

东莞市华松电子科技有限公司

规格承认书

规格书号：HS/GD20180709001

客 户 (CUSTOMER) : 刚达制品有限公司

品 名 (DISCRIPTION) : 校正电容(MBOX)

规 格 (SPECIFICATION) : 102J100V P5

料 号(Part Number):

客户承认栏 (CUSTOMER APPROVAL) :

制 表	审 核	核 准
杨敏娟	唐泽民	周海明

TEL : 0769-82777112

FAX : 0769-82777116

Email:hs@hscap.com

东莞市华松电子科技有限公司
DONG GUAN HUA SONG TECHNOLOGYCO., LTD

CONTENTS

Material	Type	Inductived	Appearance	Cap. (uF)	Voltage
PEI PET	CL11	Yes	Epoxy dipped	0.001-0.47	100-1200 VDC
PEI PET	PSR	Yes	Epoxy dipped	0.0001- 0.01	63-100 VDC
MPET	CL21	No	Epoxy dipped	0.001-10.0	100-630 VDC
	CL21-B	No	Plastic case	0.0047-10.0	100-630 VDC
	CL21X	No	Epoxy dipped	0.0022-1.0	100 VDC
	CL71 MBOX	No	Mini box	0.001-1.0	63V/100 VDC
	CL20T	No	PE Film tape	0.01-20.0	100-630 VDC
	CL20A	No	PE Film tape	0.01-20.0	100-630 VDC
PP	CBB13	No	Epoxy dipped	0.001-0.47	100-630 VDC
MPP	CBB21	No	Epoxy dipped	0.0047-3.3	100-630 VDC
	CBB21-B	No	Plastic case	0.0047-3.3	100-630 VDC
	CBB20T	No	PE Film tape	0.010-10.0	100-630 VDC
	CBB20A	No	PE Film tape	0.010-10.0	100-630 VDC
	CBB81	No	Epoxy dipped	0.0010-0.1	1000-2000 VDC
	CBB81-B	No	Plastic case	0.0010-0.1	1000-2000 VDC
	X1	No	Plastic case	0.0022-4.7	300 VAC
	X2	No	Plastic case	0.0022-4.7	275 VAC

NOTE

PEI/PET: Polyester film capacitor

MPET: Metalized polyester film capacitor

PP : Polypropylene Film-Foil Capacitor(Non-indctive)

MPP: Metalized polypropylene film capacitor

Item No. information

TYPE: CL71

Example: CL71 1J 104 J 05 U

- 1 "CL71" Stand for type CL21;
- 2 "1J" Stand for rated voltage;
- 3 "104" Stand for nominal capacitance;
- 4 "J" Stand for capacitance tolerance;
- 5 "05" Stand for Lead space;
- 6 "U" Stand for Lead configuration;

1 Type

TYPE	X1	X2	X2Y2	RC	CL11	PSR	CBB13	CH11	CBB20A	CBB20T	CL20A	CL20T	CL21	CBB21	CL71	CL21X	CL21B
TYPE	CBB21B	CBB93A	CBB93T	CBB94A	CBB94T	Y1	Y2	CA42	MLC	CC	CBB60	CBB61	CBB65	CBB81	CBB81B	Others	

2 RATED VOLTAGE :

Expressed in 1digit-1-letter code for VDC and 2-digit code for VAC

VDC	4.0V	6.3V	10V	12V	15V	16V	20V	25V	35V	50V	60V	63V	80V	100V	120V	150V	160V
CODE	0G	0J	1A	1M	1N	1C	1D	1E	1V	1H	1S	1J	1K	2A	2M	2N	2C
VDC	200V	250V	300V	350V	400V	450V	500V	600V	630V	800V	1000V	1200V	1250V	1500V	1600V	1800V	2000V
CODE	2D	2E	2F	2V	2G	2W	2H	2S	2J	2K	3A	3M	3B	3N	3C	3Q	3D
VDC	2500V	3000V	3500V	4000	5000	6000	10000	15000									
CODE	3E	3F	3V	3G	3H	3S	4A	4N									

VAC	125	180	200	220	230	250	275	280	300	320	350	370	400	440	450	500	600
CODE	12	18	20	22	23	25	27	28	30	32	35	37	40	44	45	50	60
VAC	700	800															
CODE	70	80															

3 CAPACITANCE (EIA Code) :

The first 2 digits indicate significant figures, and the third digit specifies the number of zero to follow. This gives the capacitance in picofarads.

