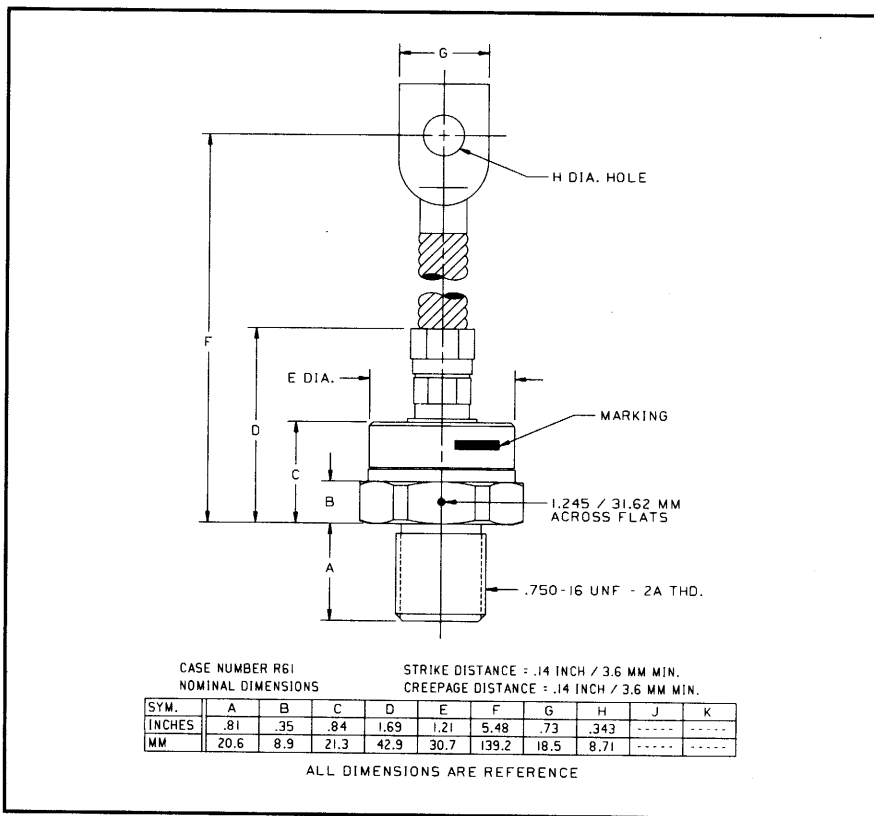
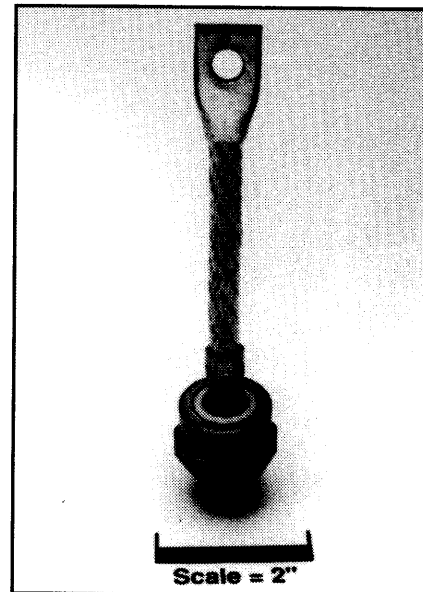


Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272  
 Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

**General Purpose Rectifier**  
 200-300 Amperes Average  
 1200 Volts



R610/R611 (Outline Drawing)



R610/R611  
 General Purpose Rectifier  
 200-300 Amperes Average, 1200 Volts

### 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> (Volts) | Code | I <sub>F(av)</sub> (A) | Code | t <sub>rr</sub> (μsec) | Code | Circuit               | Code | Case  | Code |
| R610 (Std. Polarity) | 100                      | 01   | 200                    | 20   | 13                     | X    | JEDEC                 | X    | DO-9  | YZ   |
|                      | 200                      | 02   | 250                    | 25   | 11                     | X    |                       |      |       |      |
|                      | 400                      | 04   |                        |      |                        |      |                       |      |       |      |
| R611 (Rev. Polarity) | 600                      | 06   | 300                    | 30   | 9                      | X    | (Typical)             |      |       |      |
|                      | 800                      | 08   |                        |      |                        |      |                       |      |       |      |
|                      | 1000                     | 10   |                        |      |                        |      |                       |      |       |      |
|                      | 1200                     | 12   |                        |      |                        |      |                       |      |       |      |

