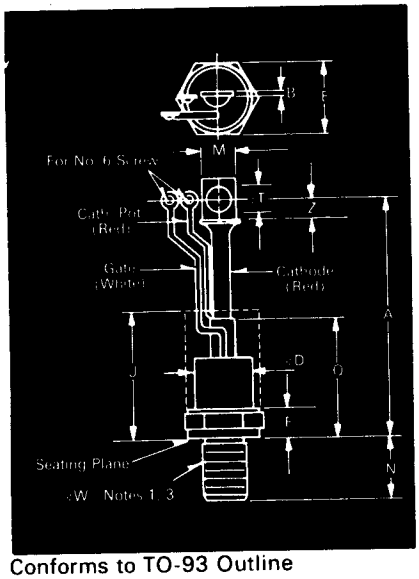
POWEREX 173 Pavilion Lane, Youngwood, PA 15697 www.pwrx.com

Fast Switching SCR T607__15

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

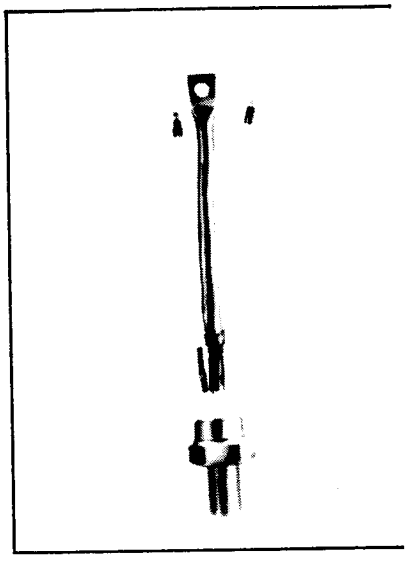


Conforms to TO-93 Outline

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
ϕD	.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
ϕT	.260	.290	6.60	7.37
Z	.340		8.64	
ϕW	¾-16 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 2½ threads of seating plane.
2. Angular orientation of terminals is undefined.
3. Pitch diameter of ¾-16 UNF-2A (coated) threads (ASA B1.1—1960).
4. Dimension "J" denotes seated height with leads bent at right angles.



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

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	$I_{T(av)}$ (A)	Code	tq μsec	Code	I_{GT} (ma)	Code	Case	Code
T607	100	01	150		10	1	150	4	TO-93	BT
	200	02			15					
	300	03			20	2				
	400	04			25					
	500	05			30	3				
	600	06			40	4				
	700	07			50	5				
	800	08								
	900	09								
	1000	10								
	1100	11								
	1200	12								

Example

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

Type T 607 rated at 150A average with V_{DRM} = 1000V, I_{GT} = 150 ma, tq = 30 μsec and standard flex lead — order as

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

*for 10 μsec turn-off, consult factory

FAST SWITCHING THYRISTORS

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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
Repetitive peak reverse voltage, V	V_{RRM}	100	200	300	400	500	600	700	800	900	1000	1100	1200
Non-repetitive transient peak reverse voltage, t ≤ 5.0 m sec, V	V_{RSM}	200	300	400	500	600	700	800	900	1000	1100	1200	1300
Forward leakage current, mA peak	I_{DRM}	← 25 →											
Reverse leakage current, mA peak	I_{RRM}	← 25 →											

Current

Conducting State Maximums (T_J = 125°C)	Symbol	T607__15
RMS forward current, A	$I_{T(rms)}$	235
Ave. forward current, A	$I_{T(av)}$	150
One-half cycle surge current ③, A	I_{TSM}	4000
I^2t for fusing (for times ≥ 8.3 ms), A^2-sec.	I^2t	65,000
Forward voltage drop at I_{TM} = 625A and T_J = 25°C, V	V_{TM}	2.1
Min. repetitive di/dt ① ④ ⑥, A/μsec	di/dt	250

