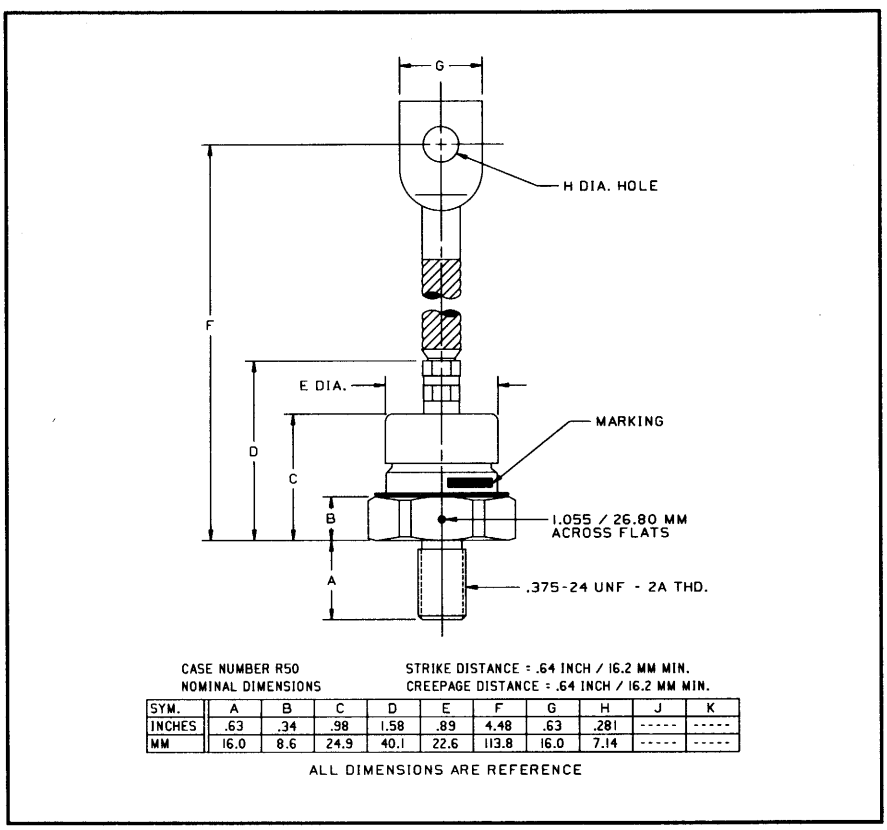
Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272
Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

Silicon Rectifier
100 Amperes Average
1600 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

A170 (R) (Outline Drawing)

A170 (R)
Silicon Rectifier
100 Amperes Average, 1600 Volts

Ordering Information:
Select the complete five or six digit part number you desire from the table, i.e. A170PM is a 1600 Volt, 100 Ampere Silicon Rectifier.

Type	Voltage		Current
	V_{RRM}	Code	$I_{T(av)}$
A170	200	B	100
	400	D	
	600	M	
	800	N	
	1000	P	
	1200	PB	
	1400	PD	
	1600	PM	

Features:
- ☐ 1600V V_{RRM}
- ☐ Hermetic Seal

Applications:
- ☐ Transportation Equipment
- ☐ DC Motor Control
- ☐ DC Power Supplies

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A170 (R)
Silicon Rectifier
100 Amperes Average, 1600 Volts

Absolute Maximum Ratings

Characteristics	Symbol	A170 (R)	Units
RMS Forward Current	$I_{F(rms)}$	157	Amperes
Average Forward Current	$I_{F(av)}$	100	Amperes
One Cycle Surge Current	I_{FSM}	2500	Amperes
I^2t (for Fusing), Times ≥ 1.0 milliseconds	I^2t	15500	A^2sec
Storage Temperature	T_{stg}	-40 to +200	°C
Operating Temperature	T_j	-40 to +200	°C
Mounting Torque (Lubricated)		90 to 100	in-lb
		10.1 to 11.3	N-m

