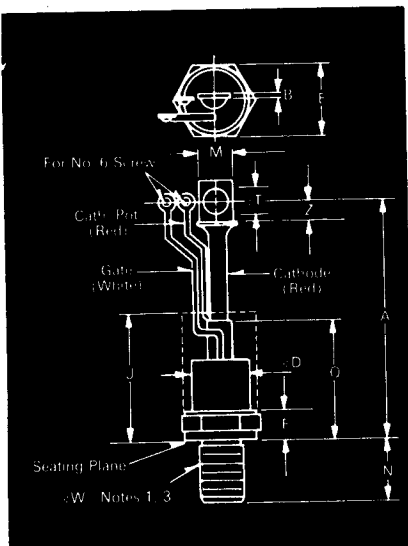


Fast Switching SCR T607__15

150A Avg.
(235 RMS)
Up to 1200 Volts
10-50 μ s



Conforms to TO-93 Outline

Features:

- Center fire, 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

Symbol	Inches		Millimeters	
	Min.	Max.	Min.	Max.
A	7.750	8.100	196.85	205.74
A ₁	7.750	8.100	196.85	205.74
B	.063	.172	1.60	4.37
phi D	.980	1.090	24.89	27.69
E	1.212	1.250	30.78	31.75
F	.250	.630	6.35	16.00
J	3.25		82.55	
M	.530	.755	13.46	19.18
N	1.040	1.077	26.42	27.36
Q		2.250		57.15
phi T	.260	.290	6.60	7.37
Z	.340		8.64	

phi W 3/4-16 UNF-2A

Creep Distance—.75 in. min. (19.05 mm).

Strike Distance—.69 in. min. (17.53 mm).

(In accordance with NEMA standards.)

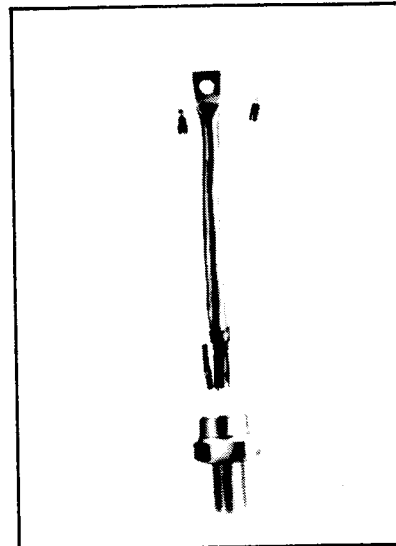
Finish—Nickel Plate.

Approx. Weight—8 oz. (227 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 3/4-16 UNF-2A (coated) threads (ASA B1.1—1960).
4. Dimension "J" denotes seated height with leads bent at right angles.

Applications:

- Inverters for UPS
- AC motor control
- Induction heating
- Cycloconverters
- Choppers



Ordering Information

Type	Voltage		Current		Turn off	Gate Current		Leads	
Code	V _{DRM} and V _{RRM} (V)	Code	I _{T(su)} (A)		t _q μ sec	I _{GT} (ma)	Code	Case	Code
T607	100	BT	150		10	150	A	TO-93	BT
	200	BT			15				
	300	BT			20				
	400	BT			25				
	500	BT			30				
	600	BT			40				
	700	BT			50				
	800	BT							
	900	BT							
	1000	BT							
	1100	BT							
	1200	BT							

Example

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

Type T607 rated at 150A average with V_{DRM} = 1000V, I_{GT} = 150 ma, t_q = 30 μ sec and standard flex lead — order as

*for 10 μ sec turn-off, consult factory

Type	Voltage	Current	Turn Off	Gate Current	Leads
T 6 0 7	1 0	1 5	5	4	B T

**150A Avg.
(235 RMS)
Up to 1200 Volts
10-50 μ s**

Fast Switching SCR T607_15

Voltage

Blocking State Maximums ^② ($T_J = 125^\circ\text{C}$)

Repetitive peak forward blocking voltage, V V_{DRM}

Repetitive peak reverse voltage, V V_{RRM}

Non-repetitive transient peak reverse voltage,
 $t \leq 5.0$ msec, V V_{RSM}

Forward leakage current, mA peak I_{DRM}

Reverse leakage current, mA peak I_{RRM}

Symbol

100	200	300	400	500	600	700	800	900	1000	1100	1200
100	200	300	400	500	600	700	800	900	1000	1100	1200
200	300	400	500	600	700	800	900	1000	1100	1200	1300

