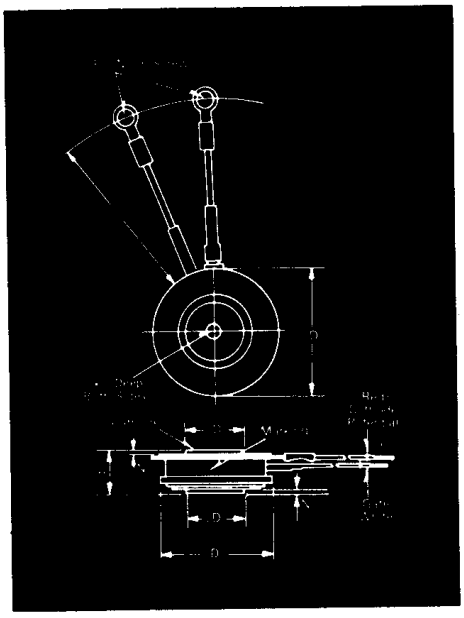
Fast Switching SCR T627__25

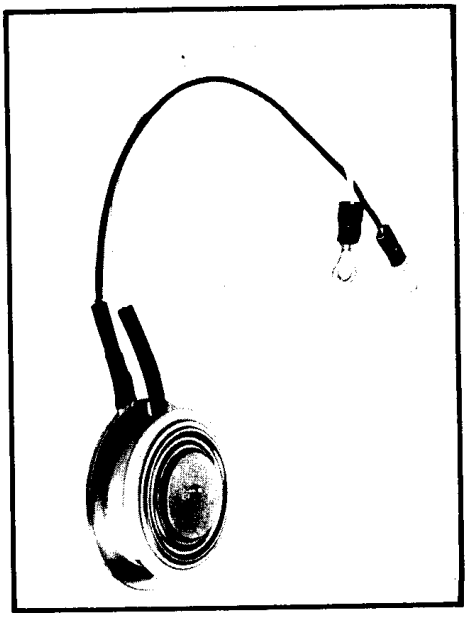
250A Avg. (400 RMS) Up to 1200 Volts 10-50 μs



T62 Outline

Symbol	Inches Min.	Inches Max.	Millimeters Min.	Millimeters 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.



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	tq μsec	Code	I_{GT} (ma)	Code	Case	Code
T627	100	01	250	25	10	1	150	4	T62	DN
	200	02			15	2				
	300	03			20	3				
	400	04			30	4				
	500	05			40	5				
	600	06			50	6				
	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, tq = 20 μsec 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

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Voltage

Blocking State Maximums ① (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, $t \leq 5.0$ msec, 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	T627__25
RMS forward current, A	$I_{T(rms)}$	400
Ave. forward current, A	$I_{T(av)}$	250
One-half cycle surge current③, A	I_{TSM}	4500
I^2t for fusing (for times ≥ 8.3 ms) A^2 sec.	I^2t	84,000
Forward voltage drop at I_{TM} = 625A and T_J = 25°C, V	V_{TM}	1.85
Min. repetitive di/dt④, A/μsec①④⑥	di/dt	300

Switching

(T_J = 25°C)	Symbol	
Max. turn-off time, I_T = 150A, T_J = 125°C, di_R/dt = 12.5 ⑦ A/μsec, reapplied dv/dt = 20V/μsec⑤ linear to 0.8 V_{DRM}, μsec	t_q	10 to 50
Typ. turn-on-time, I_T = 100A V_D = 100V④, μsec	t_{on}	3.5
Min. critical dv/dt, exponential to V_{DRM}, T_J = 125°C, V/μsec②⑤	dv/dt	300
Min. di/dt A/μsec ①④⑥	di/dt	800

