

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

**SCRs
12 AMPERES RMS
600 VOLTS**

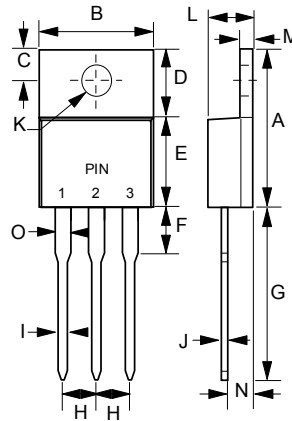
FEATURES

- Blocking Voltage to 600 Volts
- High Surge Current Capability - 100 Amperes
- On-State Current Rating of 12 Amperes RMS at 80°C
- Rugged, Economical TO220AB Package
- Glass Passivated Junctions for Reliability and Uniformity
- Minimum and Maximum Values of IGT, VGT an IH Specified for Ease of Design
- High Immunity to dv/dt - 100 V/msec Minimum at 125°C
- Pb-Free Package

MECHANICAL DATA

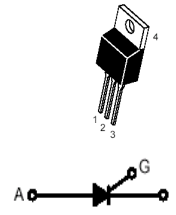
- Case: Molded plastic
- Weight: 0.07 ounces, 2.0 grams

TO-220AB



TO-220AB		
DIM.	MIN.	MAX.
A	14.22	15.88
B	9.65	10.67
C	2.54	3.43
D	5.84	6.86
E	8.26	9.28
F	-	6.35
G	12.70	14.73
H	2.29	2.79
I	0.51	1.14
J	0.40	0.67
K	3.53 ∅	4.09 ∅
L	3.56	4.83
M	1.14	1.40
N	2.03	2.92
O	1.17	1.37

All Dimensions in millimeter



PIN ASSIGNMENT	
1	Cathode
2	Anode
3	Gate
4	Anode

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

Rating	Symbol	Value	Unit
Peak Repetitive Off- State Voltage (Tj= -40 to 125°C, Sine Wave, 50 to 60 Hz; Gate Open)	V _{DRM} , V _R RM	600	Volts
On-State RMS Current (180° Conduction Angles, Tc=80°C)	I _T (RMS)	12	Amp
Peak Non-Repetitive Surge Current (1/2 Cycle, Sine Wave 60 Hz, Tj = 25°C) (1/2 Cycle, Sine Wave 50 Hz, Tj = 25°C)	I _{TSM}	100 95	Amp
Circuit Fusing Consideration (t = 8.3 ms) (t = 10 ms)	I ² t	41 45	A ² s
Forward Peak Gate Power (Pulse Width ≤ 1.0us, Tj = 80°C)	P _{GM}	5.0	Watt
Forward Average Gate Power (t=8.3ms, Tc = 80°C)	P _{G(AV)}	0.5	Watt
Forward Peak Gate Current (Pulse Width ≤ 1.0us, Tc=80°C)	I _{GM}	2.0	Amp
Operating Junction Temperature Range	T _J	-40 to +125	°C
Storage Temperature Range	T _{stg}	-40 to +150	°C

Notice: (1) 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 RthJA	2.2 62.5	°C/W
Maximum Lead Temperature for Soldering Purposes 1/8" from Case for 10 Seconds	TL	260	°C

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

Characteristics	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Peak Repetitive Forward or Reverse Blocking Current (V _D =Rated V _{DRM} and V _{VRRM} ; Gate Open)	T _J =25°C	I _{DRM}	----	----	10	µA
	T _J =125°C	I _{RRM}	----	----	2.0	mA

ON CHARACTERISTICS

Gate Trigger Current (V _D = 12 V; R _L = 100 Ohms)	IGT	2.0	4.0	8.0	mA
Holding Current (V _D = 12 V, Gate Open, Initiating Current = 200 mA)	IH	4.0	10	20	mA
Latch Current (V _D =12V, I _G = 20mA)	IL	6.0	12	30	mA
Gate Trigger Voltage (V _D = 12 V; R _L = 100 Ohms)	VGT	0.5	0.65	0.8	Volts
Peak Forward On-State Voltage (I _{TM} = 24 A Peak @T _p ≤2.0 ms, Duty Cycle ≤ 2%)	V _{TM}	----	----	2.2	Volts

DYNAMIC CHARACTERISTICS

Critical Rate of Rise of Off-State Voltage (V _D =Rated V _{DRM} , Exponential Waveform, Gate Open, T _J =125°C)	dv/dt	100	250	----	V/us
Repetitive Critical Rate of Rise of On-state Current I _{PK} =50A, P _w =40 usec, diG/dt=1A/usec, Igt=50mA	dI/dt	----	----	50	A/us

