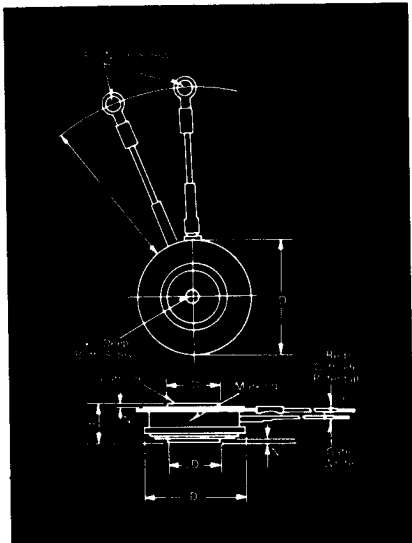


Fast Switching SCR T627..25

250A Avg.
(400 RMS)
Up to 1200 Volts
10-50 μ s



Symbol	Inches		Millimeters	
	Min.	Max.	Min.	Max.
ϕD	1.610	1.650	40.89	41.91
ϕD_1	.745	.755	18.92	19.18
ϕD_2	1.420	1.460	36.07	37.08
H	.500	.560	12.70	14.22
ϕJ	.135	.145	3.43	3.68
J_1	.072	.082	1.83	2.08
L	7.75	8.50	196.85	215.90
N	.030		.76	

Creep Distance—.34 in. min. (8.64 mm).

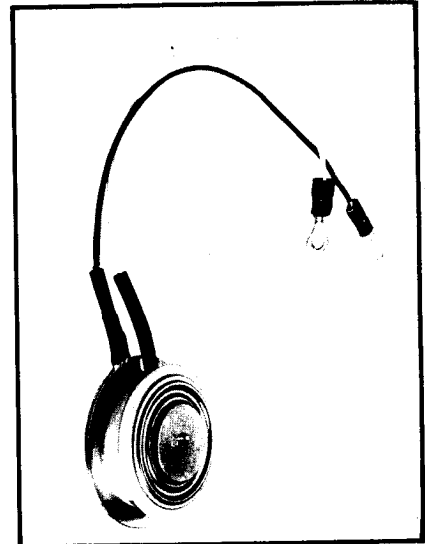
Strike Distance—.26 in. min. (6.60 mm).

(In accordance with NEMA standards.)

Finish—Nickel Plate.

Approx. Weight—2.3 oz. (66 g).

1. Dimension "H" is clamped dimension.



T62 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

Applications:

- Inverters for
Ups
Induction Heating
Motor Control
- Choppers
- Crowbars

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
T627	100	01	250	20	10	2	150	4	T62	D
	200	02			15	3				
	300	03			20	4				
	400	04			30	5				
	500	05			40	6				
	600	06			50	7				
	700	07								
	800	08								
	900	09								
	1000	10								
	1100	11								
	1200	12								

Example

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

Type T627 rated at 250A average with $V_{DRM} = 1000V$,
 $I_{GT} = 150$ ma, $t_q = 20 \mu$ sec max. and flex leads—order as:

Type	Voltage	Current	Turn Off	Gate Current	Leads
T 6 2 7 1 0 2 5 6 4 D N					

**250A Avg.
(400 RMS)
Up to 1200 Volts
10-50 μ s**

**Fast Switching
SCR
T627..25**

Voltage

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

Repetitive peak forward blocking voltage, V ...
Repetitive peak reverse voltage, V ...
Non-repetitive transient peak reverse voltage,
 $t \leq 5.0$ msec, V

Symbol

V_{DRM}

V_{RRM}

V_{RSM}

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

Forward leakage current, mA peak
Reverse leakage current, mA peak

I_{DRM}

I_{RRM}

←	25	→
←	25	→

Current

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

Symbol

T627..25

RMS forward current, A

$I_{T(rms)}$

400

Ave. forward current, A

$I_{T(av)}$

250

One-half cycle surge current $\textcircled{1}$, A ..

I_{TSM}

4500

I^2t for fusing (for times ≥ 8.3 ms)
A² sec.

