

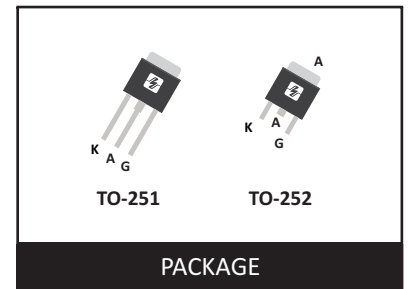
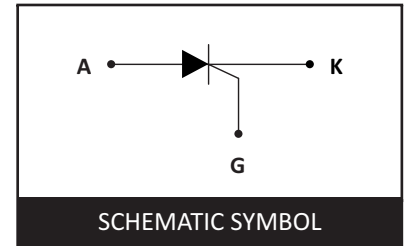
SENSITIVE GATE SILICON CONTROLLED RECTIFIERS

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.

FEATURES

- Sensitive gate allows triggering by micro controllers and other logic circuits
- Blocking voltage to 600V
- On-state current rating of 8.0A RMS at 80°C
- High surge current capability – 80A
- Minimum and maximum values of IGT, VGT and IH specified for ease of design
- Immunity to dV/dt – 10V/ μ sec minimum at 110°C
- Glass-passivated surface for reliability and uniformity



ABSOLUTE MAXIMUM RATINGS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE SPECIFIED)

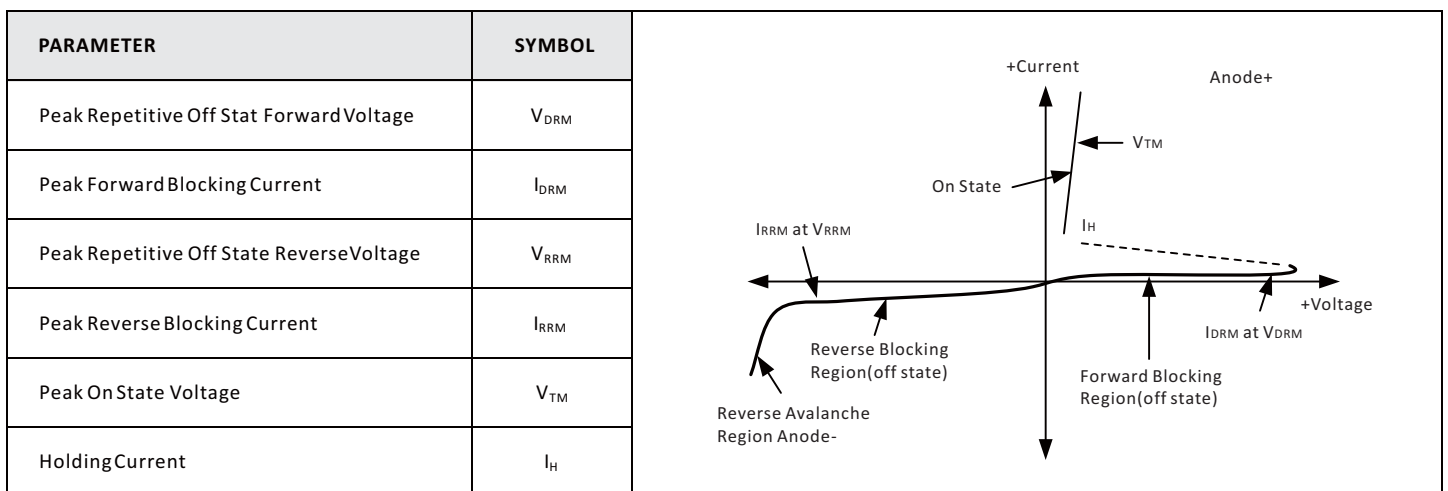
Symbol	Parameter	Condition	Ratings	Units
VDRM	Repetitive Peak Off-State Voltage		600	V
$I_T(AV)$	Average On-State Current	Half Sine Wave : $T_C = 74^\circ\text{C}$	6.0	A
$I_T(RMS)$	R.M.S On-State Current	All Conduction Angle	8.0	A
I_{TSM}	Surge On-State Current	1/2 Cycle, 60Hz, Sine Wave Non-Repetitive	80	A
I^2t	I^2t for Fusing	$t = 10.0\text{ms}$	32	A^2S
PGM	Forward Peak Gate Power Dissipation		1.0	W
$PG(AV)$	Forward Average Gate Power Dissipation		0.5	W
IFGM	Forward Peak Gate Current		4.0	A
T_J	Operating Junction Temperature		- 40 ~ 110	$^\circ\text{C}$
TSTG	Storage Temperature		- 40 ~ 150	$^\circ\text{C}$

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to Case	TO-251	10
		TO-252	15
$R_{th(j-a)}$	Junction to Ambient	TO-251	100
		TO-252	100

ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Symbol	Items	Conditions	Ratings			Unit
			Min.	Typ.	Max.	
I_{DRM}	Repetitive Peak Off-State Current	$V_{AK} = V_{DRM}$ or V_{RRM} ; $T_C = 25\text{ }^\circ\text{C}$ $T_C = 125\text{ }^\circ\text{C}$	—	—	5 100	μA
V_{TM}	Peak On-State Voltage	($I_T = 16\text{ A}$, $t_p = 380\mu\text{s}$)	—	—	1.7	V
I_{GT}	Gate Trigger Current	$V_D = 12\text{ V}$	—	—	200	μA
V_{GT}	Gate Trigger Voltage	$V_D = 12\text{ V}$	—	—	0.8	V
V_{GD}	Non-Trigger Gate Voltage	$V_D = V_{DRM}$, $R_{GK} = 1000\Omega$, $R_L = 3.3\text{ k}\Omega$, $T_J = 110\text{ }^\circ\text{C}$	0.2	—	—	V
dv/dt	Critical Rate of Rise Off-State Voltage	$V_D = 2/3 V_{DRM}$, $R_{GK} = 1000\Omega$, $T_J = 110\text{ }^\circ\text{C}$	10	—	—	V/ μs
I_H	Holding Current	$I_T = 0.05\text{ A}$	—	—	3.0	mA

VOLTAGE CURRENT CHARACTERISTIC OF SCR


PACKAGE MECHANICAL DATA
TO-251(IPAK)

Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.10	2.40	0.083	0.094
A1	0.89	1.50	0.035	0.059
b	0.50	0.70	0.020	0.028
b1	0.70	0.90	0.028	0.035
b2	5.20	5.40	0.205	0.213
C	0.46	0.61	0.018	0.024
C1	0.46	0.89	0.018	0.035
D	6.35	6.73	0.250	0.265
E	5.33	6.30	0.210	0.248
e	2.29TYP		0.09TYP	
L	6.50	7.90	0.256	0.311
L1	1.42	1.82	0.056	0.072
L2	1.35	1.65	0.053	0.065

TO-252(DPAK)

Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.40	0.086	0.095
A2	0.03	0.23	0.001	0.009
B	0.55	0.65	0.021	0.026
B2	5.10	5.40	0.200	0.212
C	0.45	0.62	0.017	0.024
C2	0.48	0.62	0.019	0.024
D	6.00	6.20	0.236	0.244
E	6.40	6.70	0.252	0.264
G	4.40	4.70	0.173	0.185
H	9.35	10.10	0.368	0.397
L1	0.80TYP		0.031TYP	
L2	1.37	1.50	0.05	0.06
V1	4° TYP		4° TYP	
V2	0°	8°	0°	8°

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