Thyristor sensitive gate

2N5064

GENERAL DESCRIPTION

Glass passivated sensitive gate thyristor in a plastic envelope, intended for use in general purpose switching and phase control applications. This device is intended to be interfaced directly to microcontrollers, logic integreated circuits and other low power gate trigger circuits.

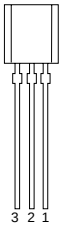
QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	UNIT
V_{DRM}, V_{RRM}	Repetitive peak off-state voltages	200	V
$I_{T(AV)}$	Average on-state current	0.5	A
$I_{T(RMS)}$	RMS on-state current	0.8	A
I_{TSM}	Non-repetitive peak on-state current	10	A

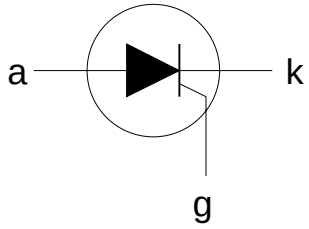
PINNING - TO92 variant

PIN	DESCRIPTION
1	anode
2	gate
3	cathode

PIN CONFIGURATION



SYMBOL



LIMITING VALUES

Limiting values in accordance with the Absolute Maximum System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{DRM}, V_{RRM}	Repetitive peak off-state voltages		-	200	V
$I_{T(AV)}$	Average on-state current	half sine wave			
		$T_c \leq 67$ ˚C	-	0.51	A
		$T_c \leq 102$ ˚C	-	0.255	A
$I_{T(RMS)}$	RMS on-state current	all conduction angles	-	0.8	A
I_{TRM}	Repetitive peak on-state current		-	8	A
I_{TSM}	Non-repetitive peak on-state current	half sine wave; T_a = 25 ˚C prior to surge; t = 8.3 ms	-	10	A
I^2t	I^2t for fusing	t = 8.3 ms	-	0.4	A^2s
I_{GM}	Peak gate current	T_a = 25˚C, t_p = 300µs; f = 120 Hz	-	1	A
V_{GM}	Peak gate voltage		-	5	V
V_{RGM}	Peak reverse gate voltage		-	5	V
P_{GM}	Peak gate power	T_a = 25˚C	-	0.1	W
$P_{G(AV)}$	Average gate power	T_a = 25˚C, over any 16 ms period	-	0.01	W
T_{stg}	Storage temperature		-65	150	˚C
T_j	Operating junction temperature		-65	125	˚C

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\ j\text{-}c}$	Thermal resistance junction to case	see note:[1]	-	-	75	K/W
$R_{th\ j\text{-}a}$	Thermal resistance junction to ambient		-	200	-	K/W

STATIC CHARACTERISTICS

T_c = 25 ˚C, R_{GK} = 1 kΩ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{GT}	Gate trigger current	T_c = 25 ˚C	-	-	200	µA
		T_c = -65 ˚C	-	-	350	µA
		$V_D = V_{DRM(max)}$; R_L = 100 Ω; gate open circuit				
I_L	Latching current	V_D = 12 V; R_{GK} = 1 kΩ	-	-	6	mA
I_H	Holding current	V_D = 12 V; R_{GK} = 1 kΩ	-	-	5	mA
V_T	On-state voltage	I_T = 1.2 A peak; t_p = 300 µs; δ ≤ 0.01	-	-	1.7	V
V_{GT}	Gate trigger voltage	T_j = 25 ˚C	-	-	0.8	V
		T_j = -65 ˚C	-	-	1.2	V
		T_j = 125 ˚C	0.1	-	-	V
		$V_D = V_{DRM(max)}$; R_L = 100 Ω; gate open circuit				
I_D, I_R	Off-state leakage current	$V_D = V_{DRM(max)}$; $V_R = V_{RRM(max)}$				
		T_j = 25 ˚C	-	-	10	µA
		T_j = 125 ˚C	-	-	50	µA

