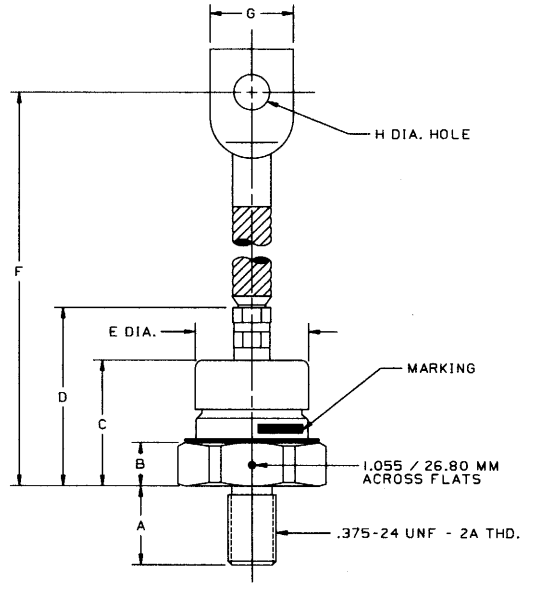
Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272
Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

Fast Recovery Rectifier

100 Amperes Average
1200 Volts



CASE NUMBER R50
NOMINAL DIMENSIONS

STRIKE DISTANCE = .64 INCH / 16.2 MM MIN.
CREEPAGE DISTANCE = .64 INCH / 16.2 MM MIN.

SYM.	A	B	C	D	E	F	G	H	J	K
INCHES	.63	.34	.98	1.58	.89	4.48	.63	.281	-----	-----
MM	16.0	8.6	24.9	40.1	22.6	113.8	16.0	7.14	-----	-----

ALL DIMENSIONS ARE REFERENCE

R502_ _10/R503_ _10 (Outline Drawing)

R502_ _10/R503_ _10
Fast Recovery Rectifier
100 Amperes Average, 1200 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

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
R502 (Standard Polarity) R503 (Reverse Polarity)	200	02	100	10	300	RS	DO-8	WA
	400	04						
	600	06						
	800	08						
	1000	10						
	1200	12						

Example: Type R502 rated at 100A average with V_{RRM} = 1200V, Recovery Time = 300nsec and standard flexible lead, order as:

Type				Voltage		Current		Time	Leads	
R	5	0	2	1	2	1	0	RS	W	A

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R502__10/R503__10
Fast Recovery Rectifier
100 Amperes Average, 1200 Volts

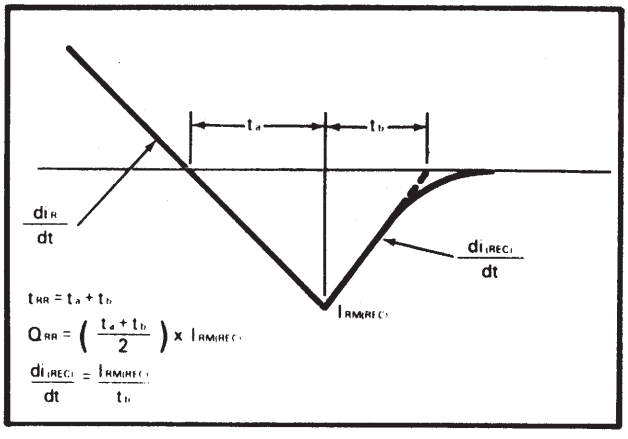
Absolute Maximum Ratings

Characteristics	Symbol	R502__10/R503__10	Units
RMS Forward Current	$I_{F(rms)}$	150	Amperes
Average Forward Current	$I_{F(av)}$	100	Amperes
One-half Cycle Surge Current	I_{FSM}	2200	Amperes
3 Cycle Surge Current	I_{FSM}	1800	Amperes
10 Cycle Surge Current	I_{FSM}	1350	Amperes
I^2t (for Fusing), Times = 8.3 milliseconds	I^2t	20000	A^2sec
Storage Temperature	T_{stg}	-40 to +200	°C
Operating Temperature	T_j	-40 to +150	°C
Mounting Torque		120	in-lb

Electrical and Thermal Characteristics

Characteristics	Symbol	Test Conditions	R502__10/R503__10	Units
Current - Conducting State Maximums				
Forward Voltage Drop	V_{FM}	T_j = 25°C, I_{FM} = 450A	4.5	Volts
Typical Forward Voltage Drop	V_{FM}	T_j = 25°C, I_{FM} = 100A	2.7	Volts
Voltage - Blocking State Maximums				
Repetitive Peak Reverse Voltage (Rated Limit)	V_{RRM}		1200	Volts
Non-rep. Trans. Peak Rev. Voltage (Rated Limit)	V_{RSM}	V ≤ 5.0msec	1400	Volts
Reverse Leakage Current, mA peak	I_{RRM}	T_j at max., V_{RRM} = Rated	45	mA
Switching				
Maximum Reverse Recovery Time	t_{rr}	I_{FM} = 314A, t_p = 40µsec, di_R/dt = 25A/µsec, T_C = 25°C	300	nsec
Maximum Reverse Recovery Time	t_{rr}	I_{FM} = 314A, t_p = 40µsec, di_R/dt = 25A/µsec, T_C = 150°C	650	nsec
Thermal				
Maximum Resistance, Junction to Case	$R_{\theta(j-c)}$		0.28	°C/Watt
Maximum Resistance, Case to Sink (Lubricated)	$R_{\theta(c-s)}$		0.12	°C/Watt

Reverse Recovery Wave Form



Transient Thermal Impedance Vs. Time