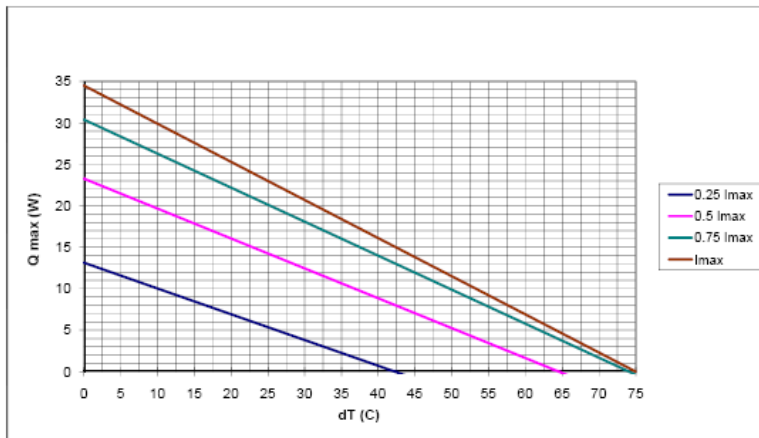
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**



# ET-241-10-25-E

6935129

Thot=27 °C (300 °K)					Dimensions, mm				
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	A1	B	H	d
2	29.8	34.5	75	12.7	40	40	40	4.8	n/a
Note 1	Note 2	Note 3	Note 4	Note 5					



Note 1 - Maximum current at  $\Delta T_{max}$

Note 2 - Maximum voltage at  $\Delta T_{max}$

Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$

Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0W$

Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P

The solder melting point of thermoelectric module 140°C

Recommended maximum compression (not destruction limit) 1500Kpa

Max  $\Delta T$  is reduced by 2 – 3K for silicone coated and 1 – 2K for epoxy sealed versions

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

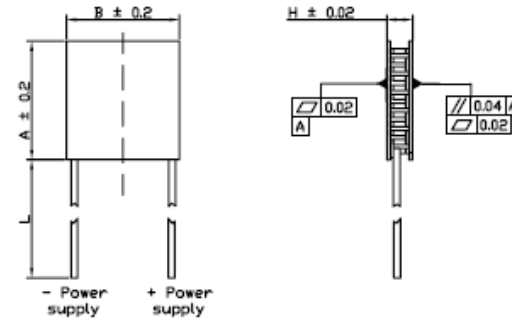
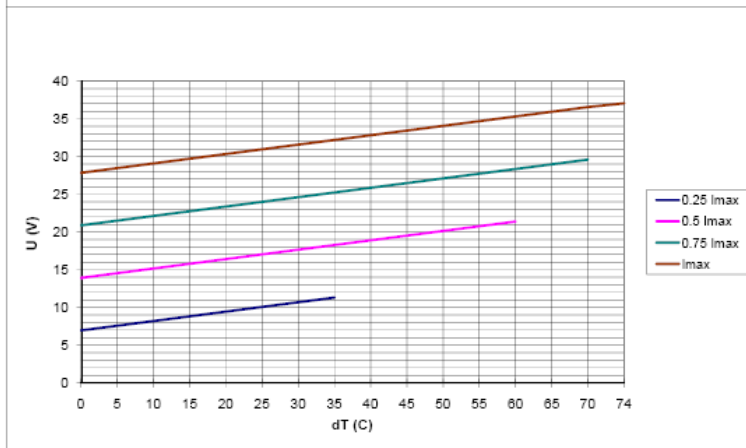
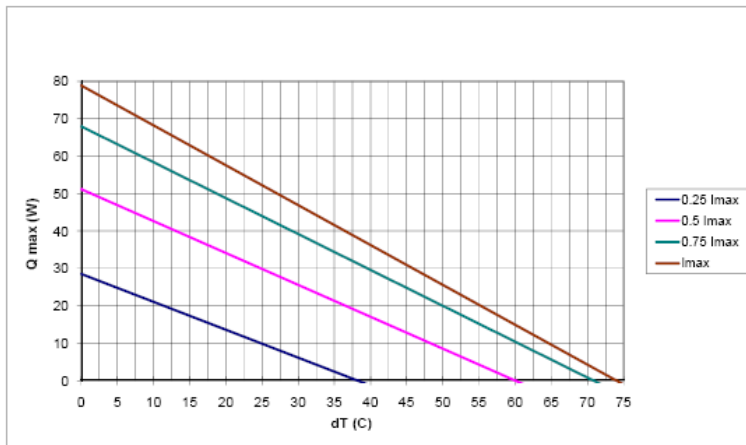
Preferable application; high cooling capacity at high temperatures / cycling

**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ET-287-10-13-E

6935123

Thot=27 °C (300 °K)					Dimensions, mm				
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	A1	B	H	d
3.9	35.5	85.6	74	8.1	40	40	40	3.6	n/a
Note 1	Note 2	Note 3	Note 4	Note 5					



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}\text{C}$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and Q=0W
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1500Kpa  
 Max  $\Delta T$  is reduced by 2 – 3K for silicone coated and 1 – 2K for epoxy sealed versions

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

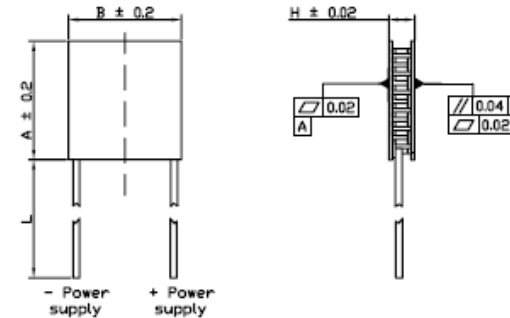
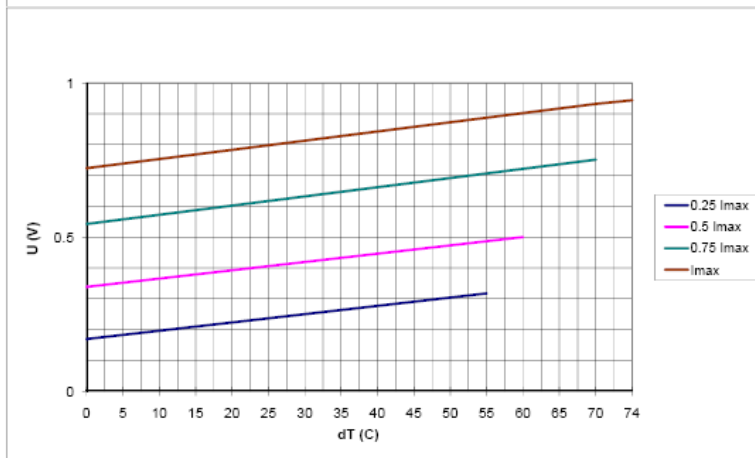
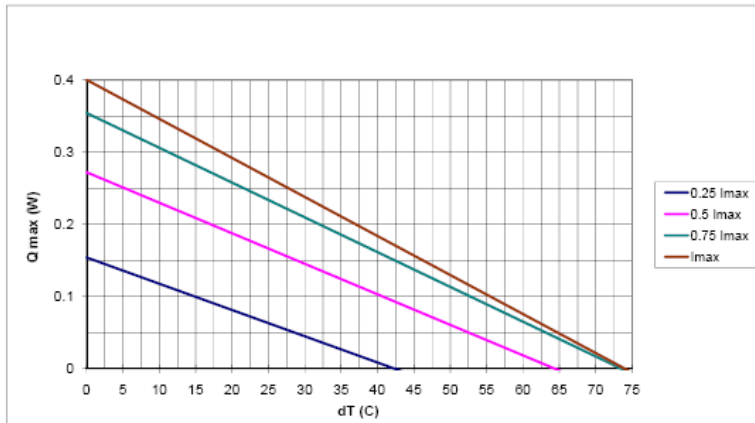
Preferable application; high cooling capacity at high temperatures / cycling

**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ET-007-05-15

6935132

Thot=27 °C (300 °K)					Dimensions, mm				
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	A1	B	H	d
0.8	0.9	0.4	74	0.98	4	4	4	3	n/a
Note 1	Note 2	Note 3	Note 4	Note 5					



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}\text{C}$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and Q=0W
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1000Kpa  
 Max  $\Delta T$  is reduced by 2 – 3K for silicone coated and 1 – 2K for epoxy sealed versions

