New Jersey Semi-Conductor Products, Inc.

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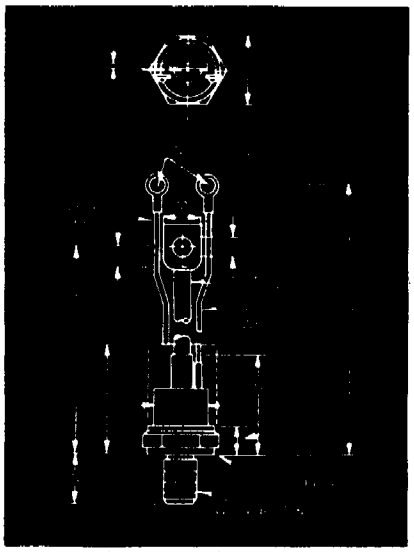
T507 SERIES

SCR T507-70
70A, 1400volts

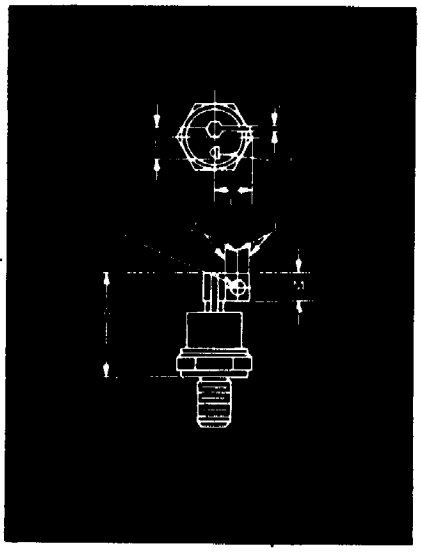


Conforms to TO-94 Outline

Symbol	Inches		Millimeters	
	Min.	Max.	Min.	Max.
A	5.775	6.265	146.69	159.13
A_1	6.850	7.500	173.99	190.50
B	.055	.075	1.40	1.91
ϕD	.860	1.000	21.84	25.40
E	1.031	1.063	26.19	27.00
F	.255	.400	6.48	10.16
J	2.50		63.50	
M	.437	.650	11.10	16.51
N	.796	.827	20.24	21.01
Q		1.675		42.55
ϕT	.260	.291	6.60	7.39
Z	.250		6.35	
ϕW	½-20 UNF-2A			

Creep & Strike Distance.
T500—.50 in. min. (12.85 mm).
(In accordance with NEMA standards.)
Finish—Nickel Plate.
Approx. Weight—5 oz. (142 g).

1. Complete threads to extend to within 2½ threads of seating plane.
2. Angular orientation of terminals is undefined.
3. Pitch diameter of ½-20 UNF-2A (coated) threads (ASA B1.1-1960).
4. Dimension "J" denotes seated height with leads bent at right angles.

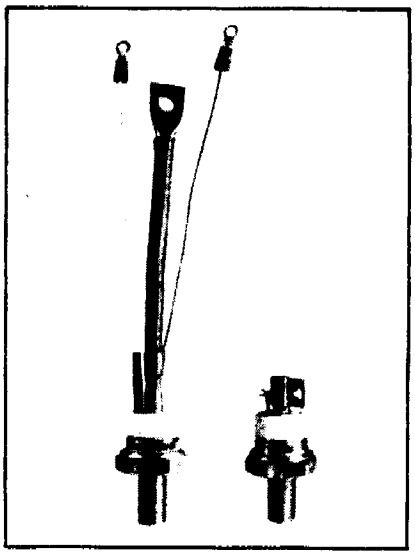


Conforms to TO-83 Outline

Symbol	Inches		Millimeters	
	Min.	Max.	Min.	Max.
A_1		1.810		45.97
C	.070	.110	1.78	2.79
L		.650		16.51
L_1	.420	.520	10.67	13.21
L_2	.180		4.57	
M_1	.360	.470	9.14	11.94
ϕT_1	.190	.235	4.83	5.97
ϕT_2	.060	.080	1.52	2.03
Z_1	.180		4.57	
ϕW	½-20 UNF-2A			

Approx. Weight—4 oz. (114 g).

