

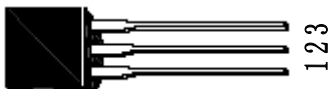

## 1、Description

**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 600 thru 800 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	600	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	50	$\mu A$

## 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		-	600	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	$\text{A}^2\text{s}$
$di_T/dt$	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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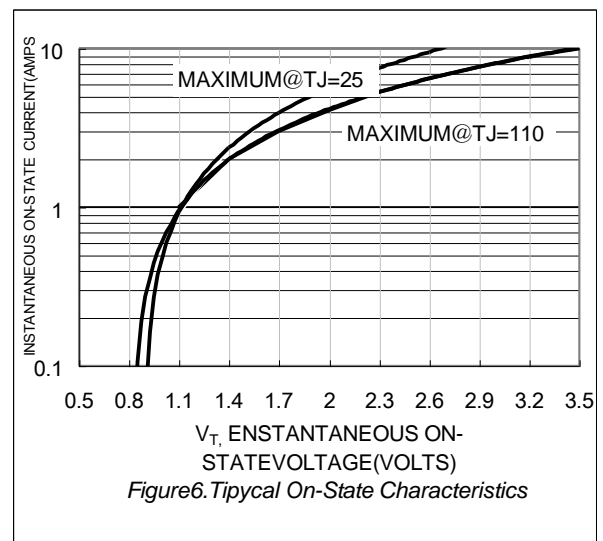
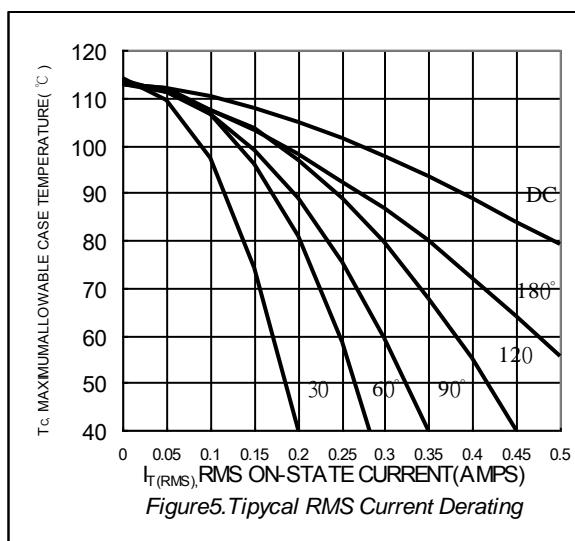
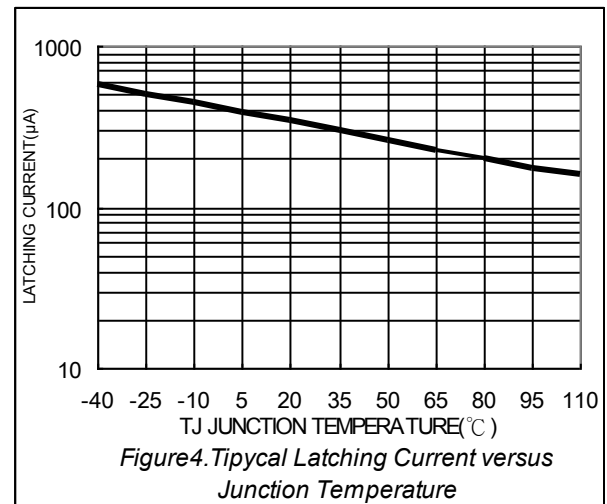
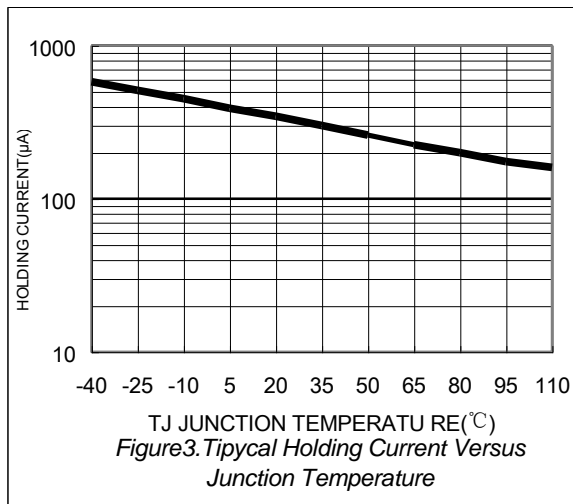
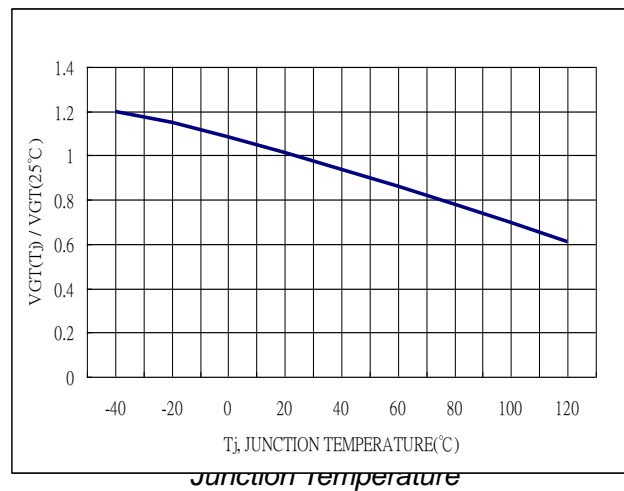
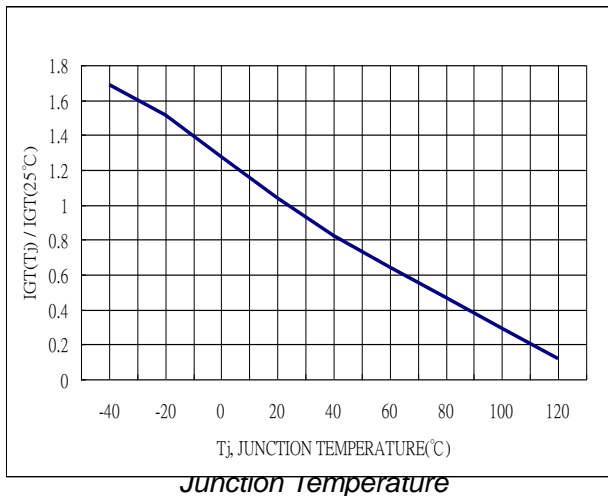
### Static characteristics

