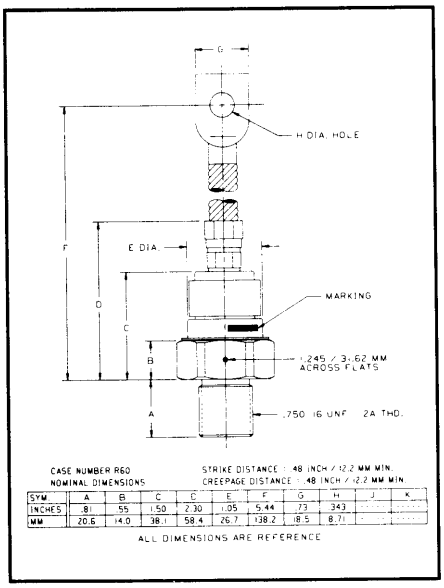
IN4044, R-
IN4056, R

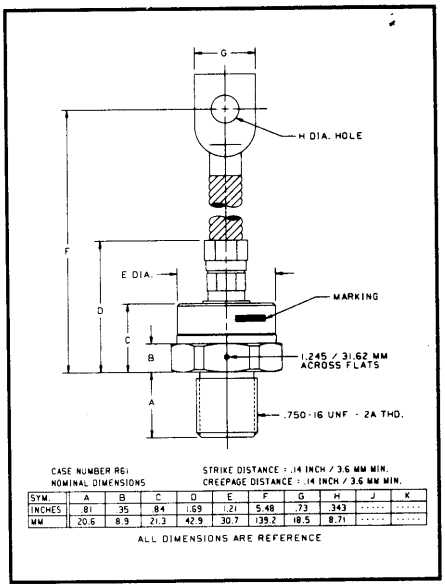
Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272
Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

General Purpose Rectifier

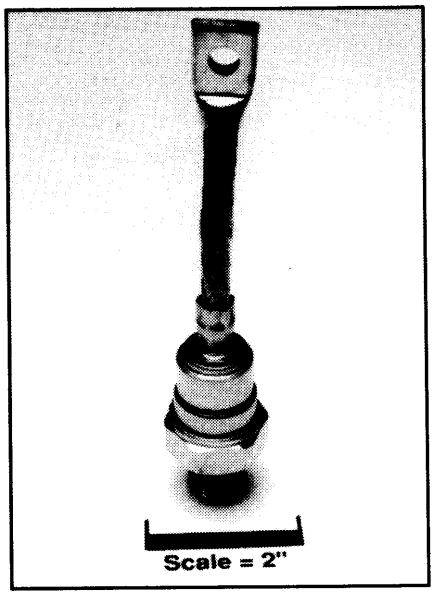
275 Amperes Average
1000 Volts



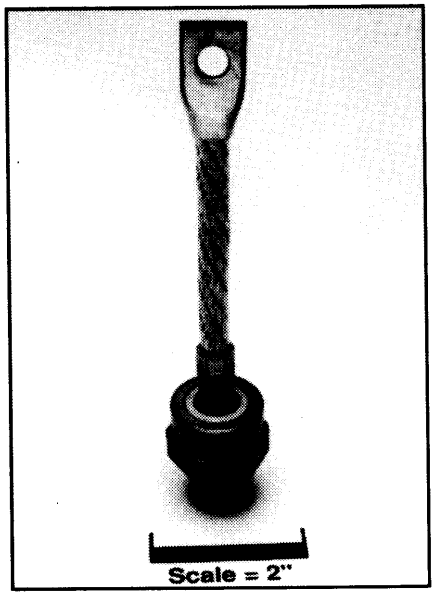
SYM	A	B	C	D	E	F	G	H	J	K
INCHES	.81	.55	1.50	2.30	1.05	5.44	.73	.343	-----	-----
MM	20.6	14.0	38.1	58.4	26.7	138.2	18.5	8.71	-----	-----



SYM	A	B	C	D	E	F	G	H	J	K
INCHES	.81	.35	.84	1.69	1.21	5.48	.73	.343	-----	-----
MM	20.6	8.9	21.3	42.9	30.7	139.2	18.5	8.71	-----	-----



IN4044, R - IN4056, R (Outline Drawing)



IN4044, R - IN4056, R
General Purpose Rectifier
275 Amperes Average,
1000 Volts

Ordering Information:

Select the complete six digit part number you desire from the table, i.e. IN4056 is a 1000 Volt, 275 Ampere General Purpose Rectifier.