1. Basic dimensions of TO-94 and TO-83 are same except as noted.



Features:
- Center fired di/namic
- High di/dt with soft gate control
- High frequency operation
- Sinusoidal waveform operation to 20 KHz
- Rectangular waveform operation to 20 KHz
- Low dynamic forward voltage drop
- Low switching losses at high frequency
- Lifetime Guarantee

Applications:
- Inverters for
  - UPS
  - Induction Heating
  - AC Motor Control
- Switching power supplies
- Cycloconverters
- Choppers
- Crowbars

Ordering Information

Type	Voltage	Current	Turn-off	Gate current	Leads
	V_{DRM} and V_{RRM} (V)	$I_{T(av)}$ (A)	tq (μsec)	I_{GT} (ma)	Case
	100	70	10	150	TO-94
	200		15		
	300		20		TO-83
	400		25		
	500		30		
	600		40		
	700		50		
	800				
	900				
	1000				
	1100				
	1200				
	1400				

*for 10 μsec turn-off, consult factory

Quality Semi-Conductors

Voltage

Blocking State Maximums ② (T_J = 125°C)

	Symbol												
Repetitive peak forward blocking voltage, V	V_{DRM}	100	200	300	400	500	600	700	800	900	1000	1100	1200	1400
Repetitive peak reverse voltage V	V_{RRM}	100	200	300	400	500	600	700	800	900	1000	1100	1200	1400
Non-repetitive transient peak reverse voltage, $t \leq 5.0$ msec, V	V_{RSM}	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1500
Forward leakage current, mA peak	I_{DRM}	← 15 →												
Reverse leakage current, mA peak	I_{RRM}	← 15 →												

Current

Conducting State Maximums (T_J = 125°C)	Symbol	T507__70
RMS forward current, A	$I_{T(rms)}$	110
Ave. forward current, A	$I_{T(av)}$	70
One-half cycle surge current③, A	I_{TSM}	1200
I^2t for fusing (for times ≥ 8.3 ms) A^2 sec.	I^2t	6000
Forward voltage drop at I_{TM} = 500A and T_J = 25°C, V	V_{TM}	3.5
Min. repetitive di/dt①④⑥, A/μsec	di/dt	100

Switching

(T_J = 25°C)	Symbol	
Max. turn-off time, I_T = 50A, T_J = 125°C, di_R/dt = 5 A/μsec, reapplied dv/dt = 20V/μsec linear to 0.8 V_{DRM}, μsec ⑤①	t_q	10 to 50
Typ. turn-on-time, I_T = 100A V_D = 100V③, μsec	t_{on}	3.5
Min. critical dv/dt, exponential to V_{DRM}, T_J = 125°C, V/μsec②③	dv/dt	200
Min. di/dt non-repetitive, A/μsec ①④⑥	di/dt	800

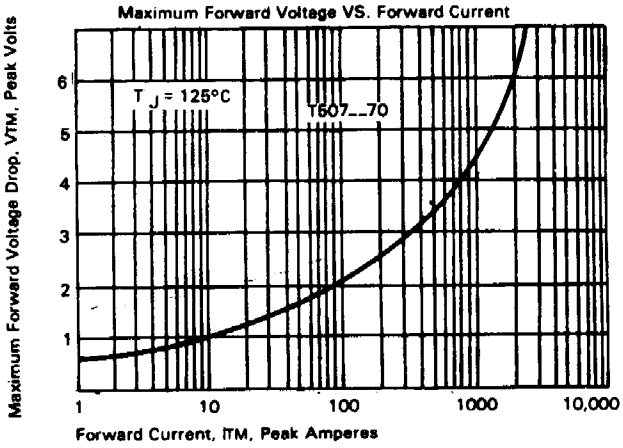
Gate

Maximum Parameters (T_J = 25°C)	Symbol	
Gate current to trigger at V_D = 12V, mA	I_{GT}	150
Gate voltage to trigger at V_D = 12V, V	V_{GT}	3
Non-triggering gate voltage, T_J = 125°C, and rated V_{DRM}, V	V_{GDM}	0.15
Peak forward gate current, A	I_{GTM}	4
Peak reverse gate voltage, V	V_{GRM}	5
Peak gate power, Watts	P_{GM}	16
Average gate power, Watts	$P_{G(av)}$	3

Thermal and Mechanical

	Symbol	
Min., Max. oper. junction temp., °C	T_J	−40 to +125
Min., Max. storage temp., °C	Tstg	−40 to +150
Max. mounting torque, in lb. ①		130
Max. Thermal resistance ① Junction to case, °C/Watt	$R_{\theta JC}$	.28
Case to sink, lubricated, °C/Watt	$R_{\theta CS}$	.12

Maximum Forward Voltage VS. Forward Current



Transient Thermal Impedance VS. Time