Gate

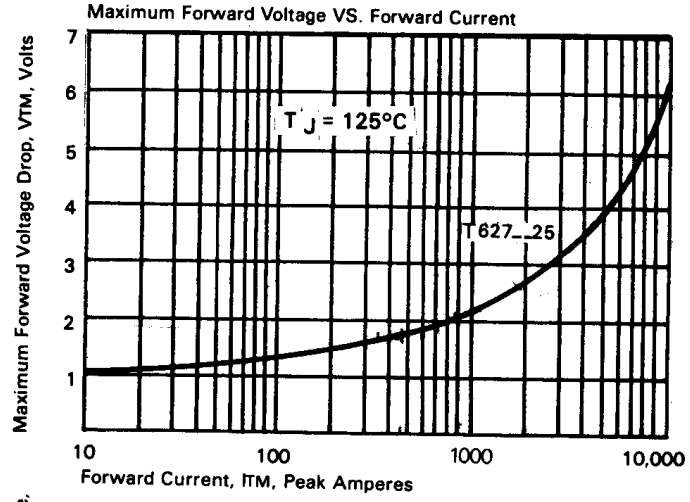
Maximum Parameters (T_J = 25°C)	Symbol	
Gate current to trigger at V_D = 12V, mA	I_{GT}	150
Gate voltage to trigger at V_D = 12V, V	V_{GT}	3
Non-triggering gate voltage, T_J = 125°C, and rated V_{DRM}, V	V_{GDM}	0.15
Peak forward gate current, A	I_{GTM}	4
Peak reverse gate voltage, V	V_{GRM}	5
Peak gate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

Thermal and Mechanical

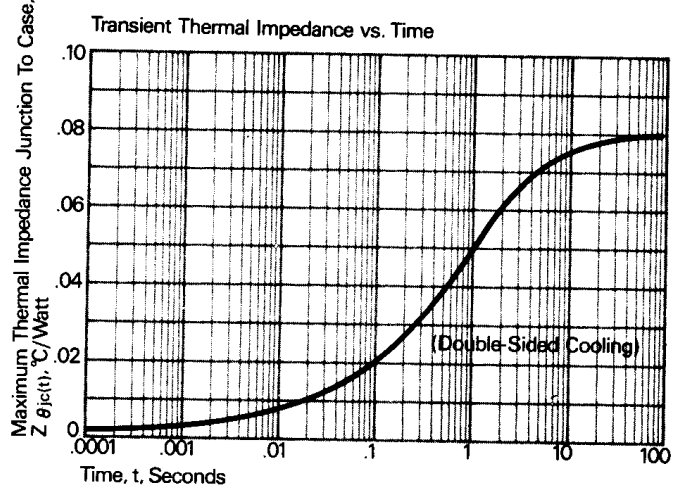
	Symbol	
Min., Max. oper. junction temp., °C	T_J	−40 to +125
Min., Max. storage temp., °C	Tstg	−40 to +150
Min., Max. Mounting Force, lb.①		1000 to 1400
Max. thermal resistance, Double side cooled		
Junction to case, °C/Watt	$R_{\theta JC}$	.08
Case to sink, lubricated, °C/Watt	$R_{\theta CS}$	.02

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.

