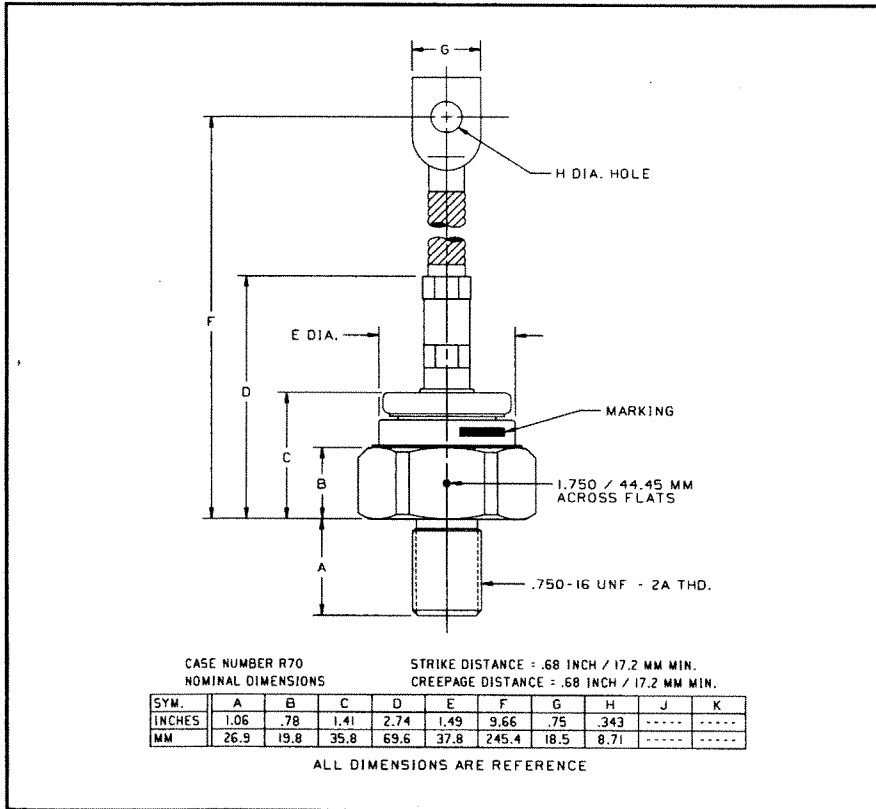


### General Purpose Rectifier

300-550 Amperes Average  
4400 Volts



R700/R701 (Outline Drawing)

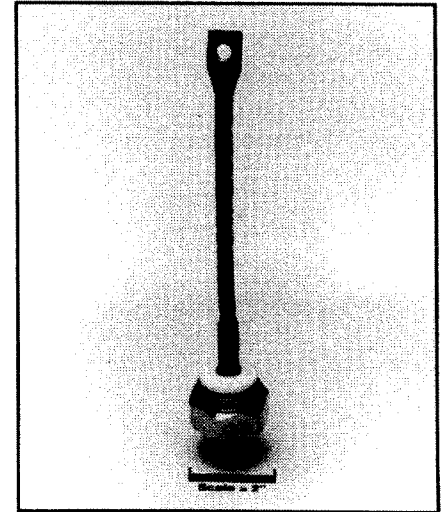
**Ordering Information:**

Select the complete part number you desire from the following table:

| Type                       | Voltage                     |      | Current                   |      | Recovery Time             |      | Recovery Time Circuit |      | Leads |      |
|----------------------------|-----------------------------|------|---------------------------|------|---------------------------|------|-----------------------|------|-------|------|
|                            | V <sub>RRM</sub><br>(Volts) | Code | I <sub>F(av)</sub><br>(A) | Code | t <sub>rr</sub><br>(μsec) | Code | Circuit               | Code | Case  | Code |
| R700<br>Std.<br>Polarity   | 100                         | 01   | 300                       | 03   | 15                        | X    | JEDEC                 | X    | R70   | UA   |
|                            | 200                         | 02   |                           |      |                           |      |                       |      |       |      |
|                            | 400                         | 04   |                           |      |                           |      |                       |      |       |      |
|                            | 600                         | 06   |                           |      |                           |      |                       |      |       |      |
| R701<br>(Rev.<br>Polarity) | 800                         | 08   | 550                       | 05   | 9<br>(Typ.)               | X    |                       |      |       |      |
|                            | 1000                        | 10   |                           |      |                           |      |                       |      |       |      |
|                            | 1200                        | 12   |                           |      |                           |      |                       |      |       |      |
|                            | 1400                        | 14   |                           |      |                           |      |                       |      |       |      |
|                            | 1600                        | 16   |                           |      |                           |      |                       |      |       |      |
|                            | 1800                        | 18   |                           |      |                           |      |                       |      |       |      |
|                            | 2000                        | 20   |                           |      |                           |      |                       |      |       |      |
|                            | 2200                        | 22   |                           |      |                           |      |                       |      |       |      |
|                            | 2400                        | 24   |                           |      |                           |      |                       |      |       |      |
|                            | 2600                        | 26   |                           |      |                           |      |                       |      |       |      |
|                            | 2800                        | 28   |                           |      |                           |      |                       |      |       |      |
|                            | 3000                        | 30   |                           |      |                           |      |                       |      |       |      |
| 3500                       | 35                          |      |                           |      |                           |      |                       |      |       |      |
| 4000                       | 40                          |      |                           |      |                           |      |                       |      |       |      |
| 4400                       | 44                          |      |                           |      |                           |      |                       |      |       |      |