I_{DRM}	←	25	→
I_{RRM}	←	25	→

Current

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

RMS forward current, A $I_T(\text{rms})$

Ave. forward current, A $I_T(\text{av})$

One-half cycle surge current^③, A I_{TSM}

I_{2t} for fusing (for times ≥ 8.3 ms),
A²-sec. I_{2t}

Forward voltage drop at $I_{TM} = 625$ A
and $T_J = 25^\circ\text{C}$, V V_{TM}

Min. repetitive di/dt ^① ^② ^③, A/ μ sec di/dt

T607_15

235

150

4000

65,000

2.1

250

Switching

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

Symbol

Max. turn-off time, $I_T = 150$ A,
 $T_J = 125^\circ\text{C}$, $di/dt = 12.5$
A/ μ sec, reapplied $dv/dt =$
20V/ μ sec linear to .8V V_{DRM} , μ sec ^① ^② t_q

10 to 50

Typ. turn-on time, $I_T = 100$ A,
 $V_D = 100$ V^③, μ sec t_{on}

3.5

Min. critical dv/dt , exponential to V_{DRM} ,
 $T_J = 125^\circ\text{C}$, V/ μ sec^② ^③ dv/dt

300

Min. di/dt non-repetitive,
^① ^② ^③ A/ μ sec di/dt

800

Gate

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

Symbol

Gate current to trigger at $V_D = 12$ V, mA I_{GT}

150

Gate voltage to trigger at $V_D = 12$ V, V V_{GT}

3

Non-triggering gate voltage, $T_J = 125^\circ\text{C}$,
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., $^\circ\text{C}$ T_J

-40 to +125

Min., Max. storage temp., $^\circ\text{C}$ T_{stg}

-40 to +150

Max. mounting torque, in lb. ^①

300

Max. Thermal resistance ^②

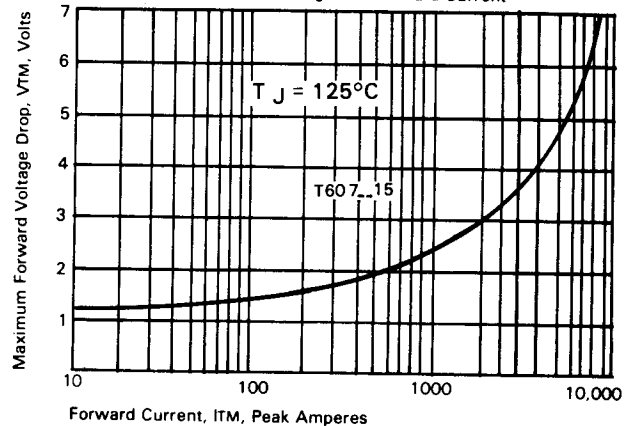
Junction to case, $^\circ\text{C}/\text{Watt}$ $R_{\theta JC}$

.13

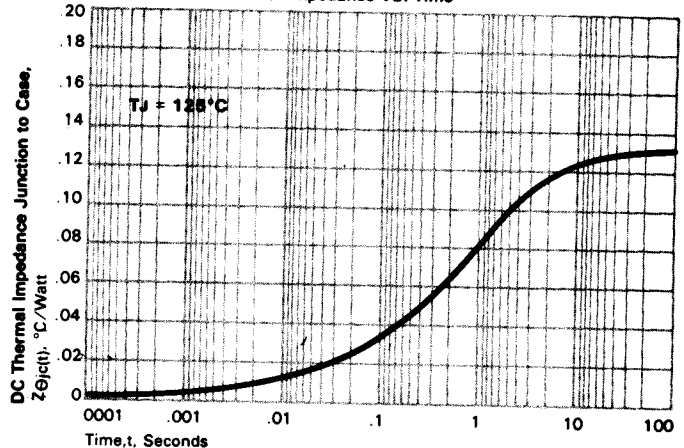
Case to sink, lubricated, $^\circ\text{C}/\text{Watt}$ $R_{\theta CS}$

