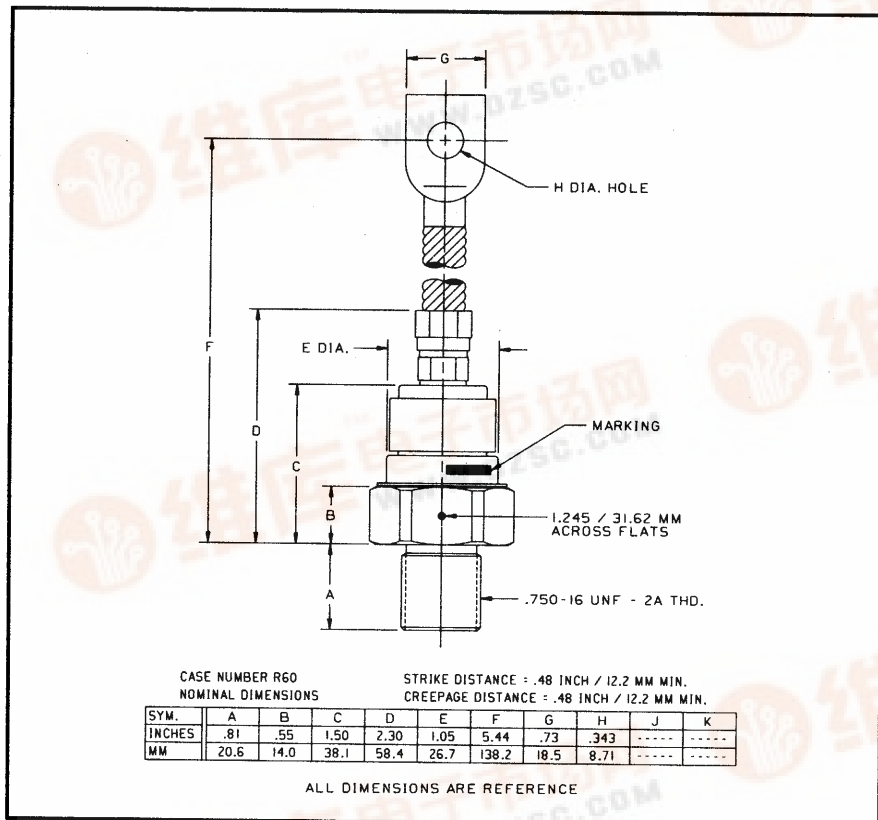


Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272
Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

Fast Recovery Rectifier

220 Amperes Average
1600 Volts



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

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
R602	1600	220	500	PS



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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	$^{\circ}C$
Operating Temperature	T_j	-40 to +150	$^{\circ}C$
Mounting Torque (Lubricated)		360	in-lb

Electrical and Thermal Characteristics

Characteristics	Symbol	Test Conditions	R602_22/R603_22	Units
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Current - Conducting State Maximums

Forward Voltage Drop	V_{FM}	$T_j = 25^{\circ}C, I_{FM} = 800A$	2.75	Volts
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Voltage - Blocking State Maximums

Repetitive Peak Reverse Voltage (Rated Limit)	V_{RRM}		1600	Volts
Non-rep. Trans. Peak Rev. Voltage (Rated Limit)	V_{RSM}	$t \leq 5.0msec$	1800	Volts
Reverse Leakage Current, mA peak	I_{RRM}	T_j at max., $V_{RRM} = \text{Rated}$	50	mA

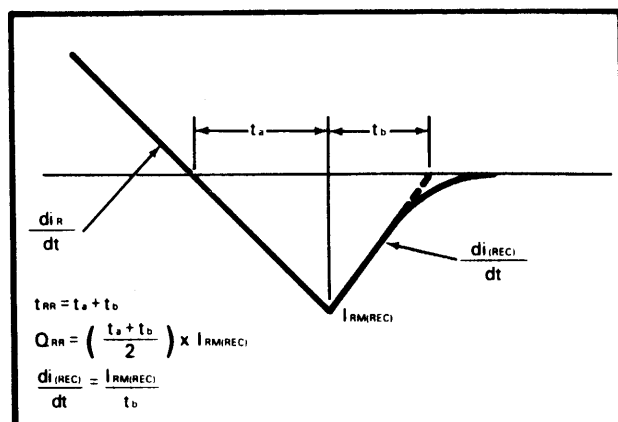
Switching

Maximum Reverse Recovery Time	t_{rr}	$I_{FM} = 785A, t_p = 100\mu sec,$ $di_R/dt = 25A/\mu sec, T_C = 25^{\circ}C$	500	nsec
Maximum Reverse Recovery Time	t_{rr}	$I_{FM} = 785A, t_p = 100\mu sec,$ $di_R/dt = 25A/\mu sec, T_C = 150^{\circ}C$	1.1	μsec

Thermal

Maximum Resistance, Junction to Case	$R_{\theta(j-c)}$	0.17	$^{\circ}C/Watt$
Maximum Resistance, Case to Sink (Lubricated)	$R_{\theta(c-s)}$	0.10	$^{\circ}C/Watt$

Reverse Recovery Wave Form



Transient Thermal Impedance Vs. Time