Maximum Forward Voltage VS. Forward Current



Transient Thermal Impedance vs. Time



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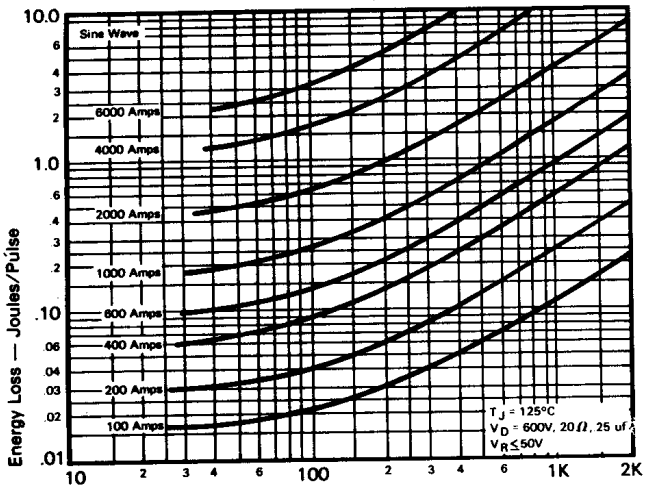
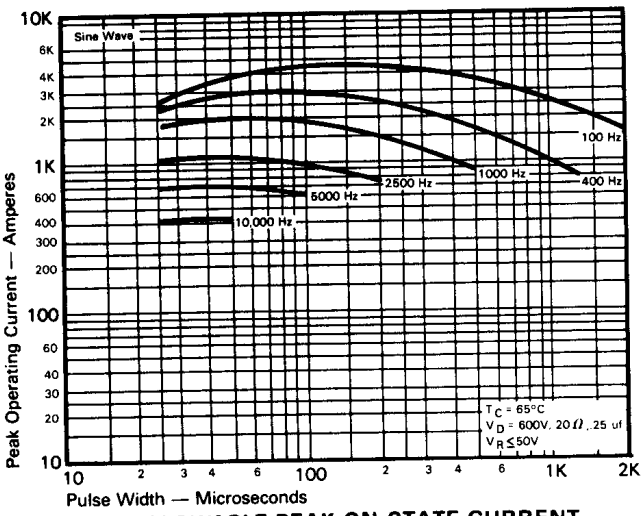
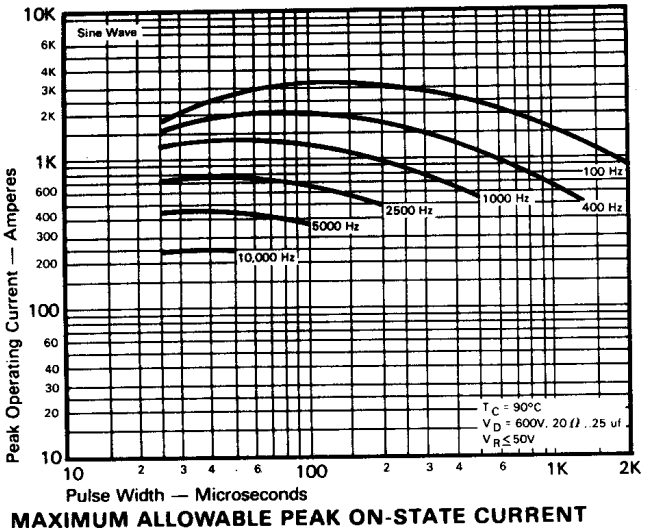
Sinusoidal Current Data



ENERGY PER PULSE FOR SINUSOIDAL PULSES

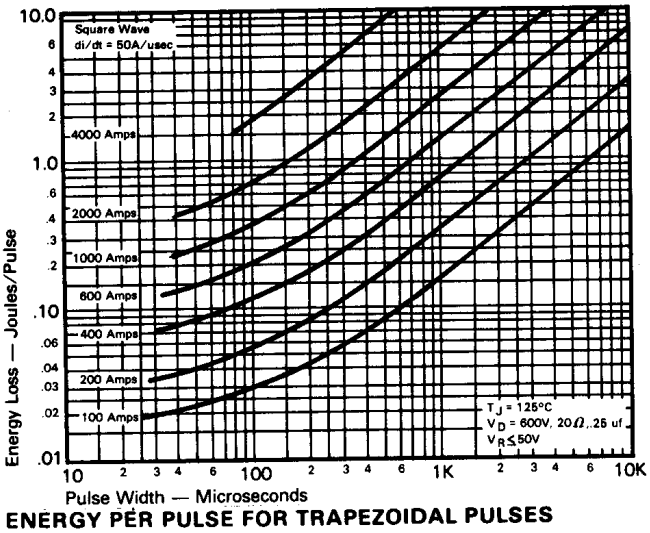


MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH (T_C = 65°C)

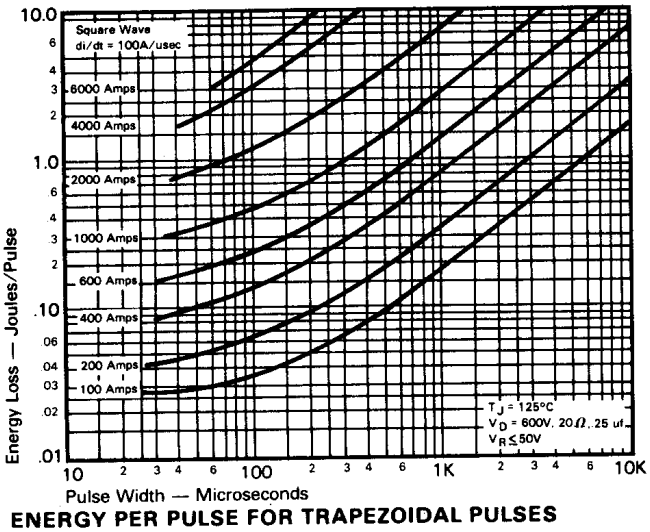


MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH (T_C = 90°C)

