

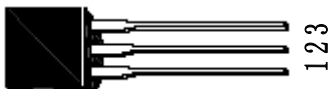

1、Description

PNPN devices designed for high volume, line-powered consumer applications such as relay and lamp drivers, small motor controls, gate drivers for larger thyristors, and sensing and detection circuits. Supplied in an inexpensive plastic **TO-92** package which is readily adaptable for use in automatic insertion equipment.

2、Features

- Sensitive gate allows triggering by micro-controllers and other logic circuits
- Blocking voltage to 400 thru 600 volts
- On-state RMS current to 1A RMS at 80°C
- Ultra low gate trigger current
- Glass-Passivated Surface for Reliability and Uniformity

3、Pinning information

PIN	Description	Simplified outline	Symbol
1	Cathode (K)	 TO-92	
2	Gate (G)		
3	Anode (A)		

4、Quick reference data

SYMBOL	PARAMETER	MAX	UNIT
V_{DRM} V_{RRM}	Repetitive peak off-state voltages	400	V
$I_{T(RMS)}$	RMS on-state current	1	A
I_{TSM}	Non-repetitive peak on-state current	10	A
I_{GT}	Gate trigger current	200	μA

5、Thermal characteristics

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$R_{th\ j-mb}$	Thermal resistance, -- Junction to Case --Junction to Ambient		-	-	75 200	$^{\circ}C/W$ $^{\circ}C/W$
T_L	Lead Solder Temperature	<1/16" from case, 10 secs max	-	260	-	$^{\circ}C$

6、Limiting value

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

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
V_{DRM} V_{RRM}	Repetitive peak off-state voltages		-	400	V
$I_{T(RMS)}$	RMS on-state current		-	1	A
I_{TSM}	Non-repetitive peak on-state current	1/2 Cycle, Sine Wave, 60HZ, $T_j=25^{\circ}\text{C}$	-	10	A
I^2t	I^2t for fusing	$T_j=-40$ to $+110^{\circ}\text{C}$ ($t=8.3\text{ms}$)	-	0.415	A^2s
di_T/dt	Repetitive rate of rise of on-state current after triggering	$I_{TM} = 2\text{ A}$; $I_G = 10\text{mA}$; $di_G/dt = 0.2\text{ A/s}$	-	50	$\text{A}/\mu\text{s}$
I_{GM}	Peak gate current	$T_A=25^{\circ}\text{C}$, Pulse Width $\leq 1.0\mu\text{s}$	-	1	A
V_{GM}	Peak gate voltage		-	5	V
V_{RGM}	Peak reverse gate voltage	$T_A=25^{\circ}\text{C}$, Pulse Width $\leq 1.0\mu\text{s}$	-	5.0	V
P_{GM}	Peak gate power	$T_A=25^{\circ}\text{C}$, Pulse Width $\leq 1.0\mu\text{s}$	-	1	W
$P_{G(AV)}$	Average gate power	$T_A=25^{\circ}\text{C}$, $t \leq 8.3\text{ms}$	-	0.1	W
T_{stg}	Storage temperature		-40	150	$^{\circ}\text{C}$
T_j	Operating junction temperature		-40	110	$^{\circ}\text{C}$

