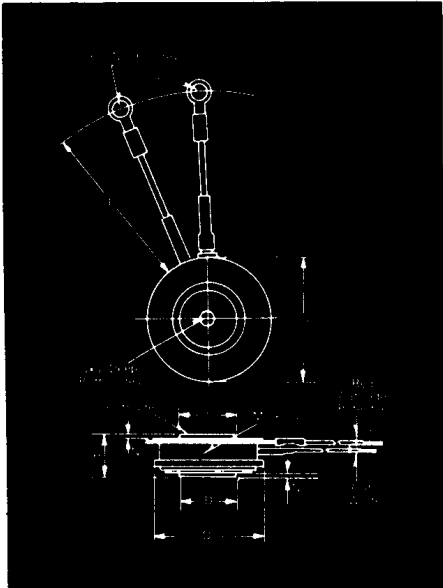


# Fast Switching SCR T627\_\_15

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



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.



T62 Outline

### Features:

- Center fired di/dynamic 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	
	$V_{DRM}$ and $V_{RRM}$ (V)	Code	$I_{T(av)}$ (A)	Code	$t_q$ $\mu$ sec	Code	$I_{GT}$ (ma)	Code	Case	Code
T627	100	01	150	15	10	6	150	4	T62	DN
	200	02			15	7				
	300	03			20	8				
	400	04			30	5				
	500	05			40	4				
	600	06			50	3				
	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 150A 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	1 5	6	4	D N

\*for 10  $\mu$ sec turn-off, consult factory

150A Avg.  
(235 RMS)  
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Fast Switching  
SCR  
T627\_15

**Voltage**

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

	Symbol
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	$I_{RRM}$

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

**Current**

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

	Symbol
RMS forward current, A	$I_{T(rms)}$
Ave. forward current, A	$I_{T(av)}$
One-half cycle surge current $\textcircled{2}$ , A	$I_{TSM}$
$I^2t$ for fusing (for times $\geq 8.3$ ms) A <sup>2</sup> sec.	$I^2t_f$
Forward voltage drop at $I_{TM} = 625A$ and $T_J = 25^\circ\text{C}$ , V	$V_{TM}$
Min. repetitive di/dt $\textcircled{4}$ , A/ $\mu$ sec $\textcircled{1}$ $\textcircled{4}$ $\textcircled{5}$	di/dt

**T627\_15**

235
150
3500
50,000
2.35
200

**Switching**

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

	Symbol
Max. turn-off time, $I_T = 150A$ , $T_J = 125^\circ\text{C}$ , $di/dt = 12.5$ $\textcircled{1}$ A/ $\mu$ sec, reappplied $dv/dt =$ 20V/ $\mu$ sec $\textcircled{2}$ linear to 0.8 $V_{DRM}$ , $\mu$ sec.	$t_q$
Typ. turn-on time, $I_T = 100A$ , $V_D = 100V$ $\textcircled{3}$ , $\mu$ sec	$t_{on}$
Min. critical $dv/dt$ , exponential to $V_{DRM}$ , $T_J = 125^\circ\text{C}$ , V/ $\mu$ sec $\textcircled{2}$ $\textcircled{3}$	dv/dt
Min. di/dt A/ $\mu$ sec $\textcircled{1}$ $\textcircled{4}$ $\textcircled{5}$	di/dt

10 to 50
3.5
300
800

**Gate**

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

	Symbol
Gate current to trigger at $V_D = 12V$ , mA	$I_{GT}$
Gate voltage to trigger at $V_D = 12V$ , V	$V_{GT}$
Non-triggering gate voltage, $T_J = 125^\circ\text{C}$ , and rated $V_{DRM}$ , V	$V_{GDM}$
Peak forward gate current, A	$I_{GTM}$
Peak reverse gate voltage, V	$V_{GRM}$
Peak gate power, Watts	$P_{GM}$
Average gate power, Watts	$P_{G(av)}$