Switching

(T_J = 25°C)	Symbol	
Max. turn-off time, I_T = 150A, T_J = 125°C, di_R/dt = 12.5 A/μsec, reapplied dv/dt = 20V/μ sec linear to .8V DRM, μsec ⑤ ⑦	t_q	10 to 50
Typ. turn-on-time, I_T = 100A V_D = 100V ④, μsec	t_{on}	3.5
Min. critical dv/dt, exponential to V_{DRM}, T_J = 125°C, V/μsec ② ⑤	dv/dt	300
Min. di/dt non-repetitive, ① ④ ⑥, A/μsec	di/dt	800

Gate

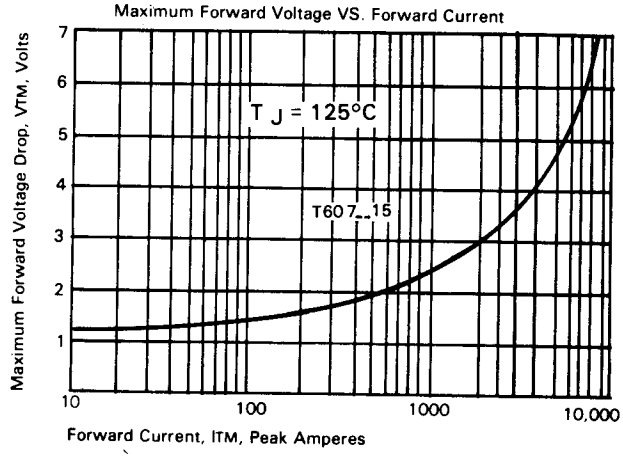
Maximum Parameters (T_J = 25°C)	Symbol	
Gate current to trigger at V_D = 12V, mA	I_{GT}	150
Gate voltage to trigger at V_D = 12V, V	V_{GT}	3
Non-triggering gate voltage, T_J = 125°C, and rated V_{DRM}, V	V_{GDM}	0.15
Peak forward gate current, A	I_{GTM}	4
Peak reverse gate voltage, V	V_{GRM}	5
Peak gate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

Thermal and Mechanical

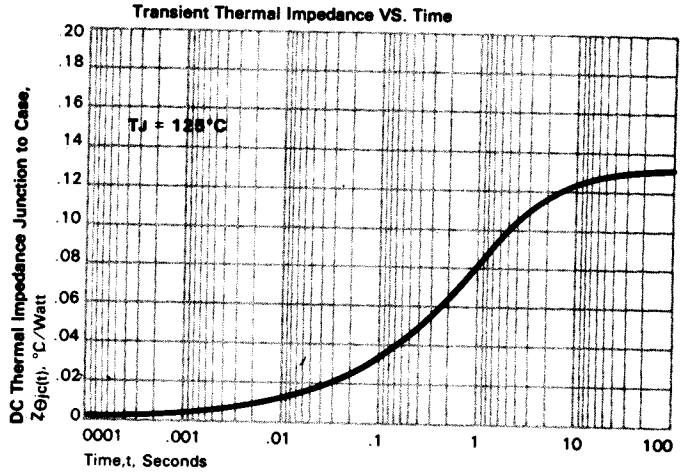
	Symbol	
Min., Max. oper. junction temp., °C	T_J	−40 to +125
Min., Max. storage temp., °C	T_{stg}	−40 to +150
Max. mounting torque, in lb. ①		300
Max. Thermal resistance ③ Junction to case, °C/Watt	$R_{\theta JC}$	.13
Case to sink, lubricated, °C/Watt	$R_{\theta CS}$	.08

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.

