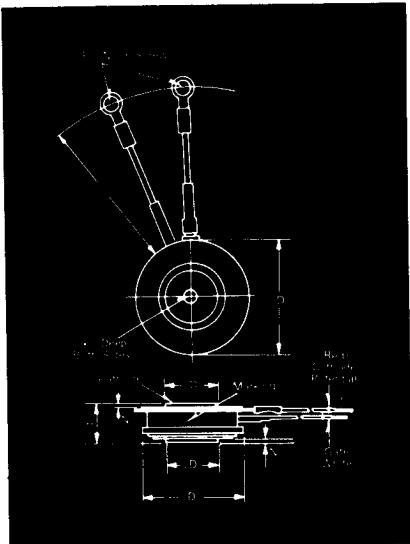


# Fast Switching SCR T627..25

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



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

Symbol	Inches		Millimeters	
	Min.	Max.	Min.	Max.
$\phi D$	1.610	1.650	40.89	41.91
$\phi D_1$	.745	.755	18.92	19.18
$\phi D_2$	1.420	1.460	36.07	37.08
H	.500	.560	12.70	14.22
$\phi J$	.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).

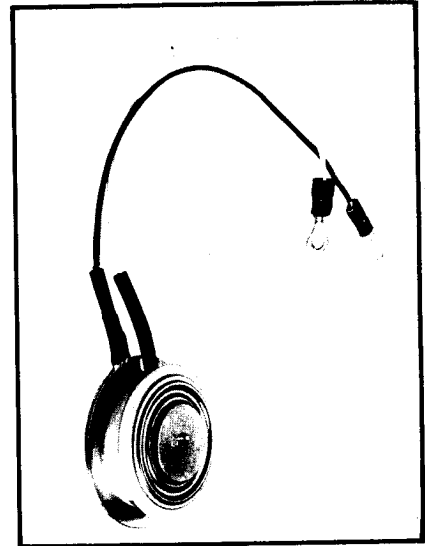
Strike Distance—.26 in. min. (6.60 mm).

(In accordance with NEMA standards.)

Finish—Nickel Plate.

Approx. Weight—2.3 oz. (66 g).

1. Dimension "H" is clamped dimension.



**Applications:**

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

**Ordering Information**

Type	Voltage		Current		Turn-off		Gate Current		Leads	
	$V_{DRM}$ and $V_{RRM}$ (V)	Code	$I_T(av)$ (A)	Code	$t_q$ $\mu$ sec	Code	$I_{GT}$ (ma)	Code	Case	Code
T627	100	01	250	25	10	D	150	4	T62	DN
	200	02								
	300	03								
	400	04								
	500	05								
	600	06								
	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

FAST SWITCHING  
THYRISTORS

**250A Avg.  
(400 RMS)  
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**Fast Switching  
SCR  
T627\_\_25**

**Voltage**

**Blocking State Maximums** (T<sub>J</sub> = 125°C)

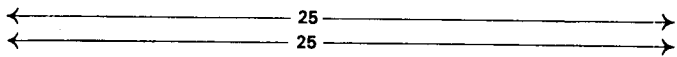
Repetitive peak forward blocking voltage, V ...  
 Repetitive peak reverse voltage, V ...  
 Non-repetitive transient peak reverse voltage,  
 t  $\leq$  5.0 msec, V ...

Symbol

V <sub>DRM</sub>	100	200	300	400	500	600	700	800	900	1000	1100	1200
V <sub>RRM</sub>	100	200	300	400	500	600	700	800	900	1000	1100	1200
V <sub>RSM</sub>	200	300	400	500	600	700	800	900	1000	1100	1200	1300

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

I<sub>DRM</sub>  
 I<sub>RRM</sub>



**Current**

**Conducting State Maximums**  
 (T<sub>J</sub> = 125°C)

RMS forward current, A ...  
 Ave. forward current, A ...  
 One-half cycle surge current<sup>①</sup>, A ...  
 I<sup>2</sup>t for fusing (for times  $\geq$  8.3 ms)  
 A<sup>2</sup> sec ...  
 Forward voltage drop at I<sub>TM</sub> = 625A  
 and T<sub>J</sub> = 25°C, V ...  
 Min. repetitive di/dt<sup>①</sup>, A/ $\mu$ sec<sup>①②③</sup>

Symbol

**T627\_\_25**

I <sub>T(rms)</sub>	400
I <sub>T(av)</sub>	250
I <sub>TSM</sub>	4500
I <sup>2</sup> t	84,000
V <sub>TM</sub>	1.85
di/dt	300