.08

Maximum Forward Voltage VS. Forward Current



Transient Thermal Impedance VS. Time

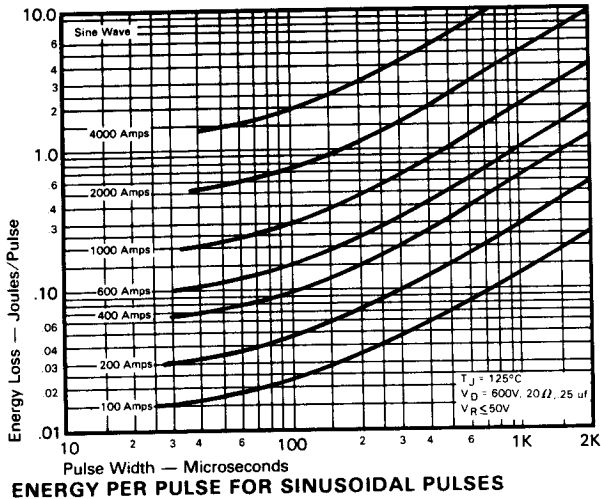


- ① Consult recommended mounting procedures.
- ② Applies for zero or negative gate bias.
- ③ Per JEDEC RS-397, 5.2.2.1.
- ④ With recommended gate drive.
- ⑤ Higher dv/dt ratings available, consult factory.
- ⑥ Per JEDEC standard RS-397, 5.2.2.6.
- ⑦ For operation with antiparallel diode, consult factory.

Fast Switching SCR T607-15

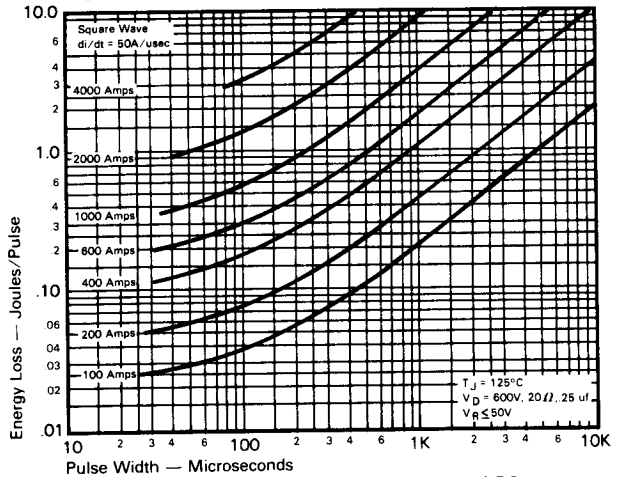
150A Avg.
(235 RMS)
Up to 1200 Volts
10-50 μ s