Electrical and Thermal Characteristics

Characteristics	Symbol	Test Conditions	A170 (R)	Units
Current - Conducting State Maximums				
Forward Voltage Drop	V_{FM}	T_C = 130°C, $I_{F(av)}$ = 100A, 314A Peak	1.3	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}	V ≤ 5.0msec	1800	Volts
Reverse Leakage Current, mA peak	I_{RRM}	T_j at max., V_{RRM} = Rated	20	mA
Thermal				
Maximum Resistance, Junction to Case	$R_{\theta(j-c)}$		0.4	°C/Watt
1ϕ and 3ϕ (50 to 400 Hz)			0.55	°C/Watt
6ϕ (50 to 400 Hz)			0.72	°C/Watt

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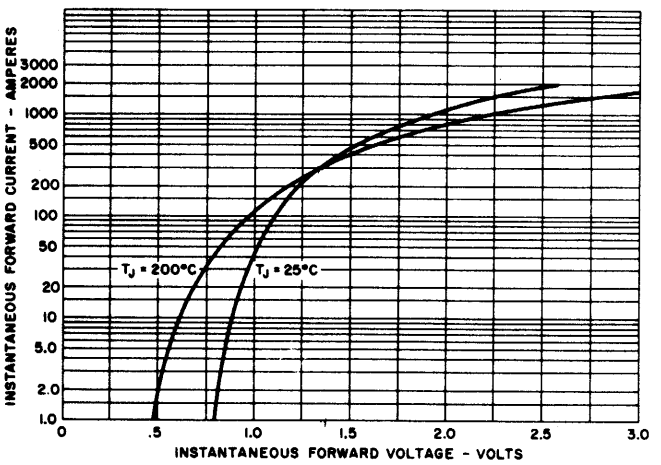
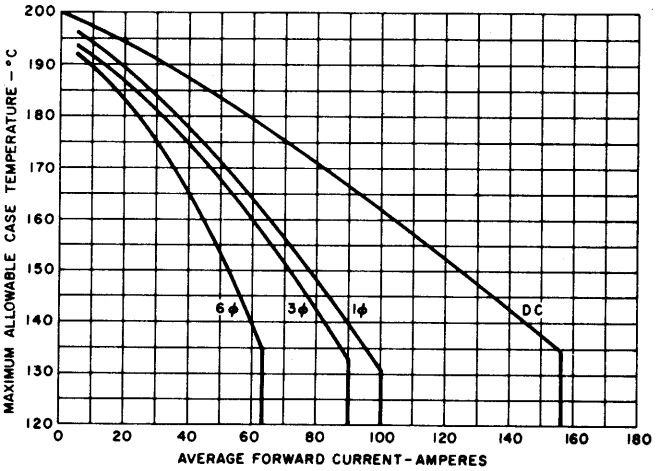
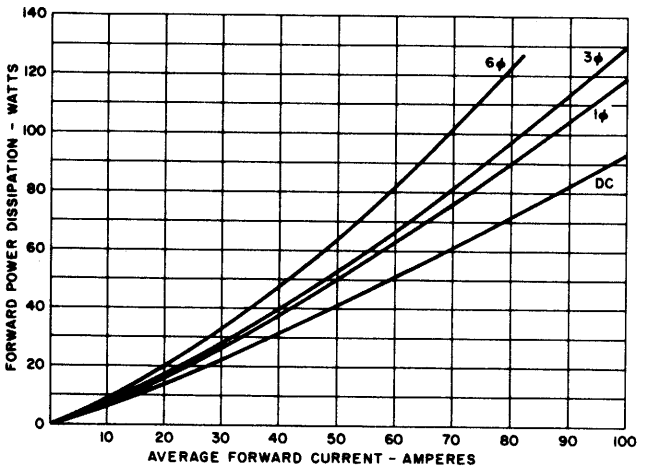
A170 (R)
Silicon Rectifier
100 Amperes Average, 1600 Volts