Example: Type R610 rated at 250A average with V<sub>RRM</sub> = 800V, and standard flexible lead, order as:

| Type    | Voltage | Current | Time | Circuit | Leads |
|---------|---------|---------|------|---------|-------|
| R 6 1 0 | 0 8     | 2 5     | X    | X       | Y Z   |

### Features:

- 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
- Compression Bonded Encapsulation
- JAN Types Available

### Applications:

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



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R610/R611  
General Purpose Rectifier  
200-300 Amperes Average, 12600 Volts

### Absolute Maximum Ratings

| Characteristics                               | Symbol       | R610_20,    | R610_25,    | R610_30,    | Units       |
|---|--------------|-------------|-------------|-------------|-------------|
|   |              | R611_20     | R611_25     | R611_30     |             |
| RMS Forward Current                           | $I_{F(rms)}$ | 315         | 400         | 470         | Amperes     |
| Average Forward Current                       | $I_{F(av)}$  | 200         | 250         | 300         | Amperes     |
| One-half Cycle Surge Current                  | $I_{FSM}$    | 5500        | 6000        | 6500        | Amperes     |
| 3 Cycle Surge Current                         | $I_{FSM}$    | 4300        | 4700        | 5050        | Amperes     |
| 10 Cycle Surge Current                        | $I_{FSM}$    | 3300        | 3600        | 3900        | Amperes     |
| $i^2t$ (for Fusing), Times = 8.3 milliseconds | $i^2t$       | 125000      | 150000      | 175000      | $A^2sec$    |
| Storage Temperature                           | $T_{stg}$    | -65 to +190 | -65 to +190 | -65 to +190 | $^{\circ}C$ |
| Operating Temperature                         | $T_j$        | -65 to +190 | -65 to +190 | -65 to +190 | $^{\circ}C$ |
| Mounting Torque (Lubricated)                  |              | 360         | 360         | 360         | in-lb       |



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**R610/R611**  
**General Purpose Rectifier**  
 200-300 Amperes Average, 1200 Volts