7、Characteristics

$T_j = 25^{\circ}\text{C}$ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
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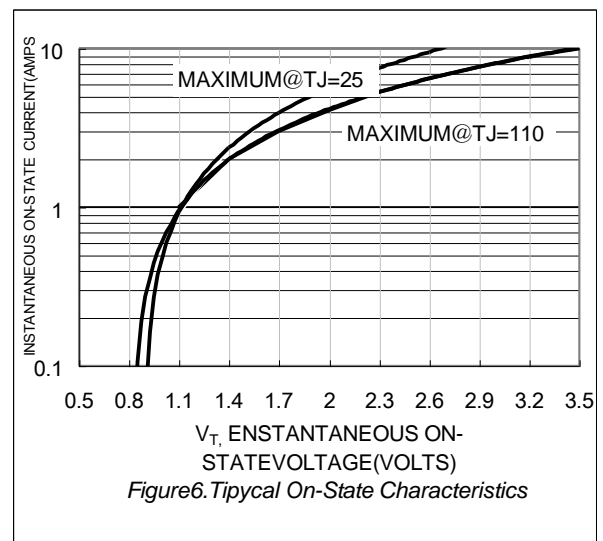
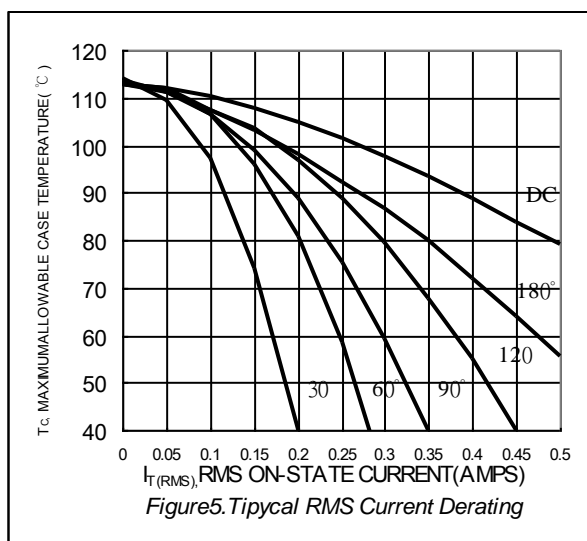
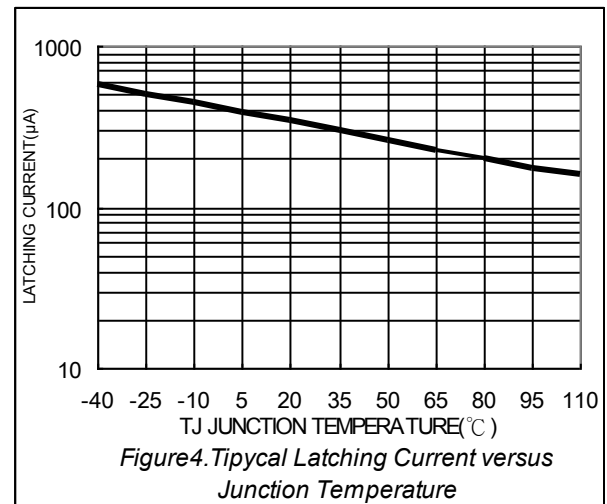
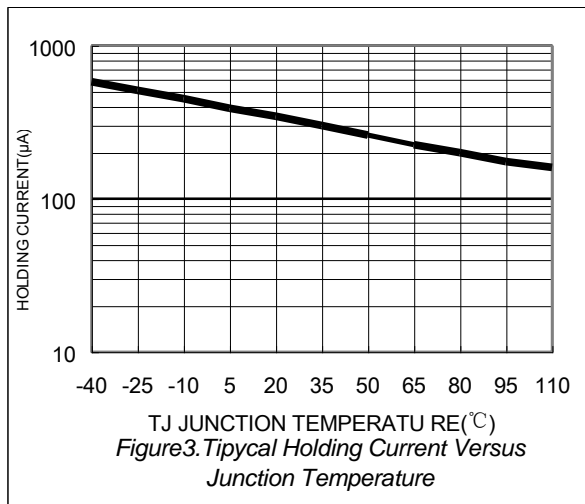
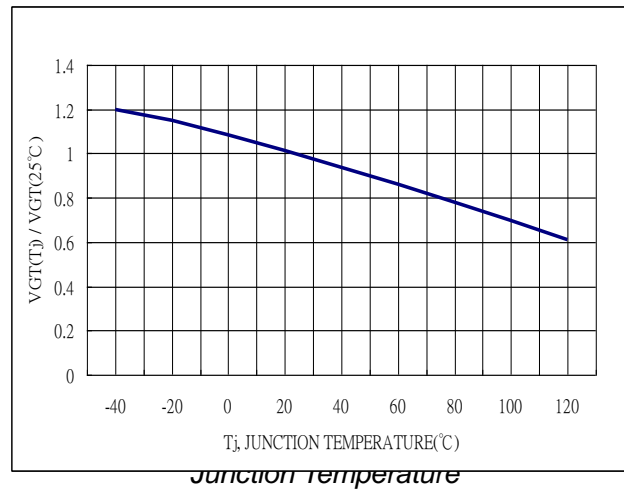
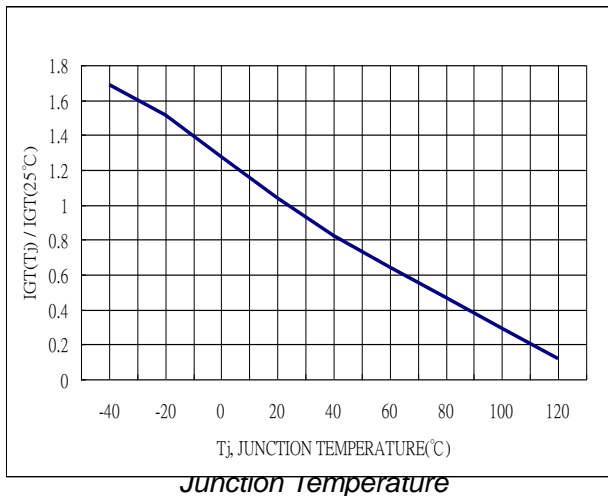
Static characteristics

