

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

Part number	Repetitive peak off-state voltage	Repetitive peak reverse voltage	Non-repetitive peak reverse voltage	Units
	V_{DRM}^1	V_{RRM}^1	V_{RSM}^1	
	$T_J = -40^\circ \text{ to } 125^\circ \text{C}$	$T_J = -40^\circ \text{C to } 125^\circ \text{C}$	$T_J = 125^\circ \text{C}$	
C147A	100	100	150	V
C147B	200	200	300	V
C147C	300	300	400	V
C147D	400	400	500	V
C147E	500	500	600	V
C147M	600	600	720	V
C147S	700	700	840	V
C147N	800	800	960	V
C147T	900	900	1080	V
C147P	1000	1000	1200	V
C147PA	1100	1100	1320	V
C147PB	1200	1200	1440	V

1: Pulse width: half sine wave waveform, 10 msec.

Rating	Symbol	Value	Unit
RMS on-state current (All conduction angles)	$I_{T(RMS)}$	63	A
Average on-state current	$I_{T(AV)}$	Figures 2 and 3	
Critical rate of rise of on-state current (non-repetitive) Switching from 1200V Switching from 600V	di/dt	100 200	A/ μ s
Peak one cycle surge (non-repetitive) on-state current 60Hz 50Hz	I_{TSM}	1000 910	A
Fusing Times ≥ 8.3 ms Times ≥ 1.5 ms	I^2t	4150 2850	A ² s
Peak gate power dissipation for 150μs	P_{GM}	100	W
Average gate power dissipation	$P_{G(AV)}$	2	W
Storage temperature	T_{stg}	-40 to 150	$^\circ$ C
Operating temperature	T_J	-40 to 125	$^\circ$ C
Maximum stud torque		3-4	N-m

di/dt ratings for conditions of V_{DRM} stated above; 20V, 20 Ω gate trigger source with 0.5 μ sec short circuit trigger current rise time.

ELECTRICAL CHARACTERISTICS

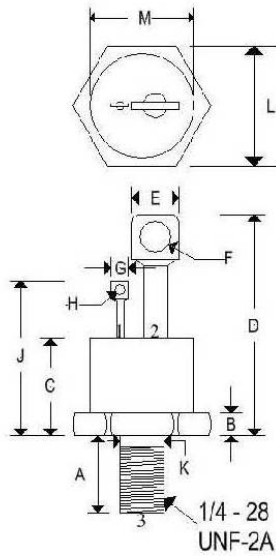
Characteristic	Symbol	Min	Max	Units	Test Condition
Peak off-state and reverse current					$T_J = -40$ to 125°C $V_{\text{DRM}} = V_{\text{RRM}} =$
C147A	I_{DRM} I_{RRM}	-	12	mA	100 Volts peak
C147B		-	12		200 Volts peak
C147C		-	12		300 Volts peak
C147D		-	10		400 Volts peak
C147E		-	10		500 Volts peak
C147M		-	10		600 Volts peak
C147S		-	10		700 Volts peak
C147N		-	9		800 Volts peak
C147T		-	8		900 Volts peak
C147P		-	7		1000 Volts peak
C147PA		-	6.5		1100 Volts peak
C147PB		-	6		1200 Volts peak
DC gate trigger current		I_{GT}	-		150
		-	300	$T_C = -40^\circ\text{C}$, $V_D = 12\text{Vdc}$, $R_L = 12\text{ohms}$	
DC gate trigger voltage	V_{GT}	-	3	Vdc	$T_C = 25^\circ\text{C}$, $V_D = 12\text{Vdc}$, $R_L = 12\text{ohms}$
		-	3.5		$T_C = -40^\circ\text{C}$, $V_D = 12\text{Vdc}$, $R_L = 12\text{ohms}$
		0.25	-		$T_C = 125^\circ\text{C}$, rated V_{DRM} , $R_L = 1000\text{ohms}$
Peak on-state voltage	V_{TM}	-	3	V	$T_C = 25^\circ\text{C}$, $I_{\text{TM}} = 500\text{A(pk)}$, 1ms wide pulse, duty cycle $\leq 1\%$
Holding current	I_{H}	-	250	mAdc	$T_C = 25^\circ\text{C}$ anode supply = 24Vdc, gate supply = 10V/20ohms. Initial forward pulse = 2A, 0.1 ms to 10 ms wide
Critical rate of rise of off-state voltage (higher values may cause device switching)	dv/dt	200	-	V/ μs	$T_C = 125^\circ\text{C}$, rated V_{DRM} , using linear exponential rising waveform, gate open circuited Exponential $dv/dt = V_{\text{DRM}} / \tau$ (0.632)
Thermal resistance	$R_{\theta\text{JC}}$	-	0.35	$^\circ\text{C/W}$	Junction to case
Typical turn-off time	t_q		125	μsec	<ol style="list-style-type: none"> 1) $T_J = 125^\circ\text{C}$ 2) $I_{\text{TM}} = 150\text{A}$, peak 3) $V_R = 50\text{V}$, min 4) V_{DRM} (reapplied) 5) Rate-of-rise of reapplied off state voltage = 20V/μsec (linear) 6) Commutation $di/dt = 5\text{A}/\mu\text{sec}$ 7) Repetition rate = 1PPS 8) Gate bias during turn-off interval = 0V, 100Ω