**Switching**

(T<sub>J</sub> = 25°C)

Max. turn-off time, I<sub>T</sub> = 150A,  
 T<sub>J</sub> = 125°C, di/dt = 12.5<sup>①</sup>  
 A/ $\mu$ sec, reapplied dv/dt =  
 20V/ $\mu$ sec<sup>②</sup> linear to 0.8 V<sub>DRM</sub>,  $\mu$ sec<sup>③</sup> t<sub>q</sub>  
 Typ. turn-on time, I<sub>T</sub> = 100A  
 V<sub>D</sub> = 100V<sup>④</sup>,  $\mu$ sec ... t<sub>on</sub>  
 Min. critical dv/dt, exponential to V<sub>DRM</sub>,  
 T<sub>J</sub> = 125°C, V/ $\mu$ sec<sup>⑤⑥</sup> ... dv/dt  
 Min. di/dt A/ $\mu$ sec<sup>①②③</sup> ... di/dt

Symbol

t <sub>q</sub>	10 to 50
t <sub>on</sub>	3.5
dv/dt	300
di/dt	800

**Gate**

**Maximum Parameters**  
 (T<sub>J</sub> = 25°C)

Gate current to trigger at V<sub>D</sub> = 12V, mA ... I<sub>GT</sub>  
 Gate voltage to trigger at V<sub>D</sub> = 12V, V ... V<sub>GT</sub>  
 Non-triggering gate voltage, T<sub>J</sub> = 125°C,  
 and rated V<sub>DRM</sub>, V ... V<sub>GDM</sub>  
 Peak forward gate current, A ... I<sub>GTM</sub>  
 Peak reverse gate voltage, V ... V<sub>GRM</sub>  
 Peak gate power, Watts ... P<sub>GM</sub>  
 Average gate power, Watts ... P<sub>G(av)</sub>

Symbol

I <sub>GT</sub>	150
V <sub>GT</sub>	3
V <sub>GDM</sub>	0.15
I <sub>GTM</sub>	4
V <sub>GRM</sub>	5
P <sub>GM</sub>	16
P <sub>G(av)</sub>	3

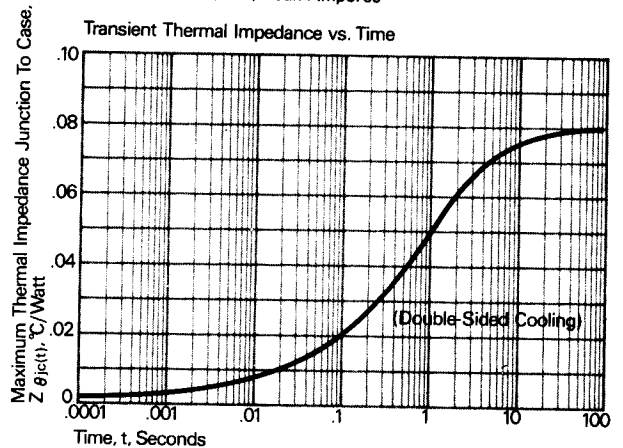
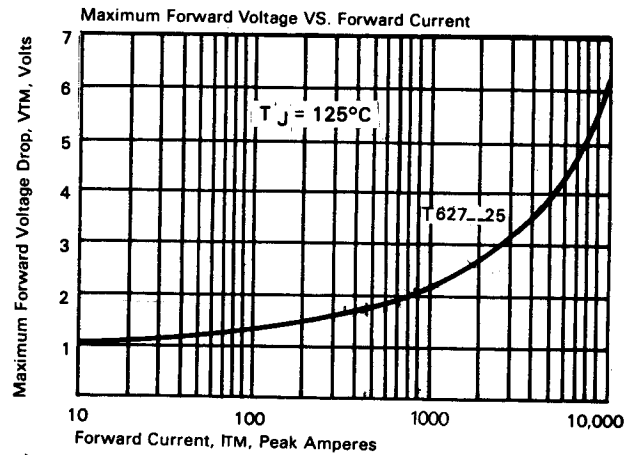
**Thermal and Mechanical**

Min., Max. oper. junction temp., °C ... T<sub>J</sub>  
 Min., Max. storage temp., °C ... T<sub>stg</sub>  
 Min., Max. Mounting Force, lb. ...  
 Max. thermal resistance, Double side cooled  
 Junction to case, °C/Watt ... R<sub>θJC</sub>  
 Case to sink, lubricated, °C/Watt ... R<sub>θCS</sub>

Symbol

T <sub>J</sub>	-40 to +125
T <sub>stg</sub>	-40 to +150
R <sub>θJC</sub>	.08
R <sub>θCS</sub>	.02

- 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.

