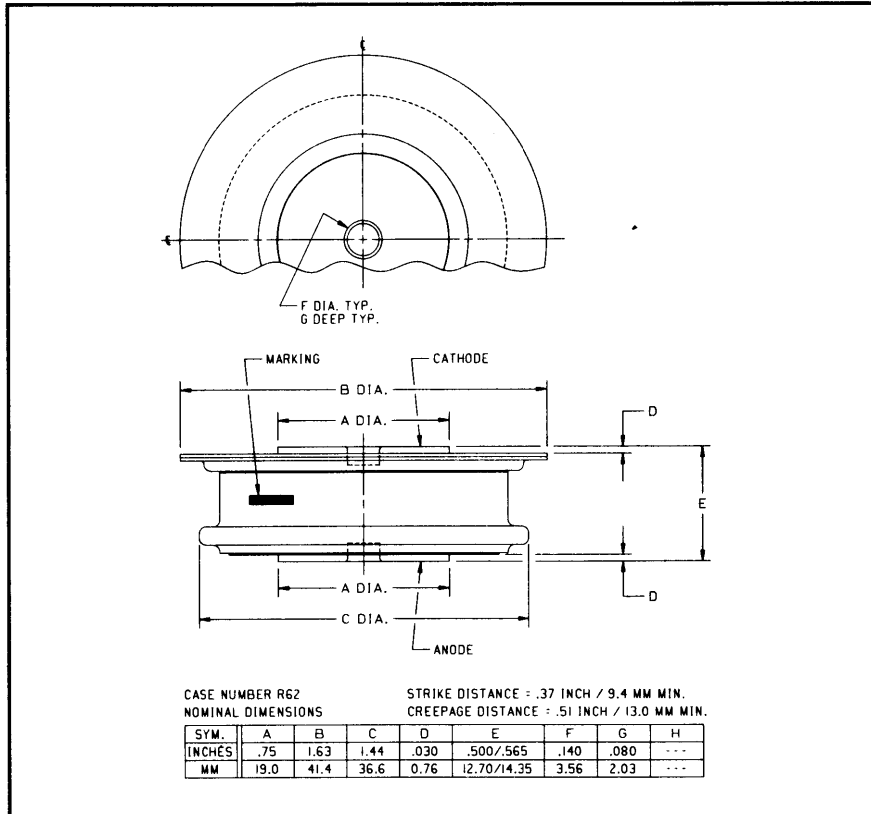
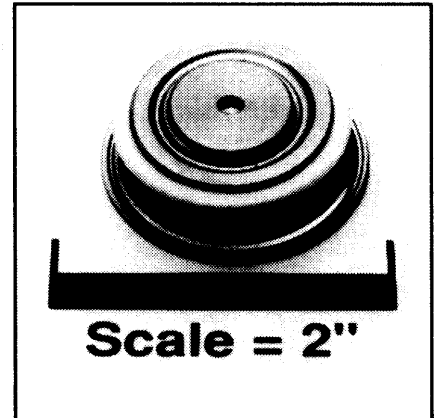


Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272  
 Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

**Fast Recovery Rectifier**  
**300 Amperes Average**  
**1600 Volts**



R622\_30 (Outline Drawing)



R622\_30  
 Fast Recovery Rectifier  
 300 Amperes Average, 1600 Volts

**Features:**

- Fast Recovery Times
- Soft Recovery Characteristics
- High Surge Current Ratings
- High Rated Blocking Voltages
- Special Electrical Selection for Parallel and Series Operation
- Single or Double-sided Cooling
- Long Creepage and Strike Paths
- Hermetic Seal
- Special Selection of Recovery Characteristics Available

**Applications:**

- Inverters
- Choppers
- Transmitters
- Free Wheeling Diode

**Ordering Information:**

Select the complete part number you desire from the following table:

Type	Voltage		Current		Recovery Time		Leads	
	V <sub>RRM</sub> (Volts)	Code	I <sub>F(av)</sub> (A)	Code	t <sub>rr</sub> (nsec)	Code	Case	Code
R622	400	04	300	30	500	PS	R62	OO
	600	06						
	800	08						
	1000	10						
	1200	12						
	1400	14						
	1600	16						