Example: Type R700 rated at 300A average with V<sub>RRM</sub> = 4400V, and standard flexible lead, order as:

| Type    | Voltage | Current | Time | Circuit | Leads |
|---------|---------|---------|------|---------|-------|
| R 7 0 0 | 4 4     | 0 3     | X    | X       | U A   |



R700/R701

**General Purpose Rectifier**

300-550 Amperes Average, 4400 Volts

**Features:**

- Standard and Reverse Polarities
- Stud Top Terminals Available
- Flat Base, Flange Mounted Design Available
- High Surge Current Ratings
- High Rated Blocking Voltages
- Electrical Selection for Parallel and Series Operation
- High Voltage Creepage and Strike Paths
- Compression Bonded Encapsulation

**Applications:**

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



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

**R700/R701**  
**General Purpose Rectifier**  
300-550 Amperes Average, 4400 Volts

### Absolute Maximum Ratings

| Characteristics                               | Symbol       | R700_ _03,  | R700_ _04,     | R700_ _05,     | Units       |
|---|--------------|-------------|----------------|----------------|-------------|
|   |              | R701_ _03   | R701_ _04      | R701_ _05      |             |
| RMS Forward Current                           | $I_{F(rms)}$ | 470         | 700            | 865            | Amperes     |
| Average Forward Current                       | $I_{F(av)}$  | 300         | 450            | 550            | Amperes     |
| One-half Cycle Surge Current                  | $I_{FSM}$    | 7000        | 8500           | 10000          | Amperes     |
| 3 Cycle Surge Current                         | $I_{FSM}$    | 5250        | 6400           | 7500           | Amperes     |
| 10 Cycle Surge Current                        | $I_{FSM}$    | 4200        | 5100           | 6000           | Amperes     |
| $I^2t$ (for Fusing), Times = 8.3 milliseconds | $I^2t$       | 204000      | 266000         | 416500         | $A^2sec$    |
| Storage Temperature                           | $T_{stg}$    | -65 to +200 | -65 to +200    | -65 to +200    | $^{\circ}C$ |
| Operating Temperature                         | $T_j$        | Up to 1400V | 1400V to 2200V | 2200V to 4400V |             |
|   |              | -65 to +200 | -65 to +175    | -65 to +150    | $^{\circ}C$ |
| Mounting Torque                               |              | 360         | 360            | 360            | in-lb       |