- 101 = 100pF = 0.1nF = 0.0001uF
- 102 = 1,000pF = 1.0nF = 0.001uF
- 103 = 10,000pF = 10nF = 0.01uF
- 104 = 100,000pF = 100nF = 0.1uF
- 105 = 1,000,000pF = 1,000nF = 1.0uF
- 106 = 10,000,000pF = 10,000nF = 10uF

4 TOLERANCE (EIA Code) :

TOLERANCE	± 1%	± 2%	± 3%	± 5%	± 10%	± 20%	+80%-20%	+100%-0%
CODE	F	G	H	J	K	M	Z	P

5 LEAD SPACE :

Expressed in 2-digit or 1-digit-1-letter code

Unit : mm

LEAD SPACE	2.0	2.54	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5
CODE	02	2P	03	3P	04	4P	05	5P	06	6P	07	7P	08	8P	09	9P
LEAD SPACE	10.0	12.5	15.0	16.0	17.5	20.0	22.5	25.0	27.5	30.0	32.5	35.0	37.5	41.0	Capacitor-Axial	
CODE	10	12	15	16	17	20	22	25	27	30	32	35	37	41	00	

6 LEAD CONFIGURATION :

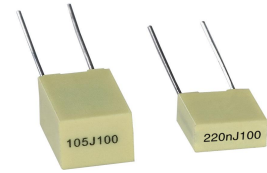
CODE	L			M	B	C	D	E	F	G	H	A	V
LEAD TYPE													

CODE	V	T	U	W(standed PVC insulation wire)	O(Isolated wire)	Q(Soldering terminals)
LEAD TYPE						

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Minibox metallized polyester film capacitor

CL71 are non-inductively wound with polyester film as dielectric and electrode, with cooper-clad steel leads and encapsulated in plastic cases, and sealed with epoxy resin. They are suitable for decoupling, by-passing, filtering, treatment of analog signals, rejection of line perturbations, etc.



Features:

- ◆ Non-inductive construction
- ◆ Self-healing properties
- ◆ Space-saving miniature size
- ◆ Available on tape for automatic insertion

Specifications:

1. Operating temperature: -40°C -- +85°C
2. Capacitance range: 0.001uF -- 1.0uF
3. Capacitance tolerance: ±5%(J), ±10%(K)
4. Rated voltage: 100/ 250/ 400VDC
5. Dissipation factor: 1.0% max. at 1KHz, 25°C
6. Insulation resistance: 15,000 MOhm min. for $C \leq 0.33\mu F$
5,000 MOhm* $\mu F/C$ min. for $C > 0.33\mu F$
7. Dielectric strength: 150% of rated voltage for 5 sec.

Dimensions: (Unit: mm)

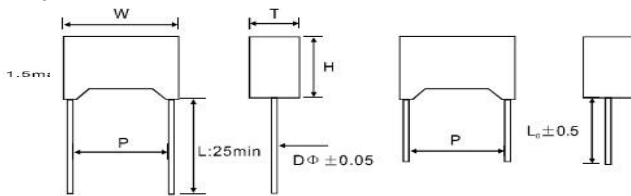
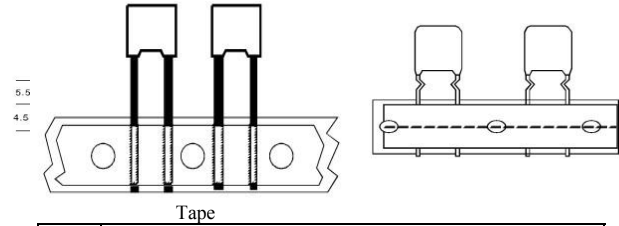


Fig. 1

Fig. 2



Tape

CAP	Case type			
	63VDC	100VDC	250VDC	400VDC
0.001	01	01	01	01
0.0012	01	01	01	01
0.0018	01	01	01	01
0.0022	01	01	01	01
0.0027	01	01	01	01
0.0033	01	01	01	01
0.0047	01	01	01	01
0.0056	01	01	01	01
0.0068	01	01	01	01
0.01	01	01	01	01
0.012	01	01	01	02
0.015	01	01	01	02
0.018	01	01	01	02
0.022	01	01	01	02
0.027	01	01	01	07
0.033	01	01	02	07
0.039	01	01	02	06
0.047	01	01	02	06
0.056	01	01	07	05
0.068	01	01	07	05
0.082	01	01	07	05
0.1	01	01	07	05