I_{DRM} , I_{RRM}	Peak Repetitive Forward Or Reverse Blocking Current	$V_D = \text{Rated } V_{DRM} \text{ and } V_{RRM}, R_{GK}=1\text{K}\Omega$ $TC=25^{\circ}\text{C}$ $TC=110^{\circ}\text{C}$	- -	- -	10 100	μA μA
I_{GT}	Gate trigger current	$V_{AK}=7.0\text{ Vdc}, R_L=100\text{ Ohms}$	-	30	200	μA
I_L	Latching current	$V_{AK}=7.0\text{ Vdc}, I_G=200\mu\text{A}$ $TC=25^{\circ}\text{C}$ $TC=-40^{\circ}\text{C}$	- -	0.3 -	5 10	mA mA
I_H	Holding current	$V_D=7.0\text{ Vdc}$, Initiating Current $=20\text{mA}$ $TC=25^{\circ}\text{C}$ $TC=-40^{\circ}\text{C}$	- -	0.2 -	1.0 10	mA mA
V_{TM}	On-state voltage	$I_{TM}=1.0\text{ A Peak}$; @ $T_A=25^{\circ}\text{C}$	-	-	1.5	V
V_{GT}	Gate trigger voltage	$V_{AK}=7.0\text{ Vdc}$, $R_L=100\text{ Ohms}$ $TC=25^{\circ}\text{C}$ $TC=-40^{\circ}\text{C}$	- -	0.62 -	0.7 1.2	V V