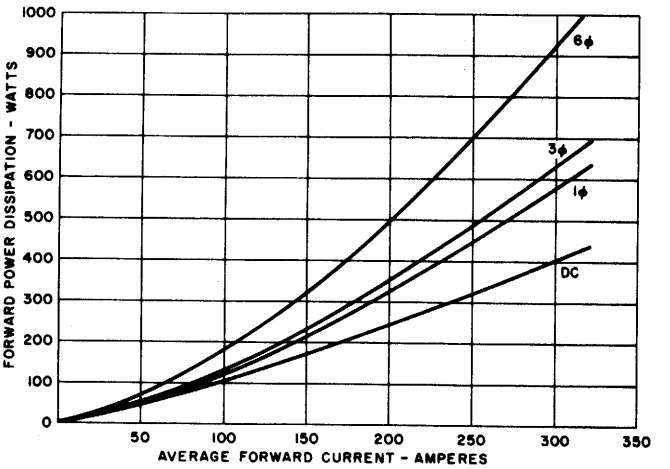
MAXIMUM FORWARD CHARACTERISTICS



MAXIMUM CASE TEMPERATURE VS. AVERAGE FORWARD CURRENT



AVERAGE FORWARD POWER DISSIPATION VS. AVERAGE FORWARD CURRENT



AVERAGE FORWARD POWER DISSIPATION VS. AVERAGE FORWARD CURRENT, HIGH LEVEL

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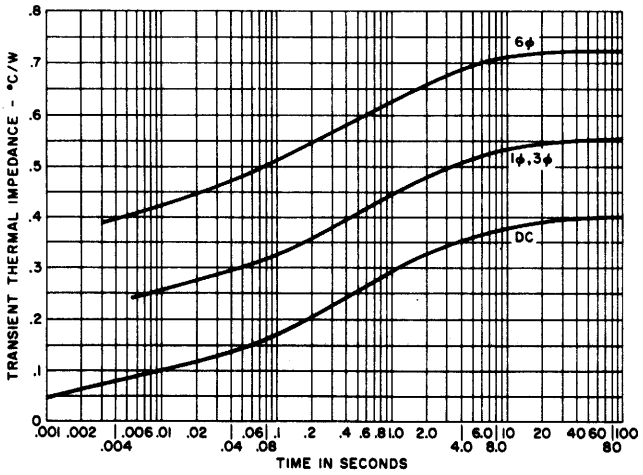
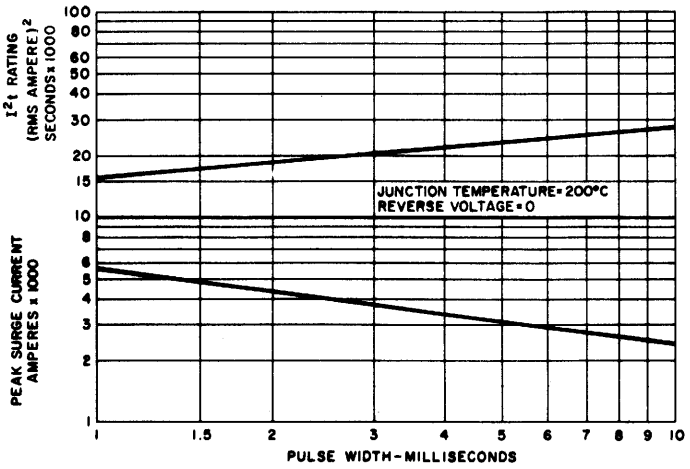
A170 (R)
Silicon Rectifier
100 Amperes Average, 1600 Volts



TRANSIENT THERMAL IMPEDANCE – JUNCTION-TO-CASE



SUB-CYCLE SURGE FORWARD CURRENT AND I^2t RATING VS. PULSE TIME FOLLOWING RATED LOAD CONDITIONS