LITE-ON SEMICONDUCTOR

S08-A SERIES

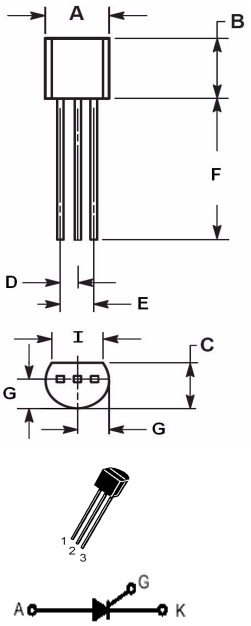
Sensitive Gate
Sillicon Controlled Rectifiers
Reverse Blocking Thyristors

SCRs
0.8 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 0.8 Amperes RMS at 80℃
- High Surge Current Capability — 10 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℃
- Glass-Passivated Surface for Reliability and Uniformity
- Pb-Free Package

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 (TJ= 25℃ unless otherwise noticed)

Rating	Symbol	Value	Unit
Peak Repetitive Off– State Voltage (TJ= -40 to 110℃, Sine Wave, 50 to 60 Hz; Gate Open) S08U25-600A S08U50-600A S08M02-600A	VDRM, VRRM	600	Volts
On-State RMS Current (TC = 80℃) 180° Conduction Angles	IT(RMS)	0.8	Amp
Peak Non-Repetitive Surge Current (1/2 Cycle, Sine Wave, 60 Hz, TJ = 25℃)	ITSM	10	Amps
Circuit Fusing Consideration (t = 8.3 ms)	I^2t	0.415	A^2s
Forward Peak Gate Power (TA = 25℃, Pulse Width ≦ 1.0 us)	PGM	0.1	Watt
Forward Average Gate Power (TA = 25℃, t = 8.3 ms)	PG(AV)	0.01	Watt
Forward Peak Gate Current (TA = 25℃, Pulse Width≦ 1.0 us)	IGM	1.0	Amp
Reverse Peak Gate Voltage (TA = 25℃, Pulse Width ≦ 1.0 ms)	VGRM	5	Volts
Operating Junction Temperature Range @ Rate VRRM and VDRM	TJ	-40 to +110	℃
Storage Temperature Range	Tstg	-40 to +150	℃

Notice: (1) VDRM and VRRM 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

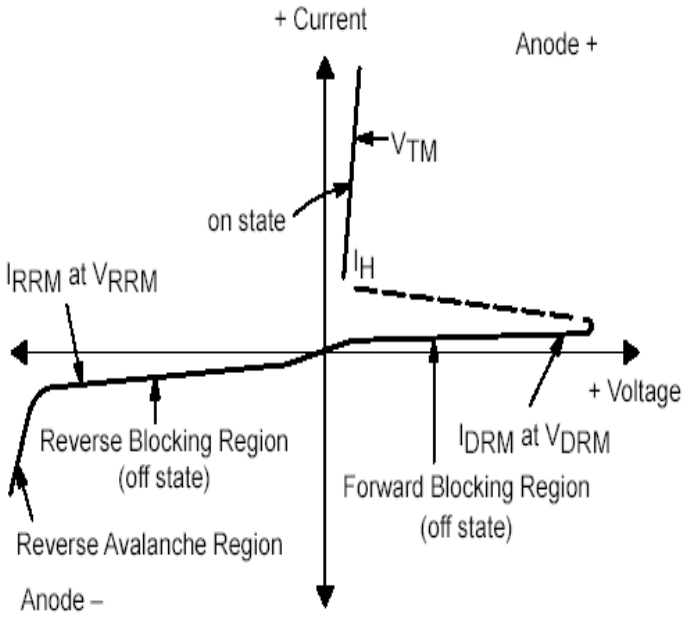
Characteristic	Symbol	Value	Unit
Thermal Resistance - Junction to Case - Junction to Ambient	R_{thJC} R_{thJA}	75 150	℃/W
Maximum Lead Temperature for Soldering Purposes 1/16" from Case for 10 Seconds	T_L	260	℃

ELECTRICAL CHARACTERISTICS (T_J=25℃unless otherwise noted)