C147A-C147PB

SILICON CONTROLLED RECTIFIERS

MECHANICAL CHARACTERISTICS

Case	TO-65
Marking	Alpha-numeric
Pin out	See below

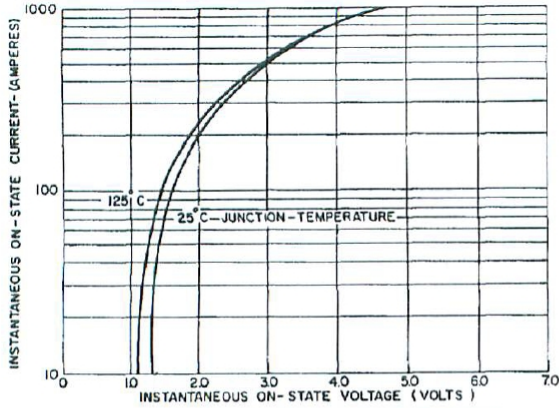


Pin 1: Gate
Pin 2: Cathode
Pin 3: Anode

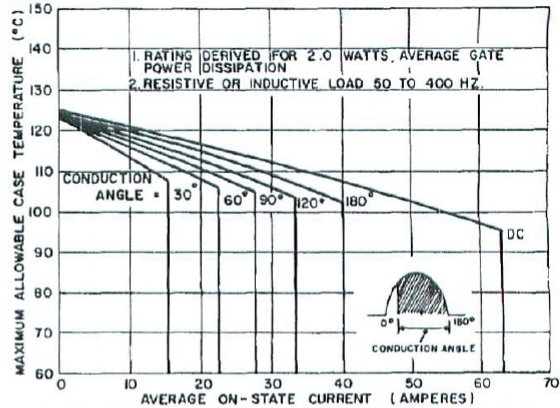
	TO-65			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.422	0.452	10.720	11.470
B	0.120	0.135	3.050	3.420
C	0.534	0.565	13.570	14.340
D	1.230	1.290	31.250	32.780
E	0.240	0.300	6.100	7.620
F	0.169	0.182	4.300	4.620
G	0.090	0.115	2.290	2.910
H	0.055	0.066	1.400	1.670
J	0.831	0.901	21.110	22.880
K	0.220	-	5.590	-
L	0.676	0.684	17.180	17.360
M	-	0.597	-	15.150