150
3
0.15
4
5
16
3

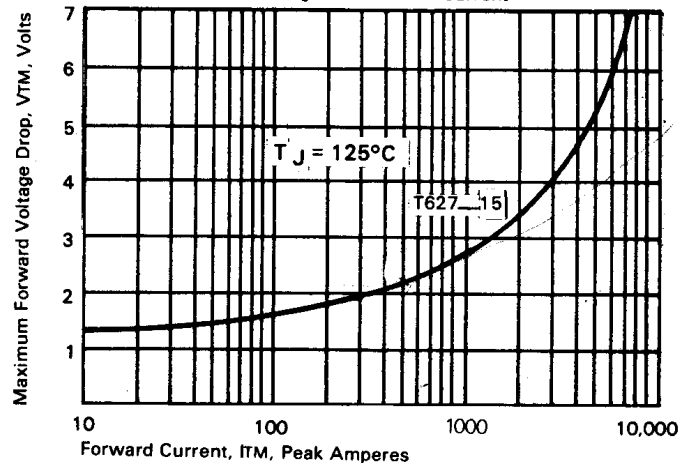
**Thermal and Mechanical**

	Symbol
Min., Max. oper. junction temp., $^\circ\text{C}$	$T_J$
Min., Max. storage temp., $^\circ\text{C}$	$T_{stg}$
Min., Max. Mounting Force, lb. $\textcircled{1}$	
Max. thermal resistance, Double side cooled Junction to case, $^\circ\text{C}/\text{Watt}$	$R_{\theta JC}$
Case to sink, lubricated, $^\circ\text{C}/\text{Watt}$	$R_{\theta CS}$

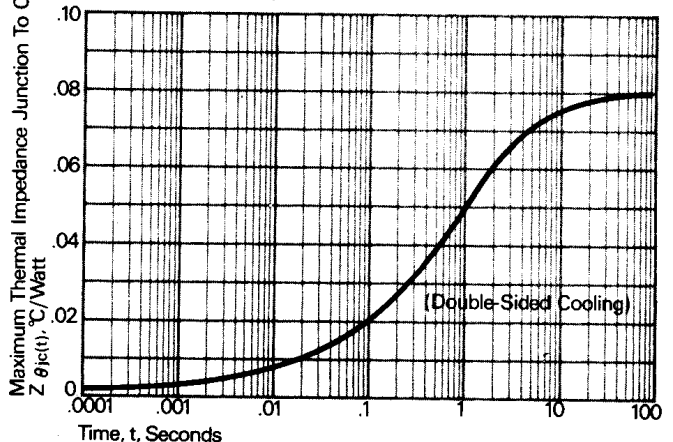
-40 to +125
-40 to +150
1000 to 1400
.08
.02

