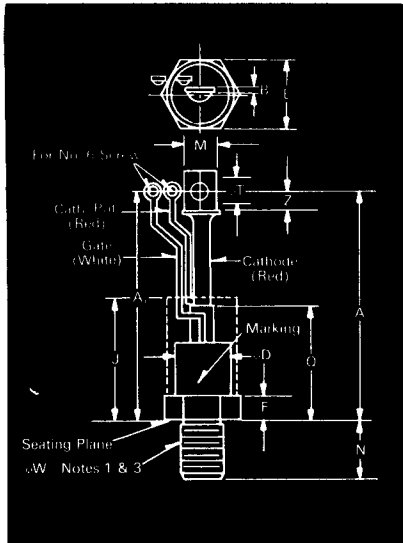


Fast Switching SCR T707_30

300A Avg.
(475 RMS)
Up to 1400 Volts
25-60 μ s



T70 Outline

Features:

- Center fired di/namic gate
- 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
- Westinghouse Lifetime Guarantee

Ordering Information

Type	Voltage		Current		Turn-off		Gate Current		Leads	
Code	V _{DRM} and V _{RRM} (V)	Code	I _{T(av)} (A)	Code	t _q μ sec	Code	I _{GT} (ma)	Code	Case	Code
T707	100 200 300 400 500 600 700 800 900 1000 1100 1200 1400	01 02 03 04 05 06 07 08 09 10 11 12 14	300	30	25 30 40 50 60 15	5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99	150	4	T70	BY

Example

Obtain optimum device performance for your application by selecting proper Order Code.

Type T 707 rated at 300A average with V_{DRM} = 800V.
I_{GT} = 150 ma, t_q = 40 μ sec and standard flex lead — order as

Type	Voltage	Current	Turn Off	Gate Current	Leads
T 7 0 7	0 8	3 0	4	4	B Y

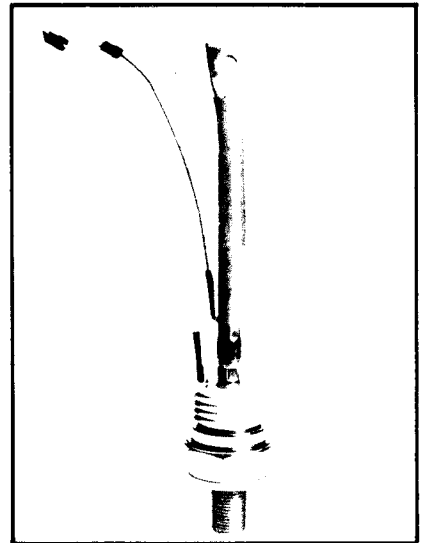
Symbol	Inches		Millimeters	
	Min.	Max.	Min.	Max.
A	9.76	10.00	247.90	254.00
A ₁	10.18	10.42	258.57	264.67
B	.063	.172	1.60	4.37
ϕ D		1.490		37.85
E	1.620	1.750	41.15	44.45
F	.430	.810	10.92	20.57
J	4.000		101.60	
M	.530	.755	13.46	19.18
N	1.04	1.08	26.42	27.43
Q		3.100		78.74
ϕ T	.330	.350	8.38	8.89
Z	.440		11.18	
ϕ W	3/16 UNF-2A			

Creep Distance—1.76 in. min. (44.91 mm).
Strike Distance—.81 in. min. (20.70 mm).
(In accordance with NEMA standards.)
Finish—Nickel Plate.
Approx. Weight—16 oz. (454 g).

1. Complete threads to extend to within 2 1/2 threads of seating plane.
2. Angular orientation of terminals is undefined.
3. Pitch diameter of 3/16 UNF-2A (coated) threads (ASA B1.1-1960).
4. Dimension "J" denotes seated height with leads bent at right angles.