Sinusoidal Current Data

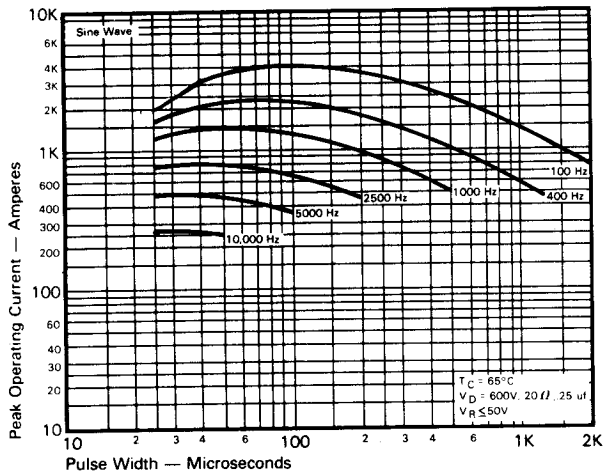


ENERGY PER PULSE FOR SINUSOIDAL PULSES

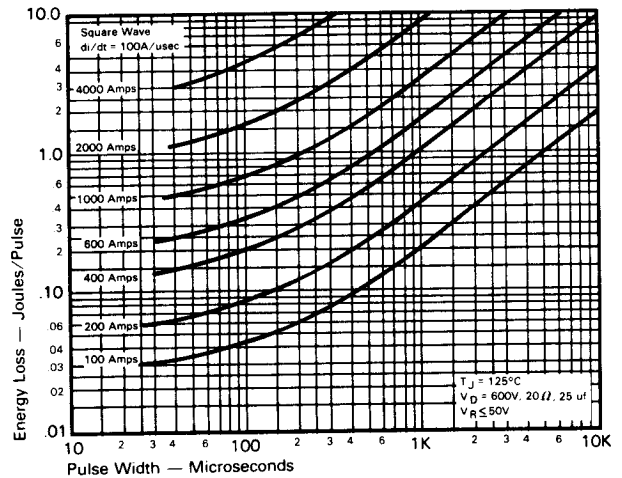
Trapezoidal Wave Current Data



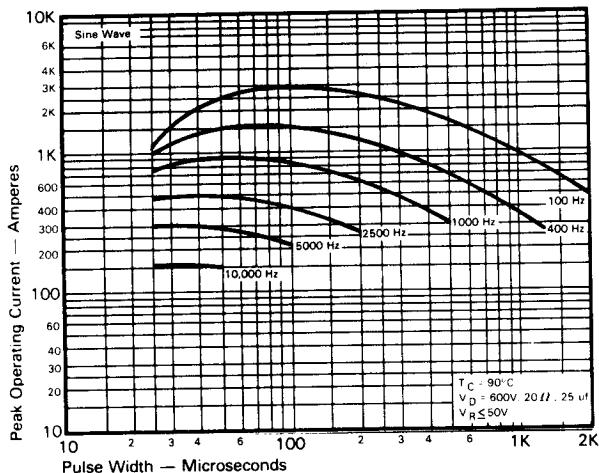
ENERGY PER PULSE FOR TRAPEZOIDAL PULSES
($di/dt = 50\text{A/usec}$)



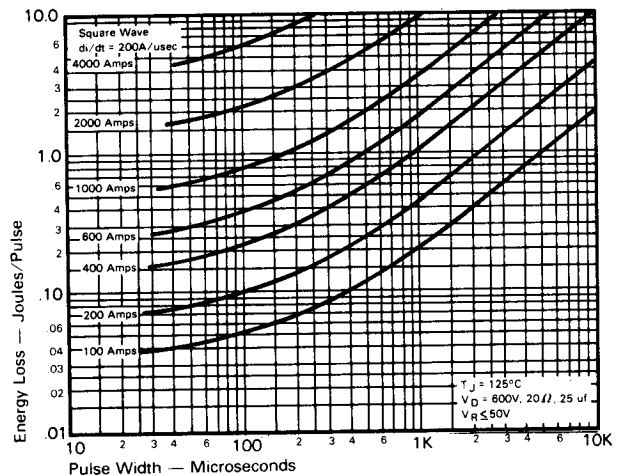
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($T_C = 65^\circ\text{C}$)



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



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

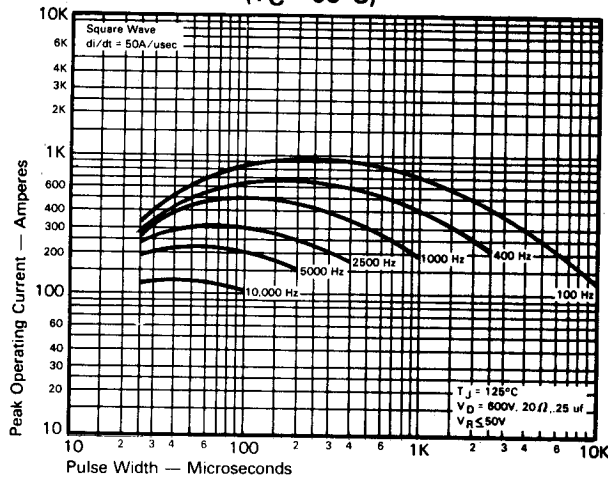


ENERGY PER PULSE FOR TRAPEZOIDAL PULSES
($di/dt = 200\text{A/usec}$)

**150A Avg.
(235 RMS)
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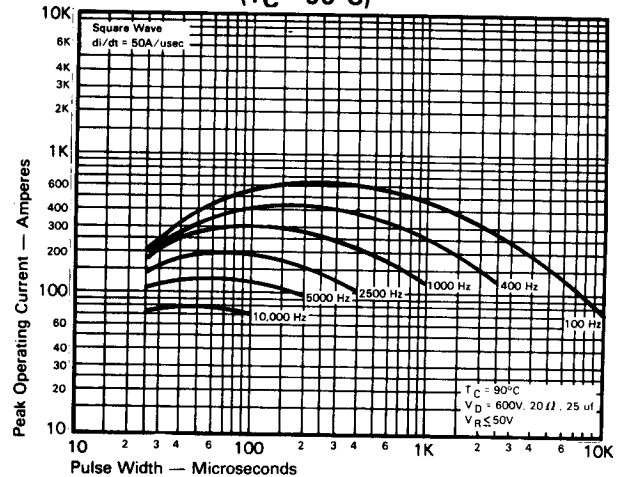
**Fast Switching
SCR
T607_15**

