

**Sensitive Gate
Silicon Controlled Rectifiers
Reverse Blocking Thyristors**

SCRs
0.25 AMPERES RMS
600 VOLTS

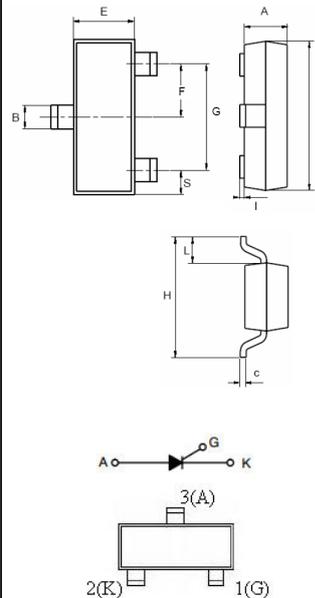
FEATURES

- Sensitive Gate Allows Triggering by Microcontrollers and Other logic Circuits
- Blocking Voltage to 600 Volts
- On - State Current Rating of 0.25 Amperes RMS at 80°C
- High Surge Current Capability — 9 Amperes
- Minimum and Maximum Values of IGT, VGT and IH Specified for Ease of Design
- Immunity to dV/dt — 20 V/us Minimum at Tj=110°C
- Glass-Passivated Surface for Reliability and Uniformity
- Autoclave test meets JESD22-A102-C, Condition B.

MECHANICAL DATA

- Case: Molded plastic
- Pb-Free Package
- Weight: 0.007 ounces, 0.2 grams

SOT-23



SOT-23		
DIM.	MIN.	MAX.
A	0.89	1.20
B	0.30	0.51
C	0.085	0.18
D	2.75	3.04
E	1.20	1.60
F	0.85	1.05
G	1.70	2.10
H	2.10	2.75
I	0.0	0.1
L	0.60 typ.	
S	0.35	0.65
All Dimensions in millimeter		

Pin diagram (top view)

MAXIMUM RATINGS (Tj= 25°C unless otherwise noticed)

Rating	Symbol	Value	Unit
Peak Repetitive Off - State Voltage (Tj= -40 to 110°C, Sine Wave, 50 to 60 Hz; Gate Open)	VDRM VRRM	600	Volts
On-State RMS Current (Tc = 80°C) 180° Conduction Angles	IT(RMS)	0.25	Amps
Peak Non-Repetitive Surge Current (1/2 Cycle, Sine Wave, 60 Hz, Tj = 25°C)	ITSM	9	Amps
Circuit Fusing Consideration (t = 8.3 ms)	I ² t	0.336	A ² s
Forward Peak Gate Power (Ta = 25°C, Pulse Width ≤ 1.0 us)	PGM	0.1	Watts
Forward Average Gate Power (Ta = 25°C, t = 8.3 ms)	PG(AV)	0.1	Watts
Forward Peak Gate Current (Ta = 25°C, Pulse Width ≤ 1.0 us)	IGM	1	Amps
Reverse Peak Gate Voltage (Ta = 25°C, Pulse Width ≤ 1.0 ms)	VGRM	5	Volts
Operating Junction Temperature Range @ Rate VRRM and VDRM	Tj	-40 to + 110	°C
Storage Temperature Range	Tstg	-40 to + 150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance – Junction to Case	RthjC	50	°C/W
Maximum Lead Temperature for Soldering Purposes 1/16" from Case for 10 Seconds	TL	260	°C

ELECTRICAL CHARACTERISTICS (Tj= 25°C unless otherwise noticed)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Peak Repetitive Forward or Reverse Blocking Current (VD=Rated VDRM and VRRM; RGK =1K Ohms)	TJ=25°C	IDRM	---	---	10	uA
	TJ=110°C	IRRM	---	---	100	

ON CHARACTERISTICS

Peak Forward On-State Voltage (ITM= ± 0.3A Peak, Pulse Width ≤ 1.0ms, Duty Cycle ≤ 1%)		V _{TM}	---	---	1.5	Volts
Gate Trigger Current (VD= 7.0 Vdc, RL=100 Ohms)		I _{GT}	---	---	50	uA
Holding Current (VD= 7.0 Vdc, Initiating Current = 20mA, RGK=1K Ohms)	TJ= 25°C	I _H	---	---	5	mA
	TJ= -40°C		---	---	10	
Gate Trigger Voltage (VD= 7.0 Vdc, RL=100 Ohms)	TJ= 25°C	V _{GT}	---	---	0.8	Volts
	TJ= -40°C		---	---	1.2	
Latch Current (VD= 7.0 Vdc, RL 100 Ohms)	TJ= 25°C	I _L	---	---	10	mA
	TJ= -40°C		---	---	15	

DYNAMIC CHARACTERISTICS

Critical Rate of Rise of Off-State Voltage (VD=Rated VDRM, Exponential Waveform, RGK=1K Ohms, TJ=110°C)	dv/dt	20	---	---	V/us
Critical Rate of Rise of On-State Current (IPK = 50 A, Pw = 10usec, f=60Hz)	di/dt	---	---	50	A/us