DYNAMIC CHARACTERISTICS

T_c = 25 ˚C, R_{GK} = 1 kΩ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
dV_D/dt	Critical rate of rise of off-state voltage	V_{DM} = 67% $V_{DRM(max)}$; T_j = 125 ˚C; exponential waveform; R_{GK} = 1 kΩ	-	25	-	V/µs
t_{gt}	Gate controlled turn-on time	I_{TM} = 2 A; $V_D = V_{DRM(max)}$; I_G = 10 mA; dI_G/dt = 0.1 A/µs	-	2	-	µs
t_q	Circuit commutated turn-off time	V_{DM} = 67% $V_{DRM(max)}$; T_j = 125 ˚C; I_{TM} = 1.6 A; V_R = 35 V; dI_{TM}/dt = 30 A/µs; dV_D/dt = 2 V/µs; R_{GK} = 1 kΩ	-	100	-	µs

1 This measurement is made with the case mounted "flat side down" on a heatsink and held in position by means of a metal clamp over the curved surface.

MECHANICAL DATA

Dimensions in mm

Net Mass: 0.2 g

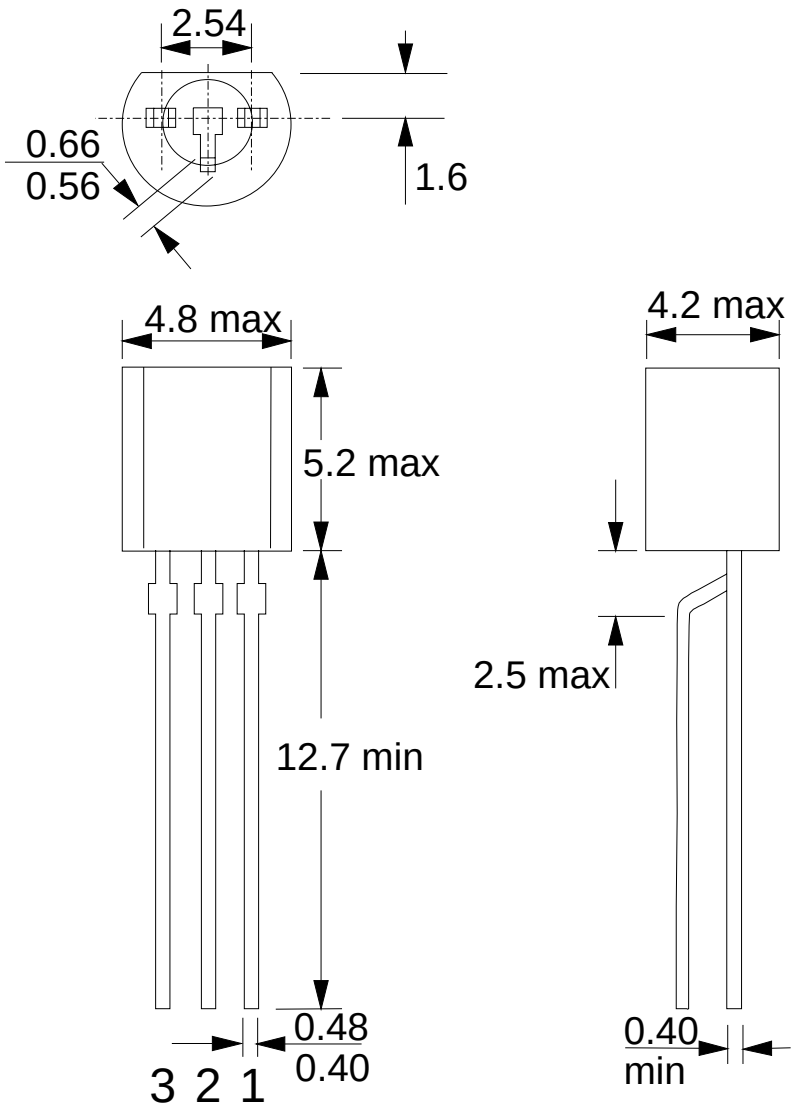


Fig.1. TO92; plastic envelope.

Notes
1. Epoxy meets UL94 V0 at 1/8".

DEFINITIONS

Data sheet status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values are given in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of this specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

LIFE SUPPORT APPLICATIONS

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