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

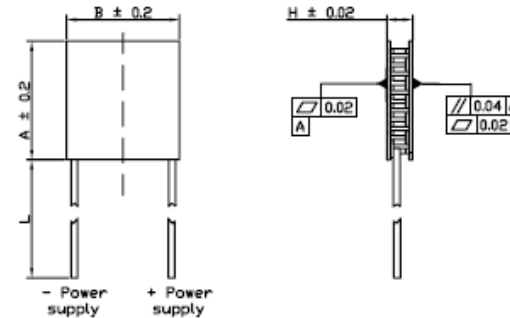
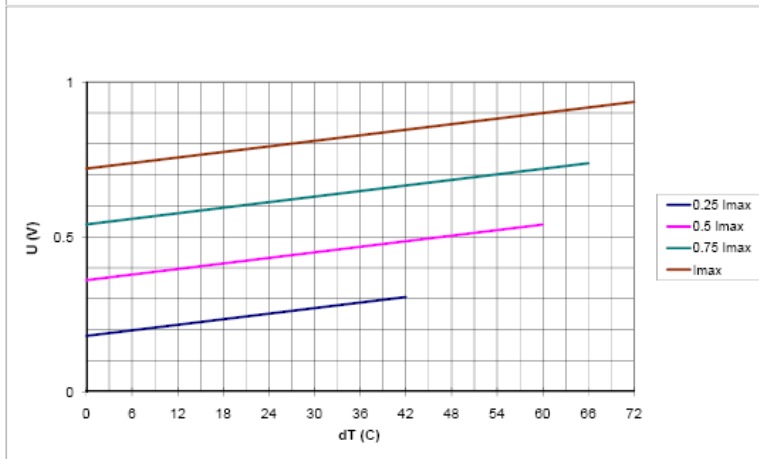
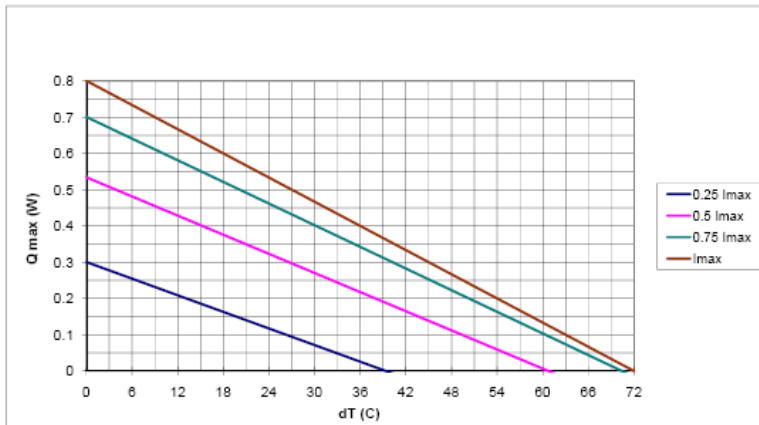
Preferable application; high cooling capacity at high temperatures / cycling

**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ET-007-06-11

6935135

Thot=27 °C (300 °K)					Dimensions, mm				
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	A1	B	H	d
1.5	0.9	0.8	72	0.47932	4	4	4	2.7	n/a
Note 1	Note 2	Note 3	Note 4	Note 5					



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0W$
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1000Kpa  
 Max  $\Delta T$  is reduced by 2 – 3K for silicone coated and 1 – 2K for epoxy sealed versions

## Recommendations

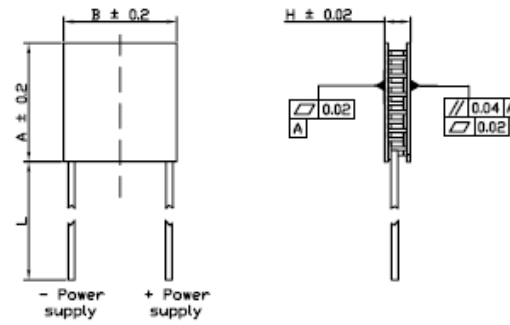
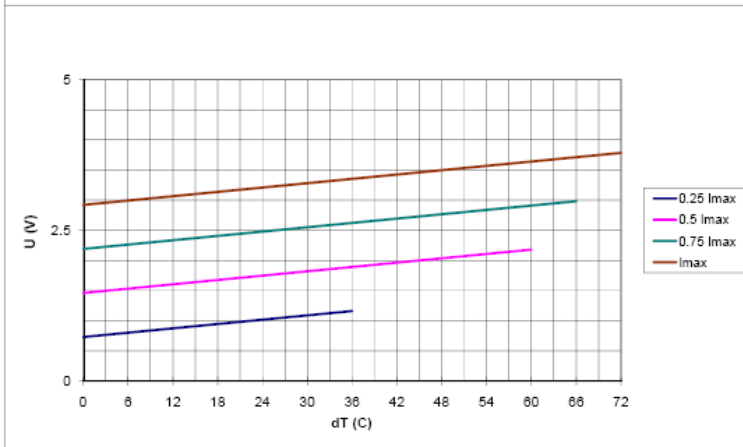
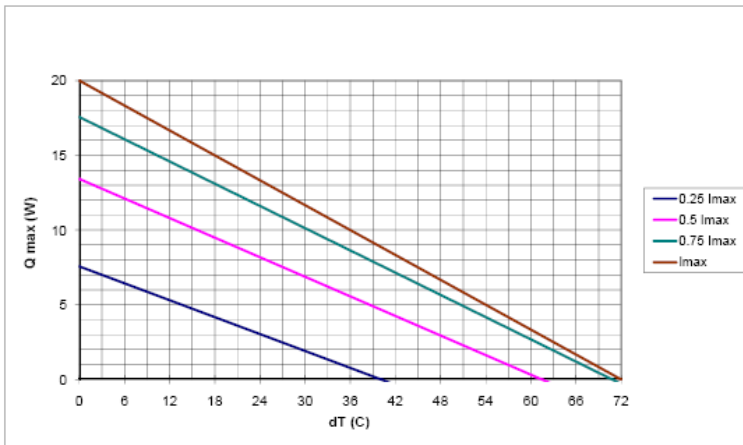
- High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity
- Operation temperature up to 90°C for long lifetime; up to 110°C for short periods
- With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible
- Preferable application; high cooling capacity at high temperatures / cycling

**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ETC-031-14-11-E

6935078

Thot=27 °C (300 °K)					Dimensions, mm				
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	A1	B	H	d
8.5	3.8	20	72	0.38	20	20	20	3.8	n/a
Note 1	Note 2	Note 3	Note 4	Note 5					



**POWER CYCLING MODULE**

These modules provide high cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity.

- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and Q=0W
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1500Kpa  
 Max  $\Delta T$  is reduced by 2 – 3K for silicone coated and 1 – 2K for epoxy sealed versions

### Recommendations

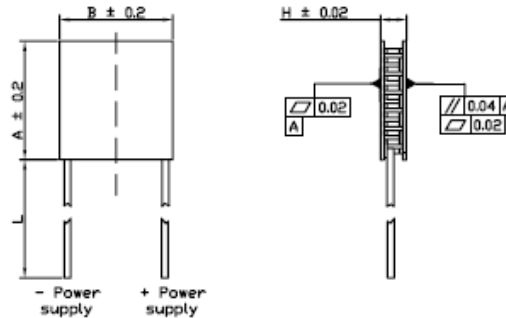
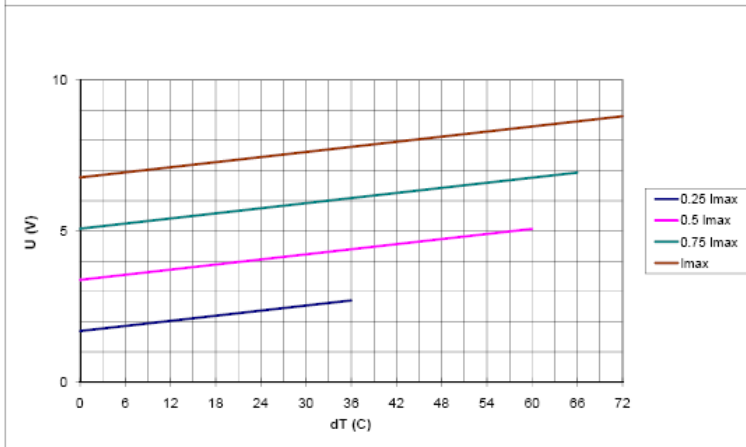
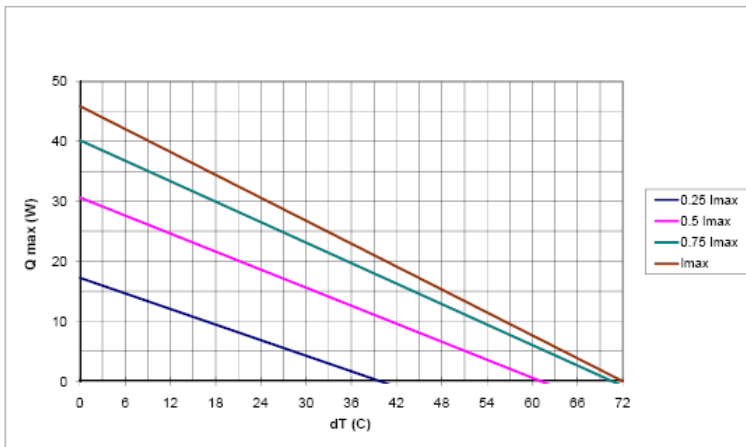
- High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity
- Operation temperature up to 90°C for long lifetime; up to 110°C for short periods
- With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible
- Preferable application; high cooling capacity at high temperatures / cycling