Maximum Forward Voltage VS. Forward Current



Transient Thermal Impedance VS. Time



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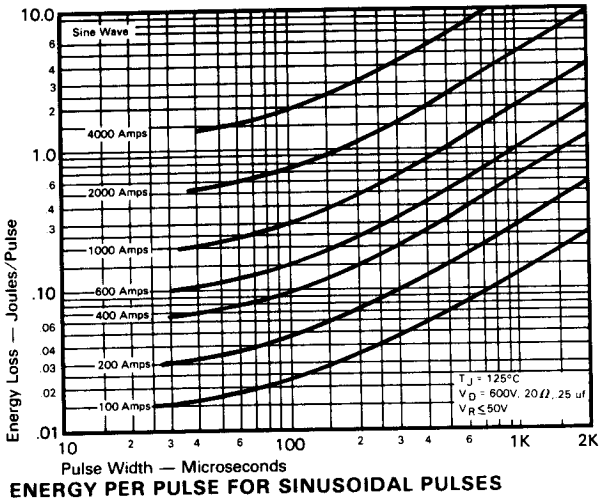
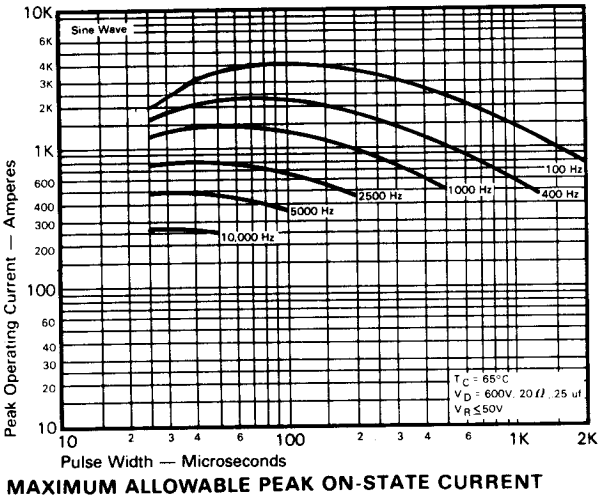
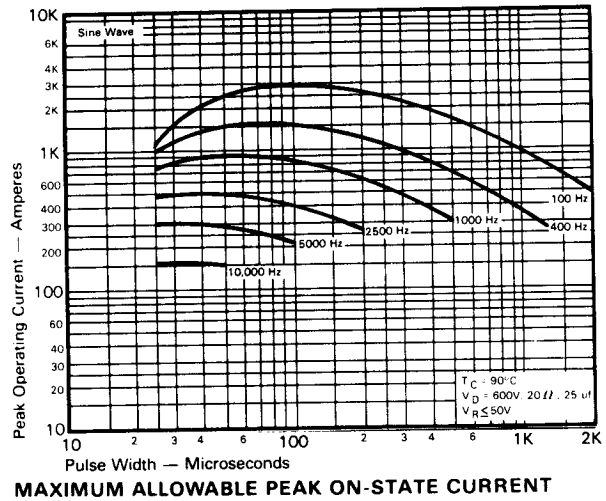
Sinusoidal Current Data



ENERGY PER PULSE FOR SINUSOIDAL PULSES

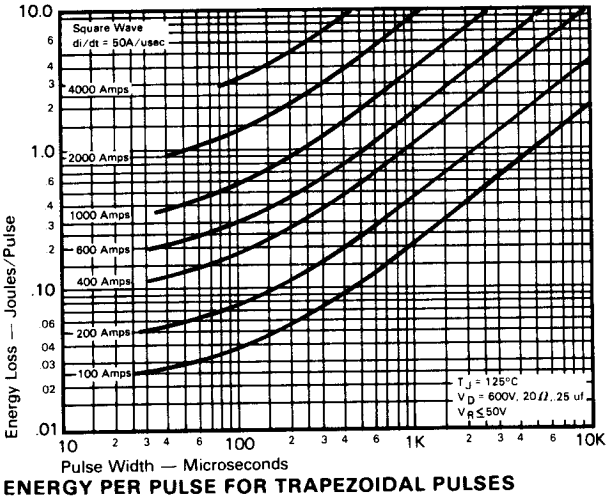


MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH (T_C = 65°C)

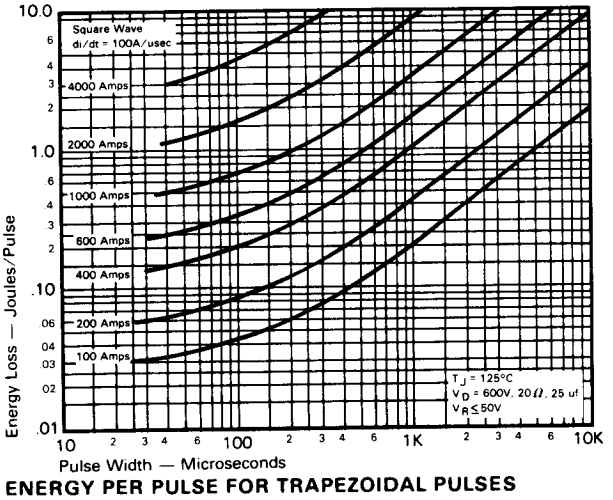


MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH (T_C = 90°C)