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

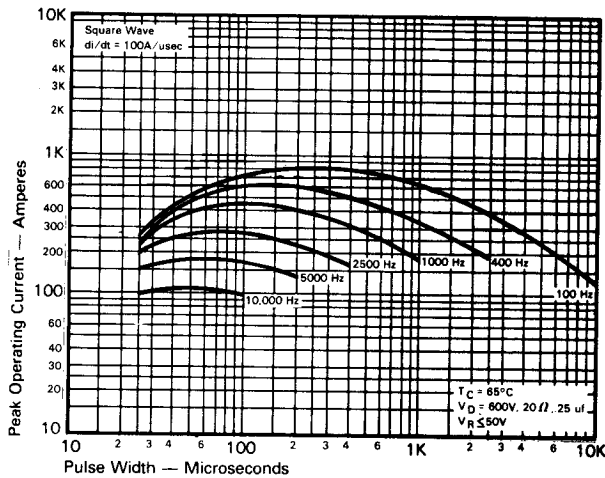


**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($dI/dt = 50\text{A}/\mu\text{sec}$)**

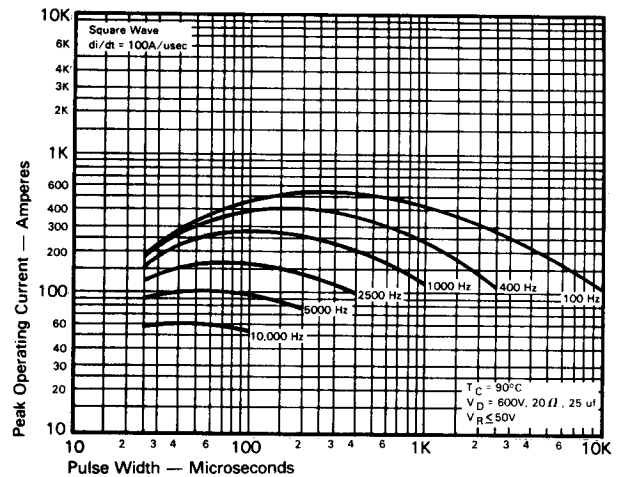
Trapezoidal Wave Current Data ($T_C = 90^\circ\text{C}$)



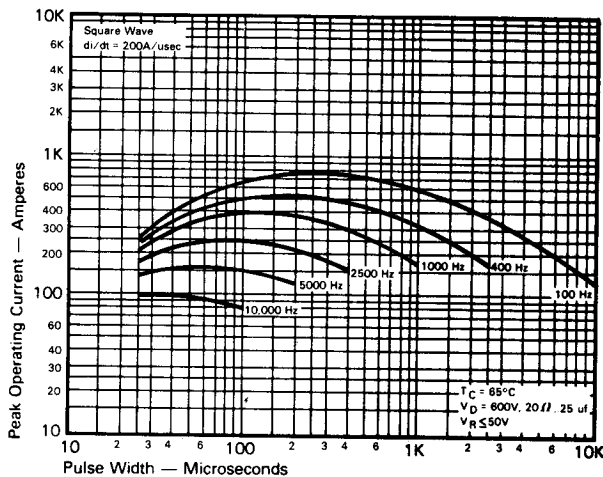
**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($dI/dt = 50\text{A}/\mu\text{sec}$)**



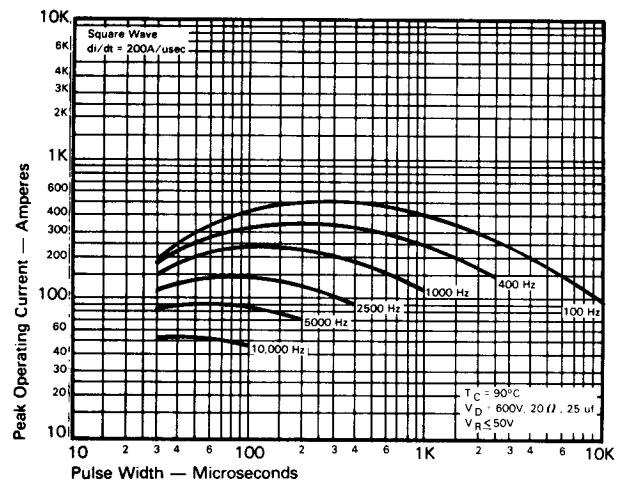
**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($dI/dt = 100\text{A}/\mu\text{sec}$)**



