

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak repetitive off-state voltage ⁽¹⁾ (T _J = -40 to +125°C, sine wave, 50 to 60Hz, gate open)	V _{DRM} V _{RRM}	800	V
On-state RMS current (180° conduction angles, T _C = 80°C)	I _{T(RMS)}	16	A
Peak non-repetitive surge current (half-cycle, sine wave, 60Hz, T _J = 125°C)	I _{TSM}	160	A
Circuit fusing consideration (t = 8.3ms)	I ² t	106	A ² s
Forward peak gate power (pulse width ≤ 1.0μs, T _C = 80°C)	P _{GM}	5.0	W
Forward average gate power (t = 8.3ms, T _C = 80°C)	P _{G(AV)}	0.5	W
Forward peak gate current (pulse width ≤ 1.0μs, T _C = 80°C)	I _{GM}	2.0	A
Operating temperature range	T _J	-40 to +125	°C
Storage temperature range	T _{stg}	-40 to +150	°C

Note 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	Maximum	Unit
Thermal resistance, junction to case	R _{ΘJC}	1.5	°C/W
Thermal resistance, junction to ambient	R _{ΘJA}	62.5	°C/W
Maximum lead temperature for soldering purposes 1/8" from case for 10s	T _L	260	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Peak forward or reverse blocking current (V _{AK} = Rated V _{DRM} or V _{RRM} , gate open) T _J = 25°C T _J = 125°C	I _{DRM} , I _{RRM}	- -	- -	0.01 2.0	mA
ON CHARACTERISTICS					
Peak on-state voltage [*] (I _{TM} = 32A)	V _{TM}	-	-	1.7	V
Gate trigger current (continuous dc) (V _D = 12V, R _L = 100Ω)	I _{GT}	2.0	10	20	mA
Gate trigger voltage (continuous dc) (V _D = 12V, R _L = 100Ω)	V _{GT}	0.5	0.65	1.0	V
Holding current (V _D = 12V, gate open, initiating current = 200mA)	I _H	4.0	25	40	mA
Latch current (V _D = 12V, I _g = 20mA)	I _L	-	30	60	mA

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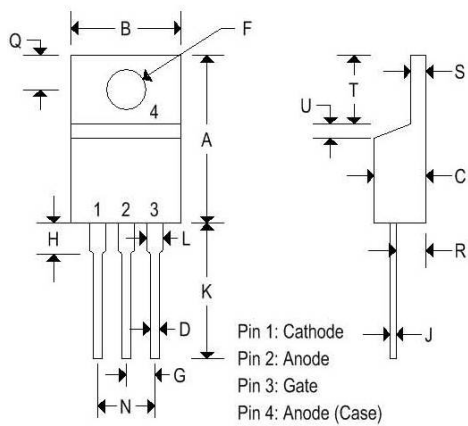
SILICON CONTROLLED RECTIFIER

DYNAMIC CHARACTERISTICS					
Critical rate of rise of off-state voltage (V_D = rated V_{DRM} , exponential waveform, gate open, $T_J = 125^\circ\text{C}$)	dv/dt	100	300	-	$\text{V}/\mu\text{s}$
Critical rate of rise of on-state current ($I_{PK} = 50\text{A}$, $P_w = 30\mu\text{sec}$, $di/dt = 1\text{A}/\mu\text{s}$, $I_{gt} = 50\text{mA}$)	di/dt	-	-	50	$\text{A}/\mu\text{s}$

* Pulse width $\leq 2.0\text{ms}$, duty cycle $\leq 2\%$.

MECHANICAL CHARACTERISTICS

Case:	TO-220AB
Marking:	Body painted, alpha-numeric
Pin out:	See below



	TO-220AB			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.575	0.620	14.600	15.750
B	0.380	0.405	9.650	10.290
C	0.160	0.190	4.060	4.820
D	0.025	0.035	0.640	0.890
F	0.142	0.147	3.610	3.730
G	0.095	0.105	2.410	2.670
H	0.110	0.155	2.790	3.930
J	0.014	0.022	0.360	0.560
K	0.500	0.562	12.700	14.270
L	0.045	0.055	1.140	1.390
N	0.190	0.210	4.830	5.330
Q	0.100	0.120	2.540	3.040
R	0.080	0.110	2.040	2.790
S	0.045	0.055	1.140	1.390
T	0.235	0.255	5.970	6.480
U	-	0.050	-	1.270
V	0.045	-	1.140	-
Z	-	0.080	-	2.030