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

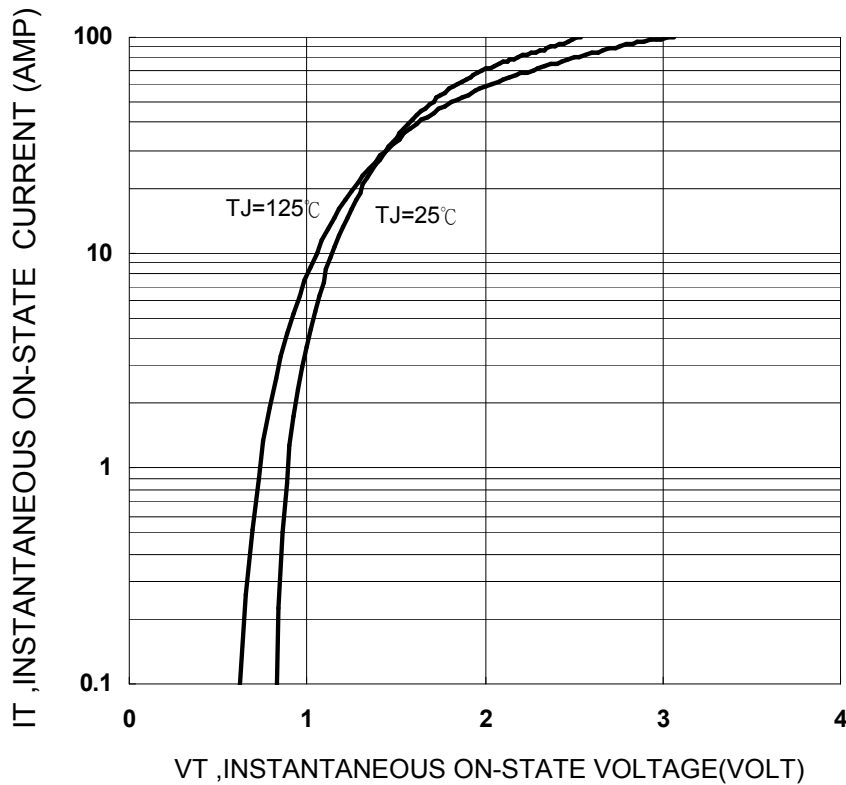
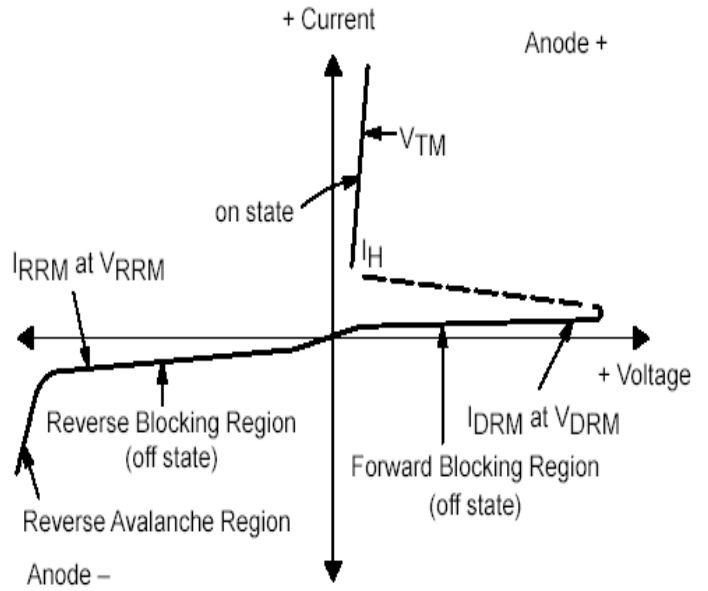