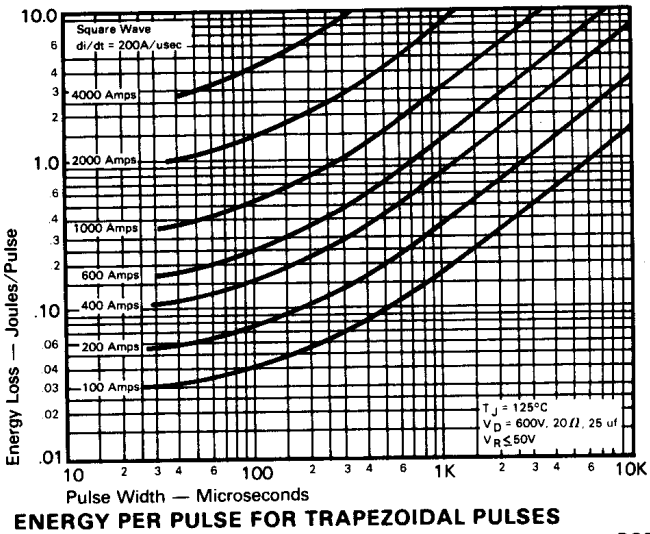
Trapezoidal Wave Current Data



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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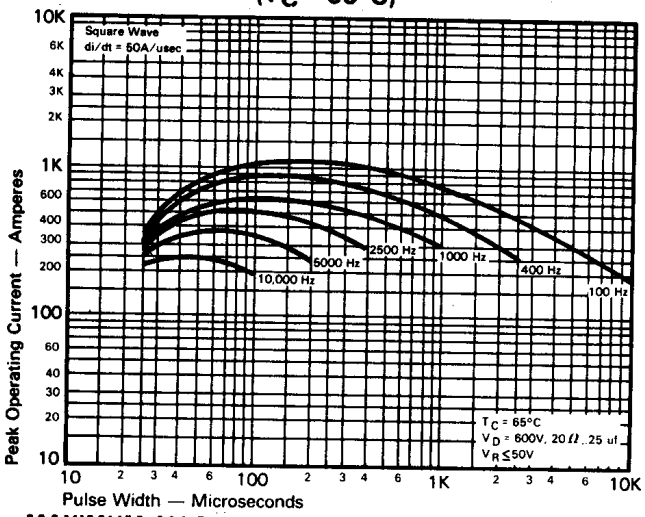
Trapezoidal Wave Current Data
(T_C = 65°C)



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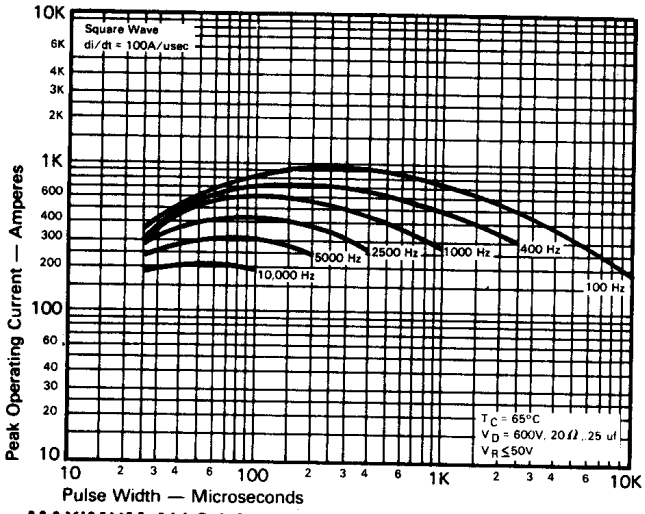