I^2t

84,000

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

V_{TM}

1.85

Min. repetitive di/dt , A/ μ sec $\textcircled{1}\textcircled{2}\textcircled{3}$

di/dt

300

Switching

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

Symbol

Max. turn-off time, $I_T = 150\text{A}$,
 $T_J = 125^\circ\text{C}$, $dI_T/dt = 12.5$ $\textcircled{1}$
A/ μ sec, reappplied $dv/dt =$
20V/ μ sec $\textcircled{2}$ linear to $0.8 V_{DRM}$, μ sec $\textcircled{3}$

t_q

10 to 50

Typ. turn-on time, $I_T = 100\text{A}$,
 $V_D = 100\text{V}$ $\textcircled{1}$, μ sec

t_{on}

3.5

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

dv/dt

300

Min. di/dt A/ μ sec $\textcircled{1}\textcircled{2}\textcircled{3}$

di/dt

800

Gate

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

Symbol

Gate current to trigger at $V_D = 12\text{V}$, mA

I_{GT}

150

Gate voltage to trigger at $V_D = 12\text{V}$, 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

Min., Max. Mounting Force, lb. $\textcircled{1}$

1000 to 1400

Max. thermal resistance, Double side cooled
Junction to case, $^\circ\text{C}/\text{Watt}$

$R_{\theta JC}$

.08

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

$R_{\theta CS}$

.02

$\textcircled{1}$ Consult recommended mounting procedures.

$\textcircled{2}$ Applies for zero or negative gate bias.

$\textcircled{3}$ Per JEDEC RS-397, 5.2.2.1.

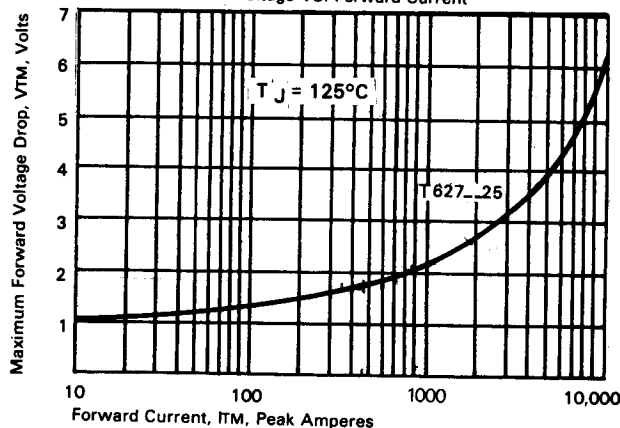
$\textcircled{4}$ With recommended gate drive.

$\textcircled{5}$ Higher dv/dt ratings available, consult factory.

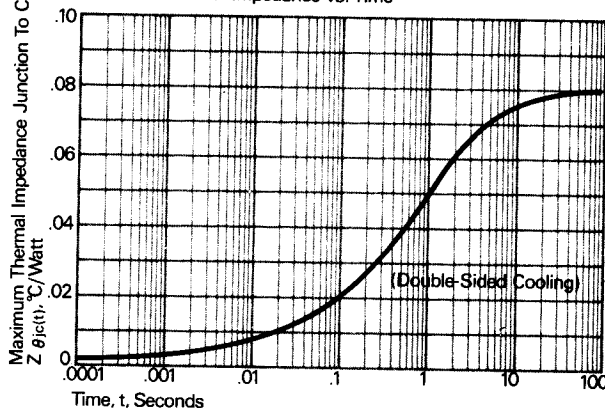
$\textcircled{6}$ Per JEDEC standard RS-397, 5.2.2.6.

$\textcircled{7}$ For operation with antiparallel diode, consult factory.