Figure 1. On-State Characteristics

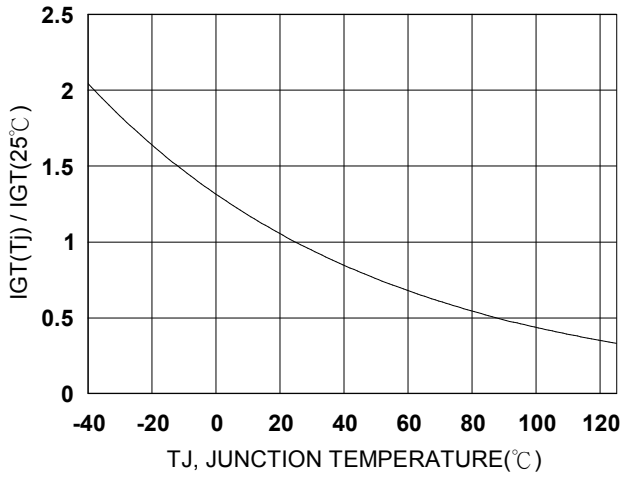


Figure 2. Typical IGT versus TJ

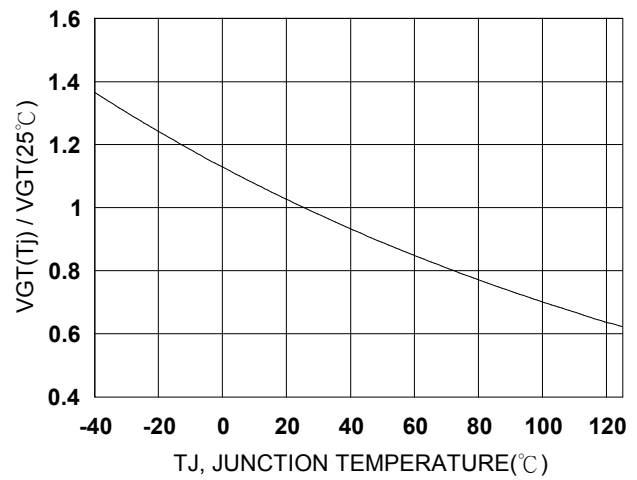


Figure 3. Typical VGT versus TJ

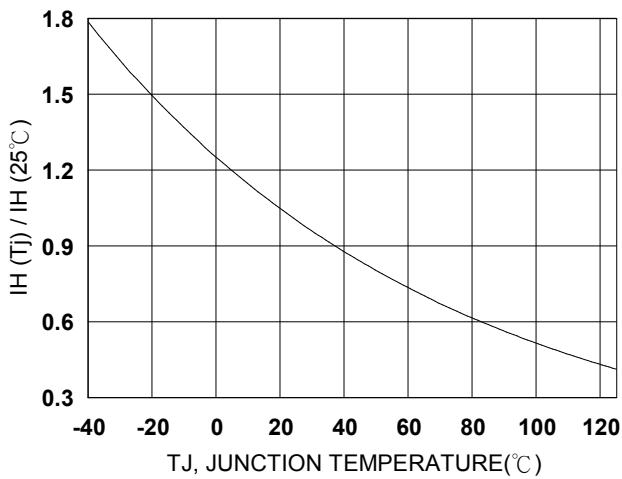


Figure 4. Typical IH versus TJ

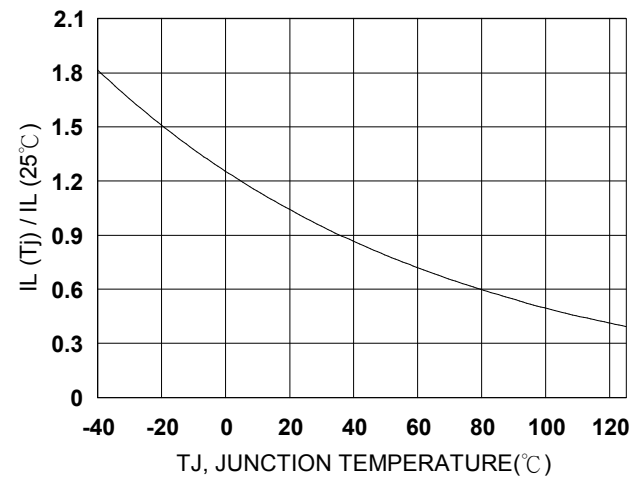


Figure 5. Typical IL versus TJ

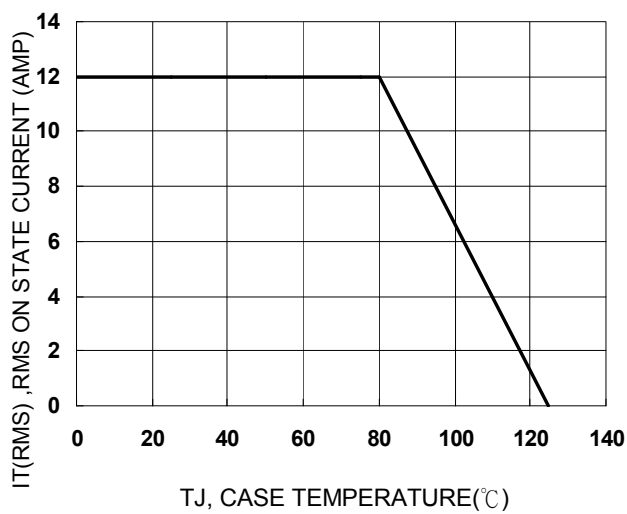


Figure 6. On-state Current Derating Curve

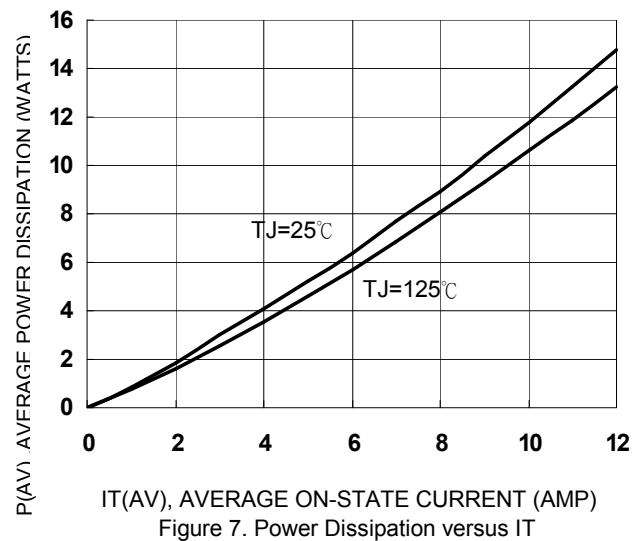


Figure 7. Power Dissipation versus IT

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