**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ETC-071-14-11-E

6935072

Thot=27 °C (300 °K)					Dimensions, mm				
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	A1	B	H	d
8.5	8.8	45.9	72	0.86	30	30	30	3.8	n/a
Note 1	Note 2	Note 3	Note 4	Note 5					



**POWER CYCLING MODULE**

These modules provide high cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity.

- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and Q=0W
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1500Kpa  
 Max  $\Delta T$  is reduced by 2 – 3K for silicone coated and 1 – 2K for epoxy sealed versions

### Recommendations

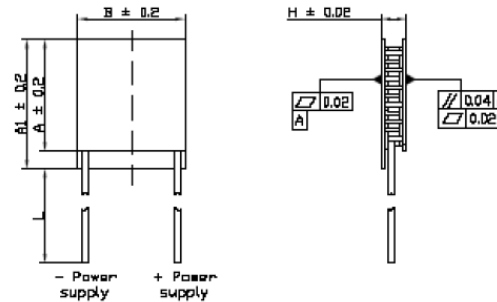
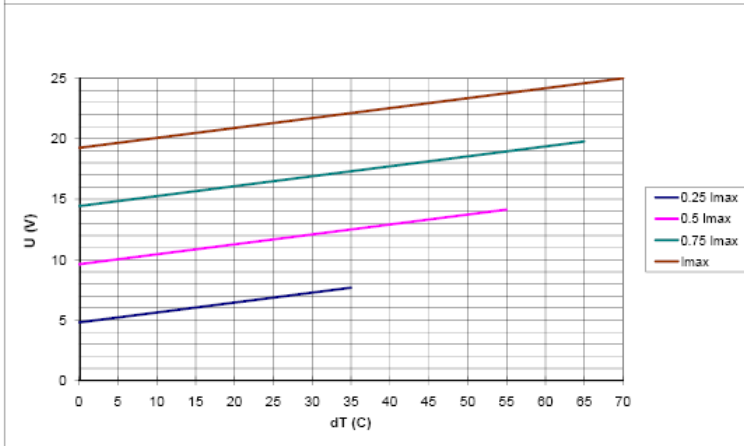
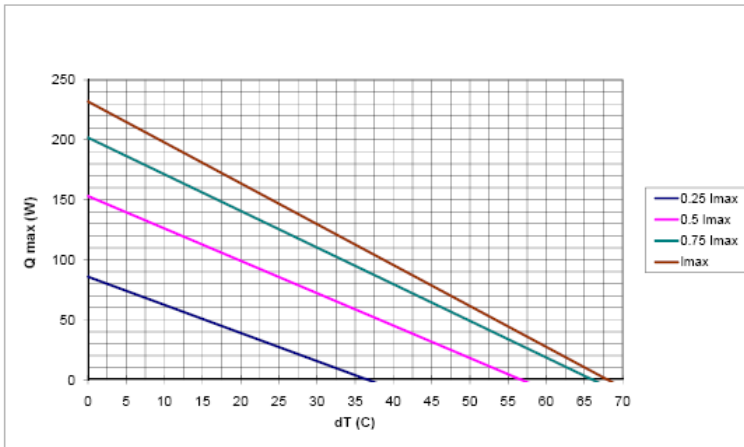
- High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity
- Operation temperature up to 90°C for long lifetime; up to 110°C for short periods
- With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible
- Preferable application; high cooling capacity at high temperatures / cycling

**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ETC-200-14-06-E

6935081

Thot=27 °C (300 °K)					Dimensions, mm				
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	A1	B	H	d
15.4	24.8	232	68	1.3	40	44	40	3.3	n/a
Note 1	Note 2	Note 3	Note 4	Note 5					



## POWER CYCLING MODULE

These modules provide high cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity.

- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}\text{C}$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and Q=0W
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1400Kpa  
 Max  $\Delta T$  is reduced by 2 – 3K for silicone coated and 1 – 2K for epoxy sealed versions

### Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

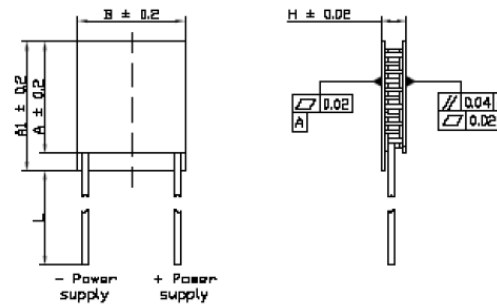
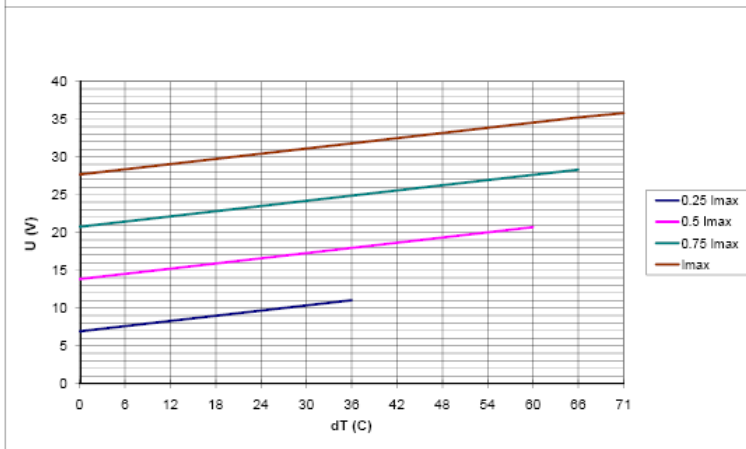
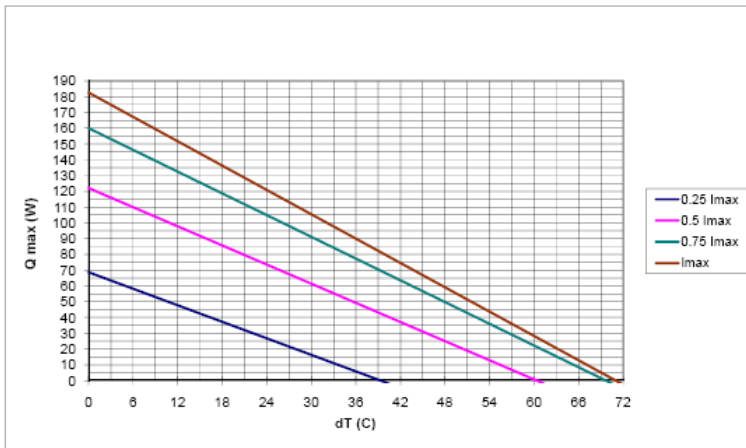
Preferable application; high cooling capacity at high temperatures / cycling

**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ETC-288-14-11-E

6935084

Thot=27 °C (300 °K)					Dimensions, mm				
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	A1	B	H	d
8.5	35.8	182.6	71	3.5	52	56	52	3.8	n/a
Note 1	Note 2	Note 3	Note 4	Note 5					



**POWER CYCLING MODULE**

These modules provide high cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity.

- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and Q=0W
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1,3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1500Kpa  
 Max  $\Delta T$  is reduced by 2 – 3K for silicone coated and 1 – 2K for epoxy sealed versions

### Recommendations

- High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity
- Operation temperature up to 90°C for long lifetime; up to 110°C for short periods
- With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible
- Preferable application; high cooling capacity at high temperatures / cycling

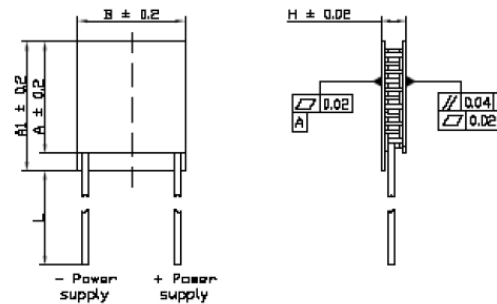
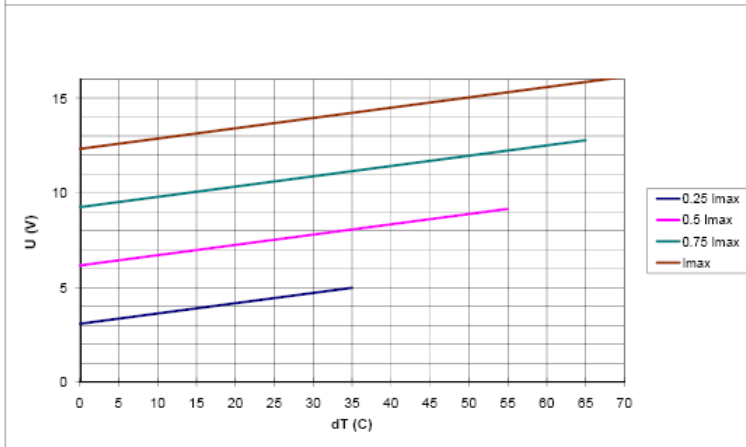
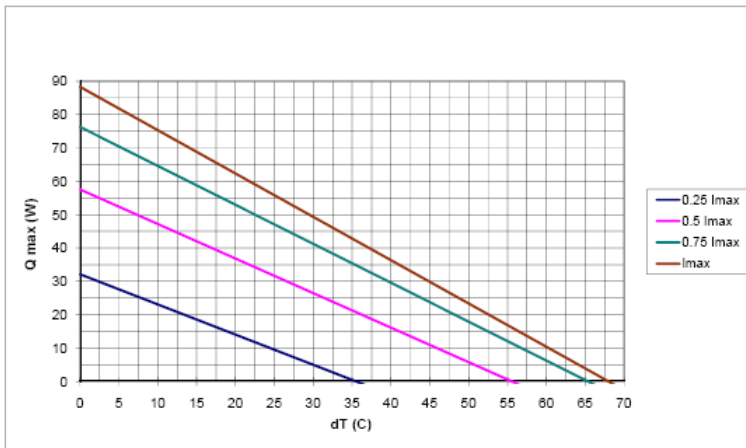
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**



# ETC-128-10-05-E

6935088

Thot=27 °C (300 °K)					Dimensions, mm				
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	A1	B	H	d
9	16	88.3	68	1.38	30	34	30	2.8	n/a
Note 1	Note 2	Note 3	Note 4	Note 5					



**POWER CYCLING MODULE**

These modules provide high cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity.

- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and Q=0W
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1500Kpa  
 Max  $\Delta T$  is reduced by 2 – 3K for silicone coated and 1 – 2K for epoxy sealed versions

### Recommendations

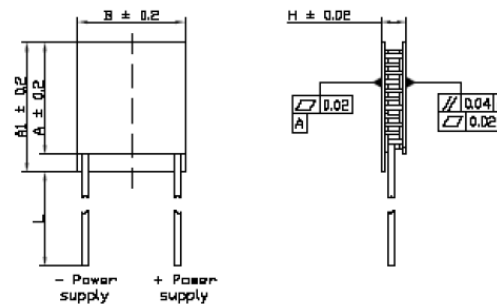
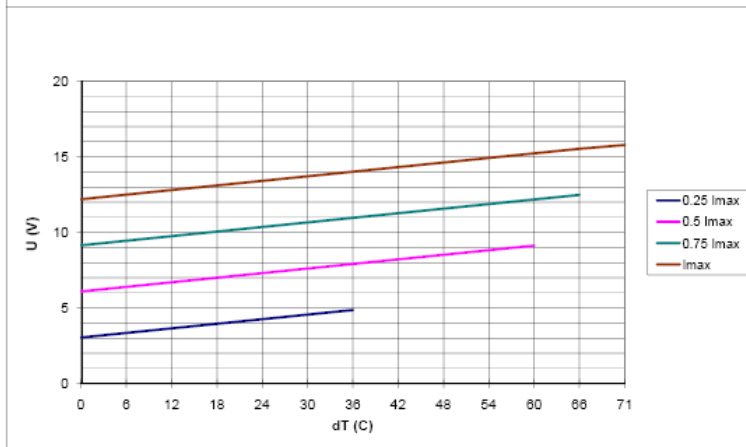
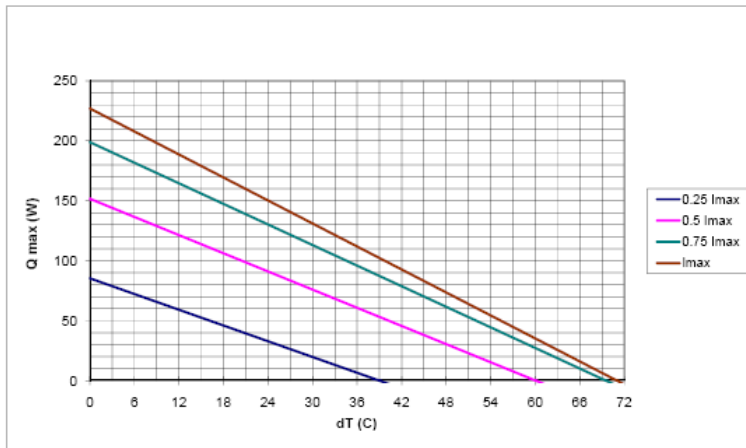
- High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity
- Operation temperature up to 90°C for long lifetime; up to 110°C for short periods
- With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible
- Preferable application; high cooling capacity at high temperatures / cycling

**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ETC-128-20-08-E

6935097

Thot=27 °C (300 °K)					Dimensions, mm				
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	A1	B	H	d
24	15.8	227	71	0.55	55	59	55	4	n/a
Note 1	Note 2	Note 3	Note 4	Note 5					



## POWER CYCLING MODULE

These modules provide high cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity.

Note 1 - Maximum current at  $\Delta T_{max}$

Note 2 - Maximum voltage at  $\Delta T_{max}$

Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$

Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and Q=0W

Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P

The solder melting point of thermoelectric module 140°C

Recommended maximum compression (not destruction limit) 1500Kpa

Max  $\Delta T$  is reduced by 2 – 3K for silicone coated and 1 – 2K for epoxy sealed versions

### Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

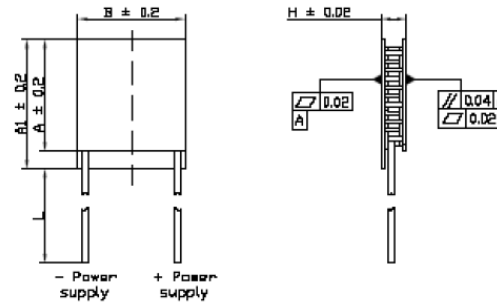
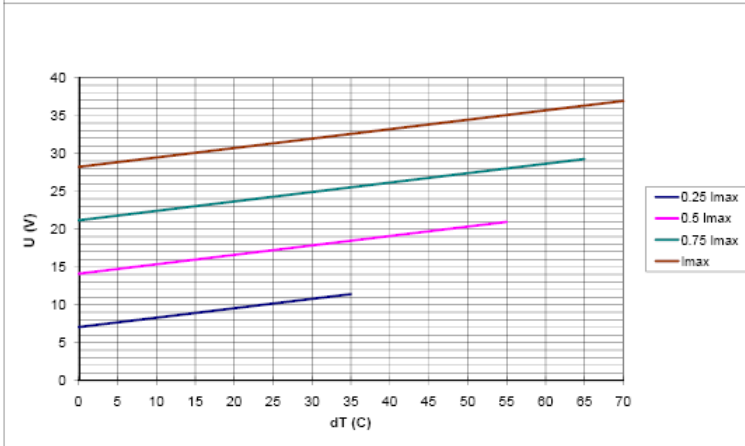
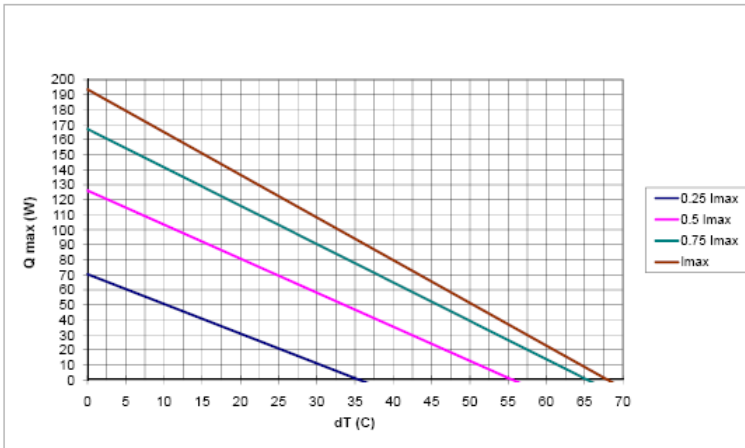
Preferable application; high cooling capacity at high temperatures / cycling

**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ETC-288-10-05-E

6935090

Thot=27 °C (300 °K)					Dimensions, mm				
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	A1	B	H	d
9	36	193.5	68	3.1	40	44	40	2.8	n/a
Note 1	Note 2	Note 3	Note 4	Note 5					



**POWER CYCLING MODULE**

These modules provide high cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity.

- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and Q=0W
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1500Kpa  
 Max  $\Delta T$  is reduced by 2 – 3K for silicone coated and 1 – 2K for epoxy sealed versions

### Recommendations

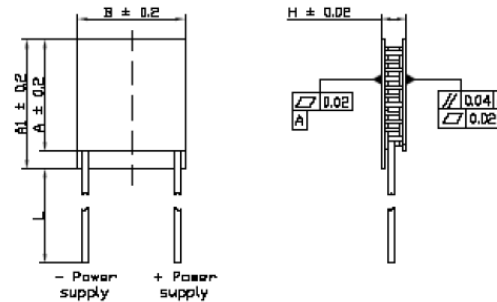
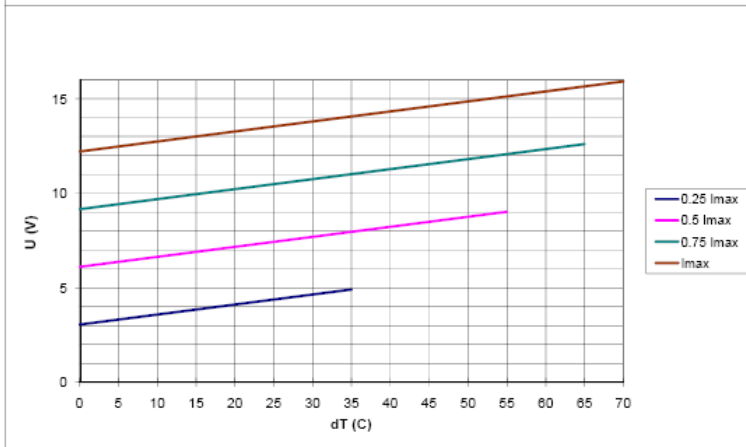
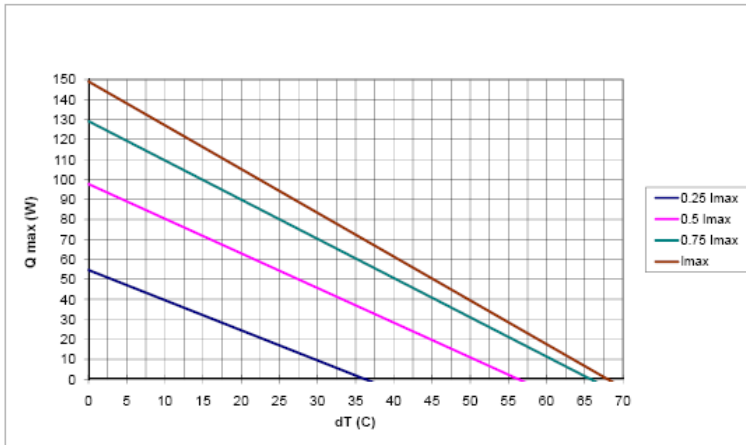
- High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity
- Operation temperature up to 90°C for long lifetime; up to 110°C for short periods
- With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible
- Preferable application; high cooling capacity at high temperatures / cycling

**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ETC-128-14-06-E

6935094

Thot=27 °C (300 °K)					Dimensions, mm				
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	A1	B	H	d
15.4	15.8	149	68	0.82	40	44	40	3.3	n/a
Note 1	Note 2	Note 3	Note 4	Note 5					



**POWER CYCLING MODULE**

These modules provide high cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity.

- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and Q=0W
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1,3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1500Kpa  
 Max  $\Delta T$  is reduced by 2 – 3K for silicone coated and 1 – 2K for epoxy sealed versions

### Recommendations

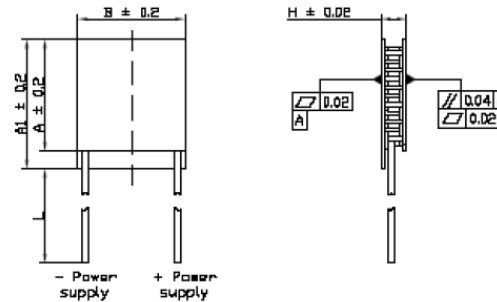
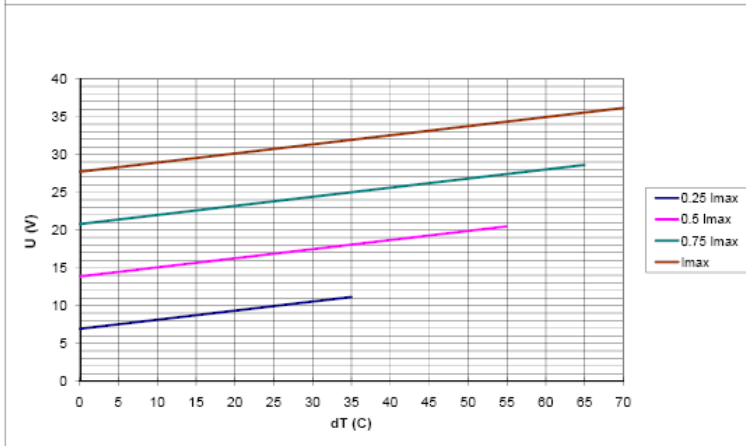
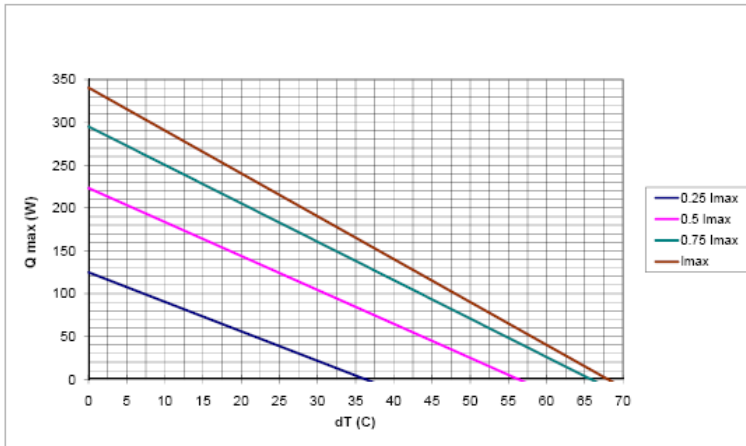
- High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity
- Operation temperature up to 90°C for long lifetime; up to 110°C for short periods
- With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible
- Preferable application; high cooling capacity at high temperatures / cycling

**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ETC-288-14-06-E

6935104

Thot=27 °C (300 °K)					Dimensions, mm				
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	A1	B	H	d
15.4	35.9	340.5	68	1.84	52	56	52	3.3	n/a
Note 1	Note 2	Note 3	Note 4	Note 5					



**POWER CYCLING MODULE**

These modules provide high cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity.

- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and Q=0W
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1,3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1500Kpa  
 Max  $\Delta T$  is reduced by 2 – 3K for silicone coated and 1 – 2K for epoxy sealed versions

### Recommendations

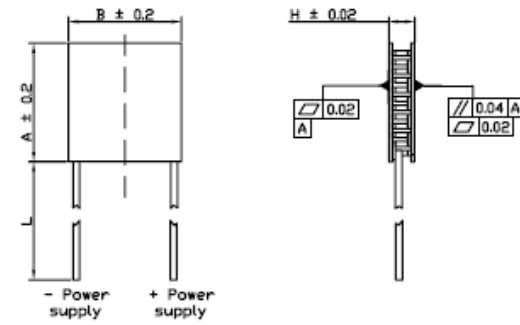
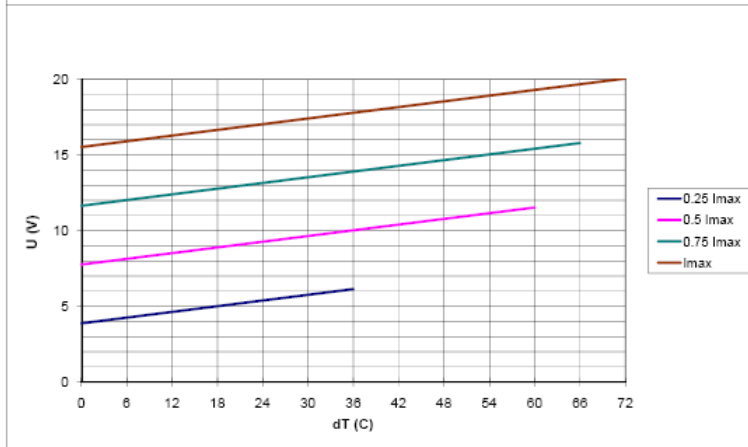
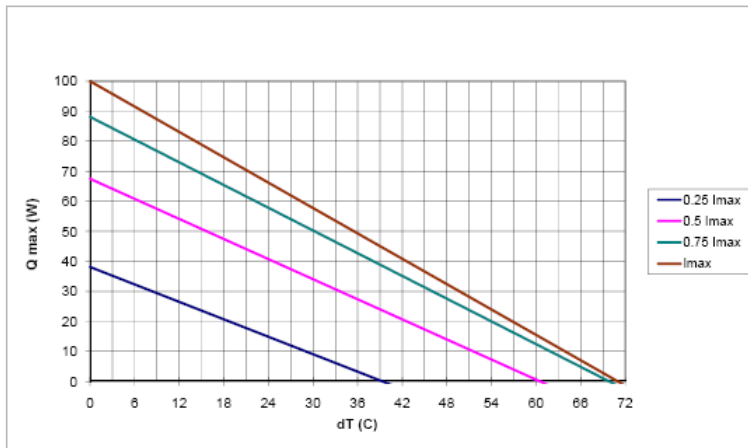
- High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity
- Operation temperature up to 90°C for long lifetime; up to 110°C for short periods
- With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible
- Preferable application; high cooling capacity at high temperatures / cycling

**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ET-161-12-08-E

6935107

Thot=27 °C (300 °K)					Dimensions, mm				
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	A1	B	H	d
8.5	20	100	71	2	40	40	40	3.3	n/a
Note 1	Note 2	Note 3	Note 4	Note 5					



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and Q=0W
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1500Kpa  
 Max  $\Delta T$  is reduced by 2 – 3K for silicone coated and 1 – 2K for epoxy sealed versions

### Recommendations

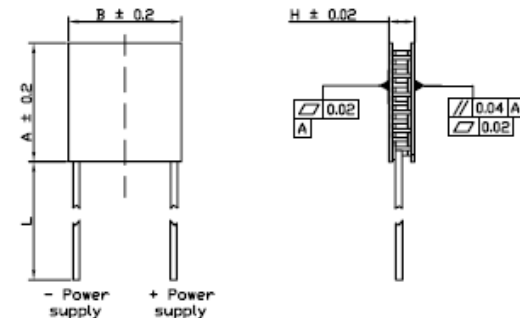
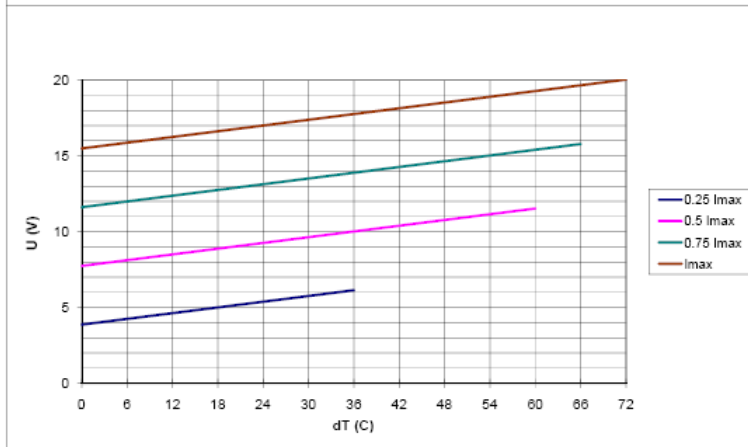
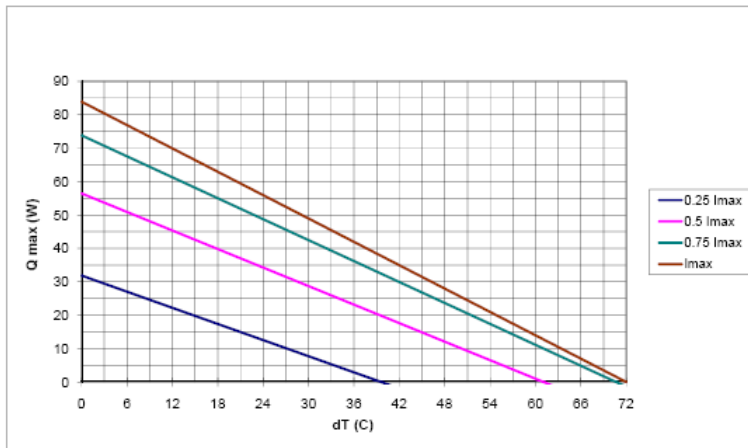
- High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity
- Operation temperature up to 90°C for long lifetime; up to 110°C for short periods
- With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible
- Preferable application; high cooling capacity at high temperatures / cycling

**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**

# ET-161-12-10-E

6935101

Thot=27 °C (300 °K)					Dimensions, mm				
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	A1	B	H	d
6.7	20	83.9	72	2.5	40	40	40	3.3	n/a
Note 1	Note 2	Note 3	Note 4	Note 5					



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0W$
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1500Kpa  
 Max  $\Delta T$  is reduced by 2 – 3K for silicone coated and 1 – 2K for epoxy sealed versions

