

•General description

Glass passivated very sensitive gate Silicon Controlled Rectifier in a TO-252 plastic package intended for use in ignition circuits and protection circuits etc.

•Features

Sensitive Gate Trigger Current

High blocking voltage capability

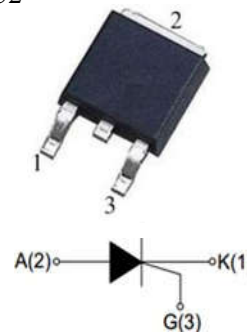
Glass-Passivated Surface for Reliability and Uniformity

•Applications

Ignition circuits, switched mode power supplies,

Lighting ballasts, logic circuit drive.

TO-252



A: anode

K: cathode

G: gate

•Reference Data

Symbol	Parameter	Value	Unit
$I_{T(RMS)}$	On-state RMS current	8	A
V_{DRM}/V_{RRM}	Repetitive peak off-state voltage	600	V
I_{GT}	Gate trigger current	200	μA

•Absolute maximum ratings

Symbol	Parameter	Conditions	Value	Unit
$I_{T(AV)}$	Average On-state current	half sine wave, $T_c \leq 90^\circ C$	5	A
$I_{T(RMS)}$	On-state RMS current	half sine wave, $T_c \leq 90^\circ C$, Fig. 1,2	8	A
V_{DRM}/V_{RRM}	Repetitive peak off-state voltage	$T_j = 25^\circ C$	600	V
V_{DSM}/V_{RSM}	Non repetitive surge peak off-state voltage	$t_p = 10ms$, $T_j = 25^\circ C$	$V_{DRM}/V_{RRM} + 100$	V
I_{TSM}	Non repetitive peak on-state current	half sine wave, $T_j(\text{init}) = 25^\circ C$, $t_p = 10ms$	70	A
I^2t	I^2t value for fusing	$t_p = 10ms$, sine wave pulse	25	A^2s
dI_T/dt	Critical rate of rise of on-state current	$I_G = 2 \cdot I_{GT}$, $t_r \leq 10ns$, $T_j = 110^\circ C$	50	$A/\mu s$
I_{GM}	Peak gate current	$t_p = 20\mu s$, $T_j = 110^\circ C$	3	A
P_{GM}	Peak gate power	$t_p = 20\mu s$, $T_j = 110^\circ C$	4	W
$P_{G(AV)}$	Average gate power	$T_j = 110^\circ C$	1	W
T_{stg}	Storage temperature		-40 to +150	$^\circ C$

T_j	Operating junction temperature range		-40 to +110	°C
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●Electrical characteristics

Symbol	Parameter	Conditions	Value			Unit
			Min	Typ	Max	
I_{GT}	Gate trigger current	$V_D=12V, R_L=140\Omega$, Fig. 6	10	-	200	μA
V_{GT}	Gate trigger voltage	$V_D=12V, R_L=140\Omega, T_j=25^\circ C$	-	-	0.8	V
V_{GD}	Gate non-trigger voltage	$V_D=V_{DRM}, R_{GK}=1k\Omega$, $R_L=3.3k\Omega, T_j=110^\circ C$	0.2	-	-	V
I_H	Holding current	$I_T=50mA, R_{GK}=1k\Omega$, $T_j=25^\circ C$, Fig. 6	-	-	5	mA
I_L	Latching current		-	-	6	mA
dV_D/dt	Critical rate of rise of off-state voltage	$V_D=2/3V_{DRM}$, $R_{GK}=1k\Omega, T_j=110^\circ C$	10	-	-	V/ μs
V_{TM}	Peak on-state voltage	$I_{TM}=8A$, $t_p=380\mu s$, Fig. 4	-	-	1.55	V
I_{DRM} / I_{RRM}	Peak forward reverse blocking current	$V_D=V_{DRM}/V_{RRM}, T_j=25^\circ C$	-	-	10	μA
		$V_D=V_{DRM}/V_{RRM}, T_j=110^\circ C$	-	-	1	mA

●Thermal resistance

Symbol	Parameter		Conditions	Value	Unit
$R_{th(j-c)AC}$	Junction to case(AC)		TO-252	2	°C/W
$R_{th(j-a)}$	Junction to ambient	$S=0.5cm^2$	TO-252	70	°C/W