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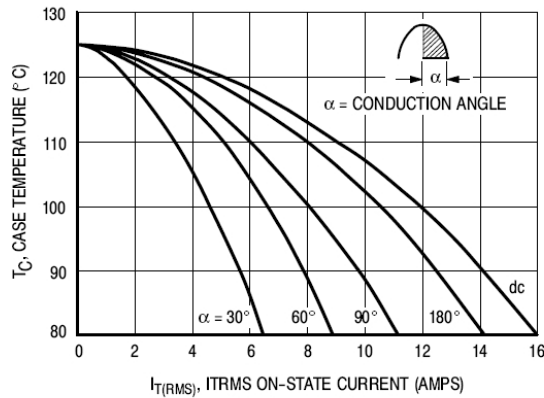


Figure 1. Typical RMS Current Derating

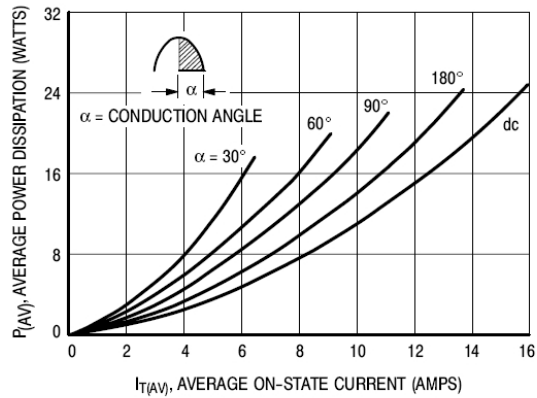


Figure 2. On State Power Dissipation

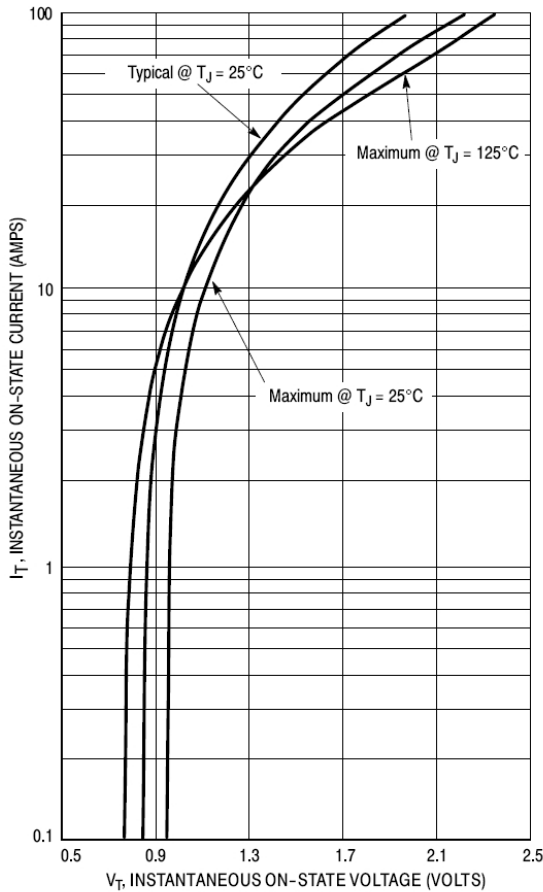


Figure 3. Typical On-State Characteristics

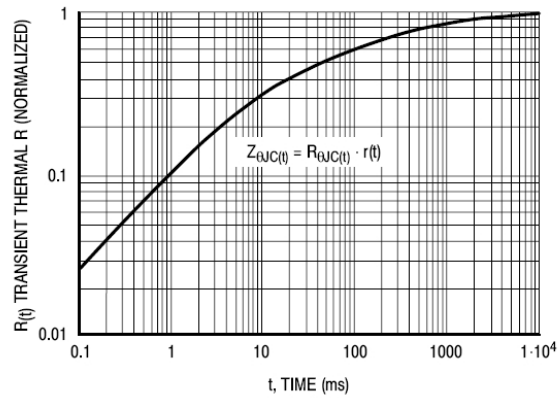


Figure 4. Transient Thermal Response

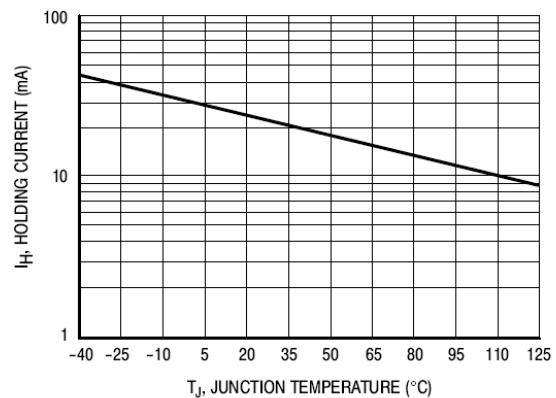


Figure 5. Typical Holding Current versus Junction Temperature