CAP	Case type			
	63VDC	100VDC	250VDC	400VDC
0.12	01	01	06	/
0.15	01	01	/	/
0.22	02	02	/	/
0.33	02	07	/	/
0.47	02	05	/	/
0.68	06	/	/	/
1.0	05	/	/	/

Case type	W	H	T	P	D
	±0.5	±0.5	±0.5	±0.5	±0.05
01	7.5	6.5	2.5	5.0	0.5
02	7.5	8.0	3.5	5.0	0.5
05	7.5	12.0	6.0	5.0	0.5
06	7.5	10.0	6.0	5.0	0.5
07	7.5	8.0	5.0	5.0	0.5

- ◆ For inquiry of items out of above range or with special dimensions, kindly contact us for availability.
- ◆ Specifications are subject to change without notice. Please refer to approval sheets for final and mutually agreed specifications.

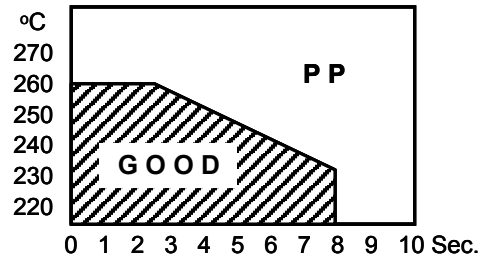
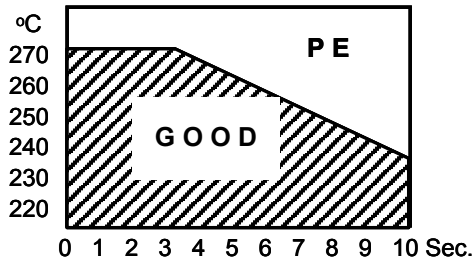
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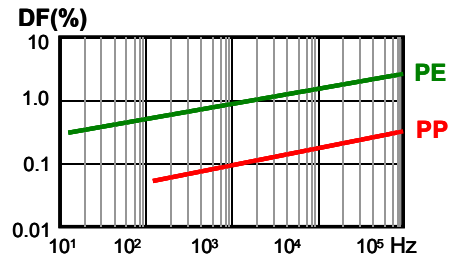
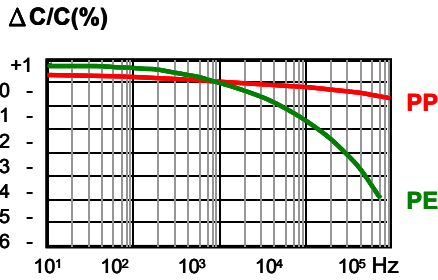
Characteristics			TYPE:CL71	
No.	Test items		Test method	Characteristics
1	Climatic Category		/	40/85/21
2	Rated voltage		/	50V — 630VDC
3	Withstand Voltage(TV)		160% of rated voltage for 5sec.	Shall be no abnormality.
4	Capacitance(CAP)		Measuring Frequency:1KHz±10%. Measuring Voltage :1Vrms.max.	0.001uF — 1uF
5	Tolerance (%)		/	J(±5%); K (±10%)
6	Dissipation Factor(DF)		Measuring Frequency:1KHz±10%. Measuring Voltage :1Vrms.max.	0.01 (1%)max. at 1 KHz.
7	Insulation resistance(IR)		Apply 100V±15%for 60±5sec.at+20 ±2℃ .	≥30000MΩ(C≤0.33uF) ≥10000MΩ·uF/C (C>0.33uF)
8	Terminal Strength	Tensile	Apply 1.0 kg for 10 ± 1sec. to the terminal in the axial direction, and acting in a direction away from the body.	Shall be no abnormality.
9		Bending	Apply 0.5 kg for 2 cycles. Each cycle includes: 90°once, return to its initial position for 2-3 sec. and then to the opposite direction once.	Shall be no abnormality.
10	Solderability		Soldering temperature:235 ±3℃ ; Immersion duration: 2.0 ±0.5sec	Good Tinning.