**Example:** Type R602 rated at 300A average with  
 V<sub>RRM</sub> = 1600V, Recovery Time = 500nsec, order as:

Type	Voltage	Current	Time	Leads
R 6 2 2	1 6	3 0	PS	O O

## R622\_30

### Fast Recovery Rectifier

300 Amperes Average, 1600 Volts

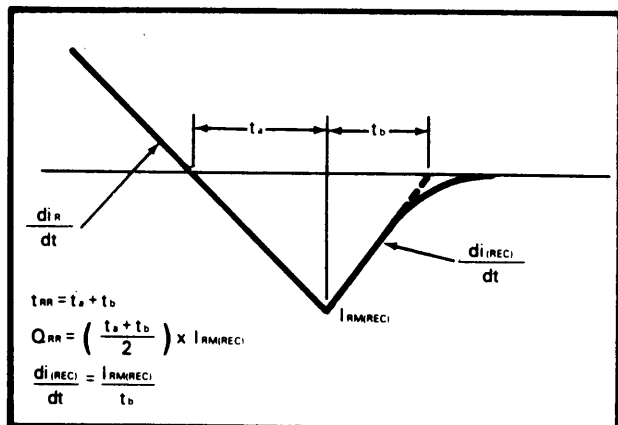
## Absolute Maximum Ratings

Characteristics	Symbol	R622_30	Units
RMS Forward Current	$I_{F(rms)}$	470	Amperes
Average Forward Current	$I_{F(av)}$	300	Amperes
One-half Cycle Surge Current	$I_{FSM}$	3500	Amperes
3 Cycle Surge Current	$I_{FSM}$	2700	Amperes
10 Cycle Surge Current	$I_{FSM}$	2100	Amperes
$I^2t$ (for Fusing), Times = 8.3 milliseconds	$I^2t$	51000	$A^2sec$
Max. $I^2t$ of Package (for Times = 8.3 milliseconds)	$I^2t$	$20 \times 10^6$	$A^2sec$
Storage Temperature	$T_{stg}$	40 to +190	$^{\circ}C$
Operating Temperature	$T_j$	40 to +150	$^{\circ}C$
Mounting Force		1000 to 1400	lbs

## Electrical and Thermal Characteristics

Characteristics	Symbol	Test Conditions	R622_30	Units
<b>Current - Conducting State Maximums</b>				
Forward Voltage Drop	$V_{FM}$	$T_j = 25^{\circ}C, I_{FM} = 800A$	2.75	Volts
<b>Voltage - Blocking State Maximums</b>				
Repetitive Peak Reverse Voltage (Rated Limit)	$V_{RRM}$		1600	Volts
Non-rep. Trans. Peak Rev. Voltage (Rated Limit)	$V_{RSM}$	$t \leq 5.0msec$	1800	Volts
Reverse Leakage Current, mA peak	$I_{RRM}$	$T_j$ at max., $V_{RRM} = \text{Rated}$	50	mA
<b>Switching</b>				
Maximum Reverse Recovery Time	$t_{rr}$	$I_{FM} = 785A, t_p = 100\mu sec,$ $di_F/dt = 25A/\mu sec, T_C = 25^{\circ}C$	500	nsec
Maximum Reverse Recovery Time	$t_{rr}$	$I_{FM} = 785A, t_p = 100\mu sec,$ $di_F/dt = 25A/\mu sec, T_C = 150^{\circ}C$	1.1	$\mu sec$
<b>Thermal</b>				
Maximum Resistance, Junction to Case	$R_{\theta(j-c)}$		0.095	$^{\circ}C/Watt$
Maximum Resistance, Case to Sink (Lubricated)	$R_{\theta(c-s)}$		0.025	$^{\circ}C/Watt$

Reverse Recovery Wave Form



Transient Thermal Impedance Vs. Time

