



# Frontier Electronics Corp.

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## 3A FAST EFFICIENT RECTIFIER

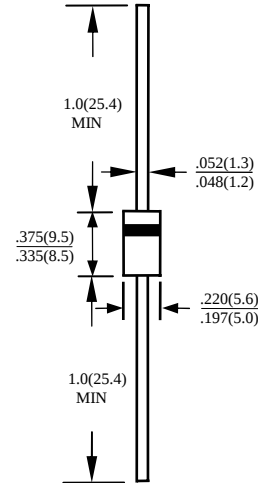
### FE30-005 THRU FE30-08

#### FEATURES

- LOW POWER LOSS, HIGH EFFICIENCY
- LOW LEAKAGE
- LOW FORWARD VOLTAGE DROP
- HIGH CURRENT CAPABILITY
- HIGH SPEED SWITCHING
- HIGH RELIABILITY
- HIGH CURRENT SURGE
- GLASS PASSIVATED CHIP JUNCTION

#### MECHANICAL DATA

- CASE: MOLDED PLASTIC, DO201AD, DIMENSIONS IN INCHES AND (MILLIMETERS)
- EPOXY: UL 94V-0 RATE FLAME RETARDANT
- LEAD: MIL-STD-202E METHOD 208C GUARANTEED
- MOUNTING POSITION: ANY
- WEIGHT: 1.20 GRAMS



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS RATINGS AT 25°C AMBIENT TEMPERATURE UNLESS OTHERWISE SPECIFIED  
SINGLE PHASE, HALF WAVE, 60 HZ, RESISTIVE OR INDUCTIVE LOAD. FOR CAPACITIVE LOAD, DERATE CURRENT BY 20%

| RATINGS                                                                                     | SYMBOL          | FE30<br>-005  | FE30<br>-01 | FE30<br>-015 | FE30<br>-02 | FE30<br>-03 | FE30<br>-04 | FE30<br>-05 | FE30<br>-06 | FE30<br>-08 | UNITS         |
|---------------------------------------------------------------------------------------------|-----------------|---------------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|
| MAXIMUM RECURRENT PEAK REVERSE VOLTAGE                                                      | $V_{RRM}$       | 50            | 100         | 150          | 200         | 300         | 400         | 500         | 600         | 800         | V             |
| MAXIMUM RMS VOLTAGE                                                                         | $V_{RMS}$       | 35            | 70          | 105          | 140         | 210         | 280         | 350         | 420         | 560         | V             |
| MAXIMUM DC BLOCKING VOLTAGE                                                                 | $V_{DC}$        | 50            | 100         | 150          | 200         | 300         | 400         | 500         | 600         | 800         | V             |
| MAXIMUM AVERAGE FORWARD RECTIFIED CURRENT<br>0.375"(9.5mm) LEAD LENGTH AT $T_A=55^{\circ}C$ | $I_O$           | 3.0           |             |              |             |             |             |             |             |             | A             |
| PEAK FORWARD SURGE CURRENT, 8.3ms SINGLE HALF<br>SINE-WAVE SUPERIMPOSED ON RATED LOAD       | $I_{FSM}$       | 60            |             |              |             |             |             |             |             |             | A             |
| TYPICAL JUNCTION CAPACITANCE (NOTE 1)                                                       | $C_J$           | 70            |             |              |             |             |             |             |             |             | PF            |
| TYPICAL THERMAL RESISTANCE (NOTE 2)                                                         | $R_{\theta ja}$ | 30            |             |              |             |             |             |             |             |             | $^{\circ}C/W$ |
| STORAGE TEMPERATURE RANGE                                                                   | $T_{STG}$       | - 55 TO + 150 |             |              |             |             |             |             |             |             | $^{\circ}C$   |
| OPERATING TEMPERATURE RANGE                                                                 | $T_{OP}$        | - 55 TO + 150 |             |              |             |             |             |             |             |             | $^{\circ}C$   |

#### ELECTRICAL CHARACTERISTICS ( $A_T T_A = 25^{\circ}C$ UNLESS OTHERWISE NOTED)

| CHARACTERISTICS                              | SYMBOL          | FE30<br>-005 | FE30<br>-01 | FE30<br>-015 | FE30<br>-02 | FE30<br>-03 | FE30<br>-04 | FE30<br>-05 | FE30<br>-06 | FE30<br>-08 | UNITS |    |
|----------------------------------------------|-----------------|--------------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------|----|
| MAXIMUM FORWARD VOLTAGE AT I <sub>O</sub> DC | V <sub>F</sub>  | 0.98         |             |              |             | 1.25        |             | 1.85        |             | 2.60        | V     |    |
| MAXIMUM REVERSE CURRENT AT 25°C              | I <sub>R</sub>  | 10           |             |              |             |             |             |             |             |             |       | μA |
| MAXIMUM REVERSE CURRENT AT 100°C             | I <sub>R</sub>  | 50           |             |              |             |             |             |             |             |             |       | μA |
| MAXIMUM REVERSE RECOVERY TIME (NOTE 3)       | T <sub>RR</sub> | 25           |             |              |             |             |             |             |             |             |       | nS |