### Electrical and Thermal Characteristics

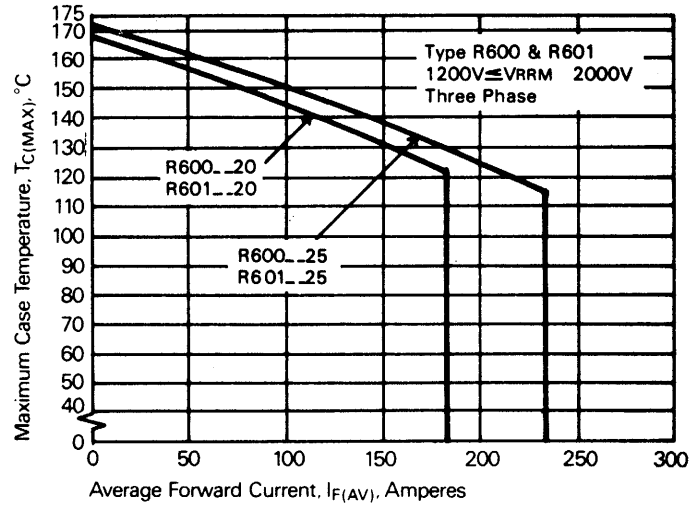
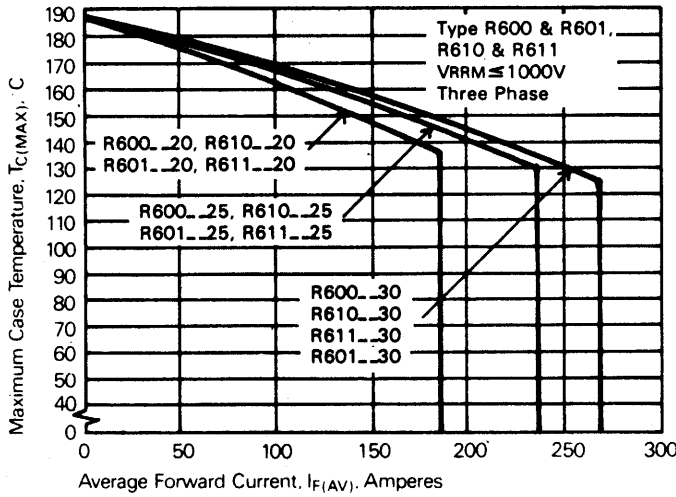
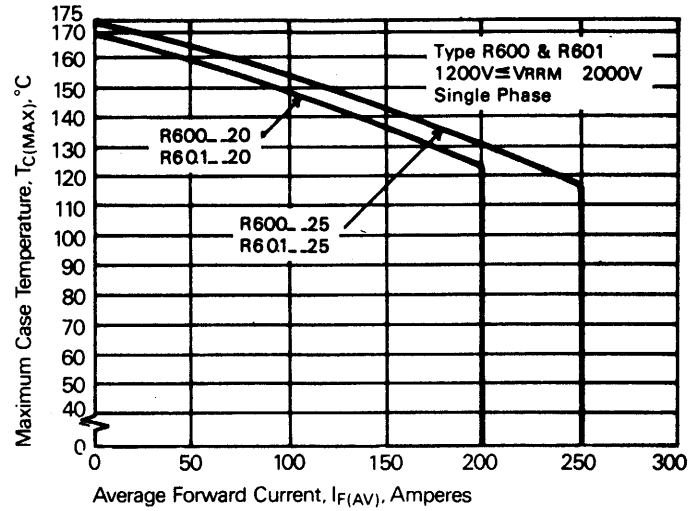
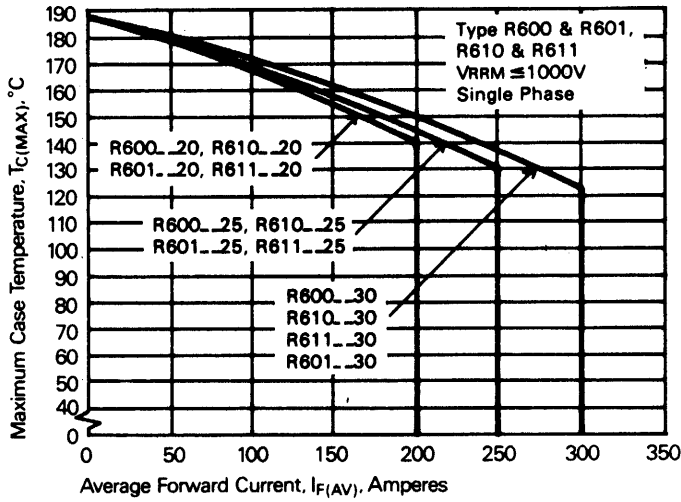
| Characteristics                                 | Symbol            | Test Conditions  | R610_20, | R610_25, | R610_30, | Units                 |
|---|-------------------|--|----------|----------|----------|-----------------------|
|   |                   |  | R611_20  | R611_25  | R611_30  |                       |
| <b>Current - Conducting State Maximums</b>      |                   |  |          |          |          |                       |
| Forward Voltage Drop                            | $V_{FM}$          | $T_j = 25^\circ\text{C}, I_{FM} = 800\text{A}$   | 1.70     | 1.50     | 1.40     | Volts                 |
| <b>Voltage - Blocking State Maximums</b>        |                   |  |          |          |          |                       |
| Repetitive Peak Reverse Voltage (Rated Limit)   | $V_{RRM}$         |  | 1200     | 1200     | 1200     | Volts                 |
| Non-rep. Trans. Peak Rev. Voltage (Rated Limit) | $V_{RSM}$         | $V \leq 5.0\text{msec}$  | 1300     | 1300     | 1300     | Volts                 |
| Reverse Leakage Current                         | $I_{RRM}$         | $T_j$ at max., $V_{RRM}$ Rated   | 50       | 50       | 50       | mA                    |
| <b>Switching</b>                                |                   |  |          |          |          |                       |
| Typical Reverse Recovery Time                   | $t_{rr}$          | $I_{FM} = 785\text{A}, t_p = 100\mu\text{sec},$<br>$di_F/dt = 25\text{A/msec}, T_C = 25^\circ\text{C}$ | 9        | 11       | 13       | $\mu\text{sec}$       |
| <b>Thermal</b>                                  |                   |  |          |          |          |                       |
| Maximum Resistance, Case to Sink (Lubricated)   | $R_{\theta(c-s)}$ |  | 0.10     | 0.10     | 0.10     | $^\circ\text{C/Watt}$ |