- $\textcircled{1}$  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

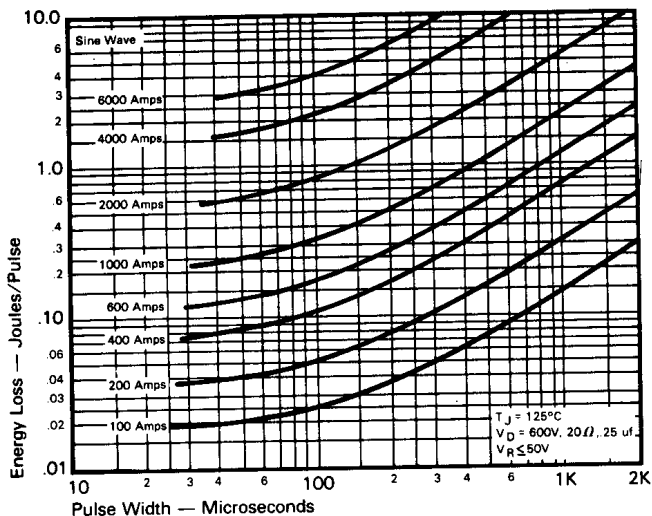


FAST SWITCHING  
THYRISTORS

# Fast Switching SCR T627\_15

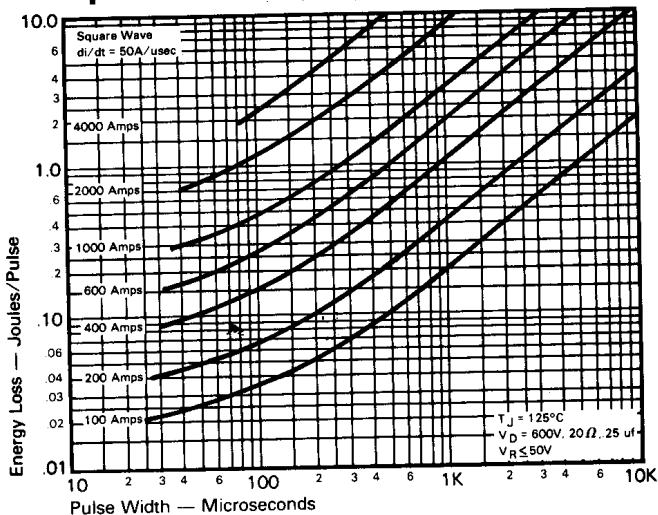
150A Avg.  
(235 RMS)  
Up to 1200 Volts  
10-50  $\mu$ s

## Sinusoidal Current Data

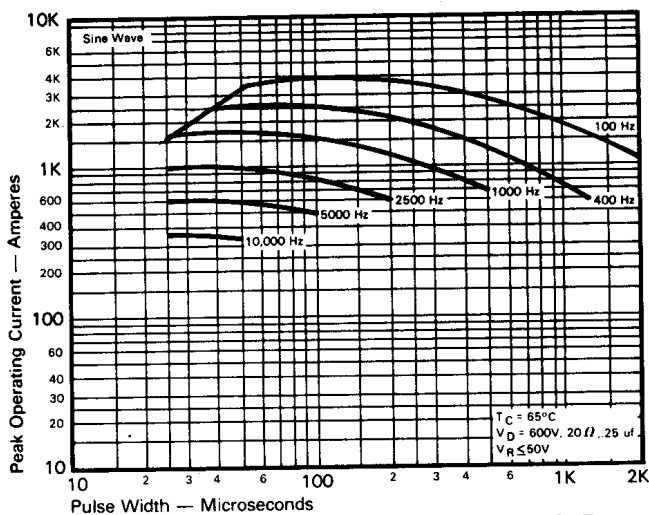


ENERGY PER PULSE FOR SINUSOIDAL PULSES

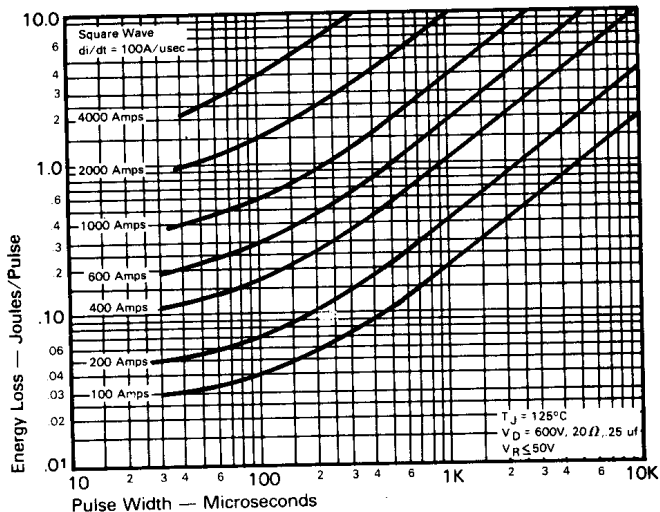
## Trapezoidal Wave Current Data



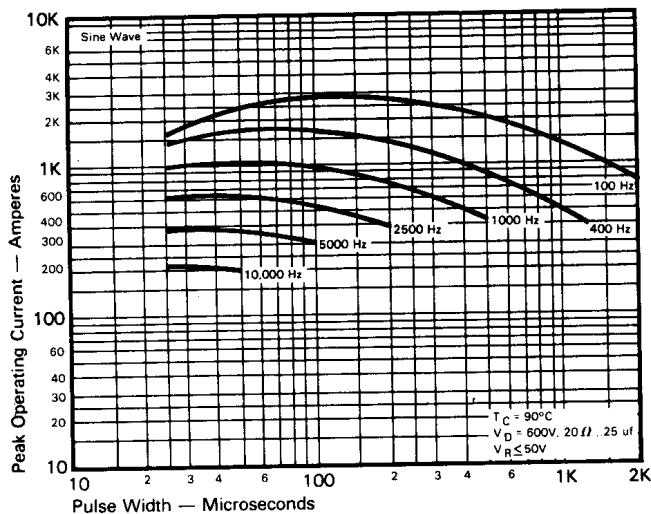
ENERGY PER PULSE FOR TRAPEZOIDAL PULSES  
( $di/dt = 50\text{A}/\text{usec}$ )



