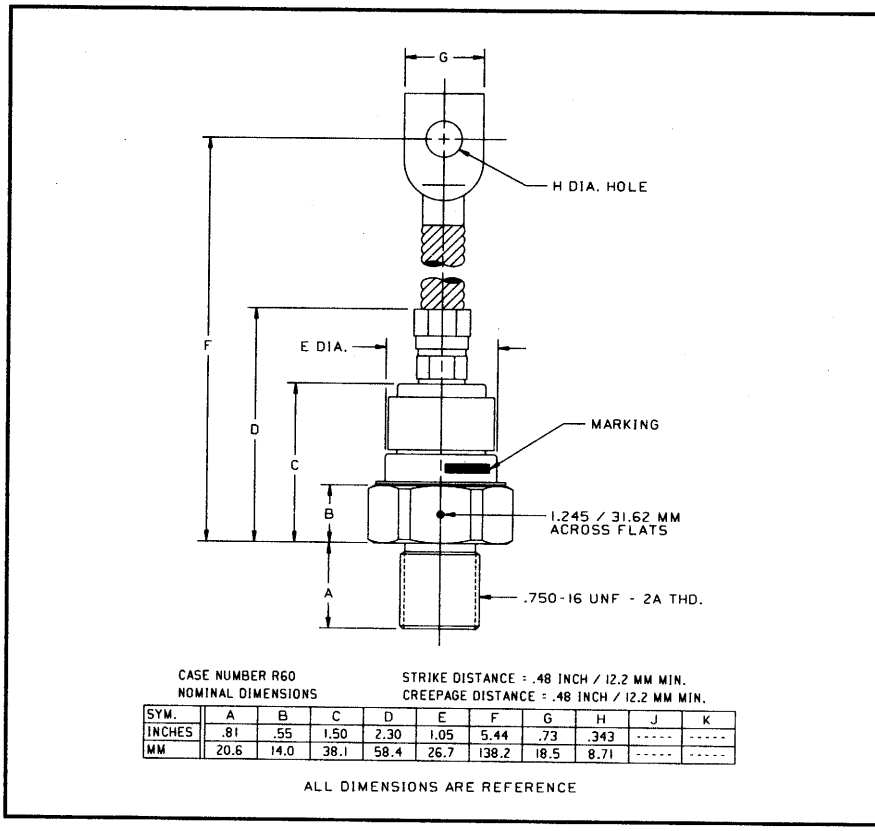
R602_ _22/ R603_ _22

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
220 Amperes Average
1600 Volts



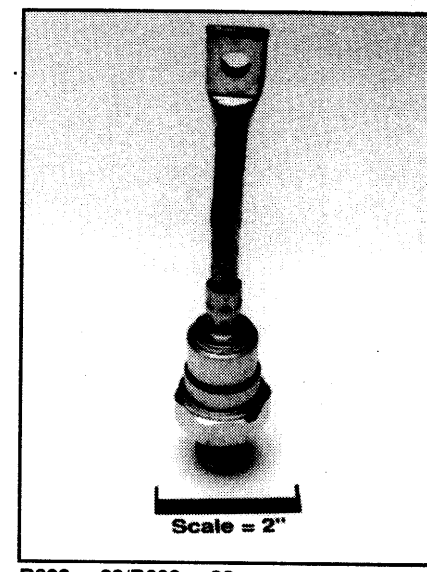
CASE NUMBER R60
NOMINAL DIMENSIONS

STRIKE DISTANCE = .48 INCH / 12.2 MM MIN.
CREEPAGE DISTANCE = .48 INCH / 12.2 MM MIN.

SYM.	A	B	C	D	E	F	G	H	J	K
INCHES	.81	.55	1.50	2.30	1.05	5.44	.73	.343	-----	-----
MM	20.6	14.0	38.1	58.4	26.7	138.2	18.5	8.71	-----	-----

ALL DIMENSIONS ARE REFERENCE

R602_ _22/R603_ _22 (Outline Drawing)



R602_ _22/R603_ _22
Fast Recovery Rectifier
220 Amperes Average, 1600 Volts

Features:
- ☐ Fast Recovery Times
- ☐ Soft Recovery Characteristics
- ☐ Standard and Reverse Polarities
- ☐ Flag Lead and Stud Top Terminals Available
- ☐ High Surge Current Ratings
- ☐ High Rated Blocking Voltages
- ☐ Special Electrical Selection for Parallel and Series Operation
- ☐ Glazed Ceramic Seal Gives High Voltage Creepage and Strike Paths
- ☐ 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_{RRM} (Volts)	Code	$I_{F(av)}$ (A)	Code	t_{rr} (nsec)	Code	Case	Code
R602 (Standard Polarity)	400	04	220	22	500	PS	DO-9	YA
	600	06						
	800	08						
	1000	10						
R603 (Reverse Polarity)	1200	12						
	1400	14						
	1600	16						