●Marking :X0805M

FIG.1 Maximum power dissipation versus RMS on-state current

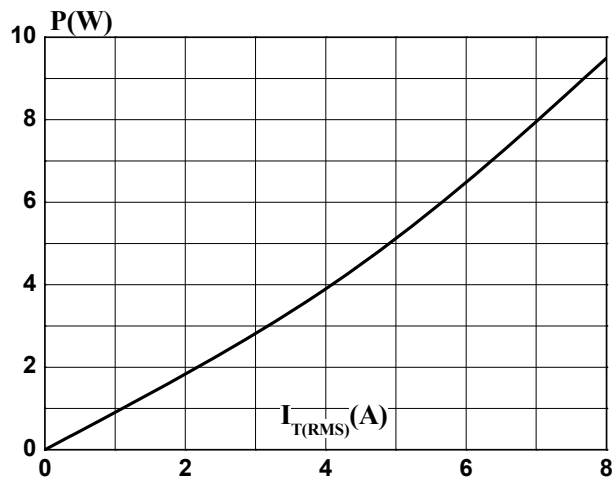


FIG.3: Surge peak on-state current versus number of cycles

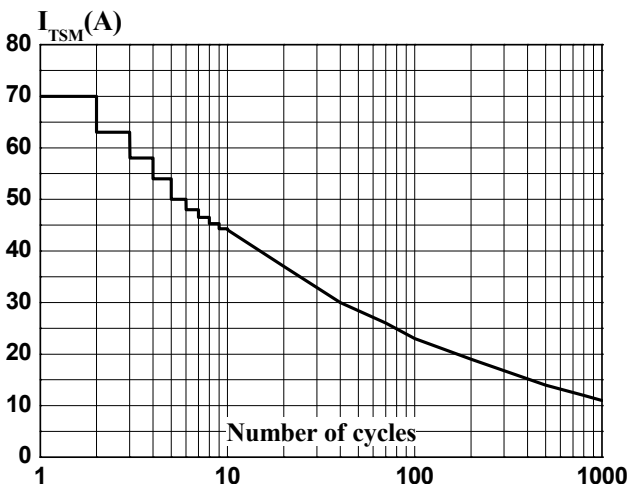


FIG.5:Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20ms$, and corresponding value of I^2t

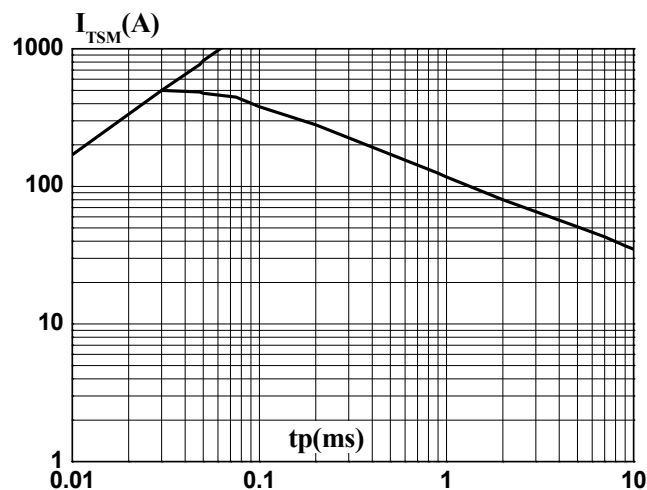


FIG.2: RMS on-state current versus case temperature

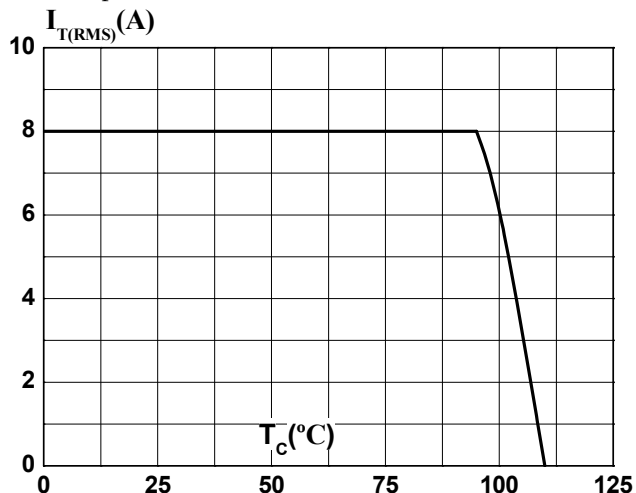


FIG.4: On-state characteristics(maximum values)