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## R610/R611

### General Purpose Rectifier

200-300 Amperes Average, 1200 Volts

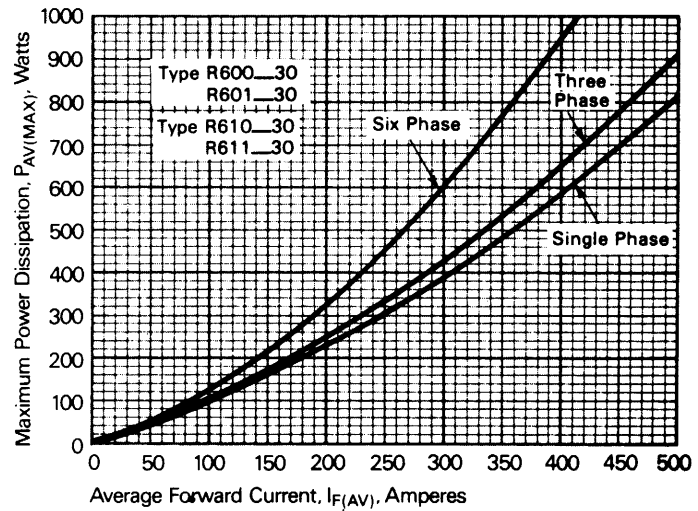
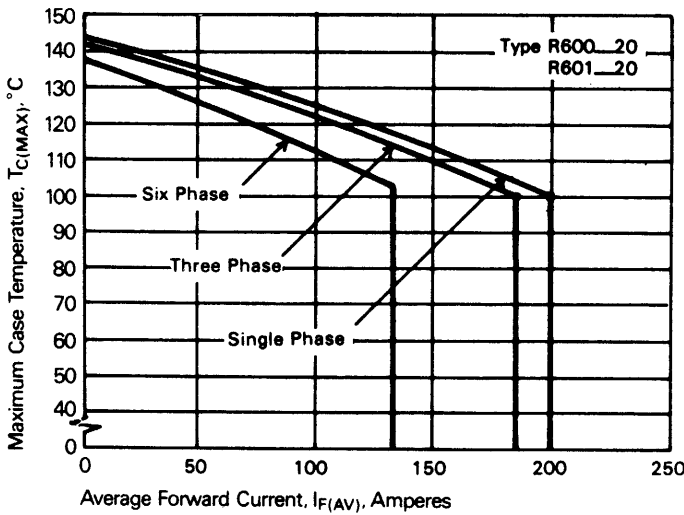
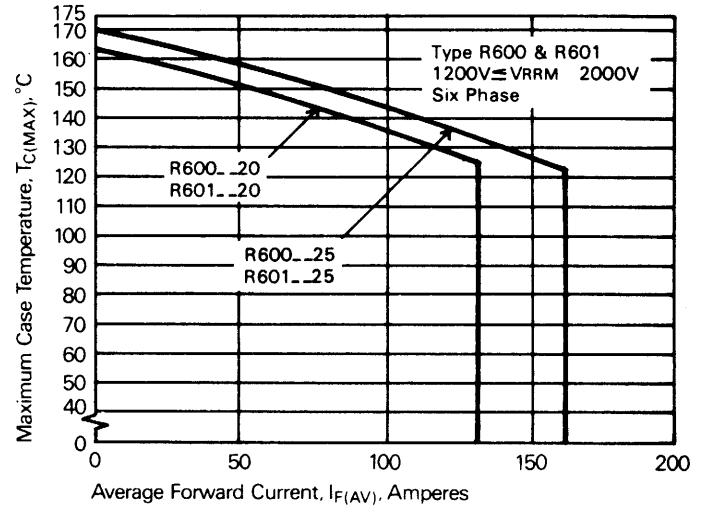
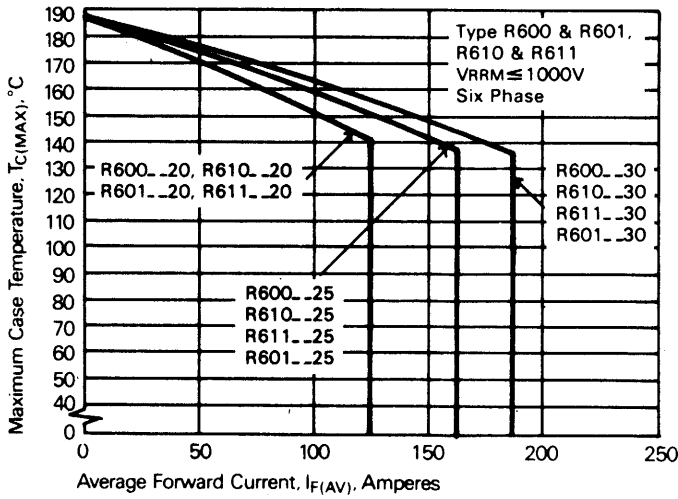


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## R610/R611

### General Purpose Rectifier

200-300 Amperes Average, 1200 Volts





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**R610/R611**  
**General Purpose Rectifier**  
 200-300 Amperes Average, 1200 Volts