C147A-C147PB

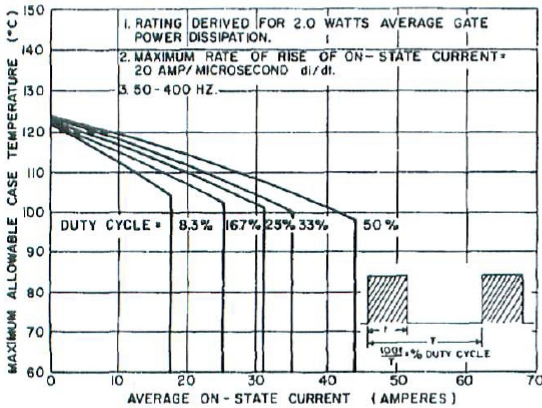
SILICON CONTROLLED RECTIFIERS



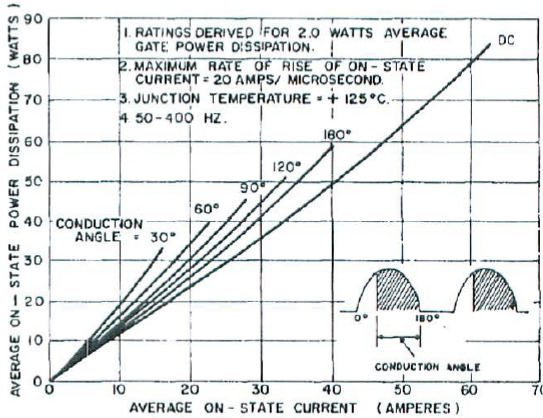
1. MAXIMUM ON-STATE CHARACTERISTICS



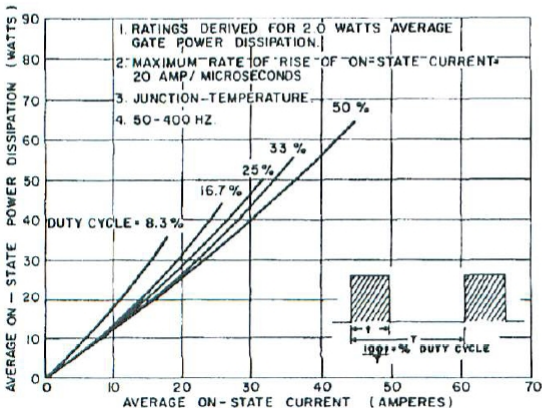
2. MAXIMUM ALLOWABLE CASE TEMPERATURE FOR SINUSOIDAL CURRENT WAVEFORM



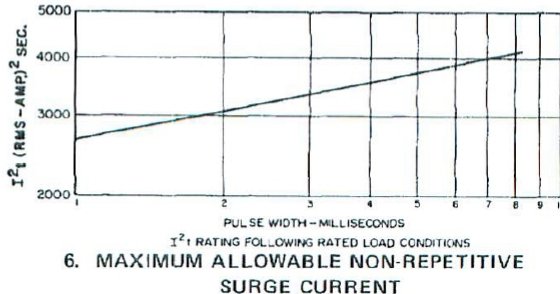
3. MAXIMUM ALLOWABLE CASE TEMPERATURE FOR RECTANGULAR CURRENT WAVEFORM



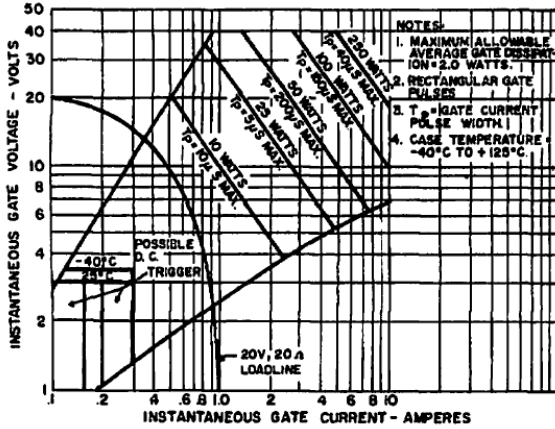
4. MAXIMUM ON-STATE POWER DISSIPATION FOR SINUSOIDAL CURRENT WAVEFORM



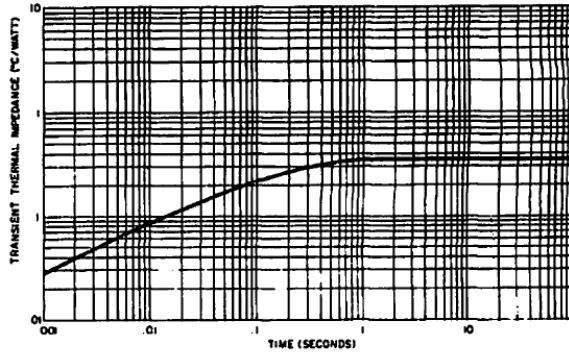
5. MAXIMUM ON-STATE POWER DISSIPATION FOR RECTANGULAR CURRENT WAVEFORM



6. MAXIMUM ALLOWABLE NON-REPETITIVE SURGE CURRENT



7. GATE TRIGGER CHARACTERISTICS AND POWER RATINGS



8. TRANSIENT THERMAL IMPEDANCE — JUNCTION-TO-CASE