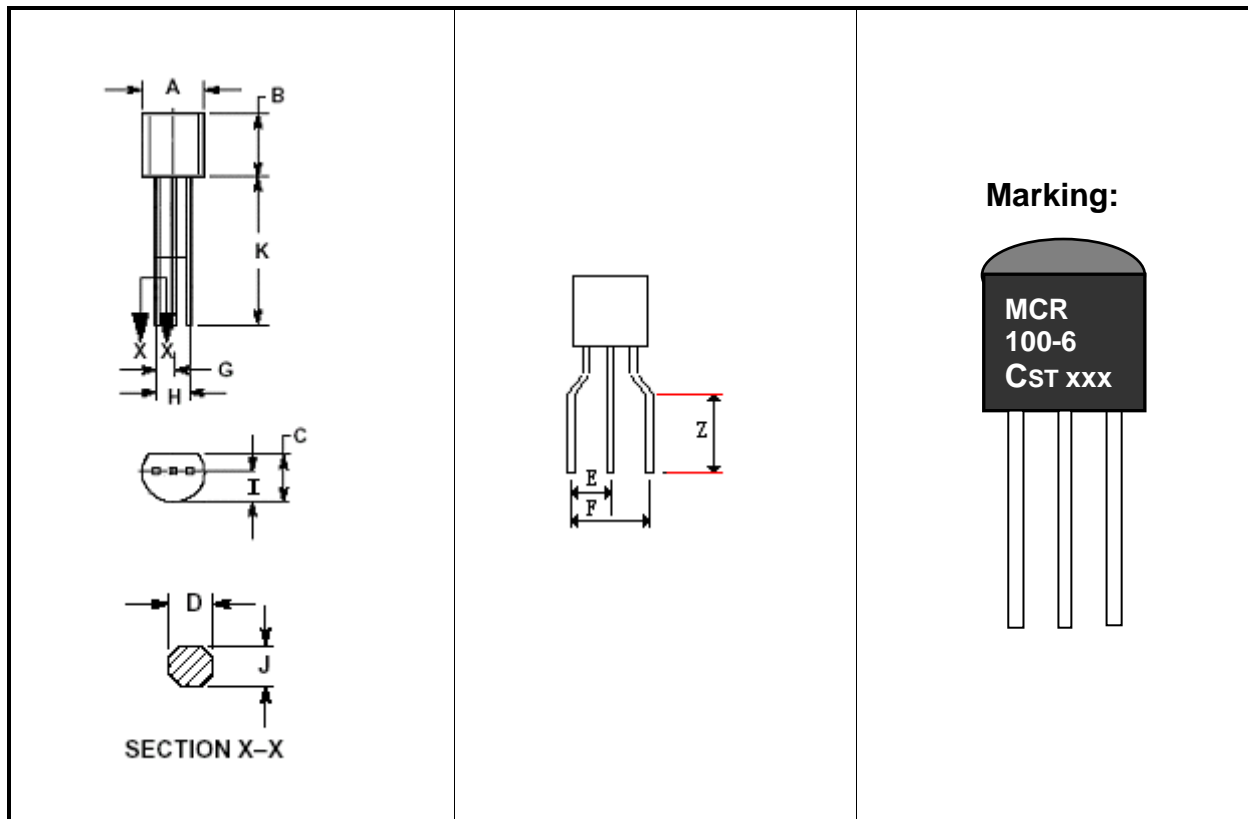
Dynamic Characteristics

dv/dt	Critical rate of rise of off-state voltage	$V_D = \text{Rated } V_{DRM}$, Exponential Waveform, $R_{GK}=1\text{K}\Omega$, $T_j=110^{\circ}\text{C}$	-	20	35	$\text{V}/\mu\text{s}$
di/dt	Critical Rate-of-Rise of Off State Current	$I_{pk}=20\text{A}$; $P_w=10\mu\text{sec}$; $di_G/dt=1\text{A}/\mu\text{sec}$, $I_{gt}=20\text{ mA}$	-	-	50	μs

8. Electrical Characteristics Curve



9、Package outline(TO-92)



DIM	Inches			Millimeters		
	Min	Type	Max	Min	Type	Max
A	0.175	-	0.205	4.45	-	5.20
B	0.170	-	0.210	4.32	-	5.33
C	0.134	-	0.142	3.40	-	3.60
K	0.500	-	-	12.70	-	-
G	0.045	-	0.055	1.14	-	1.39
H	0.095	-	0.105	2.41	-	2.67
I	0.080	-	0.105	2.04	-	2.66
D	0.016	-	0.021	0.41	-	0.53
J	0.012	-	0.018	0.30	-	0.45
E	0.08	-	0.112	2.15	-	2.85
F	0.179	-	0.215	4.55	-	5.45
Z	0.118	-	-	3.00	-	-