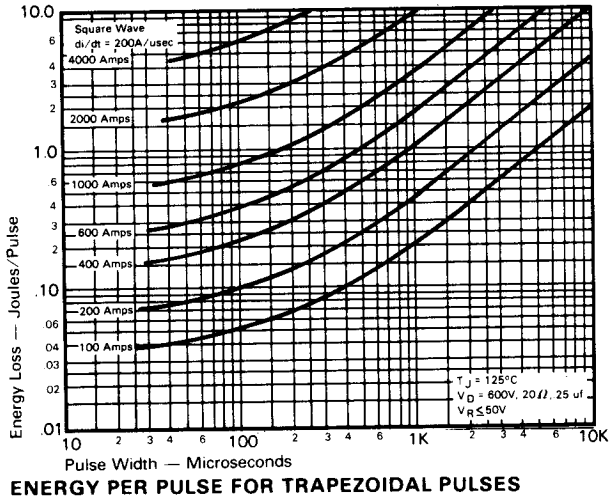
Trapezoidal Wave Current Data



ENERGY PER PULSE FOR TRAPEZOIDAL PULSES (di/dt = 50A/usec)



ENERGY PER PULSE FOR TRAPEZOIDAL PULSES (di/dt = 100A/usec)



ENERGY PER PULSE FOR TRAPEZOIDAL PULSES (di/dt = 200A/usec)

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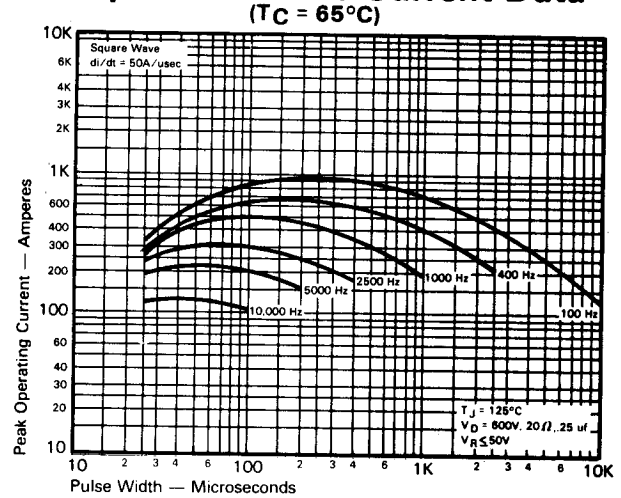
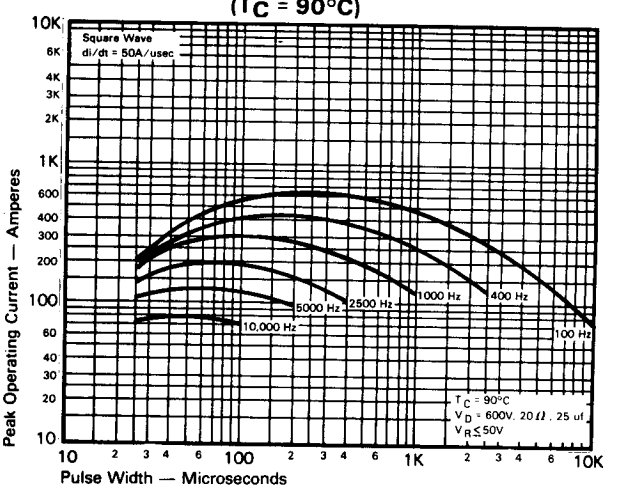
Trapezoidal Wave Current Data
(T_C = 65°C)