11	Soldering Heat Resistance		Soldering Temperature : +260 ± 5℃ . Immersion Duration : 10 ±1sec.	CAP(ΔC/C) Within ±2% of the value before test. DF 0.003(0.3%) max.at 1KHz
12	Rapid Temperature Change		Test Temperature Cycle : Total 5 cycles. High Temperature : +85±5 ℃ Low Temperature : -40 ±5℃ 30 min ± 10% for each temperature.	Shall be no abnormality. CAP(ΔC/C) Within ±5% of the value before test. DF 0.003(0.3%) max.at 1KHz
13	Damp Heat Loading		Test temperature :+40 ± 2℃ Test humidity : 90% to 95% R.H. Test voltage : rated voltage. Test duration : 500 +24/-0 hrs.	Shall be no remarkable change. The marking shall be legible. CAP(ΔC/C) Within ±5% of the value before test. DF 0.005 (0.5%) max.at 1KHz
14	Climatic Sequence	Dry heat	Temperature: 85℃,Duration: 16 hrs.	Shall be no abnormality. Shall be no remarkable change. CAP(ΔC/C) Within ±5% of the value before test. DF 0.005(0.5%) max.at 1KHz IR≥50% of the limit value of No. 7
		Humid Cool	—40℃,Duration: 2 hrs.	
		Air pressure	Temperature: 15℃—35℃,Pressure: 8.5KPa; Duration: 1 hr; After experiment, applied vottage 1 min.	
		Temperature Cycle	Test Temperature Cycle:Total 5 cycles. Each cycle includes : 1. +20 ±2℃ for 3min. 2. -40 ±3 ℃ for 30 min. 3. +20 ±2℃ for 3min. 4. +100 +3/-0 ℃ for 30 min. 5. +20 ±2℃ for 3 min.	
15	Durability		85℃,Applied 1.25 multiple rate voltage, Duration: 1000 hours (41.6 days)	No visible damage and clear mark; CAP(ΔC/C) Within ±5% of the value before test. DF 0.003 (0.3%) max.at 1KHz IR≥50% of the limit value of No. 7
16	Charge & Discharge		Experiment period :10000 times; Charge duration: 0.5s; Discharge duration: 0.5s;	CAP(ΔC/C) Within ±5% of the value before test. DF 0.003 (0.3%) max.at 1KHz IR≥50% of the limit value of No. 7