Applications:

- Inverters for UPS
- Induction heating
- AC motor drives
- Cycloconverters
- Choppers
- Crowbar



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SCR
T707_30**

Voltage

Blocking State Maximums^① ($T_J = 125^\circ\text{C}$)

Repetitive peak forward blocking voltage, V ...
Repetitive peak reverse voltage, V ...
Non-repetitive transient peak reverse voltage,
 $t \leq 5.0 \text{ msec}$, V ...
Forward leakage current, mA peak ...
Reverse leakage current, mA peak ...

Symbol

V_{DRM}
 V_{RRM}
 V_{RSM}
 I_{DRM}
 I_{RRM}

100	200	300	400	500	600	700	800	900	1000	1100	1200	1400
100	200	300	400	500	600	700	800	900	1000	1100	1200	1400
200	300	400	500	600	700	800	900	1000	1100	1200	1300	1500
←							30					
←							30	→				

Current

Conducting State Maximums
($T_J = 125^\circ\text{C}$)

RMS forward current, A ...
Ave. forward current, A ...
One-half cycle surge current^③, A ...
 I^2t for fusing (for times $\geq 8.3 \text{ ms}$)
A² sec. ...
Forward voltage drop at $I_{TM} = 625 \text{ A}$
and $T_J = 25^\circ\text{C}$, V ...
Min. repetitive di/dt , A/ μ sec ...
①④④

Symbol

$I_T(\text{rms})$
 $I_T(\text{av})$
 I_{TSM}
 I^2t
 V_{TM}
 di/dt

T707_30

475
300
8000
265,000
1.45
400

Switching

($T_J = 25^\circ\text{C}$)

Max. turn-off time, $I_T = 400 \text{ A}$,
 $T_J = 125^\circ\text{C}$, $di/dt = 25$
A/ μ sec, reappplied $dv/dt =$
20V/ μ sec. linear to .8V V_{DRM} , μ sec^{①①} ...
Typ. turn-on-time, $I_T = 1000 \text{ A}$,
 $V_D = 300 \text{ V}$, μ sec ...
Min. critical dv/dt , exponential to V_{DRM} ,
 $T_J = 125^\circ\text{C}$, V/ μ sec^{②③} ...
Min. di/dt , non-repetitive, ①④④
A/ μ sec ...

Symbol

t_q
 t_{on}
 dv/dt
 di/dt

25 to 60
3.0
300
800

Gate

Maximum Parameters
($T_J = 25^\circ\text{C}$)

Gate current to trigger at $V_D = 12 \text{ V}$, mA ...
Gate voltage to trigger at $V_D = 12 \text{ V}$, V ...
Non-triggering gate voltage, $T_J = 125^\circ\text{C}$,
and rated V_{DRM} , V ...
Peak forward gate current, A ...
Peak reverse gate voltage, V ...
Peak gate power, Watts ...
Average gate power, Watts ...