Voltage Current Characteristic of SCR

Symbol	Parameter
V_{DRM}	Peak Repetitive Off State Forward Voltage
I_{DRM}	Peak Forward Blocking Current
V_{RRM}	Peak Repetitive Off State Reverse Voltage
I_{RRM}	Peak Reverse Blocking Current
V_{TM}	Peak on State Voltage
I_H	Holding Current

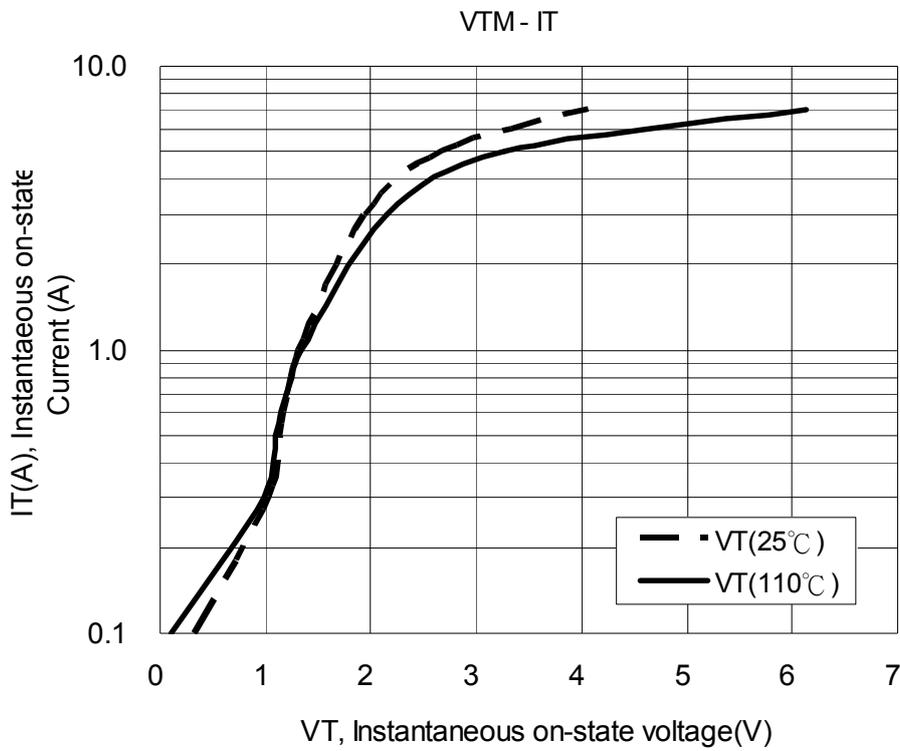
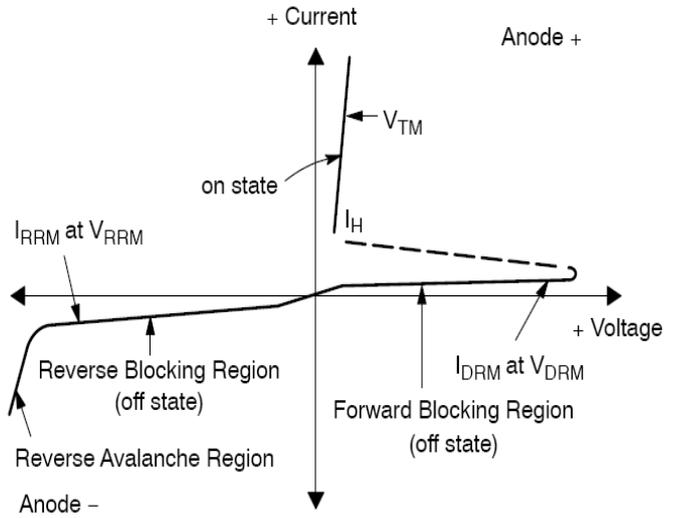