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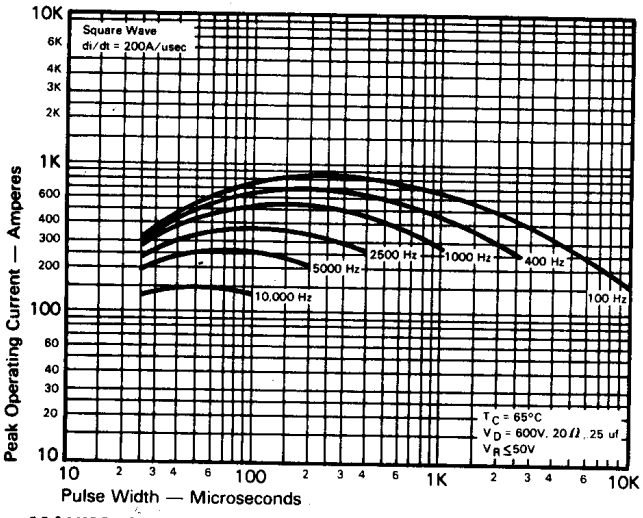

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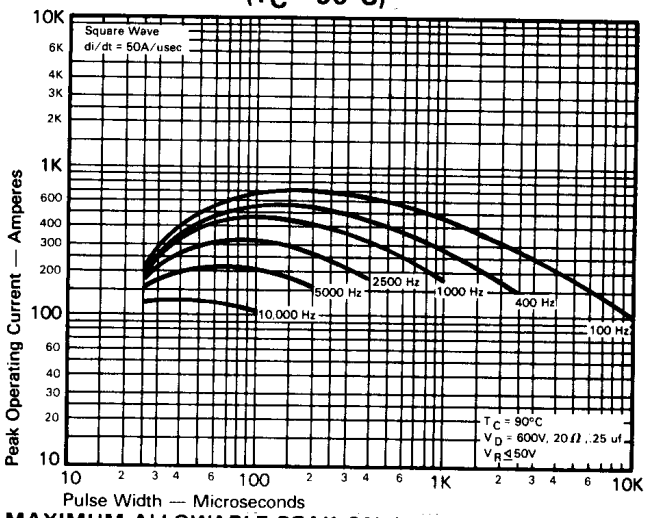

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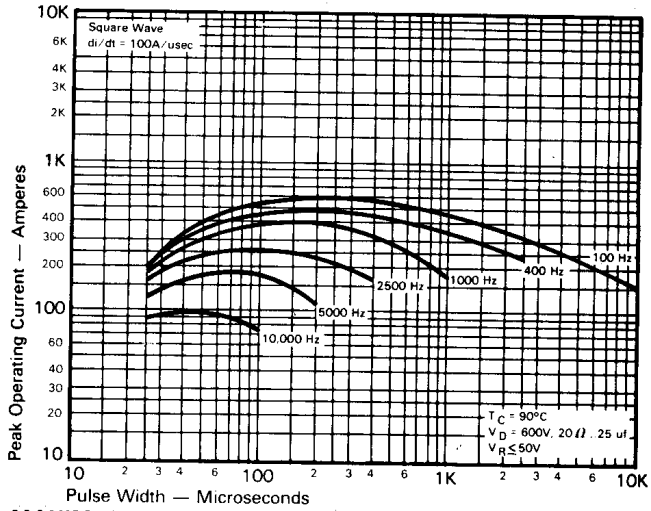

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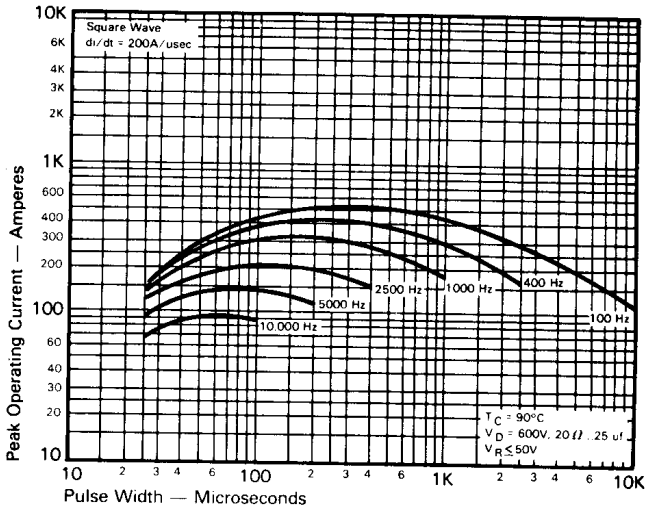

MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH (di/dt = 200A/usec)

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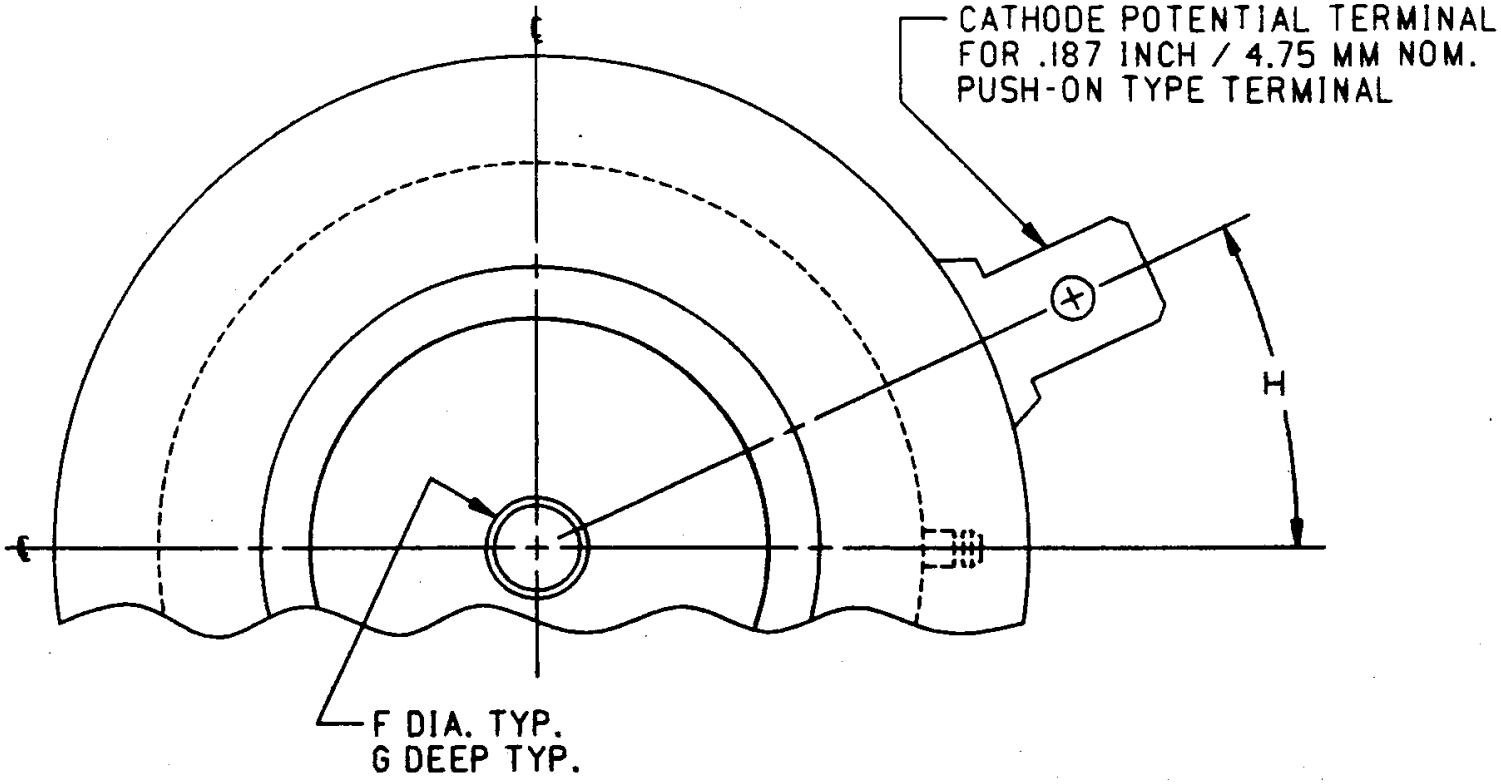