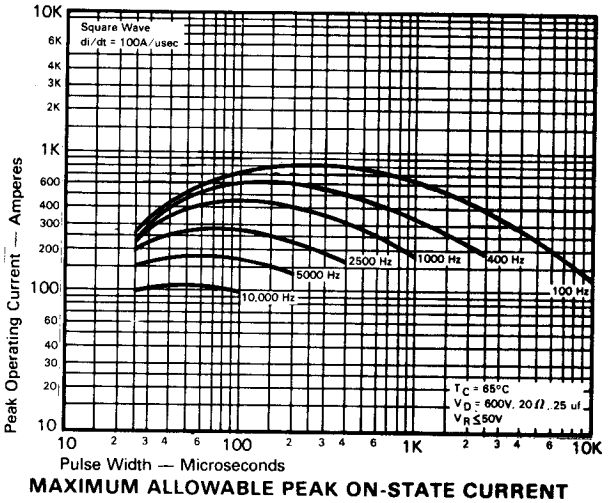


MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH (di/dt = 50A/usec)

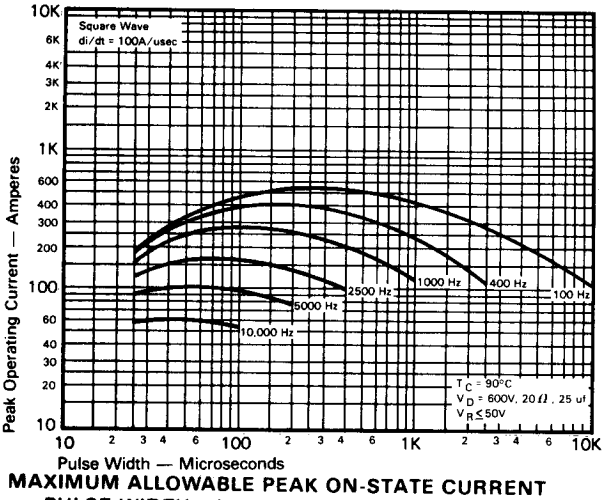
Trapezoidal Wave Current Data
(T_C = 90°C)



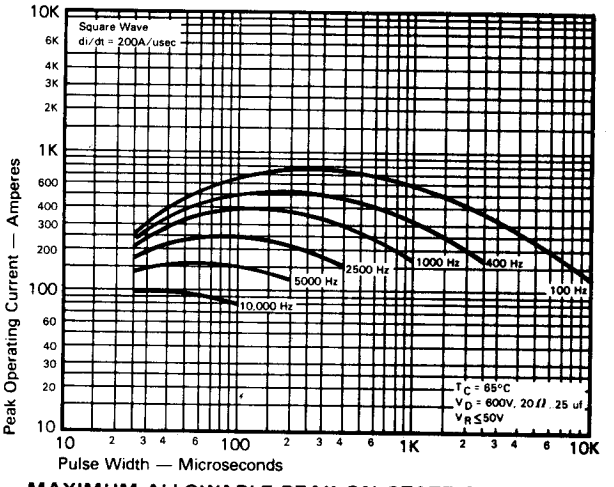
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH (di/dt = 50A/usec)



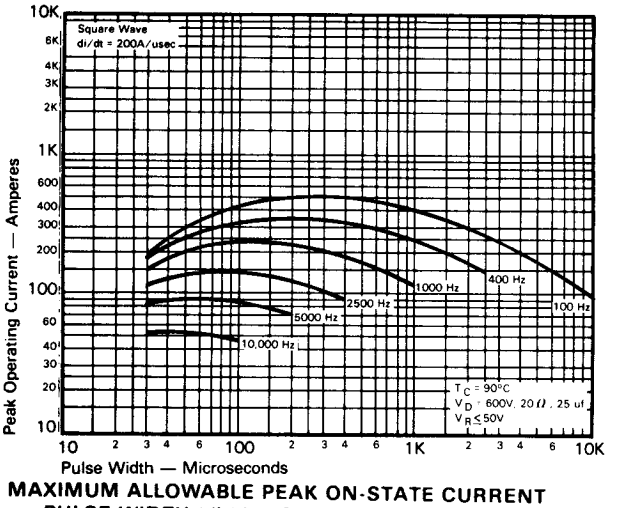
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH (di/dt = 100A/usec)