Maximum Forward Voltage VS. Forward Current



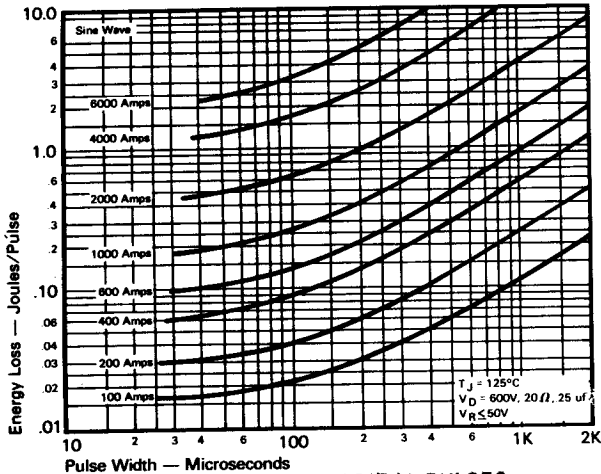
Transient Thermal Impedance vs. Time



Fast Switching SCR T627..25

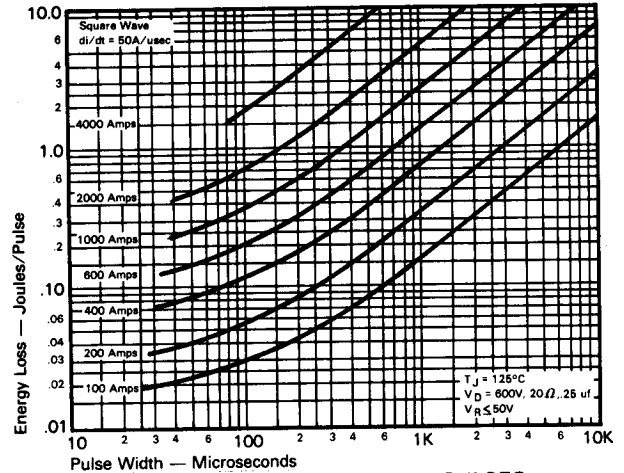
250A Avg.
(400 RMS)
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Sinusoidal Current Data

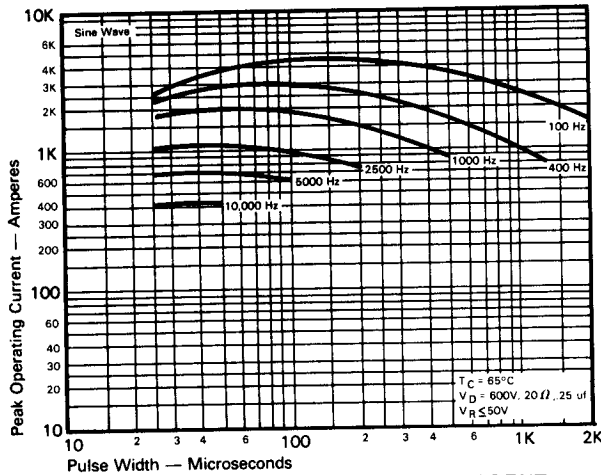


ENERGY PER PULSE FOR SINUSOIDAL PULSES

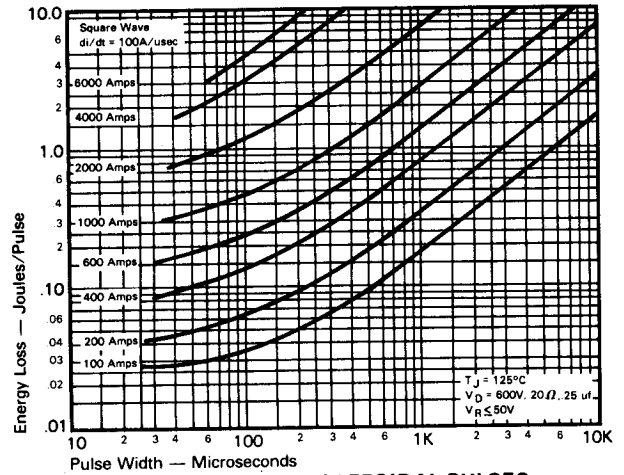
Trapezoidal Wave Current Data



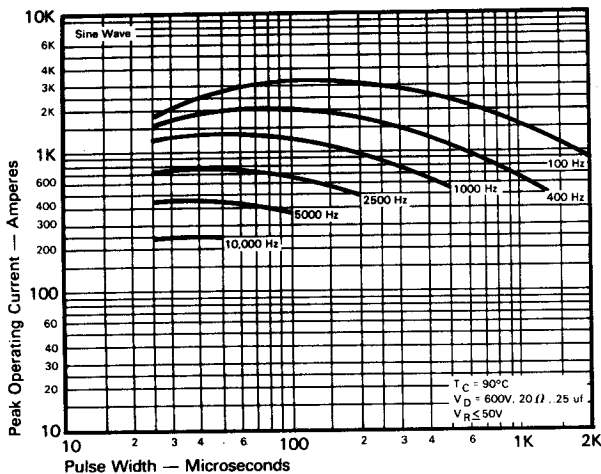
ENERGY PER PULSE FOR TRAPEZOIDAL PULSES
($di/dt = 50\text{A/uSec}$)