Symbol

I_{GT}
 V_{GT}
 V_{GDM}
 I_{GTM}
 V_{GRM}
 P_{GM}
 $P_{G(av)}$

150
3
0.15
4
5
16
3

Thermal and Mechanical

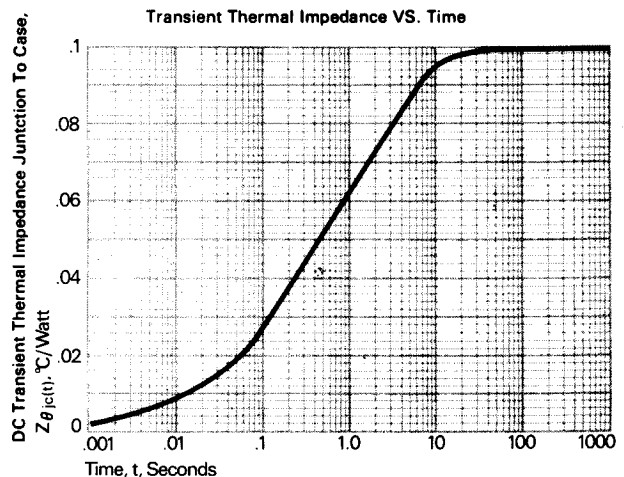
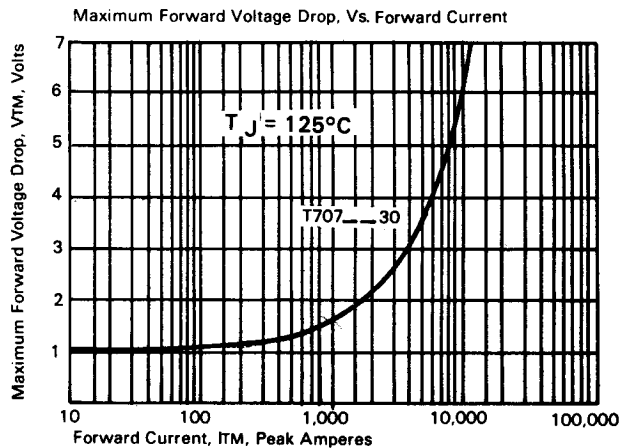
Min., Max. oper. junction temp., $^\circ\text{C}$...
Min., Max. storage temp., $^\circ\text{C}$...
Max. mounting torque, in lb. ① ...
Max. Thermal resistance ①
Junction to case, $^\circ\text{C}/\text{Watt}$...
Case to sink, lubricated, $^\circ\text{C}/\text{Watt}$...

Symbol

T_J
 T_{stg}
 $R_{\theta JC}$
 $R_{\theta CS}$

-40 to +125
-40 to +15C
360
.10
.05

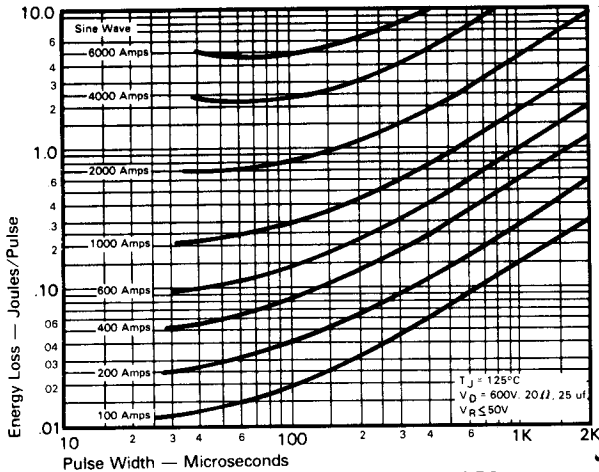
- ① Consult recommended mounting procedures.
- ② Applies for zero or negative gate bias.
- ③ Per JEDEC RS-397, 5.2.2.1.
- ④ With recommended gate drive.
- ⑤ Higher dv/dt ratings available, consult factory.
- ⑥ Per JEDEC standard RS-397, 5.2.2.6.
- ⑦ For operation with antiparallel diode, consult factory.



Fast Switching SCR T707_30

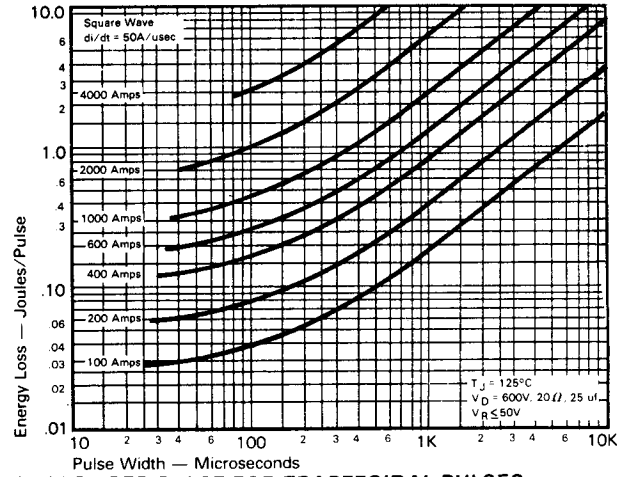
300A Avg.
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Sinusoidal Current Data