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CHARACTERISTICS REFERENCE

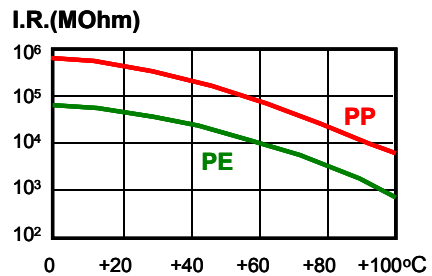
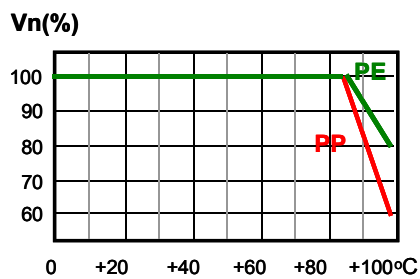
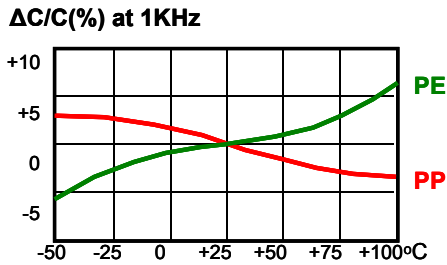
Soldering Temperature VS Time



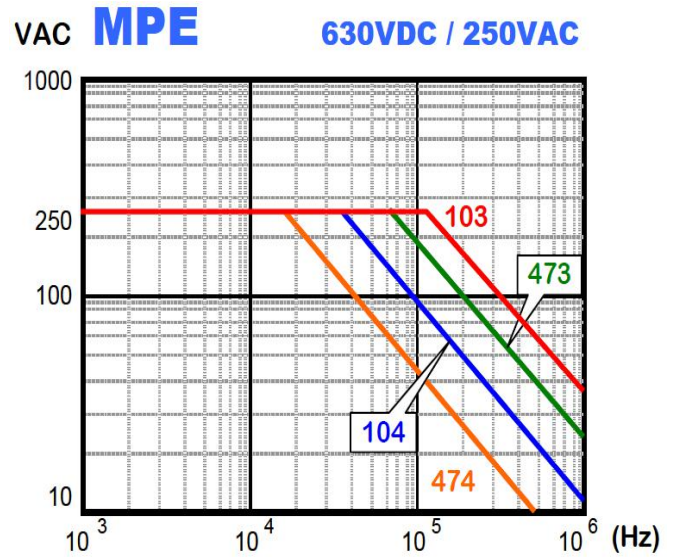
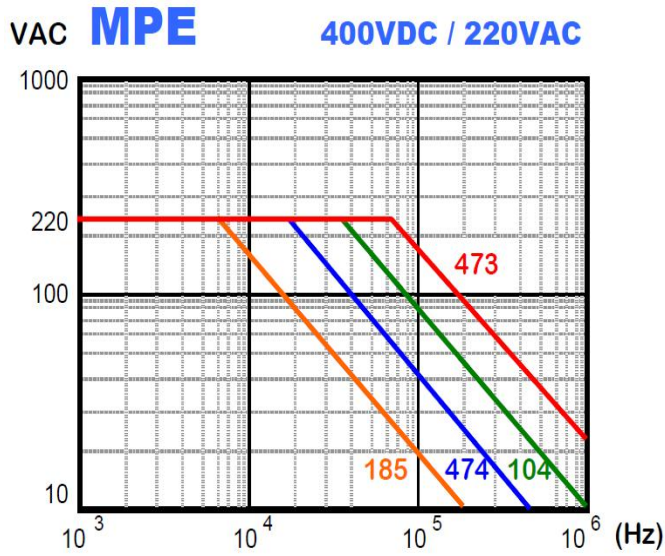
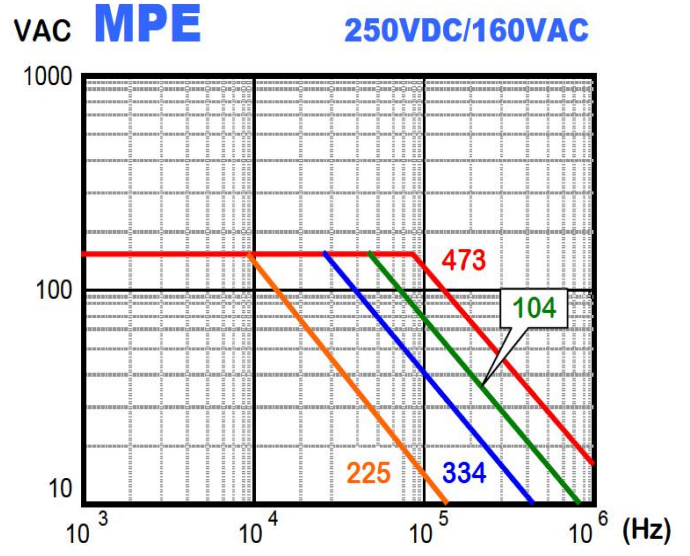
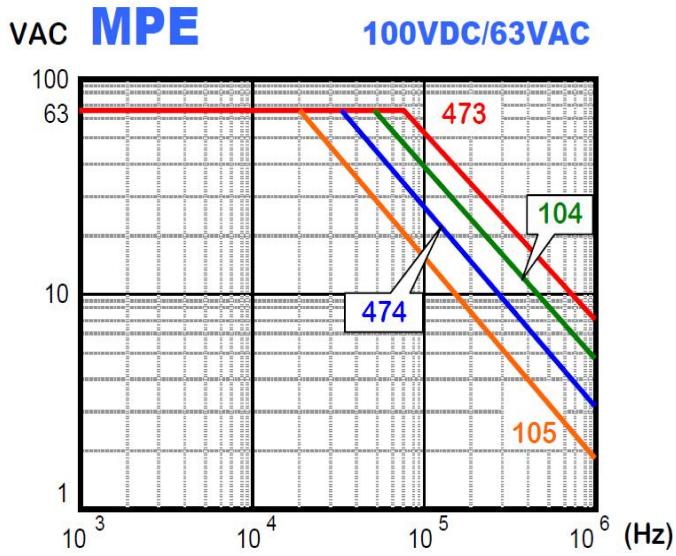
Frequency Characteristics