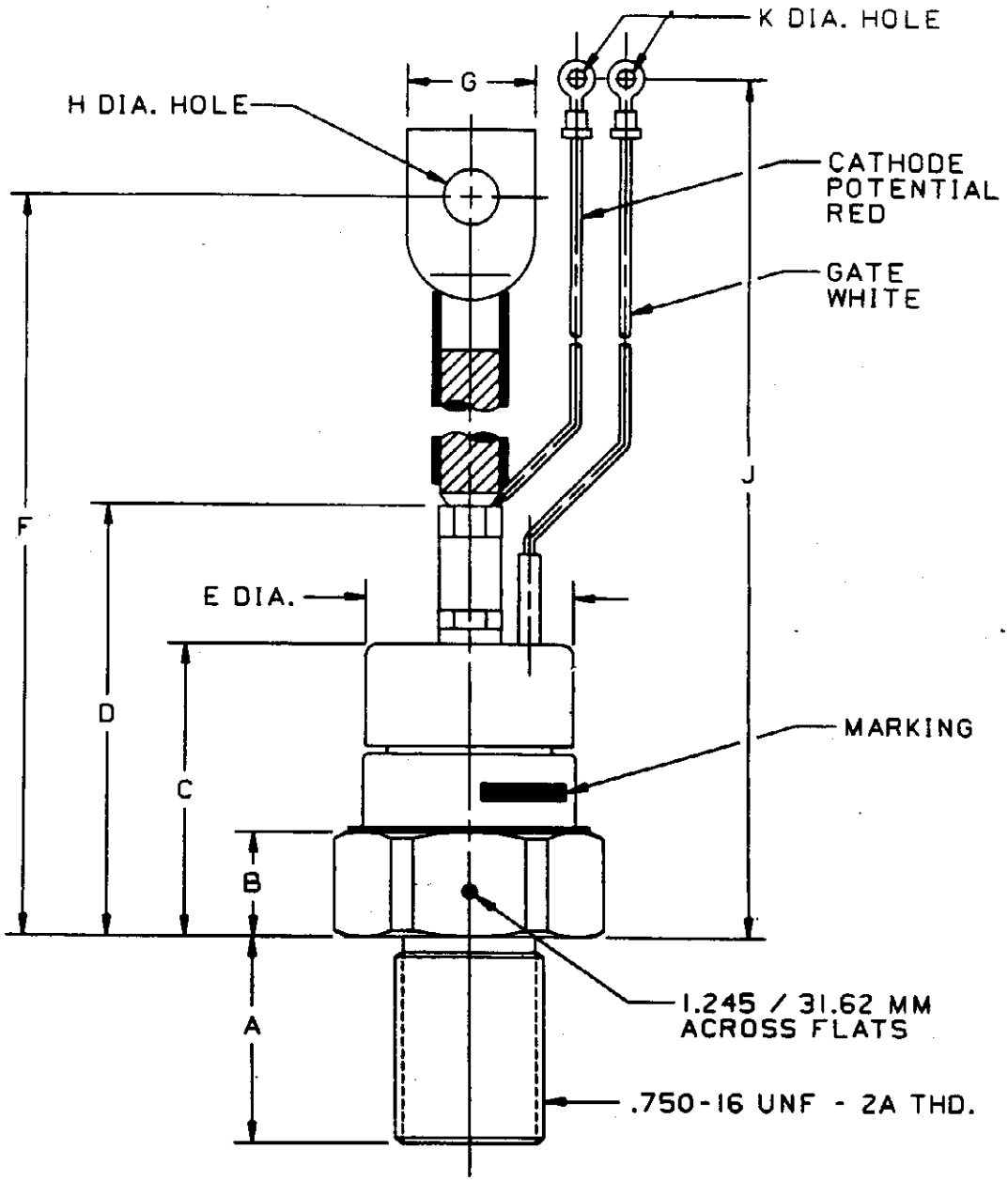
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH (di/dt = 100A/usec)



MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH (di/dt = 200A/usec)



MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH (di/dt = 200A/usec)



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