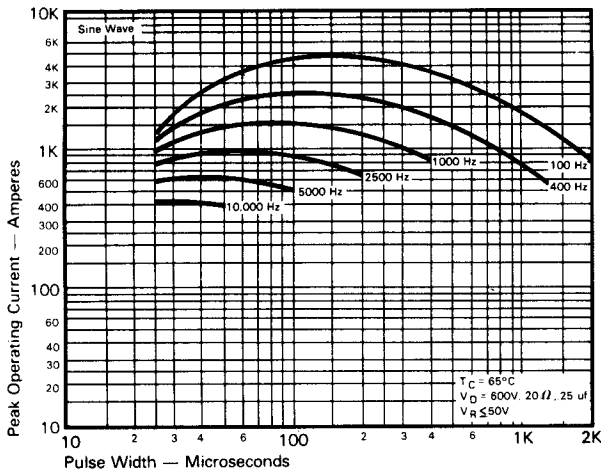


ENERGY PER PULSE FOR SINUSOIDAL PULSES

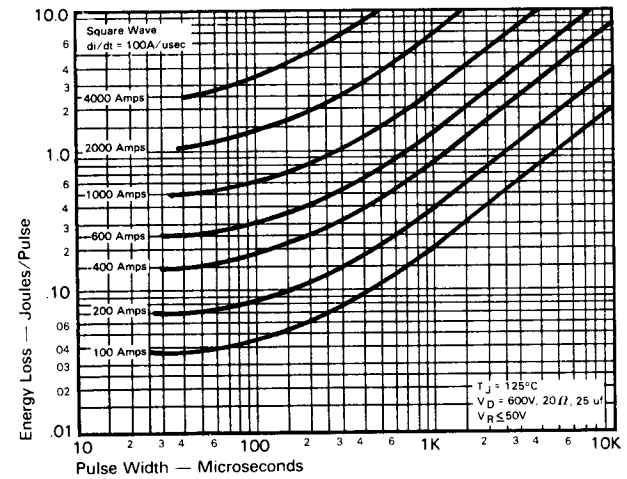
Trapezoidal Wave Current Data



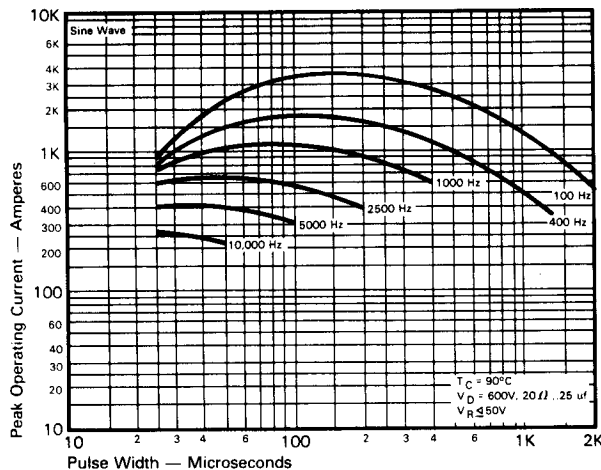
ENERGY PER PULSE FOR TRAPEZOIDAL PULSES
($di/dt = 50\text{A}/\mu\text{sec}$)



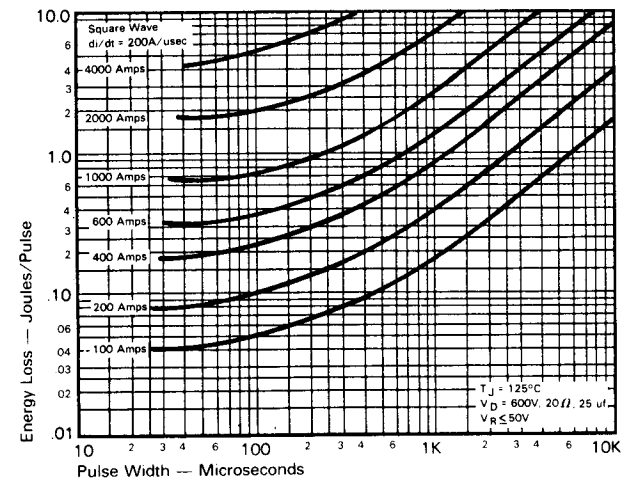
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($T_C = 65^\circ\text{C}$)