$I_{DRM}$ , $I_{RRM}$	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	$\mu\text{A}$ $\mu\text{A}$
$I_{GT}$	Gate trigger current	$V_{AK}=7.0\text{ Vdc}, R_L=100\text{ Ohms}$	-	30	50	$\mu\text{A}$
$I_L$	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	$\text{mA}$ $\text{mA}$
$I_H$	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	$\text{mA}$ $\text{mA}$
$V_{TM}$	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

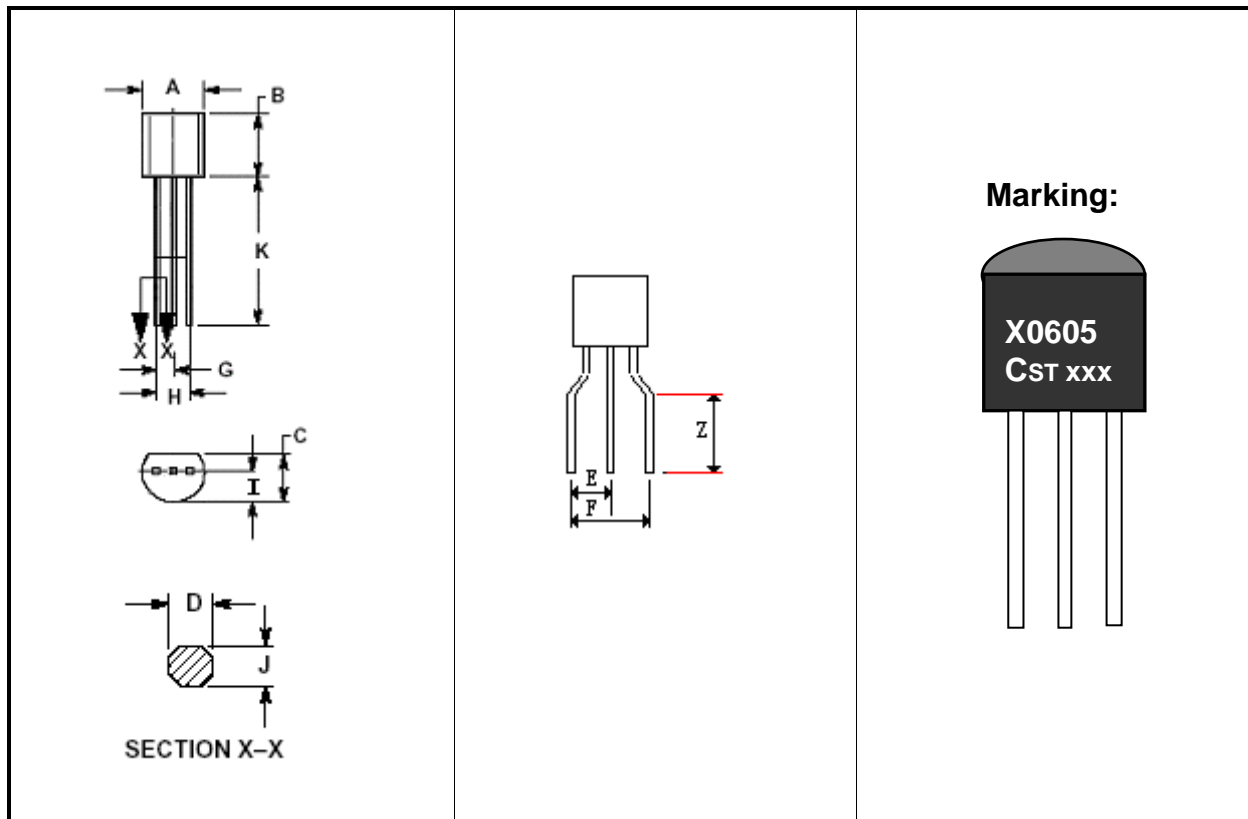
### Dynamic Characteristics

$dv/dt$	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	$\mu\text{s}$

## 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	-	-