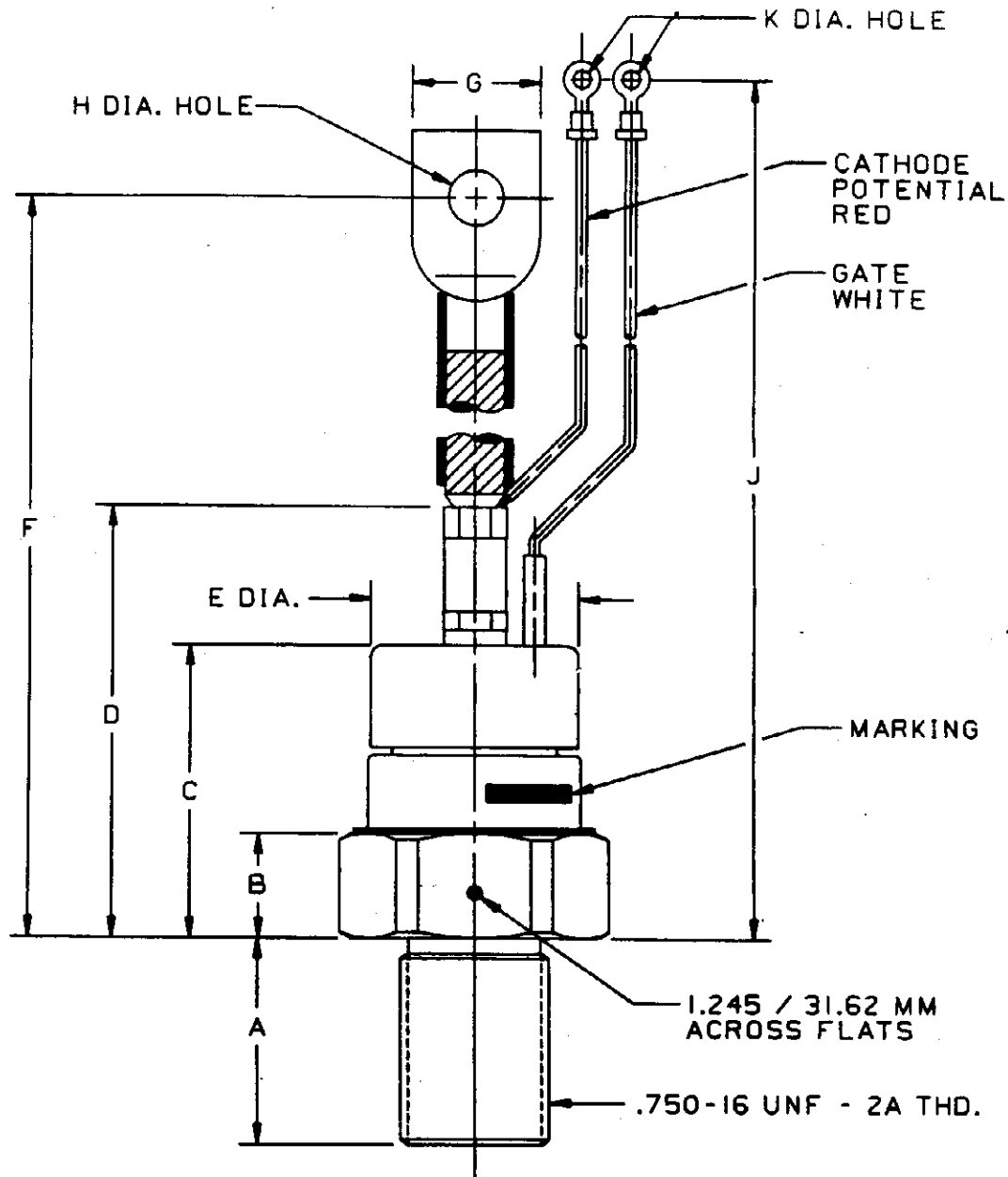
**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($dI/dt = 100\text{A}/\mu\text{sec}$)**



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



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



CASE NUMBER T60
NOMINAL DIMENSIONS

STRIKE DISTANCE = .65 INCH / 16.5 MM MIN.
CREEPAGE DISTANCE = .65 INCH / 16.5 MM MIN.

SYM.	A	B	C	D	E	F	G	H	J	K
INCHES	1.06	.55	1.50	2.25	1.07	7.91	.63	.281	7.91	.146
MM	26.9	14.0	38.1	57.2	27.2	200.9	16.0	7.14	200.9	3.71

ALL DIMENSIONS ARE REFERENCE