Temperature Characteristics



CL71 Permissible AC Voltage VS Frequency Curve

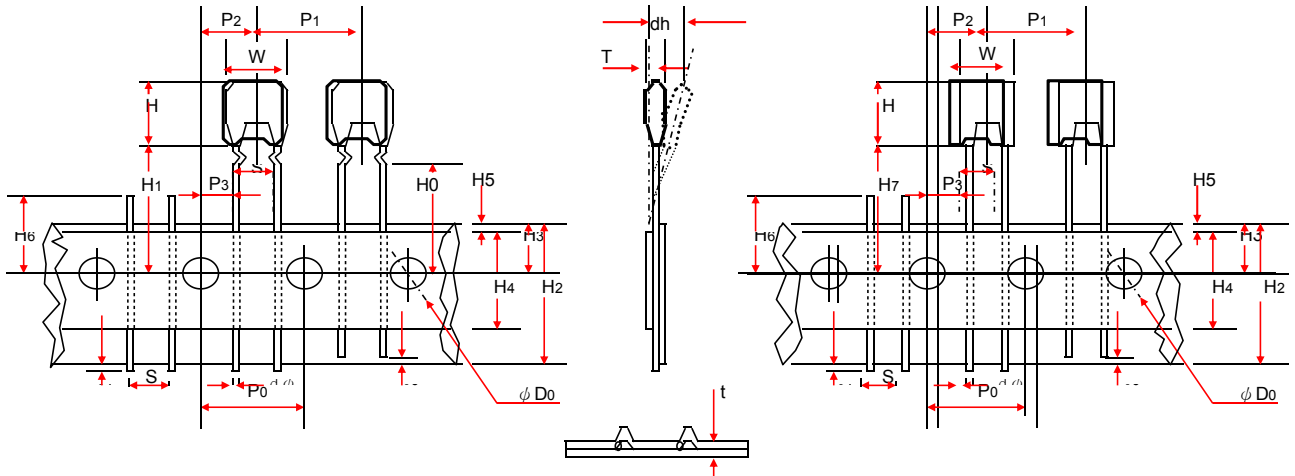


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Taping Dimensions and Packing

Forming Lead Taping / 弯脚型编带:

Straight Lead Taping / 直脚型编带:



Dimensions & Allowances / 各部尺寸及公差:

Unit : mm

Symbol	dh	H0	H1	H2	H3	H4	H5	H6	H7	
Dimension	0	16.0	20.0	18.0	9.0	12.5	3.0	11.0	16.5	19.5
Allowance	±0.5	±0.5	+0.75 - 0.5	+1.0 - 0.5	±1.5	min.	max.	max.	±0.3	±0.5

Symbol	P0	P1	P2	P3	l0	l1	S	t	dψ	ψD0
Dimension	12.7	12.7	6.35	3.85	7.0	2.0	5.0	0.7	0.5 or 0.6	4.0
Allowance	±0.3	±1.0	±1.3	±0.7	max.	max.	±1.0	±0.2	±0.05	±0.3

- Remarks :
1. Allowance of accumulated pitch : less than 1 mm at the sum of 20 pitches.
 2. Continuous empty components : less than 3 pcs.
 3. Total empty components in one AMMO box : less than 1 %.

※ Unless otherwise Specified.

AMMO Packaging Box Details :

	Outer Dimensions
	Length (L) 340 mm max.
	Width (W) Dipped Type 270 mm max. Minibox Type 295 mm max.
	Height (H) 50 mm max.

AMMO PACKAGING Quantity : (每盒标准包装数)

Type	规格	Pcs / Box
Dipped Capacitors	102-103	2000
Forming Lead Taping 涤纶电容器 弯脚型编带	223-683	1500
	104	1000
Type	Case Type	Pcs / Box
Minibox Capacitors (EMPE)	BF01	2,500
Straight Lead Taping 小型盒装电容器 直脚型编带	BF02	2,000
	BF07	1,500
	BF05 / BF06	1,000
	BF04	750