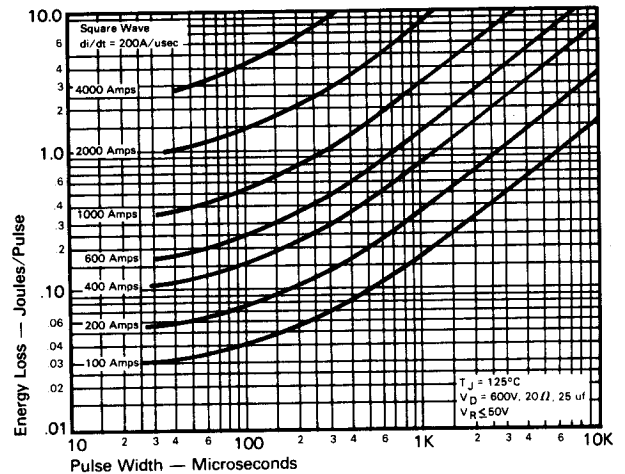
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($T_C = 65^\circ\text{C}$)



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



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

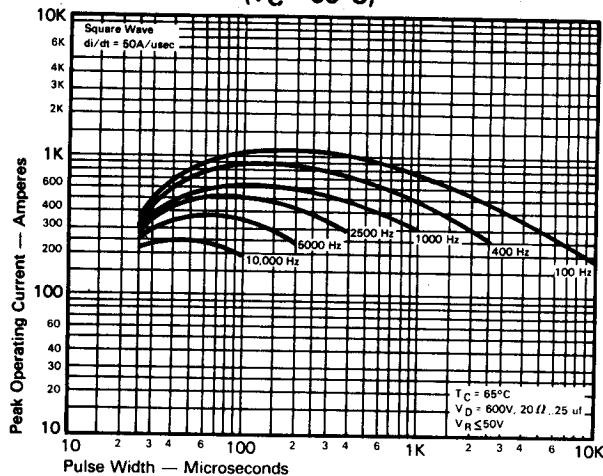


ENERGY PER PULSE FOR TRAPEZOIDAL PULSES
($di/dt = 200\text{A/uSec}$)

250A Avg.
(400 RMS)
Up to 1200 Volts
10-50 μ s

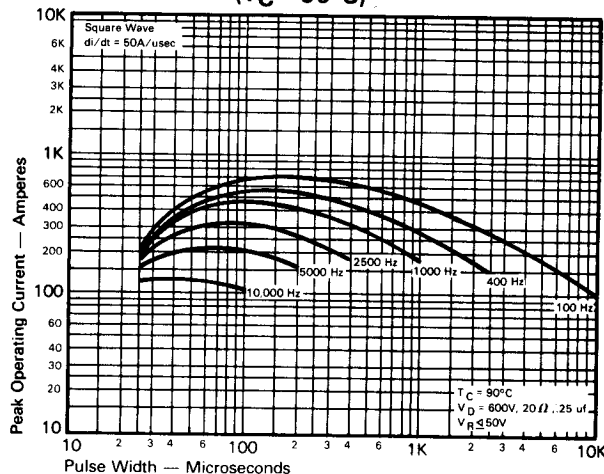
Fast Switching
SCR
T627..25

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

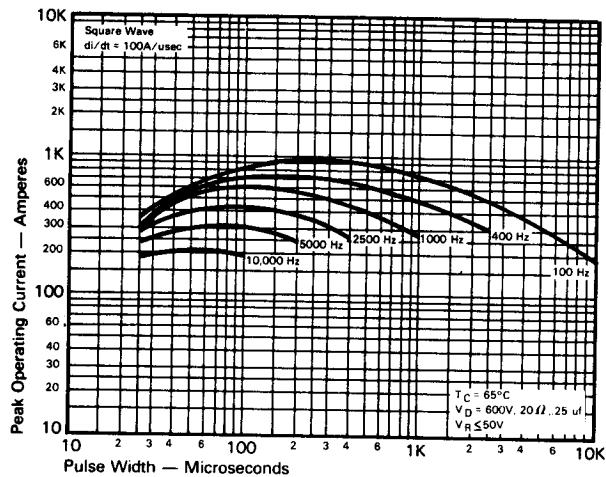


MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH ($di/dt = 50\text{A}/\mu\text{sec}$)