## Recommendations

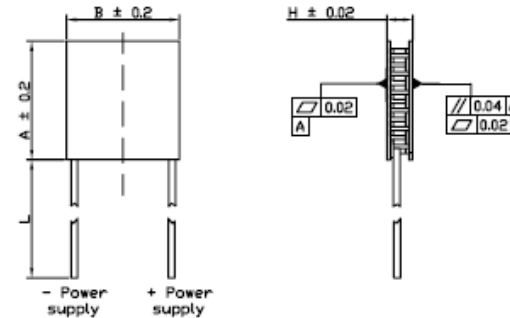
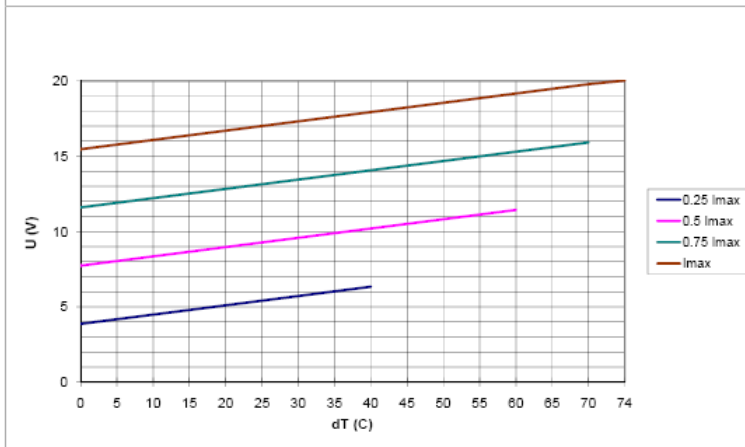
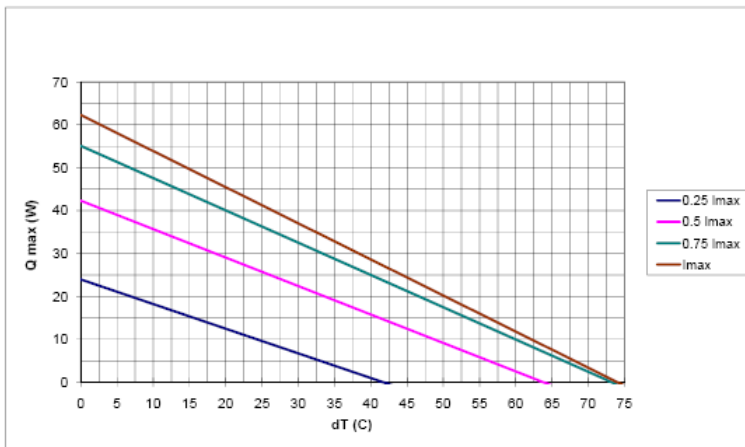
- High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity
- Operation temperature up to 90°C for long lifetime; up to 110°C for short periods
- With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible
- Preferable application; high cooling capacity at high temperatures / cycling

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# ET-161-12-14-E

6935110

Thot=27 °C (300 °K)					Dimensions, mm				
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	ΔT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	A1	B	H	d
5	20	62.3	74	3.45	40	40	40	3.7	n/a
Note 1	Note 2	Note 3	Note 4	Note 5					



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0W$
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1,3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1500Kpa  
 Max  $\Delta T$  is reduced by 2 – 3K for silicone coated and 1 – 2K for epoxy sealed versions

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

Preferable application; high cooling capacity at high temperatures / cycling

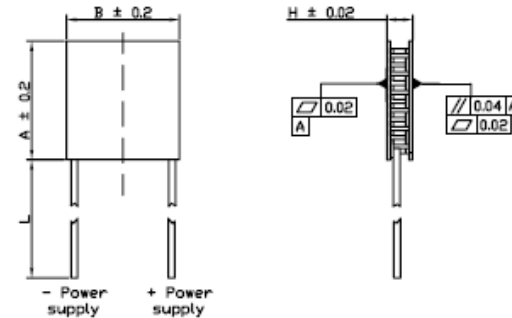
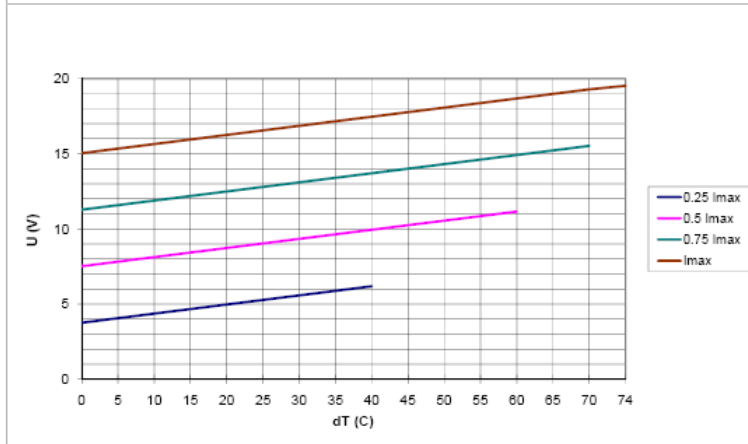
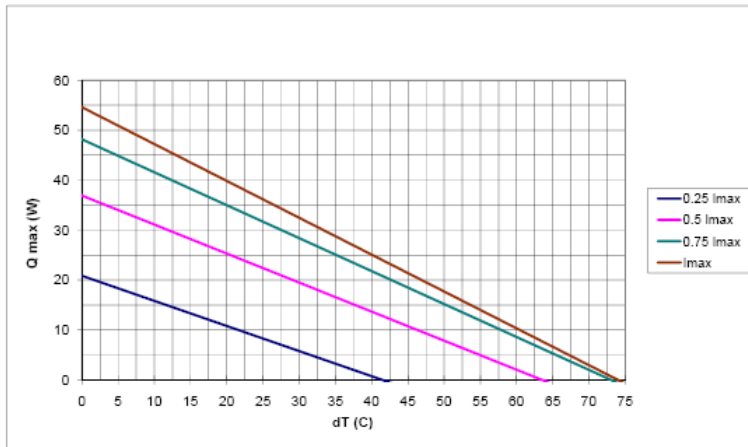
**Revision of these specifications is carried out after consent. We reserve the right to make changes without notification**



# ET-161-12-16-E

6935113

Thot=27 °C (300 °K)					Dimensions, mm				
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	ΔT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	A1	B	H	d
4.4	20	54.6	74	3.93	40	40	40	3.9	n/a
Note 1	Note 2	Note 3	Note 4	Note 5					



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and Q=0W
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1500Kpa  
 Max  $\Delta T$  is reduced by 2 – 3K for silicone coated and 1 – 2K for epoxy sealed versions

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

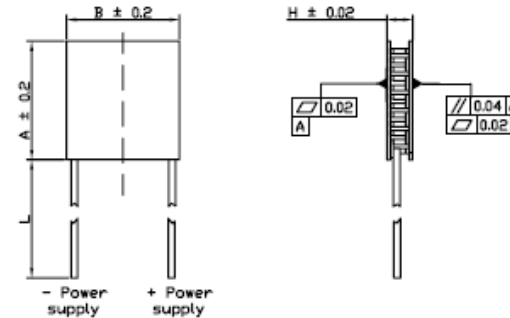
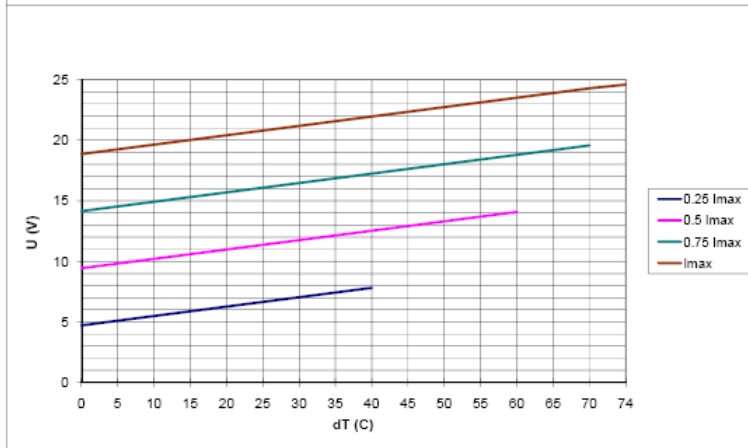
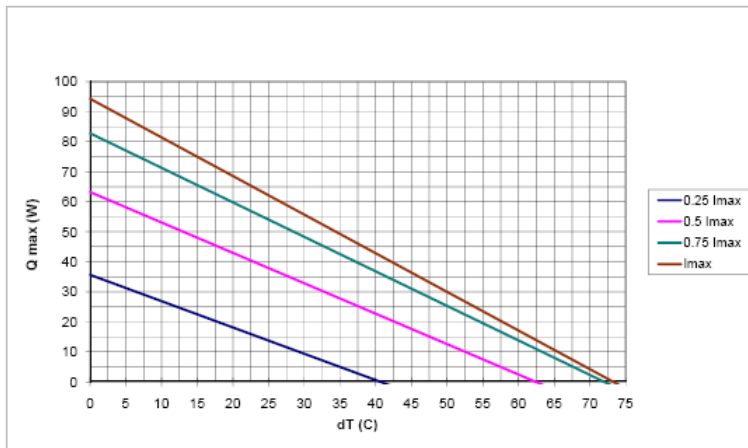
Preferable application; high cooling capacity at high temperatures / cycling

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# ET-199-14-15-E

6935117

Thot=27 °C (300 °K)					Dimensions, mm				
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	ΔT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	A1	B	H	d
6	24.6	94.3	74	3.52	40	40	40	3.9	n/a
Note 1	Note 2	Note 3	Note 4	Note 5					