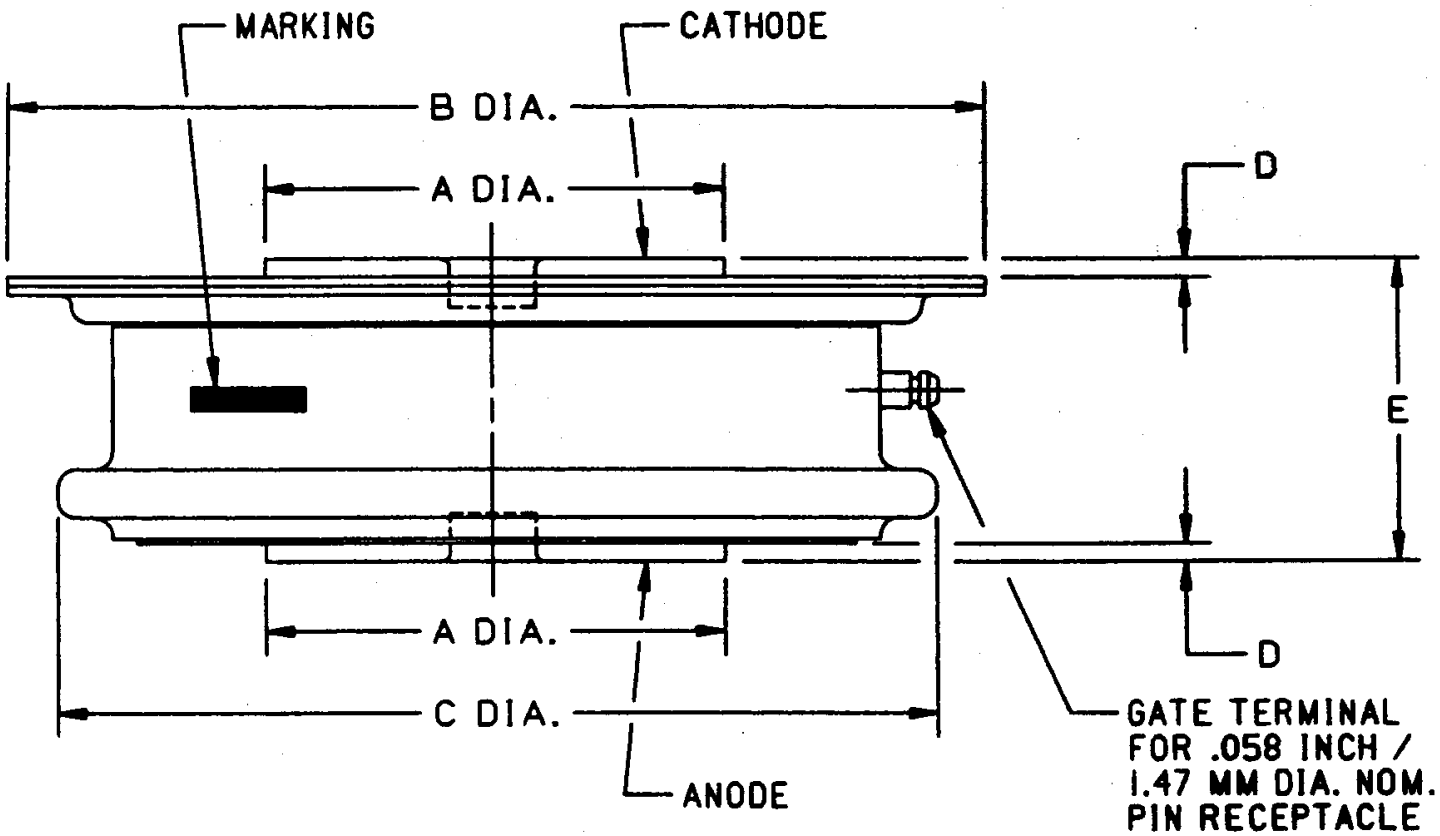

CASE NUMBER T62

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

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