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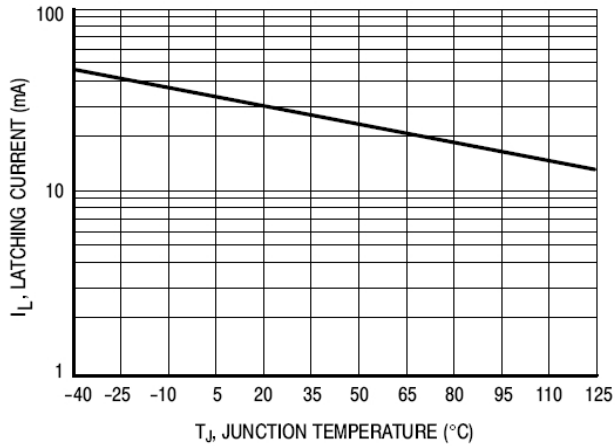


Figure 6. Typical Latching Current versus Junction Temperature

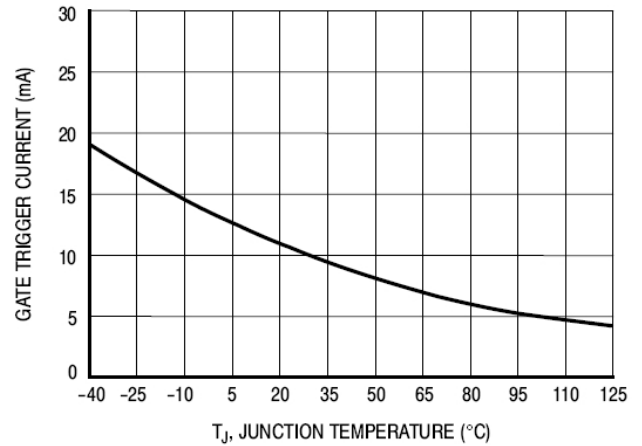


Figure 7. Typical Gate Trigger Current versus Junction Temperature

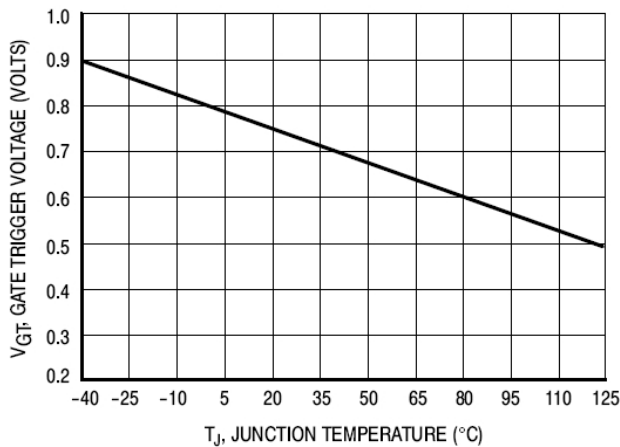


Figure 8. Typical Gate Trigger Voltage versus Junction Temperature

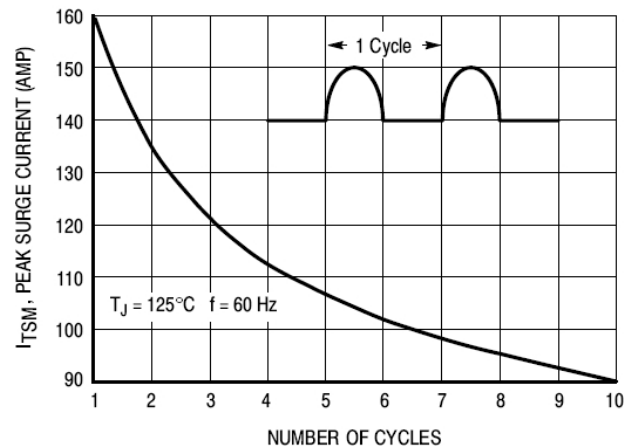


Figure 9. Maximum Non-Repetitive Surge Current