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

**R700/R701**

**General Purpose Rectifier**

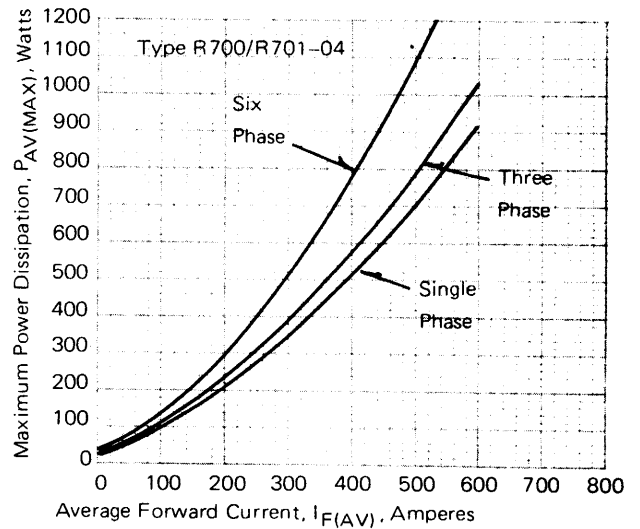
300-550 Amperes Average, 4400 Volts

**Electrical and Thermal Characteristics**

| Characteristics                                 | Symbol            | Test Conditions  | R700_03, | R700_04, | R700_05, | Units                        |
|---|-------------------|--|----------|----------|----------|------------------------------|
|   |                   |  | R701_03  | R701_04  | R701_05  |                              |
| <b>Current - Conducting State Maximums</b>      |                   |  |          |          |          |                              |
| Forward Voltage Drop                            | $V_{FM}$          | $T_j = 25^\circ\text{C}, I_{FM} = 1500\text{A}$  | 2.15     | 1.60     | 1.20     | Volts                        |
| <b>Voltage - Blocking State Maximums</b>        |                   |  |          |          |          |                              |
| Repetitive Peak Reverse Voltage (Rated Limit)   | $V_{RRM}$         |  | 4400     | 2600     | 1600     | Volts                        |
| Non-rep. Trans. Peak Rev. Voltage (Rated Limit) | $V_{RSM}$         | $t \leq 5.0\text{msec}$  | 4600     | 2800     | 1800     | Volts                        |
| Reverse Leakage Current                         | $I_{RRM}$         | $T_j$ at max., $V_{RRM}$ Rated   | 50       | 50       | 50       | mA                           |
| <b>Switching</b>                                |                   |  |          |          |          |                              |
| Typical Reverse Recovery Time                   | $t_{rr}$          | $I_{FM} = 1500\text{A}, t_p = 190\mu\text{sec},$<br>$di_R/dt = 25\text{A}/\mu\text{sec}, T_C = 25^\circ\text{C}$ | 9        | 11       | 15       | $\mu\text{sec}$              |
| <b>Thermal</b>                                  |                   |  |          |          |          |                              |
| Maximum Resistance, Junction to Case            | $R_{\theta(j-c)}$ |  | 0.12     | 0.12     | 0.12     | $^\circ\text{C}/\text{Watt}$ |
| Maximum Resistance, Case to Sink (Lubricated)   | $R_{\theta(c-s)}$ |  | 0.04     | 0.04     | 0.04     | $^\circ\text{C}/\text{Watt}$ |

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

**R700/R701**  
**General Purpose Rectifier**  
 300-550 Amperes Average, 4400 Volts

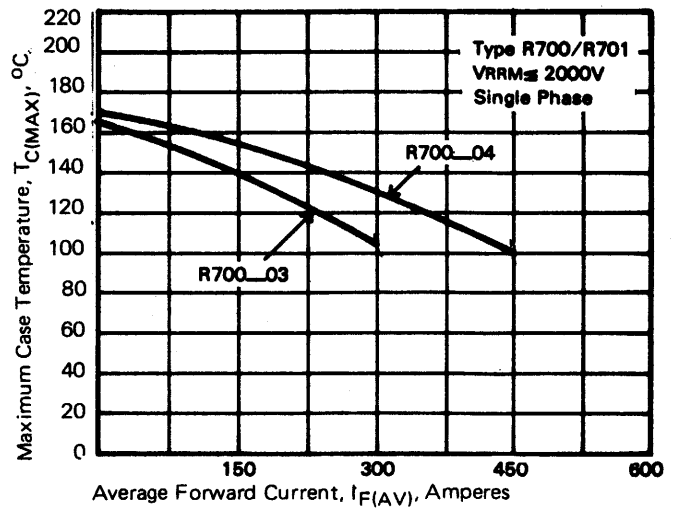
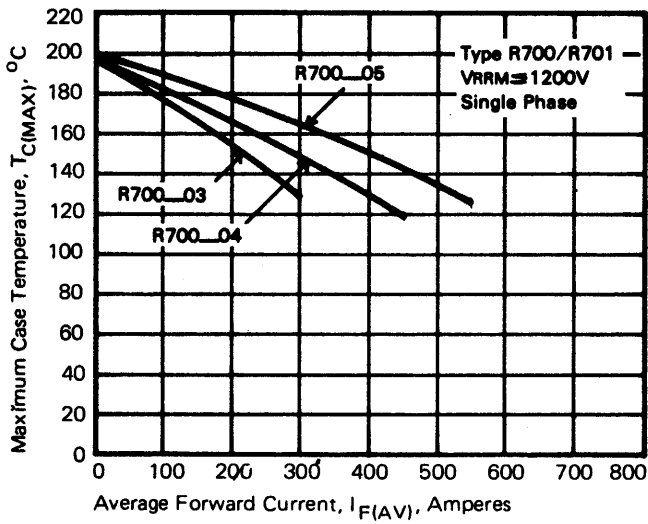


Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (412) 925-7272  
 Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

## R700/R701

### General Purpose Rectifier

300-550 Amperes Average, 4400 Volts



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

**R700/R701**  
**General Purpose Rectifier**  
 300-550 Amperes Average, 4400 Volts

