

#### **Features**

- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant (Note1) ("P"Suffix Designates Compliant. See Ordering Information)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Low Switching Losses and High Efficiency
- Low Forward Voltage Drop
- Planar Structure Die and Soft Recovery Characteristics

## **Maximum Ratings**

- Operating Junction Temperature Range: -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Maximum Thermal Resistance: 4°C/W Junction to Case

| MCC<br>Part Number | Device<br>Marking | Maximum<br>Recurrent<br>Peak Reverse<br>Voltage | Maximum<br>RMS<br>Voltage | Maximum DC<br>Blocking<br>Voltage |
|--------------------|-------------------|---|---------------------------|-----------------------------------|
| MURS1560FL         | MURS1560FL        | 600V  | 420V                      | 600V                              |

### Electrical Characteristics @ 25°C Unless Otherwise Specified

| Average Rectified Forward Current                          | I <sub>F(AV)</sub> | 15A                                 | T <sub>C</sub> = 85°C   |
|--|--------------------|-------------------------------------|---|
| Peak Forward Surge<br>Current                              | I <sub>FSM</sub>   | 160A                                | 8.3ms,Half Sine   |
| Maximum<br>Instantaneous<br>Forward Voltage                | V <sub>F</sub>     | 1.3V(Typ)<br>1.5V(Max)<br>1.1V(Typ) | I <sub>F</sub> =15A;T <sub>J</sub> =25°C<br>I <sub>F</sub> =15A;T <sub>J</sub> =25°C<br>I <sub>F</sub> =15A;T <sub>J</sub> =150°C |
| Maximum Reverse<br>Current At Rated DC<br>Blocking Voltage | I <sub>R</sub>     | 10μA<br>200μA                       | T <sub>J</sub> =25°C;<br>T <sub>J</sub> =150°C  |
| Typical Junction<br>Capacitance                            | CJ                 | 95pF                                | Measured at<br>1.0MHz, V <sub>R</sub> =4.0V   |

## Dynamic Recovery Characteristics @ 25°C Unless Otherwise Specified

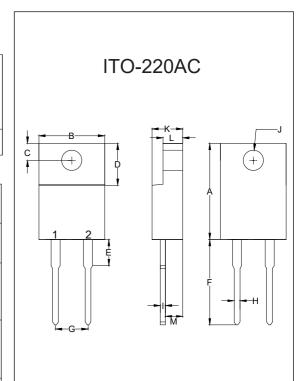
| Reverse Recovery        | t <sub>rr</sub>  | 40ns(Typ.)<br>75ns(Max.)   | I <sub>F</sub> =0.5A; I <sub>R</sub> =1.0A;<br>I <sub>RR</sub> =0.25A |  |
|-------------------------|------------------|----------------------------|---|--|
| Time                    |                  | 82ns(Typ.)<br>128ns(Typ.)  | T <sub>J</sub> =25°C<br>T <sub>J</sub> =125°C                         | 1 - 15 A   |
| Peak recovery current   | I <sub>RRM</sub> | 6.5A(Typ.)<br>12A(Typ.)    | T <sub>J</sub> =25°C<br>T <sub>J</sub> =125°C                         | $I_F = 15 \text{ A}$<br>$di_F/dt = 200 \text{ A/}\mu\text{s}$<br>$V_R = 400 \text{ V}$ |
| Reverse recovery charge | Q <sub>rr</sub>  | 265nC(Typ.)<br>770nC(Typ.) | T <sub>J</sub> =25°C<br>T <sub>J</sub> =125°C                         |  |

Note: 1. High Temperature Solder Exemption Applied, See EU Directive Annex 7a.