Type	Voltage V_{DRM}/V_{RRM} (Volts)	Current $I_{f(av)}$ (A)
IN4044	50	275
IN4045	100	
IN4046	150	
IN4047	200	
IN4048	250	
IN4049	300	
IN4050	400	
IN4051	500	
IN4052	600	
IN4053	700	
IN4054	800	
IN4055	900	
IN4056	1000	

Features:

- ☐ Standard and Reverse Polarities with Color Coded Seals
- ☐ High Surge Current Ratings
- ☐ Electrical Selection for Parallel and Series Operation

Applications:

- ☐ Welders
- ☐ Battery Chargers
- ☐ Electrochemical Refining
- ☐ Metal Reduction
- ☐ General Industrial High Current Rectification

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IN4044,R - IN4056,R
General Purpose Rectifier
275 Ampere Average, 1000 Volts

Absolute Maximum Ratings

Characteristics	Symbol	IN4044,R - IN4056,R	Units
RMS Forward Current	$I_{F(rms)}$	435	Amperes
Maximum Average Forward Current	$I_{F(av)}$	275	Amperes
One-half Cycle Surge Current (at 60Hz Under Load)	I_{FSM}	5000	Amperes
I^2t (for Fusing), (at 60Hz Half-wave)	I^2t	104000	A^2sec
Storage Temperature	T_{stg}	-65 to +190	°C
Operating Temperature	T_j	-65 to +190	°C
Mounting Torque (Lubricated)		360	in-lb

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IN4044,R - IN4056,R
General Purpose Rectifier
275 Ampere Average, 1000 Volts

Electrical and Thermal Characteristics

Characteristics	Symbol	IN4044	IN4045	IN4046	IN4047	IN4048	IN4049	IN4050	Units
Current - Conducting State Maximums, T_j = 200°C									
Max. Reverse Current at Rated V_{RRM} 275A Avg. Forward Current, T_j = 190°C	$I_{R(av)}$	15 (All Types)							mA
Voltage - Blocking State Maximums									
Repetitive Peak Reverse Voltage	V_{RRM}	50	100	150	200	250	300	400	Volts
Non-rep. Trans. Peak Rev. Voltage	V_{RSM}	100	200	250	300	350	400	525	Volts
Max. Allowable d-c Blocking Voltage	V_R	50	100	150	200	250	300	400	Volts
Thermal									
Maximum Resistance, Junction to Case	$R_{\theta(j-c)}$	0.17 (All Types)							°C/Watt
Maximum Resistance, Case to Sink (Lubricated)	$R_{\theta(c-s)}$	0.15 (All Types)							°C/Watt

Electrical and Thermal Characteristics

Characteristics	Symbol	IN4051	IN4052	IN4053	IN4054	IN4055	IN4056	Units
Current - Conducting State Maximums, T_j = 200°C								
Max. Reverse Current at Rated V_{RRM} 275A Avg. Forward Current, T_j = 190°C	$I_{R(av)}$	12 (All Types)						mA
Voltage - Blocking State Maximums								
Repetitive Peak Reverse Voltage	V_{RRM}	500	600	700	800	900	1000	Volts
Non-rep. Trans. Peak Rev. Voltage	V_{RSM}	650	800	925	1050	1175	1300	Volts
Max. Allowable d-c Blocking Voltage	V_R	500	600	700	800	900	1000	Volts
Thermal								
Maximum Resistance, Junction to Case	$R_{\theta(j-c)}$	0.17 (All Types)						°C/Watt
Maximum Resistance, Case to Sink (Lubricated)	$R_{\theta(c-s)}$	0.15 (All Types)						°C/Watt

*Ceramic Seal Supplied

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275 Ampere Average, 1000 Volts

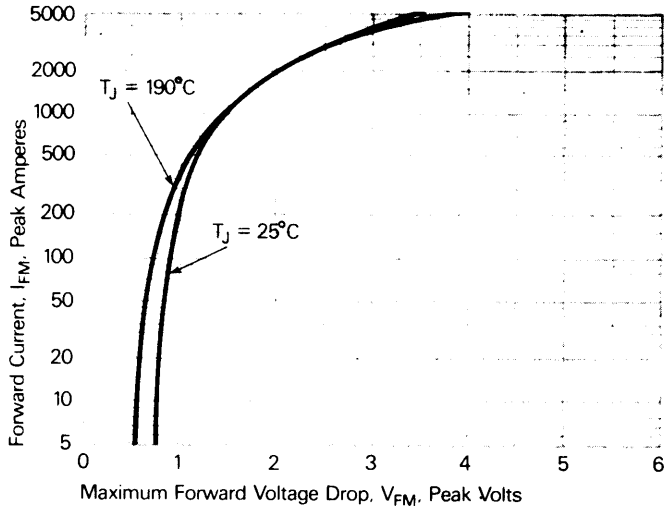

Figure 1. Forward current vs. forward voltage.