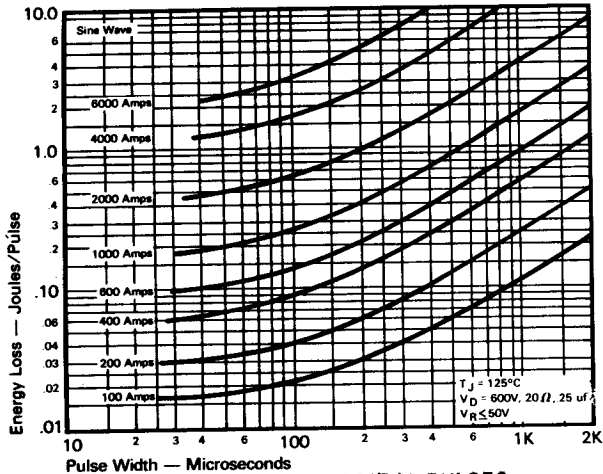


FAST SWITCHING THYRISTORS

# Fast Switching SCR T627..25

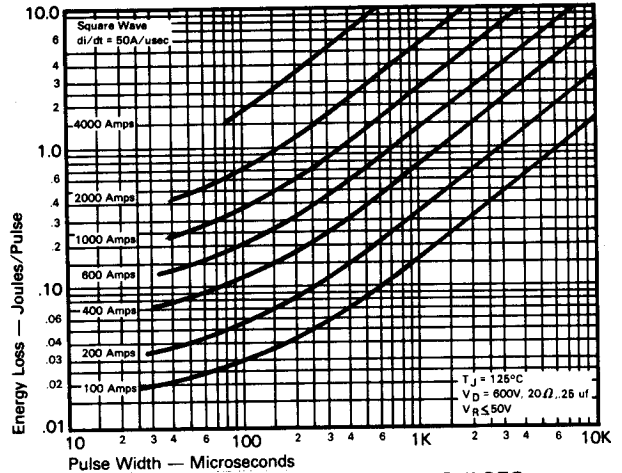
250A Avg.  
(400 RMS)  
Up to 1200 Volts  
10-50  $\mu$ s