#### Internal Structure



# 15 Amp FRED Rectifiers 600 Volts



| DIMENSIONS |        |       |       |       |      |
|------------|--------|-------|-------|-------|------|
| DIM        | INCHES |       | MM    |       | NOTE |
| DIIVI      | MIN    | MAX   | MIN   | MAX   | NOIL |
| Α          | 0.567  | 0.606 | 14.40 | 15.40 |      |
| В          |        | 0.406 |       | 10.30 |      |
| С          | 0.100  | 0.112 | 2.55  | 2.85  |      |
| D          | 0.248  | 0.272 | 6.30  | 6.90  |      |
| Е          |        | 0.161 |       | 4.10  |      |
| F          | 0.500  | 0.543 | 12.70 | 13.80 |      |
| G          | 0.200  |       | 5.    | 10    |      |
| Н          |        | 0.035 |       | 0.90  |      |
| I          |        | 0.032 |       | 0.80  |      |
| J          | 0.102  | 0.134 | 2.60  | 3.40  | Ф    |
| K          |        | 0.189 |       | 4.80  |      |
| L          |        | 0.123 |       | 3.10  |      |
| M          | 0.098  | 0.114 | 2.50  | 2.90  |      |



### **Curve Characteristics**

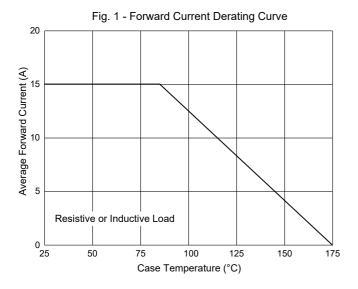
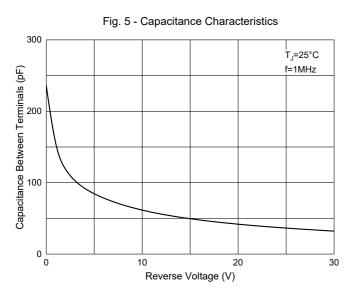
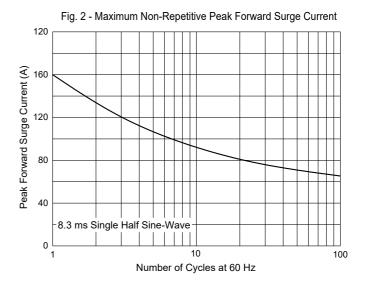
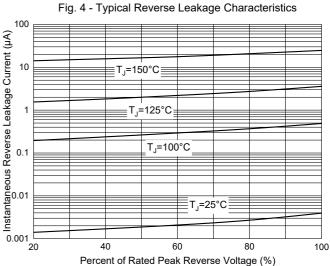


Fig. 3 - Typical Instantaneous Forward Characteristics 20 Instantaneous Forward Current (A) T<sub>J</sub>=25°C ⊆ =100°C =125°C =150°C 0.4 0.6 0.8 1.4 1.6

Instantaneous Forward Voltage (V)







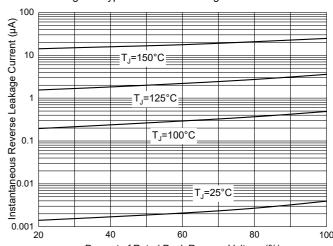
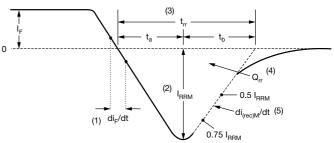


Fig. 6 - Reverse Recovery Waveform and Definitions



- (1) di<sub>F</sub>/dt rate of change of current through zero crossing
- (2) I<sub>RRM</sub> peak reverse recovery current
- (3)  $t_{rr}$  reverse recovery time measured from zero crossing point of negative going I<sub>F</sub> to point where a line passing through 0.75 I<sub>RRM</sub> and 0.50 I<sub>RRM</sub> extrapolated to zero current.
- (4)  $\mathbf{Q}_{\rm rr}$  area under curve defined by  $\mathbf{t}_{\rm rr}$ and I<sub>RRM</sub>

$$Q_{rr} = \frac{t_{rr} \times I_{RRM}}{2}$$

(5)  $di_{(rec)M}/dt$  - peak rate of change of current during  $t_b$  portion of  $t_{rr}$ 



## **Ordering Information**

| Device         | Packing                                |
|----------------|--|
| Part Number-BP | Bulk:50pcs/Tube,1Kpcs/Box,5Kpcs/Carton |

Note: Adding "-HF" Suffix For Halogen Free, eg. Part Number-BP-HF

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