

S1VM02600A(LS)

**SENSITIVE GATE
SILICON CONTROLLED RECTIFIERS
REVERSE BLOCKING THYRISTORS**

SCRs 1.5 AMPERES RMS 600 VOLTS

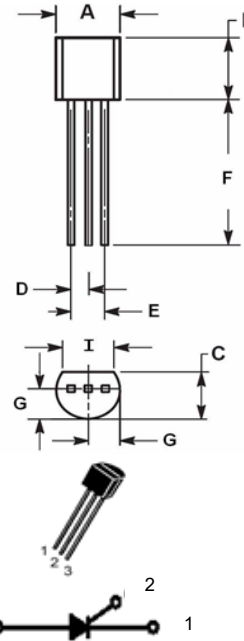
FEATURES

- Sensitive Gate Allows Triggering by Microcontrollers and Other Logic Circuits
- Blocking Voltage to 600 Volts
- On- State Current Rating of 1.5 Amperes RMS at $T_c=80^\circ\text{C}$
- High Surge Current Capability — 15 Amperes
- Glass-Passivated Surface for Reliability and Uniformity
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

MECHANICAL DATA

- Package: TO-92
- Package Material: Molded Plastic
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 ③
- Weight: 0.21 grams (Approximate)

TO-92 (TO-226AA)



TO-92		
DIM.	MIN.	MAX.
A	4.45	4.70
B	4.32	5.33
C	3.18	4.19
D	1.15	1.39
E	2.42	2.66
F	12.7	-----
G	2.04	2.66
I	3.43	-----

All Dimensions in millimeter

PIN ASSIGNMENT	
1	Cathode
2	Gate
3	Anode

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise noticed)

ABSOLUTE RATINGS

CHARACTERISTICS	SYMBOL	VALUE	UNIT
Peak Repetitive Off-State Voltage (Note 4) ($T_J = -40$ to 125°C , Sine Wave, 50 to 60Hz; Gate Open)	V_{DRM} V_{RRM}	600	V
On-State RMS Current ($T_c = 80^\circ\text{C}$) 180° Conduction Angles	$I_{T(RMS)}$	1.5	A
Peak Non-Repetitive Surge Current $T_A=25^\circ\text{C}$ (1/2 Cycle, Sine Wave, 60 Hz, $T_J = 25^\circ\text{C}$)	I_{TSM}	15	A
Circuit Fusing Consideration ($t = 8.3\text{ms}$)	I^2t	0.9	A^2s
Forward Peak Gate Power ($T_A = 25^\circ\text{C}$, Pulse Width $\leq 1.0 \mu\text{s}$)	P_{GM}	0.5	W
Forward Average Gate Power ($T_A = 25^\circ\text{C}$, $t = 8.3 \text{ms}$)	$P_{G(AV)}$	0.1	W
Forward Peak Gate Current ($T_A = 25^\circ\text{C}$, Pulse Width $\leq 1.0 \mu\text{s}$)	I_{GM}	0.2	A
Reverse Peak Gate Voltage ($T_A = 25^\circ\text{C}$, Pulse Width $\leq 1.0 \text{ms}$)	V_{GRM}	5	V
Operating Junction Temperature Range @ Rate V_{RRM} and V_{DRM}	T_J	-40 to +110	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-40 to +150	$^\circ\text{C}$

- Notes:**
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
 2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. V_{DRM} and V_{RRM} for all types can be applied on a continuous basis. Ratings apply for zero or negative gate voltage; positive gate voltage shall not be applied concurrent with negative potential on the anode. Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded.

THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	VALUE	UNIT
Thermal Resistance - Junction to Case - Junction to Ambient	RthJC	50	°C/W
	RthJA	160	
Maximum Lead Temperature for Soldering Purposes 1/16" from Case for 10 Seconds	T _L	260	°C

ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise noted)

OFF CHARACTERISTICS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Peak Repetitive Forward or Reverse Blocking Current (V _D = Rated V _{DRM} and V _{RRM} ; R _{GK} = 1k Ohms)	I _{DRM}	--	--	10	μA
	I _{RRM}	--	--	200	

ON CHARACTERISTICS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Peak Forward On-State Voltage @TA=25°C (I _{TM} =± 3.0A Peak, Pulse Width≤1.0 ms, Duty Cycle ≤1%)	V _{TM}	--	1.2	1.7	V
Gate Trigger Current (V _{AK} = 6.0 Vdc; R _L = 100 Ohms)	I _{GT}	T _J = 25°C	--	30	μA
		T _J =-40°C	--	200 500	
Holding Current (V _{AK} = 12 V, Gate Open, Initiating Current = 200 mA)	I _H	T _J = 25°C	--	2.0	mA
		T _J =-40°C	--	5.0 10	
Gate Trigger Voltage (V _D = 7 V; R _L =100 Ohms)	V _{GT}	T _J = 25°C	--	--	V
		T _J =-40°C	--	0.8 1.2	
Gate Non-Trigger Voltage (Pulse Width = 1.0ms, Duty Cycle ≤1%) V _{AK} = 12 vdc, Gate Open)	V _{GD}	0.1	--	--	V

DYNAMIC CHARACTERISTICS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Critical Rate of Rise of Off-State Voltage (V _D =Rated V _{DRM} , Exponential Waveform, R _{GK} =1K Ohms, T _J =110°C R _{GK} Current not included in measurement.	dv/dt	--	25	--	V/μs

RATING AND CHARACTERISTIC CURVES
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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

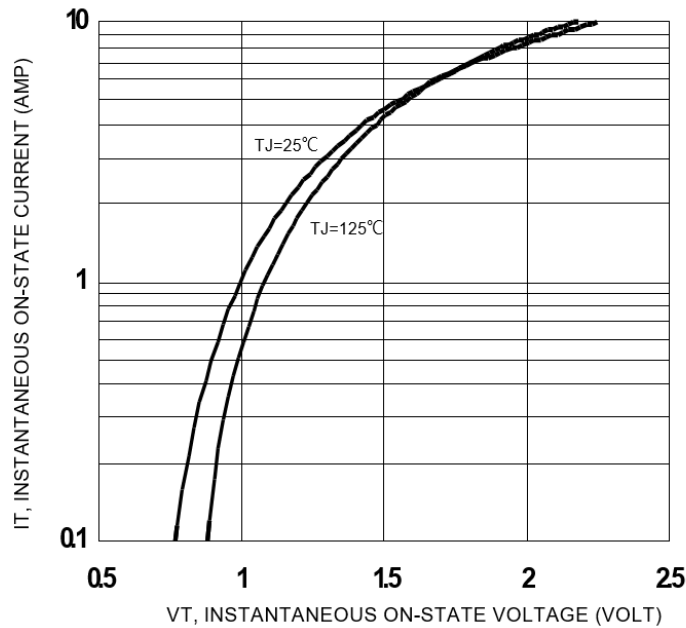
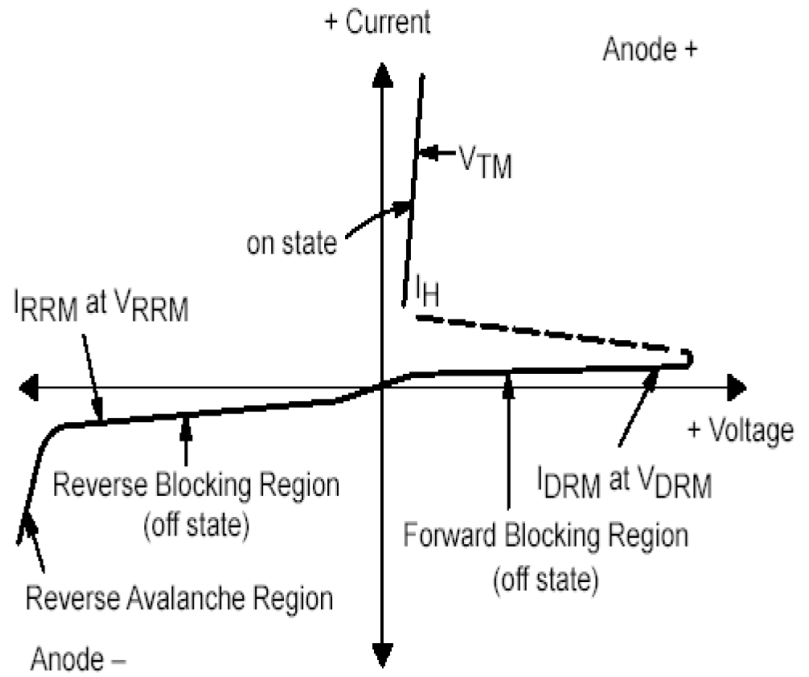