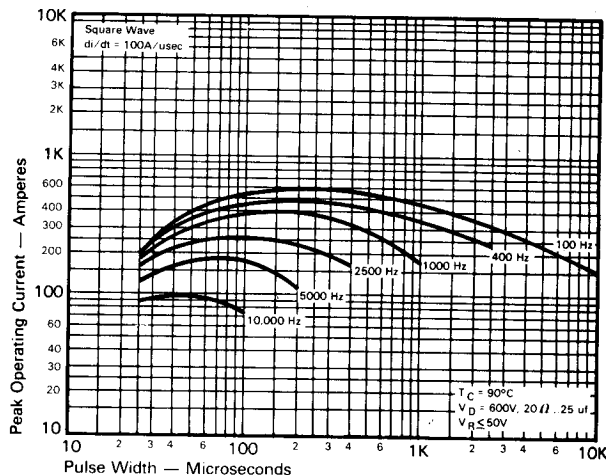
Trapezoidal Wave Current Data ($T_C = 90^\circ\text{C}$)



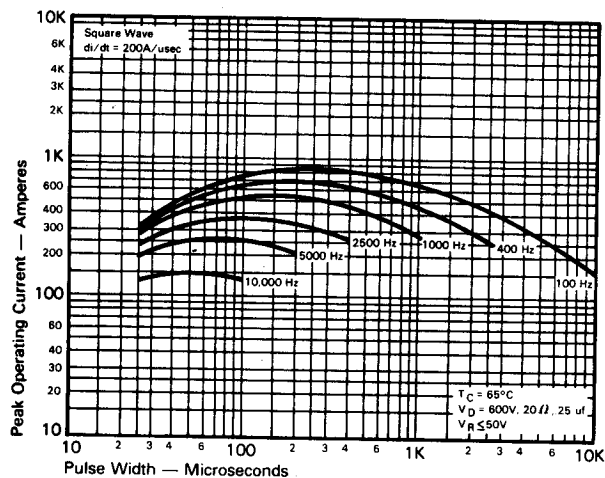
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH ($di/dt = 50\text{A}/\mu\text{sec}$)



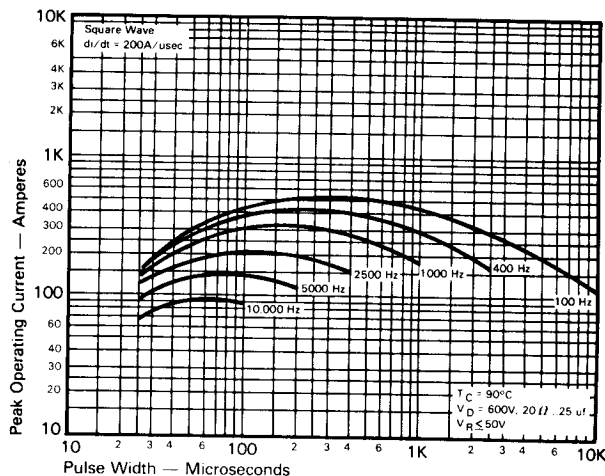
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH ($di/dt = 100\text{A}/\mu\text{sec}$)