Figure 1. On-State Characteristics

Typical gate trigger current V.S.
 Junction temperature

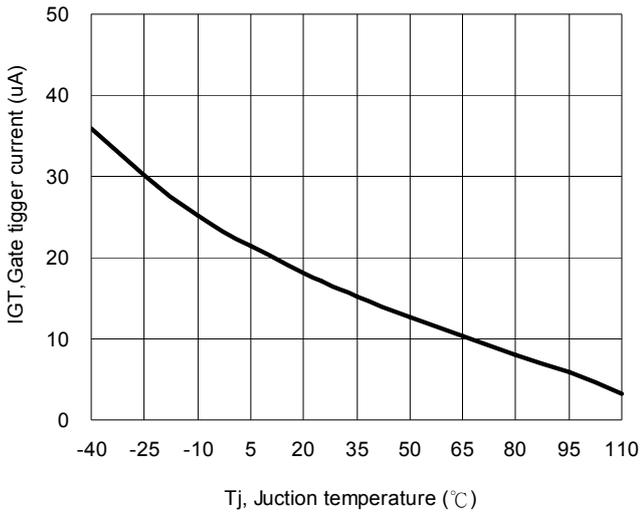


Figure 2. IGT(TJ) / IGT(25°C) versus TJ

Typical gate trigger voltage V.S.
 Junction temperature

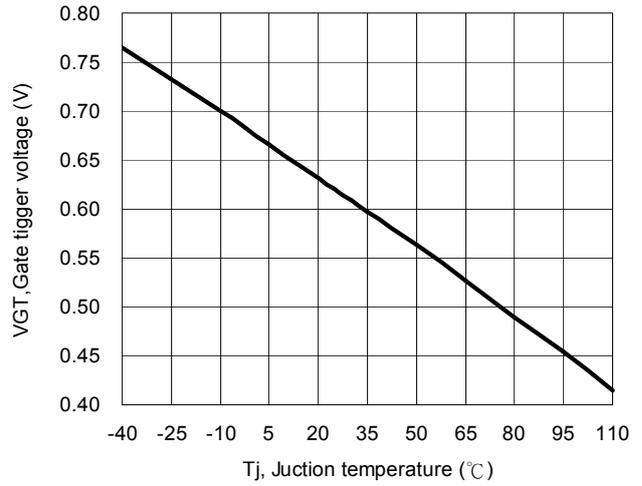


Figure 3. VGT(TJ) / VGT(25°C) versus TJ

Typical holding current V.S.
 Junction temperature

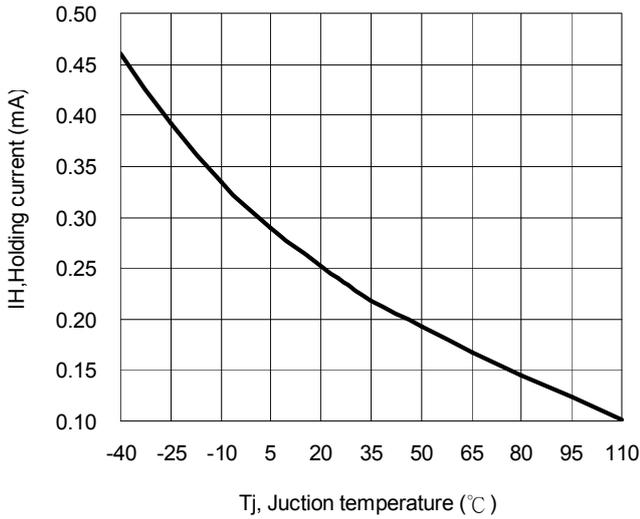


Figure 4. IH versus TJ

Typical latch current V.S. junction
 temperature

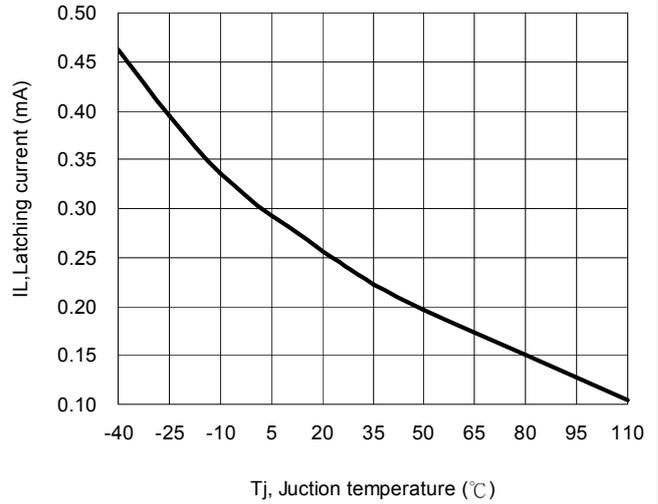


Figure 5. IL versus TJ

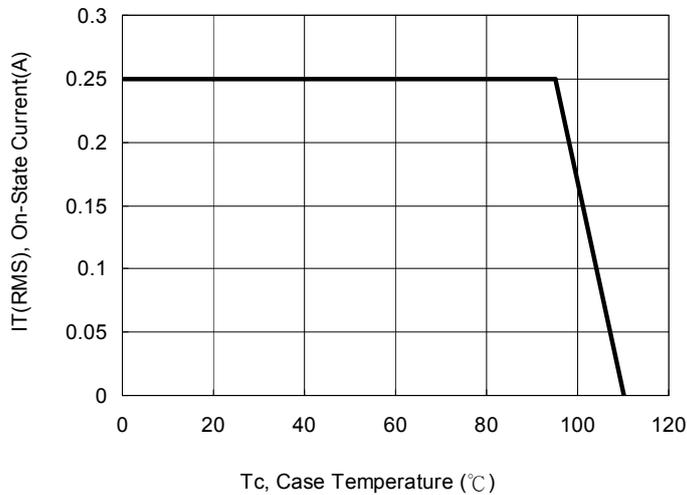


Figure 6. On-Stage Current Rating Curve

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