## Sinusoidal Current Data

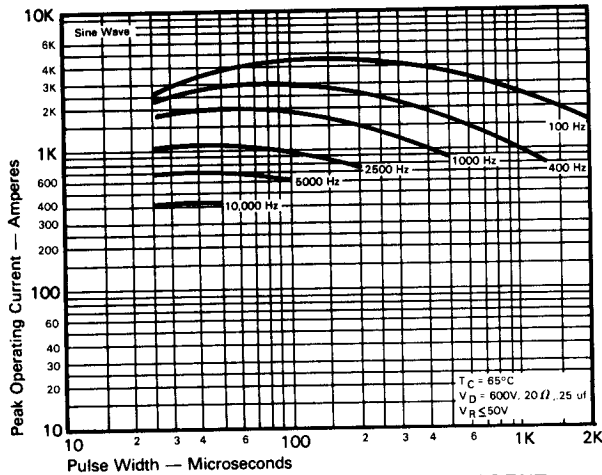


ENERGY PER PULSE FOR SINUSOIDAL PULSES

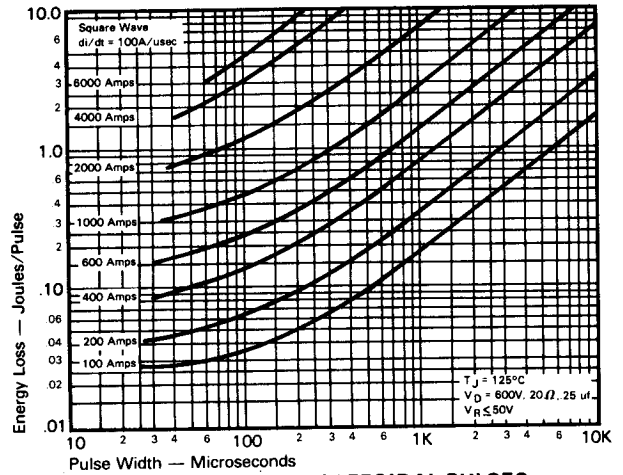
## Trapezoidal Wave Current Data



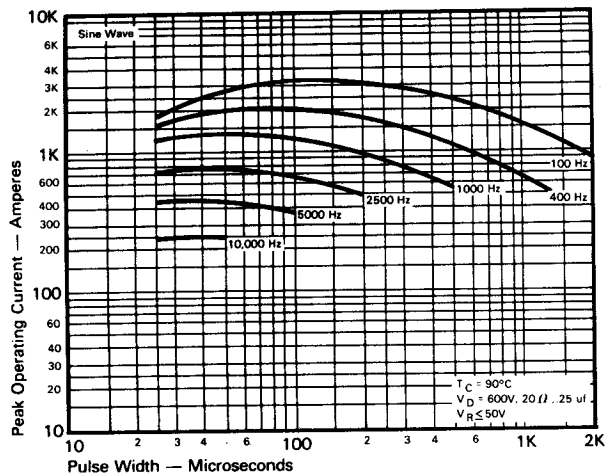
ENERGY PER PULSE FOR TRAPEZOIDAL PULSES  
( $di/dt = 50\text{A}/\mu\text{sec}$ )



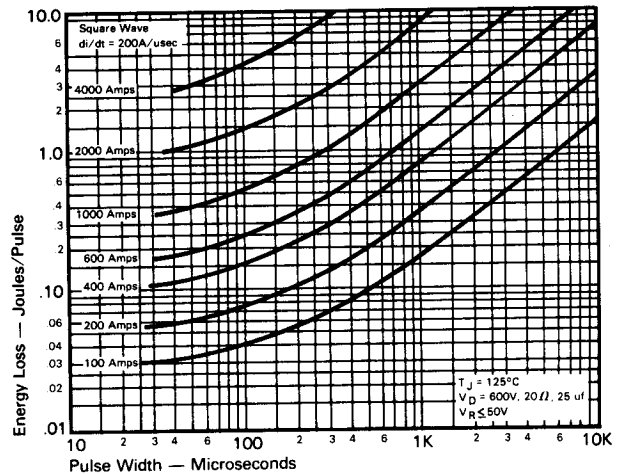
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT  
vs. PULSE WIDTH ( $T_C = 65^\circ\text{C}$ )



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



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

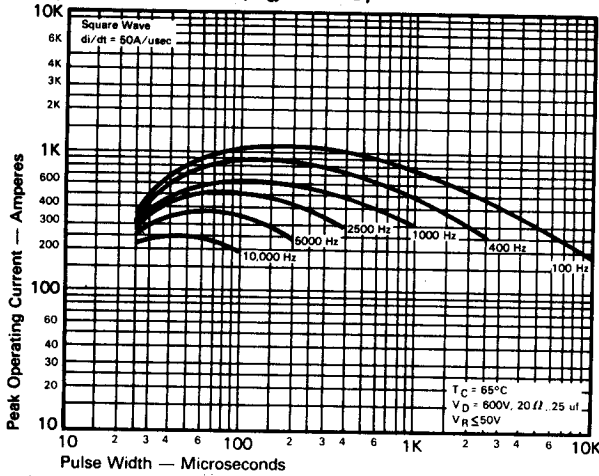


ENERGY PER PULSE FOR TRAPEZOIDAL PULSES  
( $di/dt = 200\text{A}/\mu\text{sec}$ )