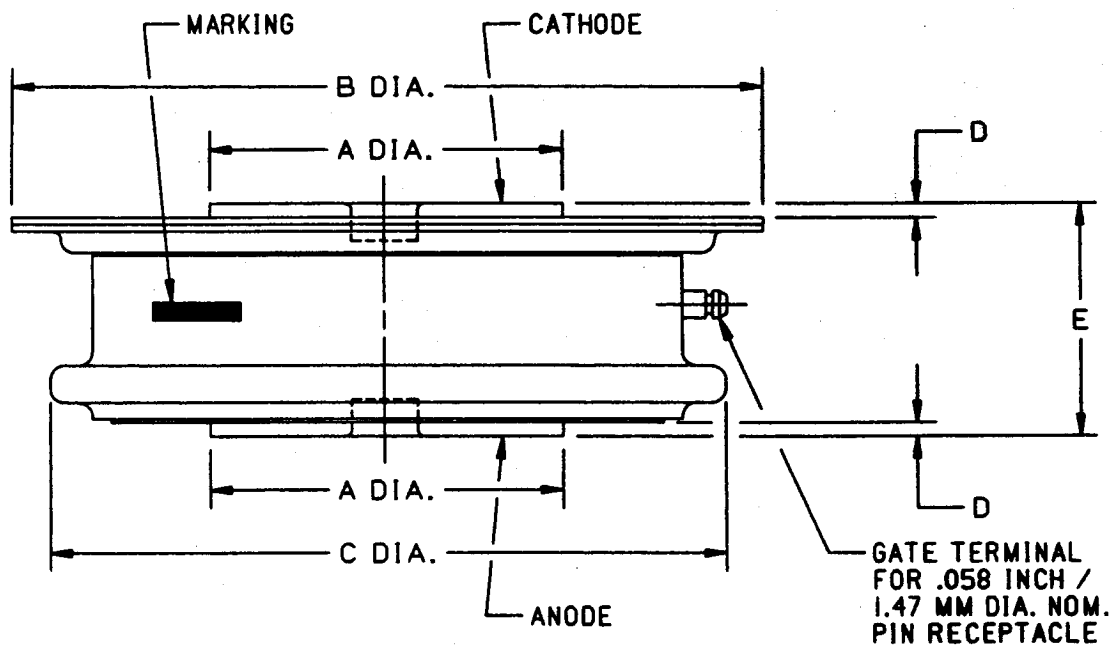
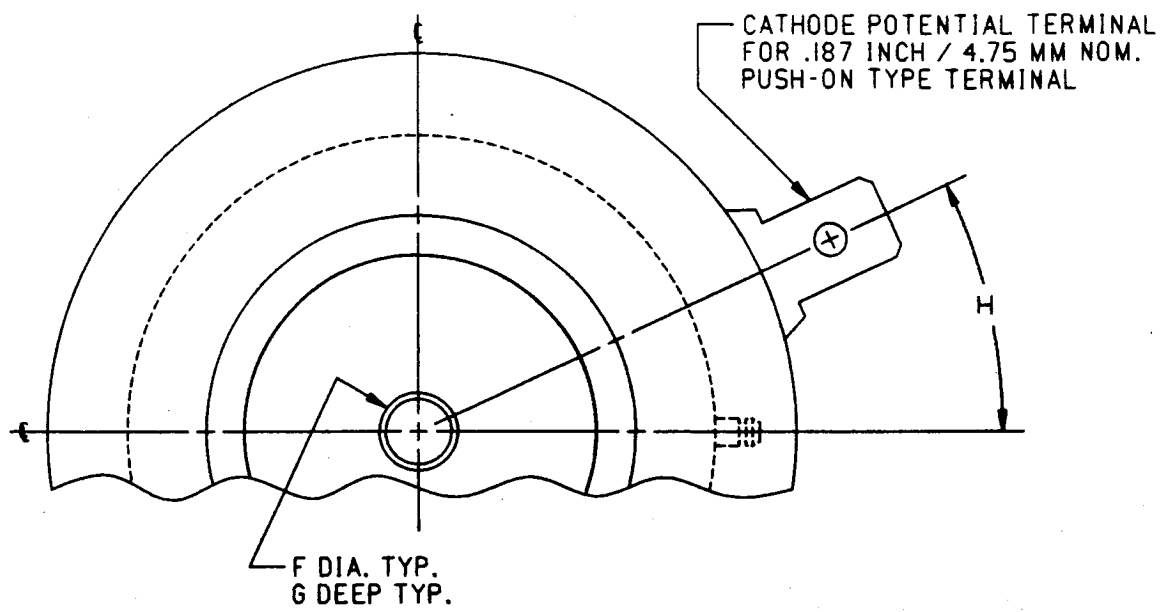
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH ($di/dt = 100\text{A}/\mu\text{sec}$)



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 T62
NOMINAL DIMENSIONS

STRIKE DISTANCE : .21 INCH / 5.3 MM MIN.
CREEPAGE DISTANCE : .34 INCH / 8.6 MM MIN.

SYM.	A	B	C	D	E	F	G	H
INCHES	.75	1.63	1.44	.030	.500/.565	.140	.080	25°
MM	19.0	41.4	36.6	0.76	12.70/14.35	3.56	2.03	25°

ALL DIMENSIONS ARE REFERENCE