ENERGY PER PULSE FOR TRAPEZOIDAL PULSES
($di/dt = 100\text{A}/\mu\text{sec}$)



MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($T_C = 90^\circ\text{C}$)

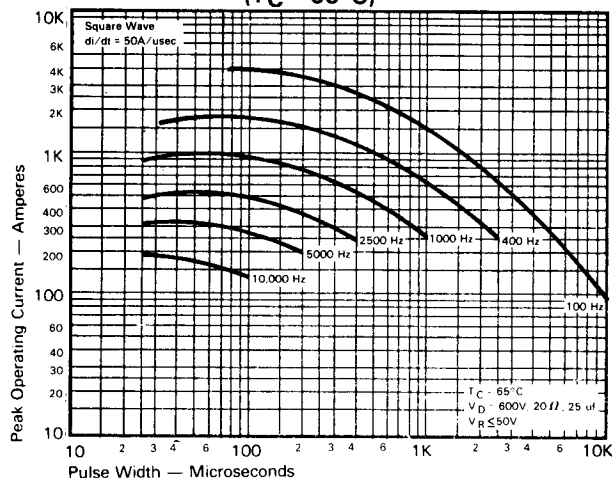


ENERGY PER PULSE FOR TRAPEZOIDAL PULSES
($di/dt = 200\text{A}/\mu\text{sec}$)

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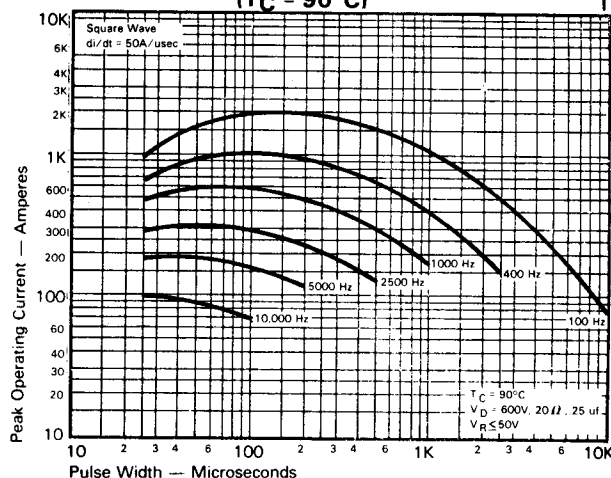
**Fast Switching
SCR
T707_30**

Trapezoidal Wave Current Data ($T_C = 65^\circ\text{C}$)