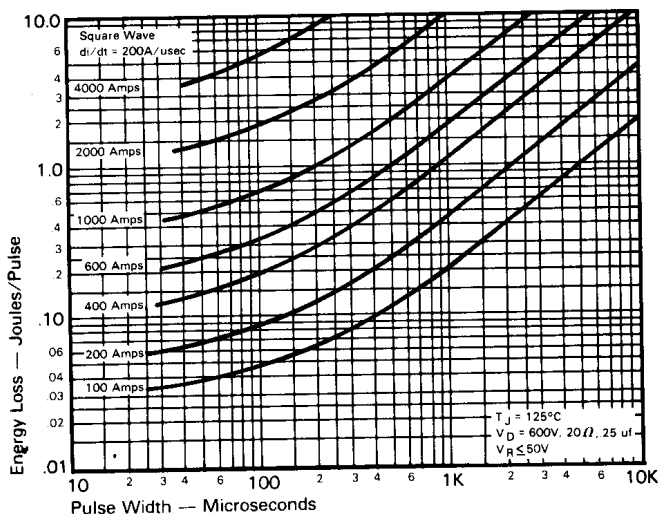
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT  
vs. PULSE WIDTH ( $T_C = 65^\circ\text{C}$ )



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



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



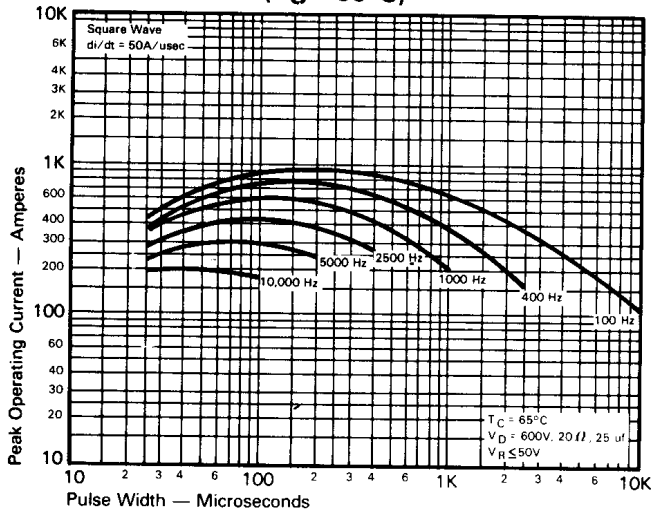
ENERGY PER PULSE FOR TRAPEZOIDAL PULSES  
( $di/dt = 200\text{A}/\text{usec}$ )