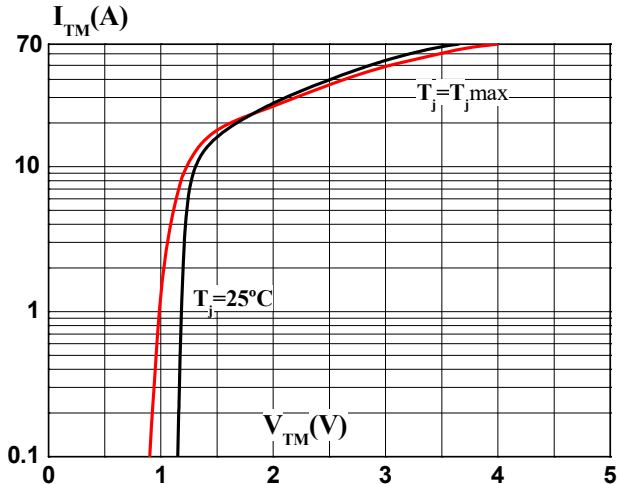
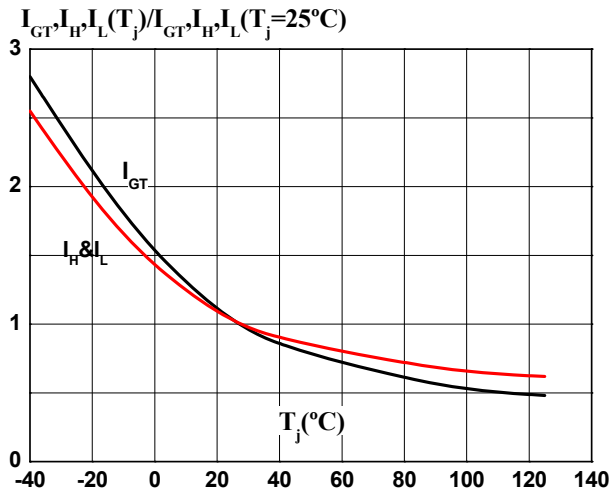
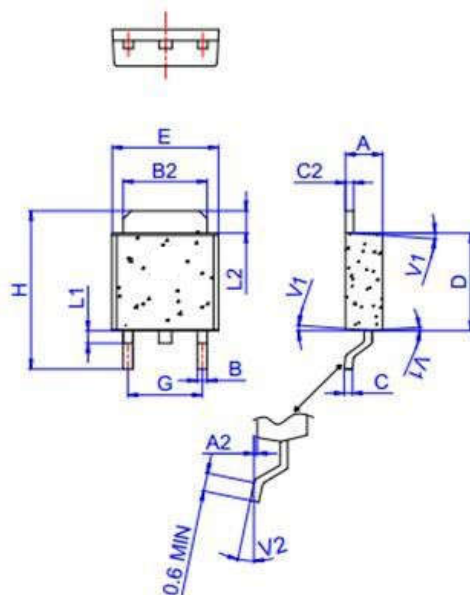


FIG.6:Relative variations of gate trigger current, holding current and latching current versus junction temperature



● **Package information**

TO-252(DPAK)



Ref	Millimeters			Inches		
	Min	Typ	Max	Min	Typ	Max
A	2.20		2.40	0.087		0.094
A2	0.03		0.23	0.001		0.009
B	0.50		0.70	0.020		0.029
B2	5.20		5.40	0.205		0.212
C	0.46		0.56	0.018		0.022
C2	0.45		0.85	0.018		0.034
D	5.80		6.10	0.228		0.240
E	6.35		6.65	0.250		0.262
G	4.50		4.70	0.177		0.185
H	10.1		10.5	0.386		0.406
L1	0.90		1.10	0.031		0.043
L2	1.35		1.65	0.053		0.065
V1		4°			4°	
V2	0°		8°	0°		8°