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2N3756

Silicon Controlled Rectifier

RMS On-State Current, $I_{T(RMS)}$ . . . . . 35 Amperes (all conduction angles)
Peak One Cycle Surge (non-rep) On-State Current, I_{TSM} . . . . . 360 Amperes
I^2t (for fusing), for time = 1.0 milliseconds (See Chart 9) . . . . . 300 Ampere² seconds
for time = 8.3 milliseconds (See Chart 9) . . . . . 540 Ampere² seconds
Peak Gate Power Dissipation, P_{GM} . . . . . 60 Watts for 500 microseconds
Average Gate Power Dissipation, $P_{G(AV)}$ . . . . . 1.0 Watts
Peak Negative Gate Voltage, V_{GM} . . . . . 10 Volts
Storage Temperature, T_{STG} . . . . . −65°C to +150°C
Operating Temperature, T_J . . . . . −65°C to +125°C
Maximum Stud Torque . . . . . 30 Lb-in (35 Kg-cm)

(4) di/dt rating is established in accordance with EIA Standards Proposal No. 1101, Section 5.2.2.6. Off-state (blocking) voltage capability may be temporarily lost immediately after each current pulse for duration less than the period of the applied pulse repetition rate. The pulse repetition rate for this test is 60 Hz. The duration of the JEDEC di/dt test condition is 300 pulses minimum at 60 Hz.

CHARACTERISTICS

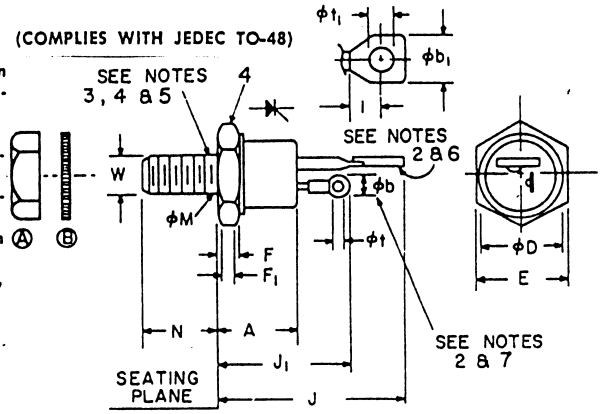
Test	Symbol	Min.	Max.	Units	Test Conditions
Peak Off-State or Reverse Current (1) (2) C137E	I_{DRM} or I_{RRM}	–	4.0	mA	T_C = −65°C to +125°C, $V_{DRM} = V_{RRM}$ = 300 Volts Peak
D.C. Gate Trigger Current	I_{GT}	–	40	mAdc	T_C = +25°C, V_D = 6 Vdc, R_L = 12 ohms
		–	80		T_C = −65°C, V_D = 12 Vdc, R_L = 12 ohms
D.C. Gate Trigger Voltage	V_{GT}	–	2.2	Vdc	T_C = +25°C, V_D = 6 Vdc, R_L = 12 ohms
		–	3.0		T_C = −65°C, V_D = 12 Vdc, R_L = 12 ohms
		0.25	–		T_C = +125°C, Rated V_{DRM}, R_L = 1000 ohms
Peak On-State Voltage	V_{TM}	–	2.3	Volts	T_C = +25°C, I_{TM} = 70 A peak, 1 msec wide pulse, Duty cycle ≦ 2%.
Holding Current	I_H			mAdc	Anode supply = 24 Vdc, Gate supply = 10 V, 20 ohms. Initial Forward Current Pulse = 0.5 A, 0.1 to 10.0 msec wide.
		–	100		T_C = +25°C
		–	200		T_C = −65°C
Critical Rate of Rise of Off-state Voltage. (Higher values may cause device switching.)	dv/dt	100	–	Volts/μsec	T_C = +125°C, Rated V_{DRM}, Gate open circuited.
Thermal Resistance	$R_{\theta JC}$	–	1.0	°C/watt	Junction-to-case, dc
Circuit Commutated Turn-Off Time	t_q	–	–(3)	μsec	T_C = 125°C, I_{TM} = 10A Peak Rectangular Current Pulse, 50 μsec duration. DI/DT < 10 Amps per microsecond. Commutation Rate ≦ 5 A per μsec. PRV = Rated V_{RRM} Volts max. Reverse Voltage at end of Turn-Off Time interval = 15 volts. Repetition Rate = 60 PPS. Rate of Rise of Re-applied Off-State Voltage (dv/dt) = 100V/μsec. Off-State Voltage = Rated V_{DRM} Volts. Gate Bias during Turn-Off Time interval = 0 Volts, 100 ohms.

NOTES:

(1). Values apply for gate terminal open-circuited. (Negative gate bias is permissible.)
(2) Maximum case-to-ambient thermal resistance for which maximum V_{DRM} and V_{RRM} ratings apply equals 5.0°C per watt for full sine wave or full-wave rectified sinusoidal voltage waveform. (3.0°C per watt is maximum case-to-ambient thermal resistance for pure dc voltage waveform.)
(3) Turn-off time is not 100% factory tested. Special selections are available upon request. Consult factory. The test conditions shown represent standard factory test conditions for special selections.

OUTLINE DRAWING

(COMPLIES WITH JEDEC TO-48)



NOTES:

1. Complete threads to extend within 2½ threads of seating plane. Diameter of unthreaded portion. 249" (6.32MM) Maximum, .220" (5.59MM) Minimum.
2. Angular orientation of these terminals is undefined.
3. ¼-28 UNF-2A. Maximum pitch diameter of plated threads shall be basic pitch diameter .2268" (5.76MM), minimum pitch diameter .2225" (5.66MM), reference: screw thread standards for Federal Service 1957, Handbook H28, 1957, P1.
4. A chamfer (or undercut) on one or both ends of hexagonal portions is optional.
5. Case is anode connection.
6. Large terminal is cathode connection.
7. Small terminal is gate connection.
8. Insulating kit available upon request.

A. ¼-28 steel nut, Ni. plated, .178 min. thk.

B. Ext. tooth lockwasher, steel, Ni. plated, .023 min. thk.

SYMBOL	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	.330	.505	8.38	12.83
ϕb	.115	.140	2.92	3.56
ϕb1	.210	.300	5.33	7.62
ϕD		.544		13.82
E	.544	.562	13.82	14.27
F	.113	.200	2.87	5.08
F1	.060		1.52	
J		1.193		30.30
J1		.875		22.23
I	.120		3.05	
ϕM				
N	.422	.453	10.72	11.51
ϕt	.060	.075	1.52	1.91
ϕt1	.125	.165	3.18	4.19
W				