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

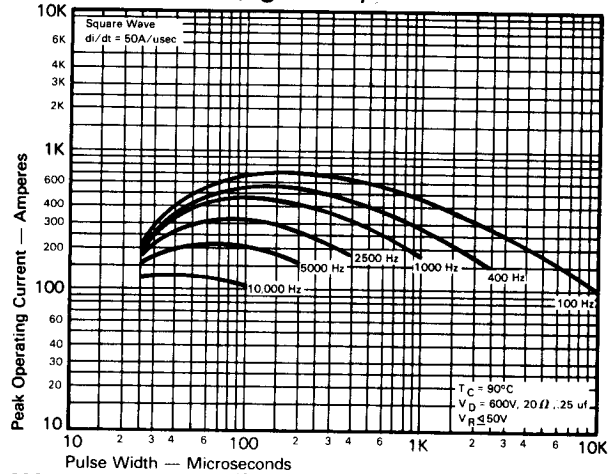
Fast Switching  
SCR  
T627\_25

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

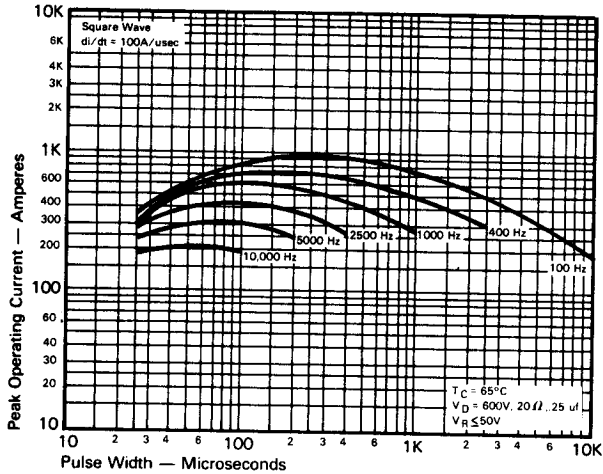


**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH ( $di/dt = 50A/usec$ )**

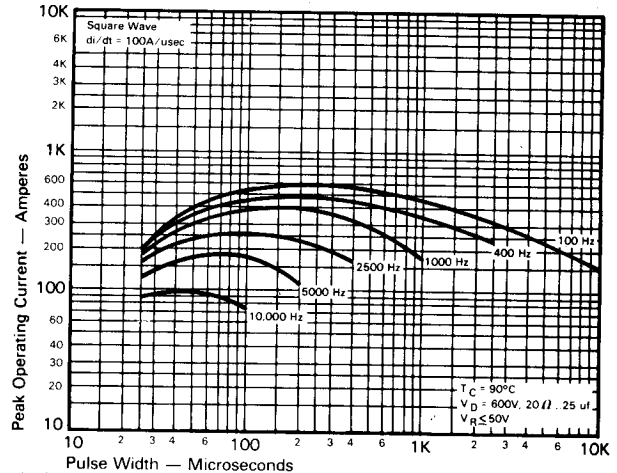
**Trapezoidal Wave Current Data**  
( $T_C = 90^\circ\text{C}$ )



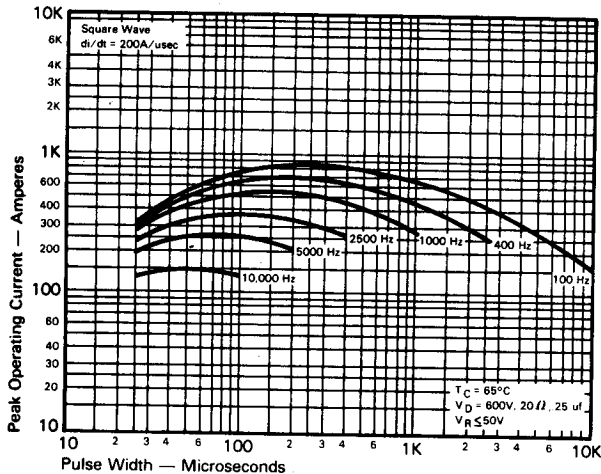
**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH ( $di/dt = 50A/usec$ )**



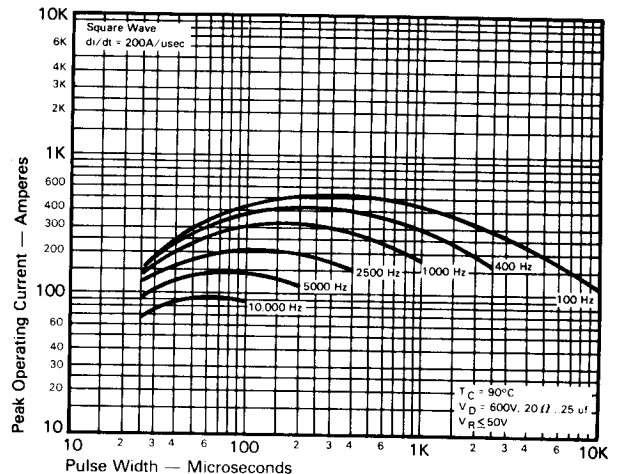
**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH ( $di/dt = 100A/usec$ )**