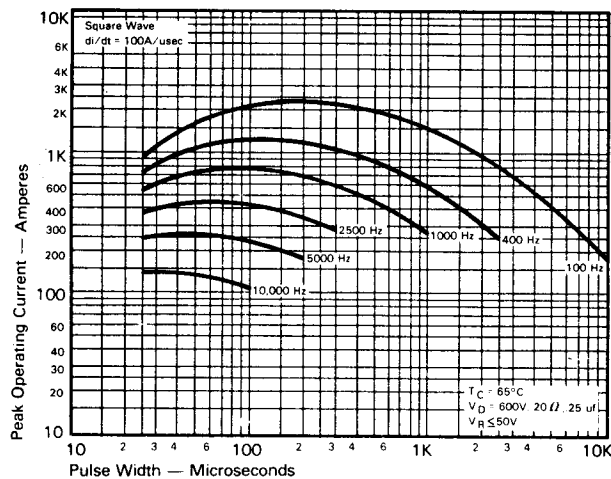


**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($di/dt = 50\text{A/usec}$)**

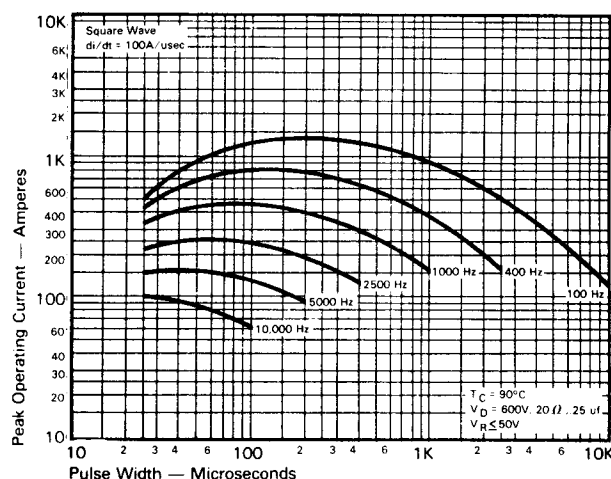
Trapezoidal Wave Current Data ($T_C = 90^\circ\text{C}$)



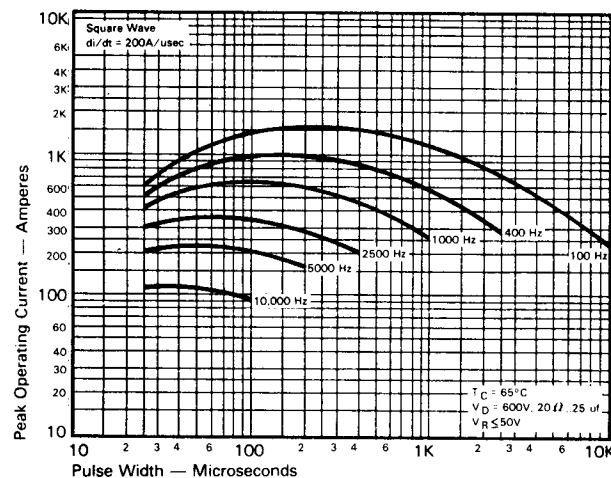
**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($di/dt = 50\text{A/usec}$)**



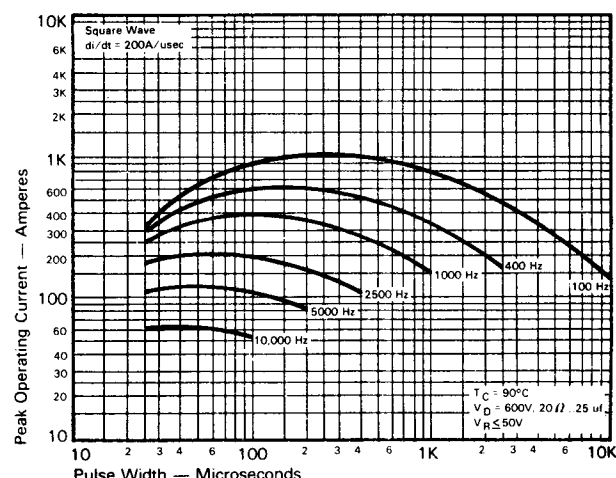
**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($di/dt = 100\text{A/usec}$)**