Figure 1. On-State Characteristics

RATING AND CHARACTERISTIC CURVES

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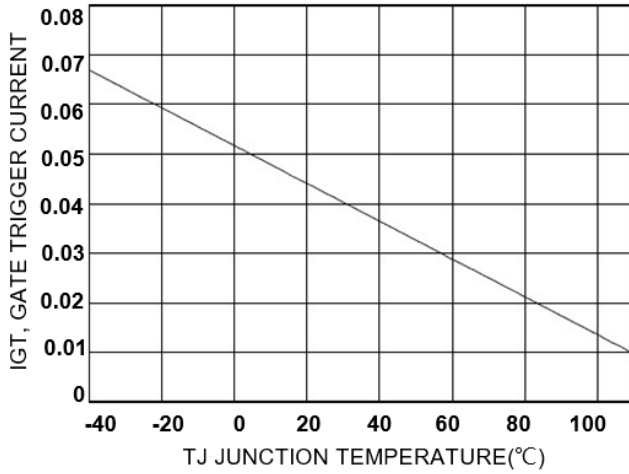


Figure 2. Typical IGT versus TJ

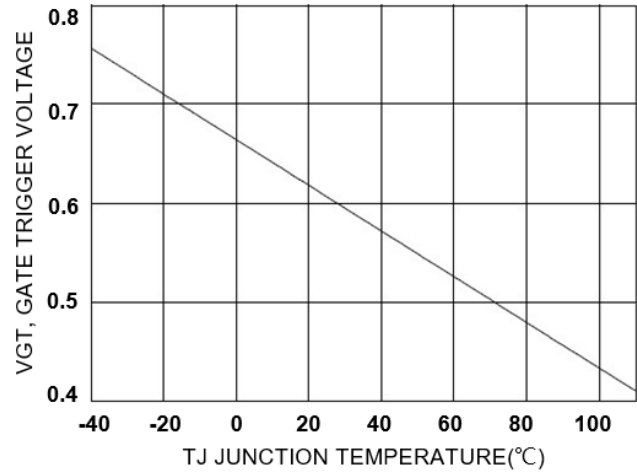


Figure 3. Typical VGT versus TJ

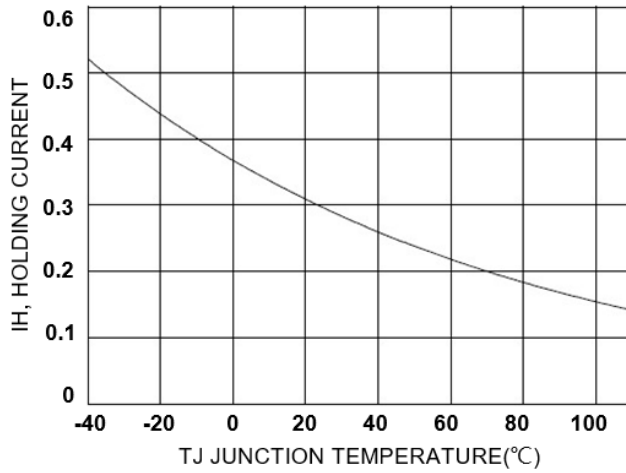


Figure 4. Typical IH versus TJ

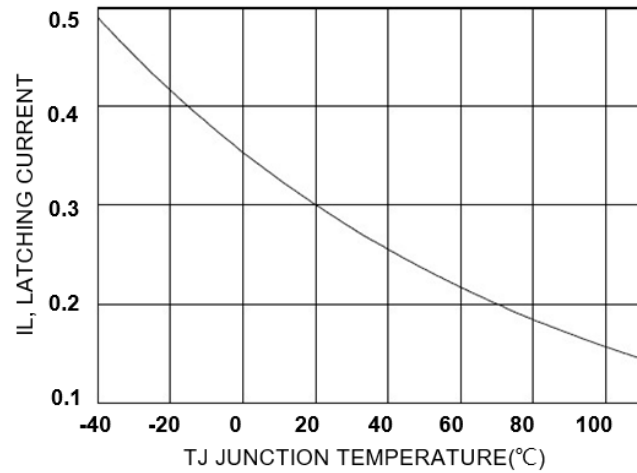