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at  $I_{max}$ ,  $V_{max}$ , and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at  $I_{max}$ ,  $V_{max}$ , and  $Q=0W$
- Note 5 - Measured by AC 4-terminal method at  $25^{\circ}C$

Maximum parameters are measured in a vacuum  $1.3P$   
 The solder melting point of thermoelectric module  $140^{\circ}C$   
 Recommended maximum compression (not destruction limit)  $1500Kpa$   
 Max  $\Delta T$  is reduced by 2 – 3K for silicone coated and 1 – 2K for epoxy sealed versions

## Recommendations

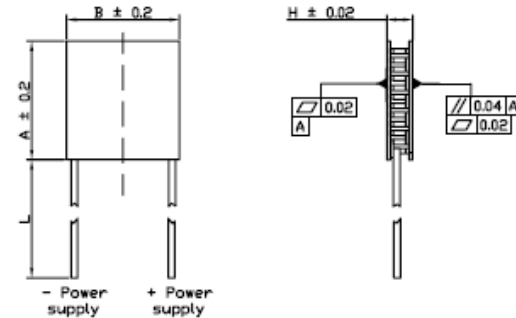
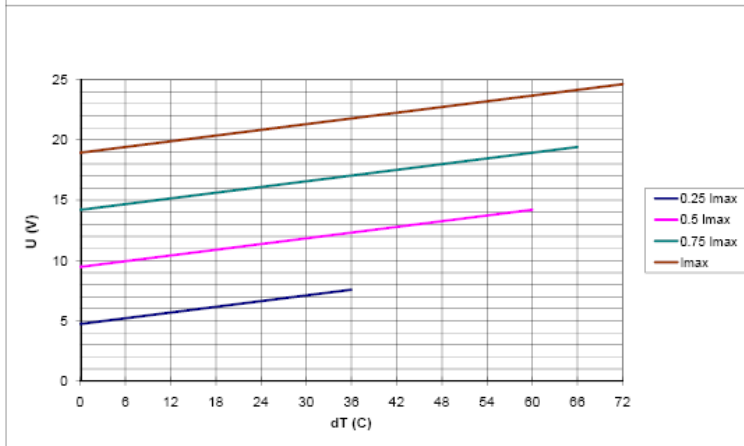
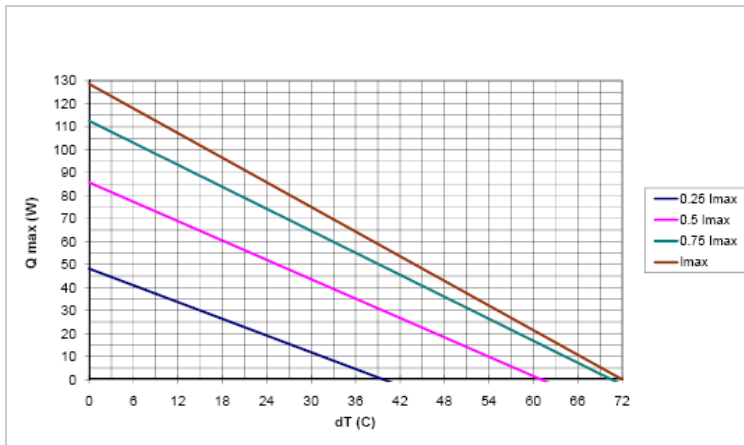
- High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity
- Operation temperature up to  $90^{\circ}C$  for long lifetime; up to  $110^{\circ}C$  for short periods
- With operation current close to  $0.5 I_{max}$  extremely high COP (coefficient of performance) is possible
- Preferable application; high cooling capacity at high temperatures / cycling

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# ET-199-14-11-E

6935126

Thot=27 °C (300 °K)					Dimensions, mm				
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	dT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	A1	B	H	d
8.5	24.6	128.6	72	2.44	40	40	40	3.8	n/a
Note 1	Note 2	Note 3	Note 4	Note 5					



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^{\circ}C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and  $Q=0W$
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1,3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1500Kpa  
 Max  $\Delta T$  is reduced by 2 – 3K for silicone coated and 1 – 2K for epoxy sealed versions

## Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

With operation current close to 0.5 I<sub>max</sub> extremely high COP (coefficient of performance) is possible

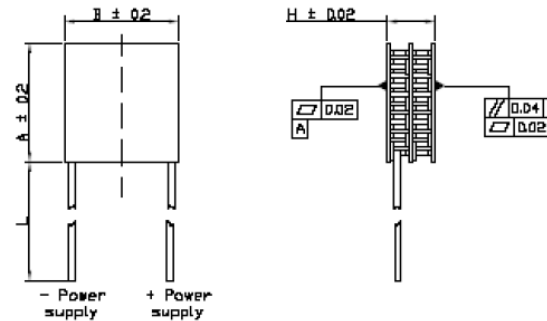
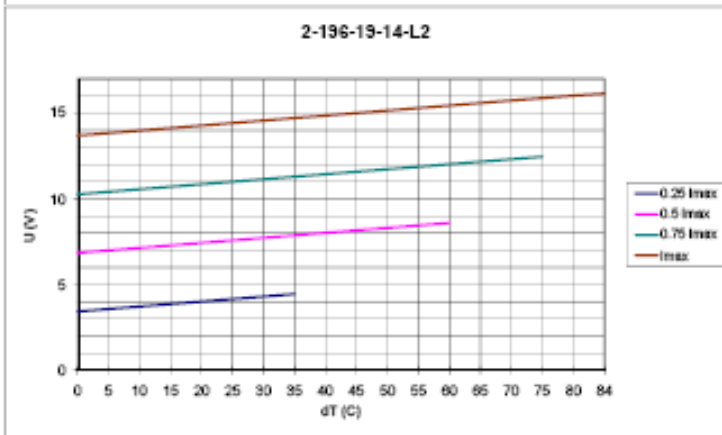
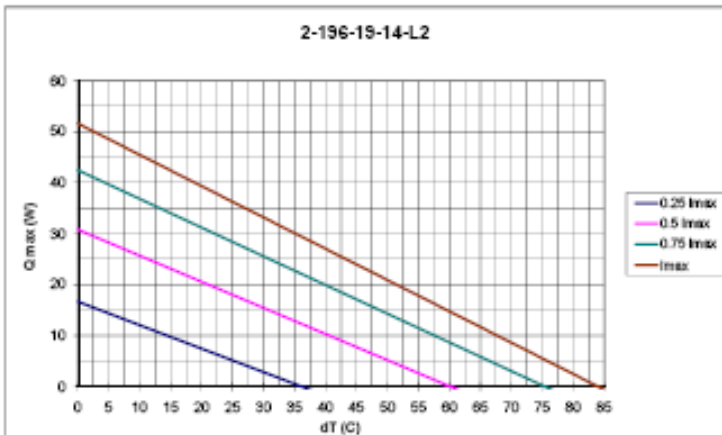
Preferable application; high cooling capacity at high temperatures / cycling

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# ET2-196-19-14

6935075

Thot=27 °C (300 °K)					Dimensions, mm				
I <sub>max</sub> , A	U <sub>max</sub> , V	Q <sub>max</sub> , W	ΔT <sub>max</sub> , K	R <sub>ac</sub> , Ohm	A	A1	B	H	d
8.5	16.1	51.6	84	1.65	40	40	40	7	n/a
Note 1	Note 2	Note 3	Note 4	Note 5					



- Note 1 - Maximum current at  $\Delta T_{max}$
- Note 2 - Maximum voltage at  $\Delta T_{max}$
- Note 3 - Maximum cooling capacity at I<sub>max</sub>, V<sub>max</sub>, and  $\Delta T=0^\circ C$
- Note 4 - Maximum temperature difference at I<sub>max</sub>, V<sub>max</sub>, and Q=0W
- Note 5 - Measured by AC 4-terminal method at 25°C

Maximum parameters are measured in a vacuum 1.3P  
 The solder melting point of thermoelectric module 140°C  
 Recommended maximum compression (not destruction limit) 1000Kpa  
 Max  $\Delta T$  is reduced by 2 – 3K for silicone coated and 1 – 2K for epoxy sealed versions

### Recommendations

High cooling capacity from a small surface and long lifetime in power cycling applications with change of current polarity

Operation temperature up to 90°C for long lifetime; up to 110°C for short periods

Recommended operation current not higher than 0.7 I<sub>max</sub>

Use in cooling mode only

Preferable application; high cooling capacity at high temperatures / cycling

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