FAST SWITCHING  
THYRISTORS

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

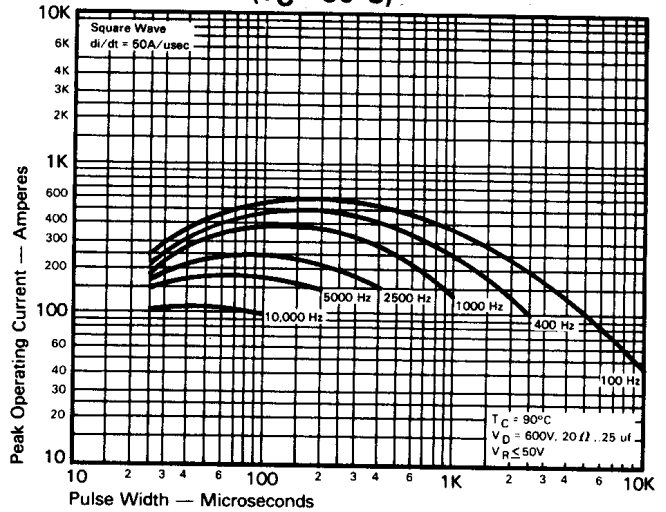
Fast Switching  
SCR  
T627\_15

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

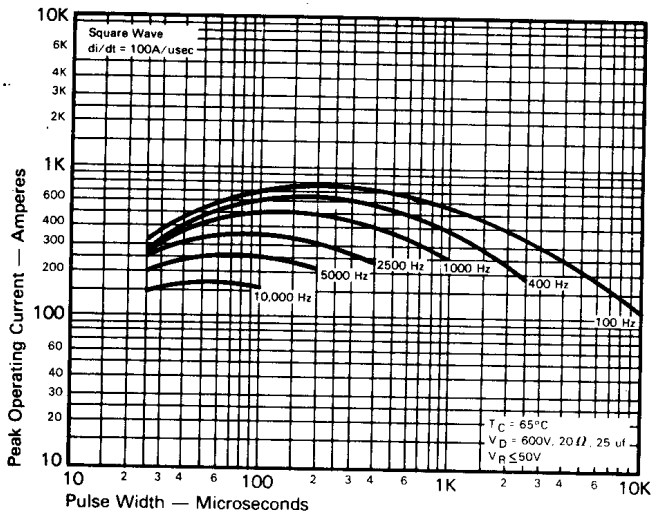


**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH ( $di/dt = 50A/usec$ )**

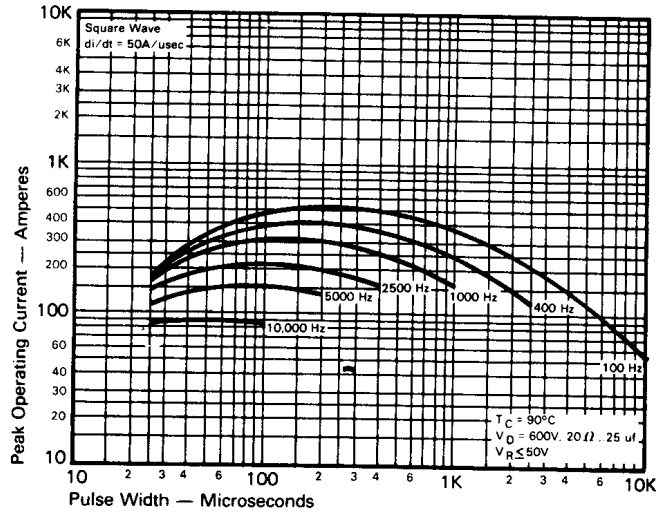
**Trapezoidal Wave Current Data**  
( $T_C = 90^\circ\text{C}$ )



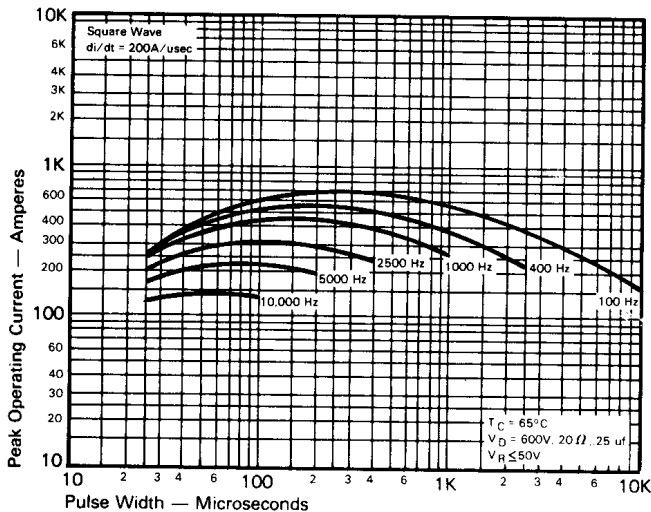
**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH ( $di/dt = 50A/usec$ )**



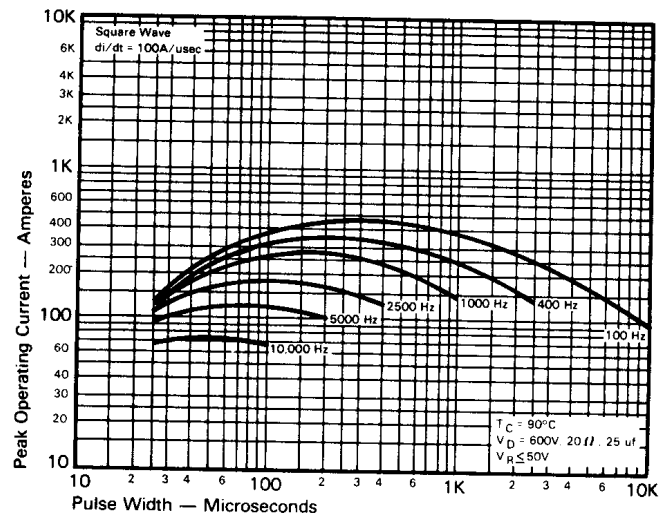
**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH ( $di/dt = 100A/usec$ )**