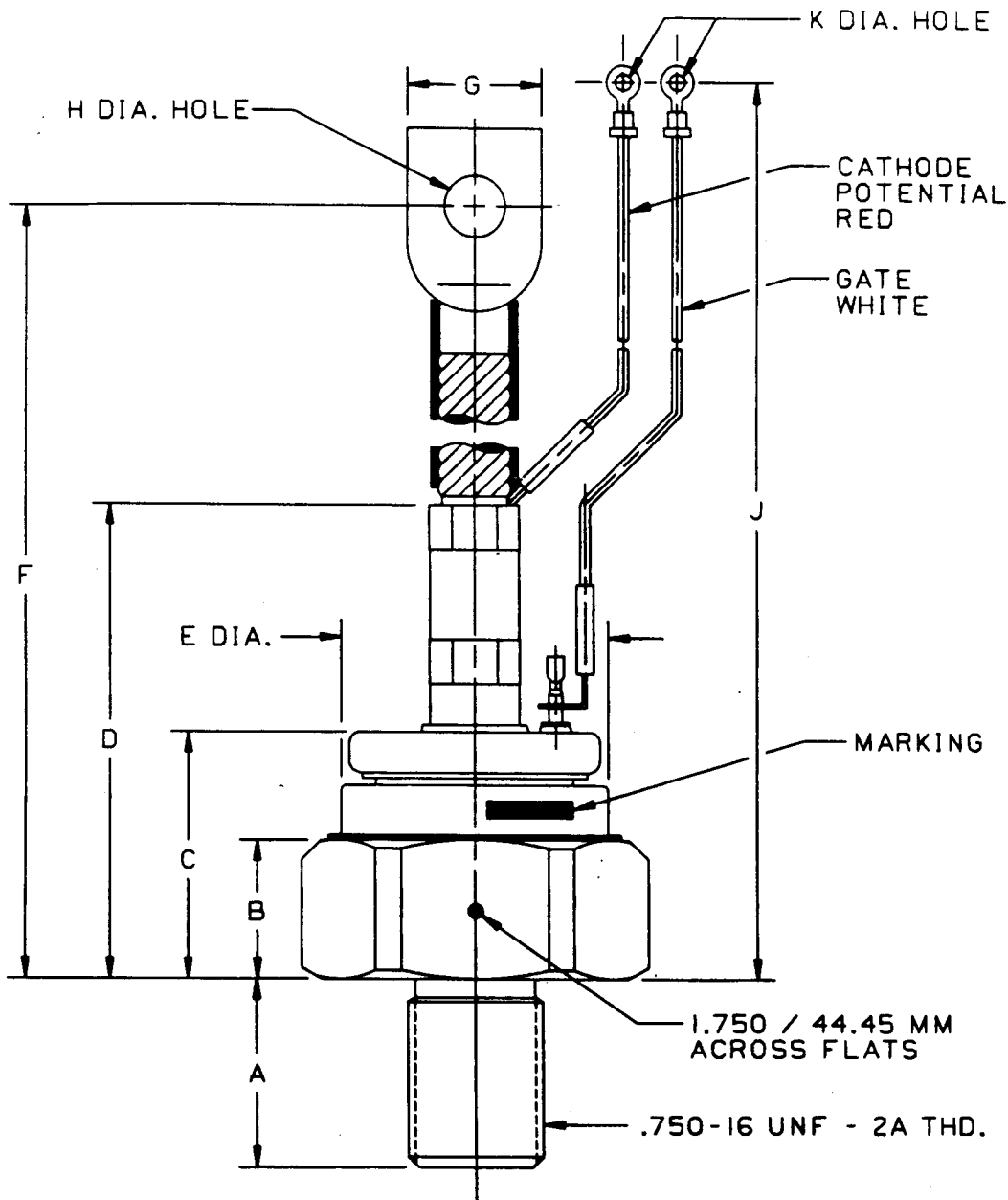
**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($di/dt = 100\text{A/usec}$)**



**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($di/dt = 200\text{A/usec}$)**



**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($di/dt = 200\text{A/usec}$)**



CASE NUMBER T70
NOMINAL DIMENSIONS

STRIKE DISTANCE = .43 INCH / 10.9 MM MIN.
CREEPAGE DISTANCE = .43 INCH / 10.9 MM MIN.

SYM.	A	B	C	D	E	F	G	H	J	K
INCHES	1.06	.78	1.41	2.74	1.49	9.66	.73	.343	10.06	.146
MM	26.9	19.8	35.8	69.6	37.8	245.4	18.5	8.71	255.5	3.71

ALL DIMENSIONS ARE REFERENCE