Characteristics		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Peak Reptitive Forward or Reverse Blocking Current (VD=Rated VDRM and VRRM; RGK =1K Ohms)	T_J=25℃ T_J=110℃	I_{DRM} I_{RRM}	---- ----	---- ----	10 100	uA
ON CHARACTERISTICS						
Peak Forward On-State Voltage (ITM= ± 1.6A Peak, Pulse Width≦ 1.0ms, Duty Cycle≦ 1%)		V_{TM}	----	----	1.7	Volts
Gate Trigger Current(VD= 7.0 Vdc,RL=100 Ohms) (1)		I_{GT} S08U25	----	----	25	uA
		I_{GT} S08U50	----	----	50	
		I_{GT} S08M02	----	----	200	
Holding Current(VD= 7.0 Vdc, Intitiating Current = 20mA)	T_J=25℃	I_H	----	----	5	mA
	T_J=-40℃		----	----	10	
Gate Trigger Voltage(VD= 7.0 Vdc,RL=100 Ohms) (1)	T_J=25℃	V_{GT}	----	----	0.8	Volts
	T_J=-40℃		----	----	1.2	
Latch Current(VD= 7.0 Vdc, RL 100 Ohms)	T_J=25℃	I_L	----	----	10	mA
	T_J=-40℃		----	----	15	
DYNAMIC CHARACTERISTICS						
Critical Rate of Rise of Off-State Voltage (V_D=Rated V_{DRM},Exponential Waveform, PGK=1K Ohms, T_J=110℃		dv/dt	20	----	----	V/us