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



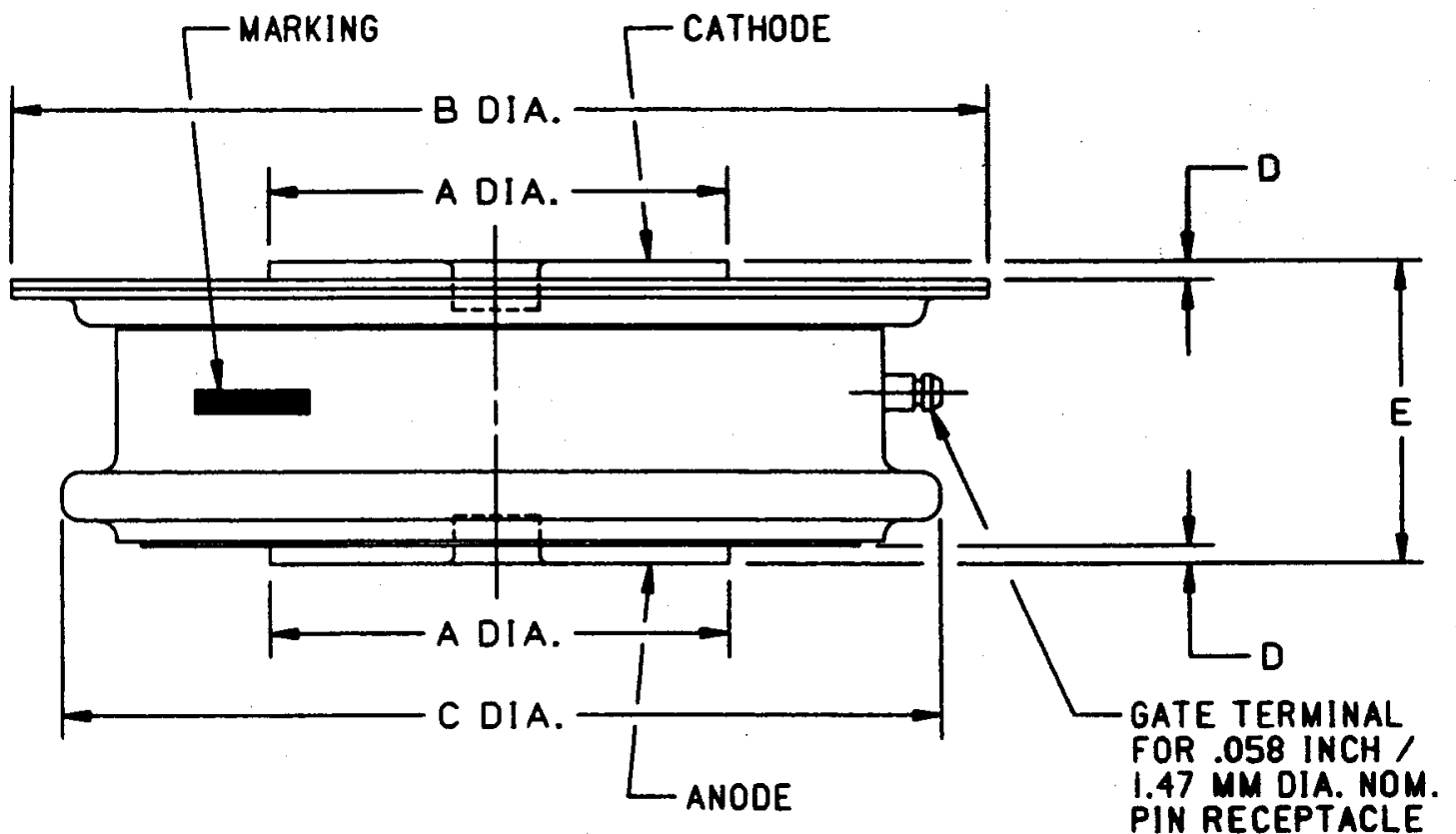
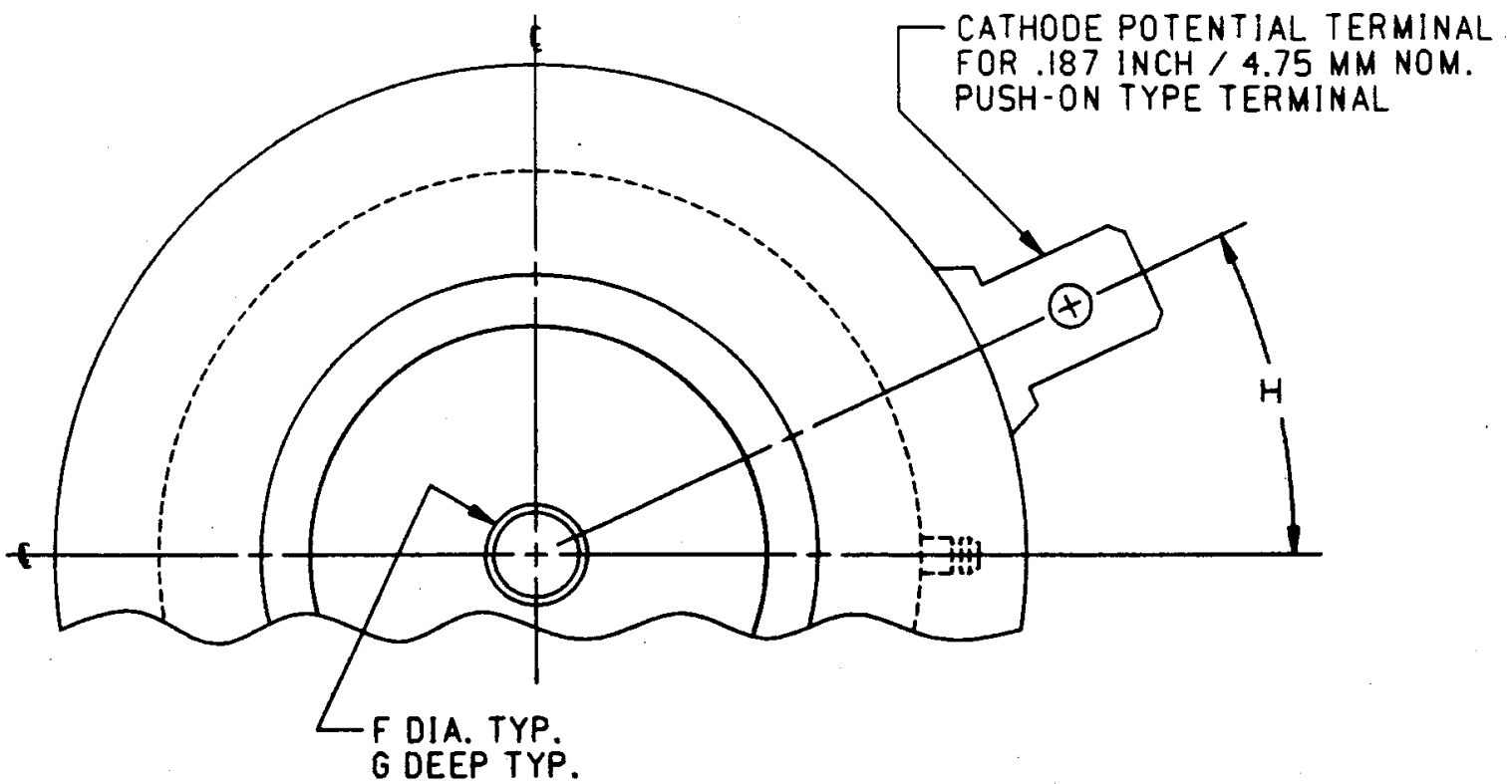
**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH ( $di/dt = 200A/usec$ )**



**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