Figure 5. Typical IL versus TJ

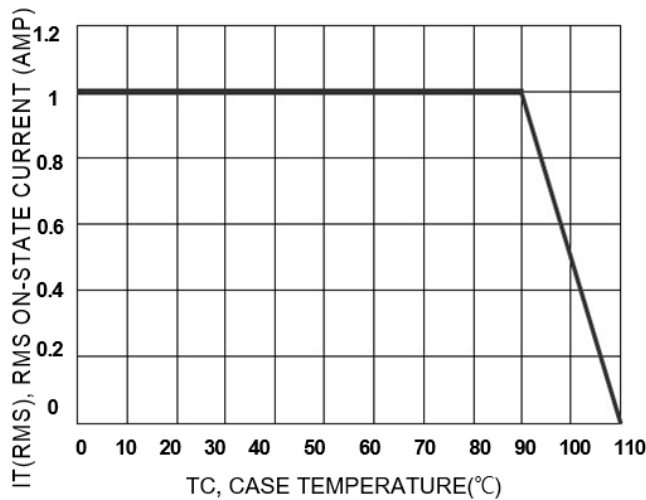


Figure 6. On-State Current Derating Curve

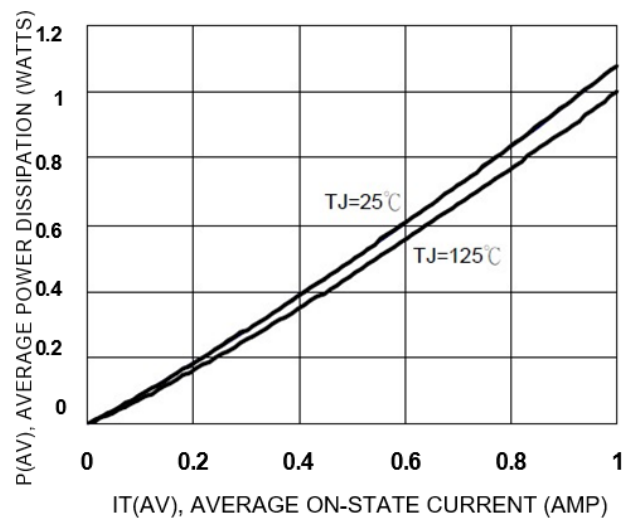
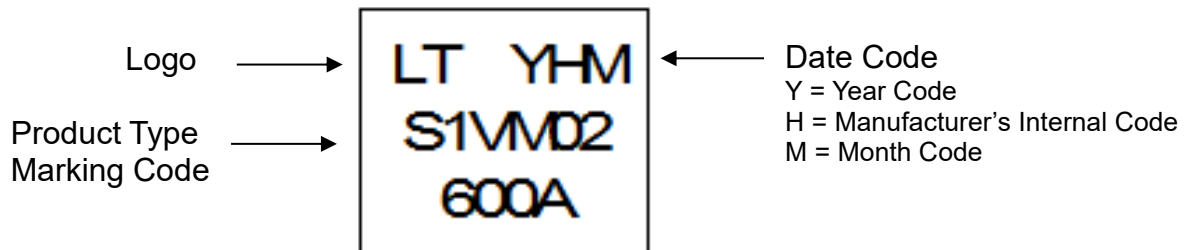


Figure 7. Power Dissipation versus IT

Ordering Information:

Part Number	Package	Packing	
		Qty.	Carrier
S1VM02600A_HF	TO-92	2000	T&R

Marking Information:



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