Example: Type R602 rated at 220A average with V_{RRM} = 1600V, Recovery Time = 500nsec, order as:

Type				Voltage		Current		Time	Leads	
R	6	0	2	1	6	2	2	PS	Y	A

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R602_ _22/R603_ _22
Fast Recovery Rectifier
220 Amperes Average, 1600 Volts

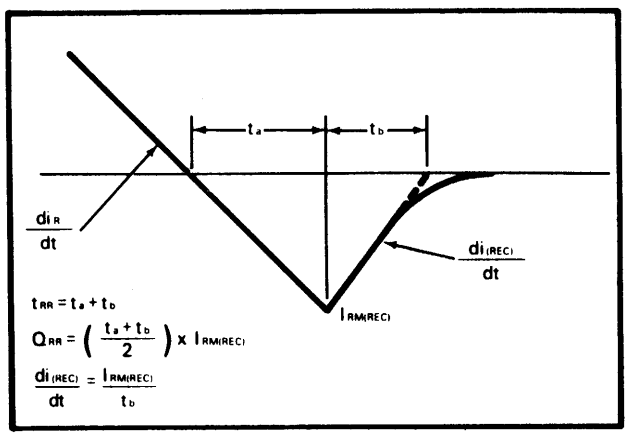
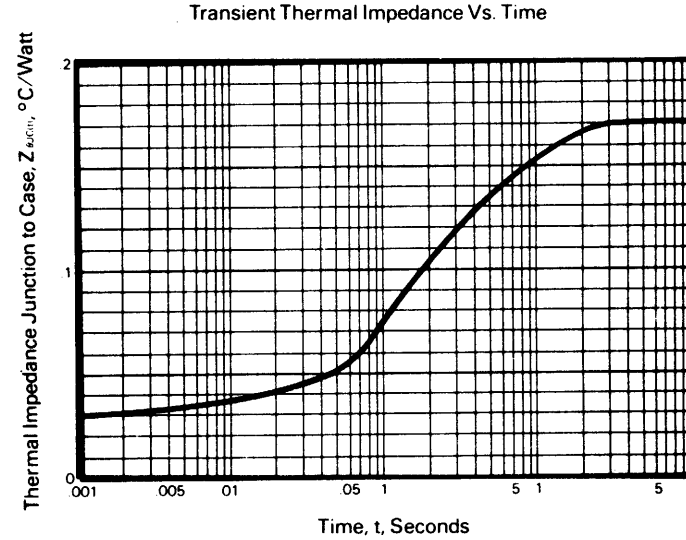
Absolute Maximum Ratings

Characteristics	Symbol	R602_ _22/R603_ _22	Units
RMS Forward Current	$I_{F(rms)}$	345	Amperes
Average Forward Current	$I_{F(av)}$	220	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
Storage Temperature	T_{stg}	-40 to +190	°C
Operating Temperature	T_j	-40 to +150	°C
Mounting Torque (Lubricated)		360	in-lb

Electrical and Thermal Characteristics

Characteristics	Symbol	Test Conditions	R602_ _22/R603_ _22	Units
Current - Conducting State Maximums				
Forward Voltage Drop	V_{FM}	T_j = 25°C, I_{FM} = 800A	2.75	Volts
Voltage - Blocking State Maximums				
Repetitive Peak Reverse Voltage (Rated Limit)	V_{RRM}		1600	Volts
Non-rep. Trans. Peak Rev. Voltage (Rated Limit)	V_{RSM}	t ≤ 5.0msec	1800	Volts
Reverse Leakage Current, mA peak	I_{RRM}	T_j at max., V_{RRM} = Rated	50	mA
Switching				
Maximum Reverse Recovery Time	t_{rr}	I_{FM} = 785A, t_p = 100µsec, di_R/dt = 25A/µsec, T_C = 25°C	500	nsec
Maximum Reverse Recovery Time	t_{rr}	I_{FM} = 785A, t_p = 100µsec, di_R/dt = 25A/µsec, T_C = 150°C	1.1	µsec
Thermal				
Maximum Resistance, Junction to Case	$R_{\theta(j-c)}$		0.17	°C/Watt
Maximum Resistance, Case to Sink (Lubricated)	$R_{\theta(c-s)}$		0.10	°C/Watt

Reverse Recovery Wave Form



Transient Thermal Impedance Vs. Time