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

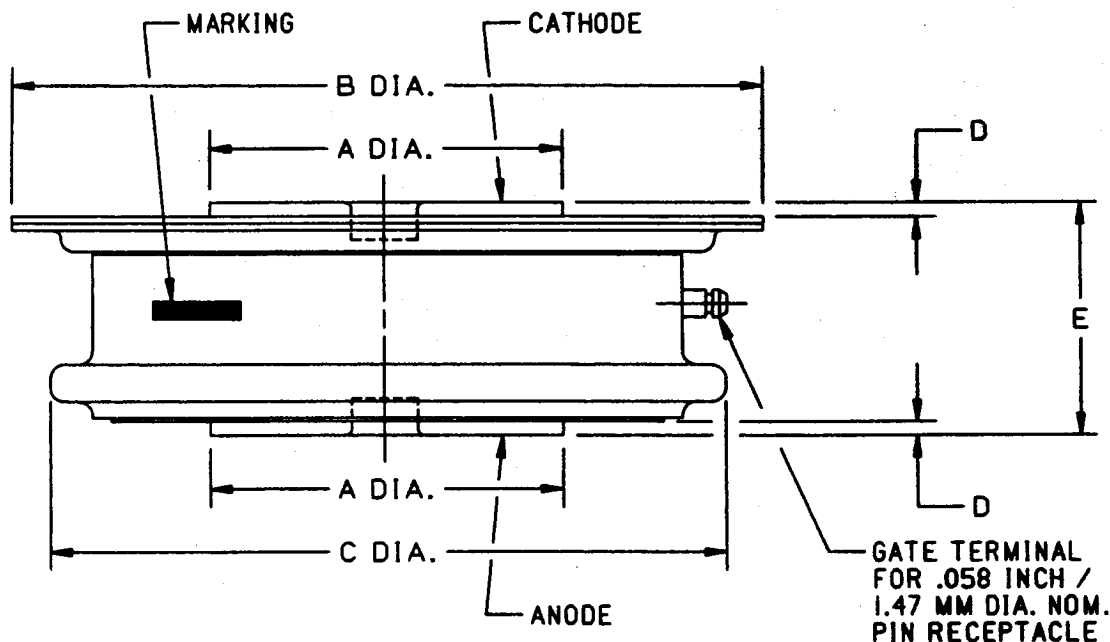
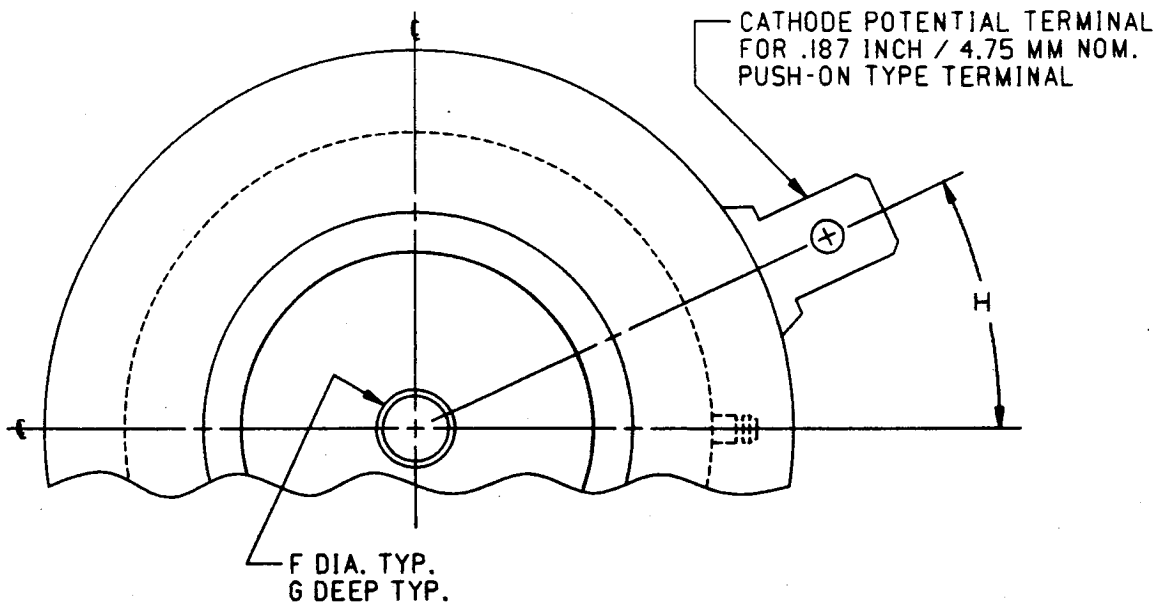


**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH ( $di/dt = 200A/usec$ )**



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

FAST SWITCHING THYRISTORS



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