(1) R_{GK} current is not included in measurement

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



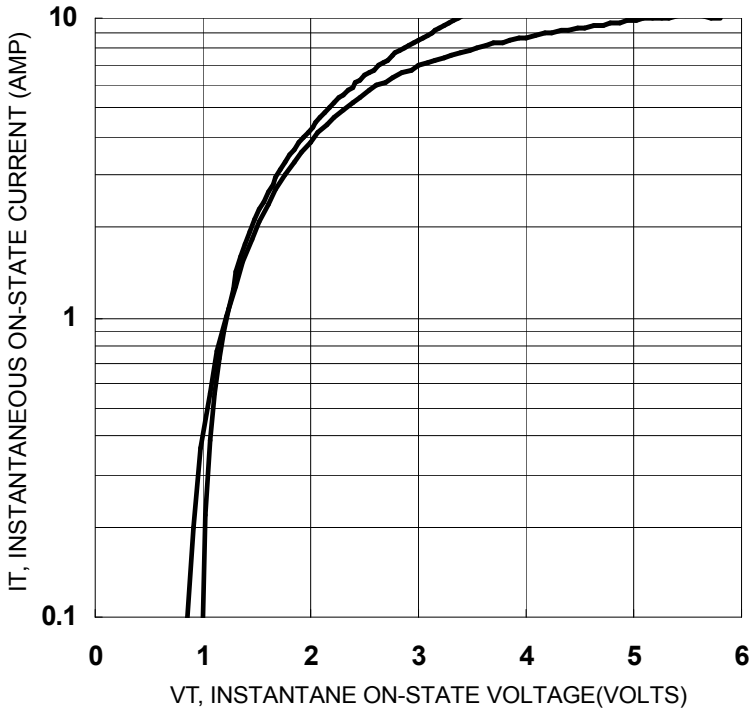


Figure 1. On-State Characteristics

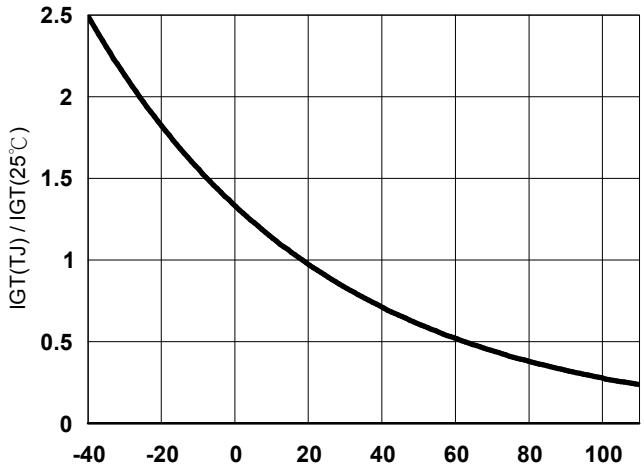


Figure 2. IGT(TJ) / IGT(25℃) versus TJ

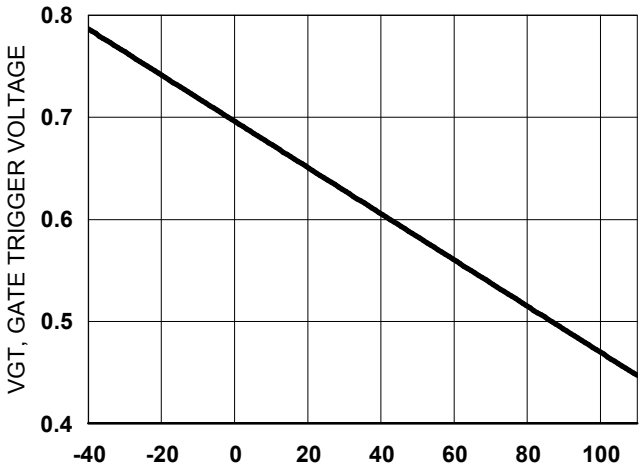


Figure 3. Typical IGT versus TJ

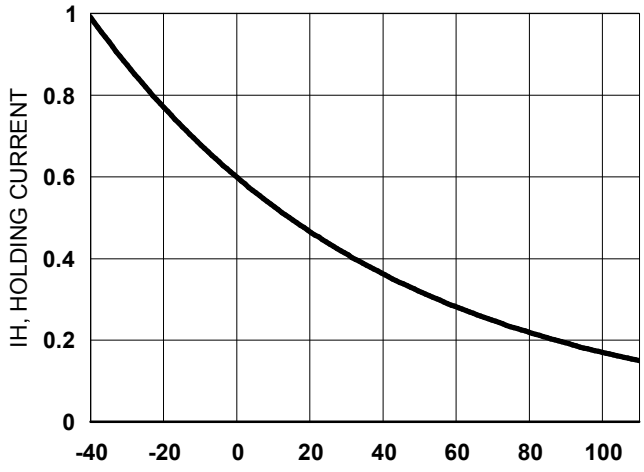


Figure 4. Typical IGT versus TJ

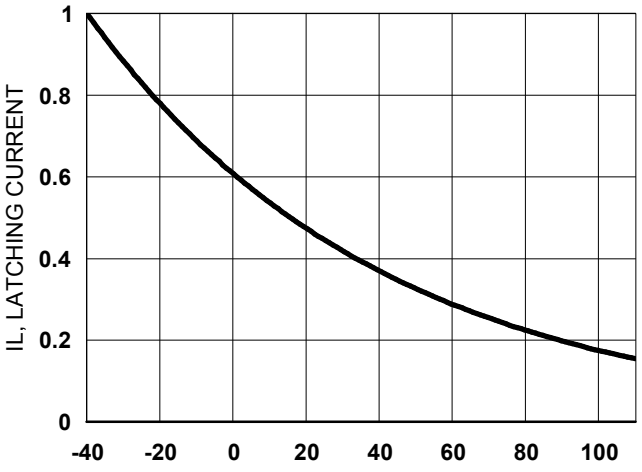


Figure 5. Typical IGT versus TJ

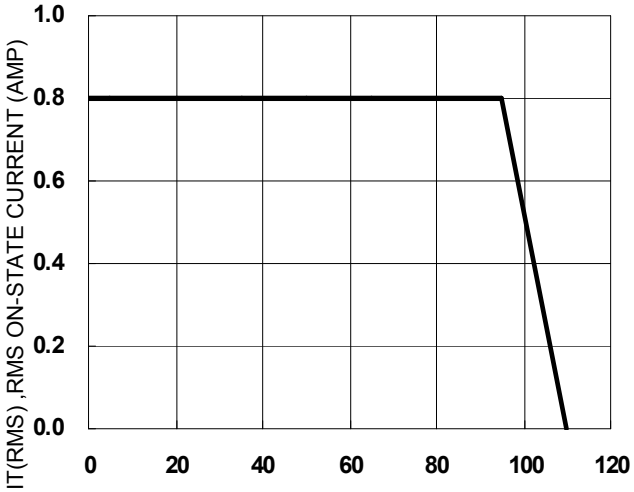


Figure 6. On-State Current Derating Curve

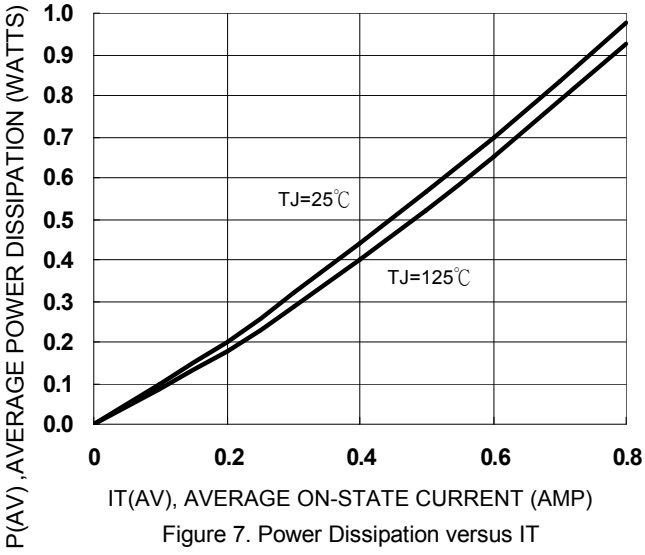


Figure 7. Power Dissipation versus IT

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