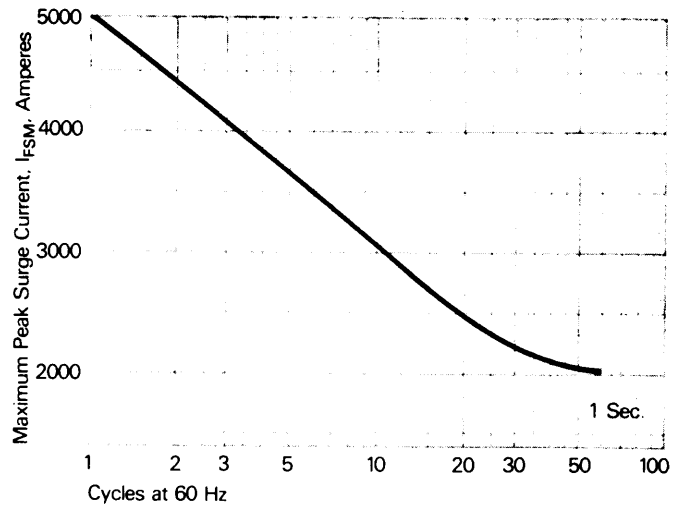

Figure 2. Maximum allowable surge current at rated load conditions.

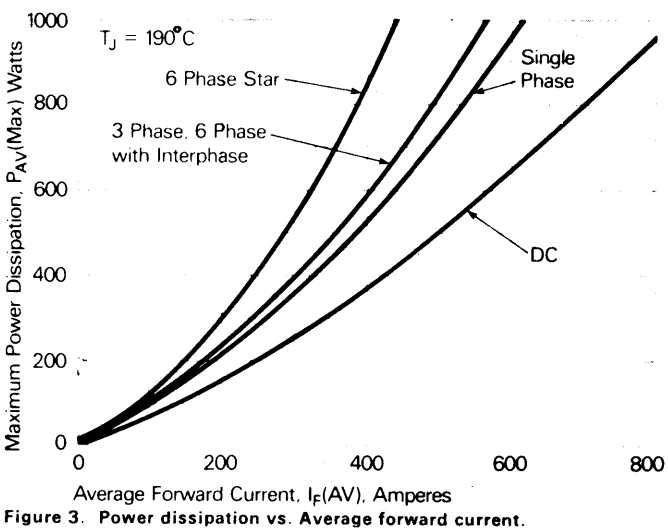

Figure 3. Power dissipation vs. Average forward current.

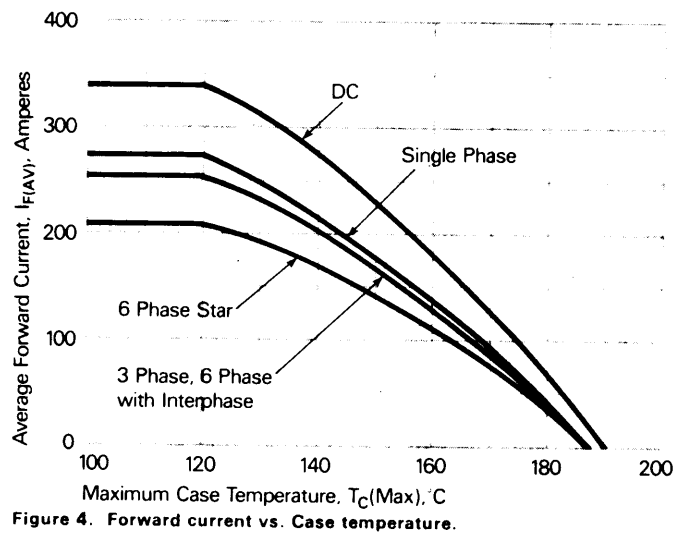

Figure 4. Forward current vs. Case temperature.

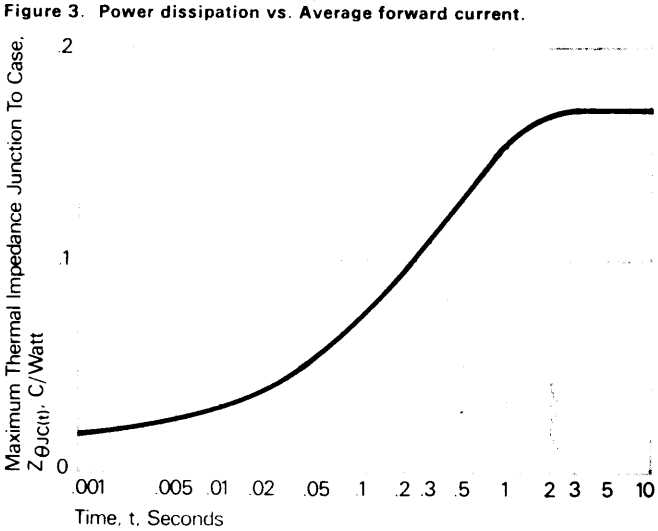

Figure 5. Transient thermal impedance vs. time.