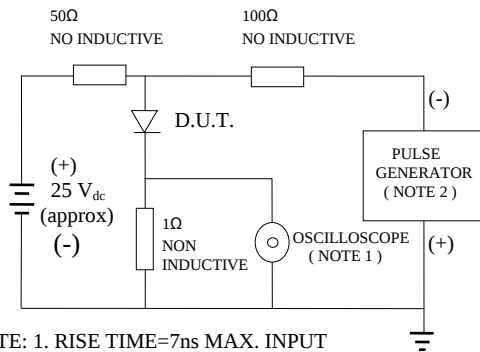
NOTE: 1. MEASURED AT 1 MHZ AND APPLIED REVERSE VOLTAGE OF 4.0 VOLTS

2. BOTH LEADS ATTACHED TO HEAT SINK 20×20×1t(mm) COPPER PLATE AT LEAD LENGTH 5mm

3. REVERSE RECOVERY TEST CONDITIONS:  $I_F=0.5A$ ,  $I_R=1.0A$ ,  $I_{RR}=0.25A$

# RATINGS AND CHARACTERISTIC CURVE FE30-005 THRU FE30-08

FIG. 1-TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC



NOTE: 1. RISE TIME=7ns MAX. INPUT IMPEDANCE=1 MOhms 22PF  
2. RISE TIME =10ns MAX. SOURCE IMPEDANCE=50 OHMS

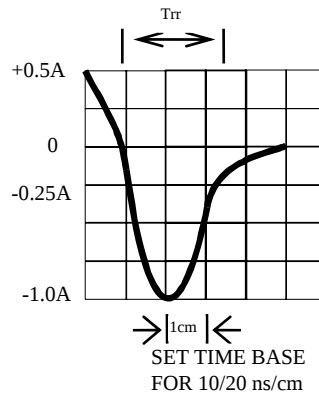


FIG. 2-TYPICAL FORWARD CURRENT DERATING CURVE

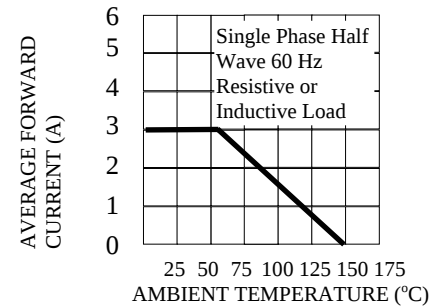


FIG. 3-TYPICAL REVERSE CHARACTERISTICS

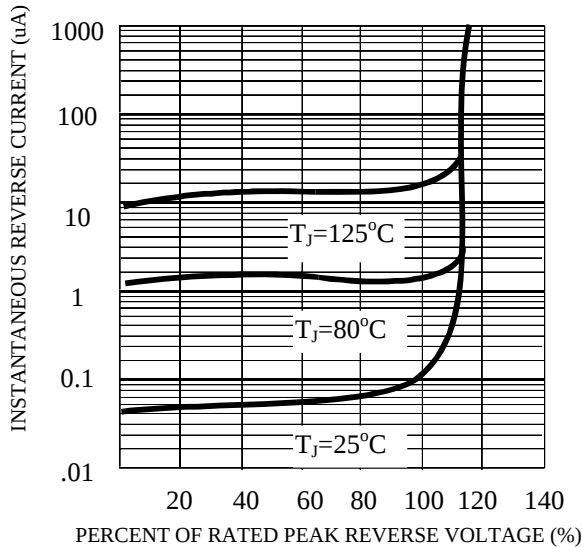


FIG. 4-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

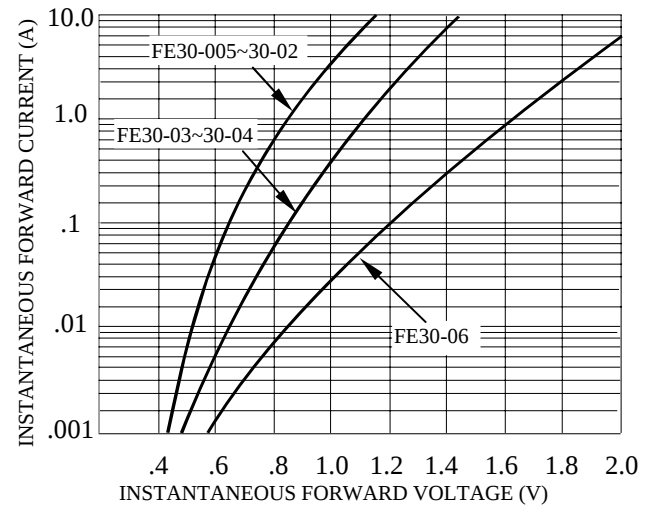


FIG. 5-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

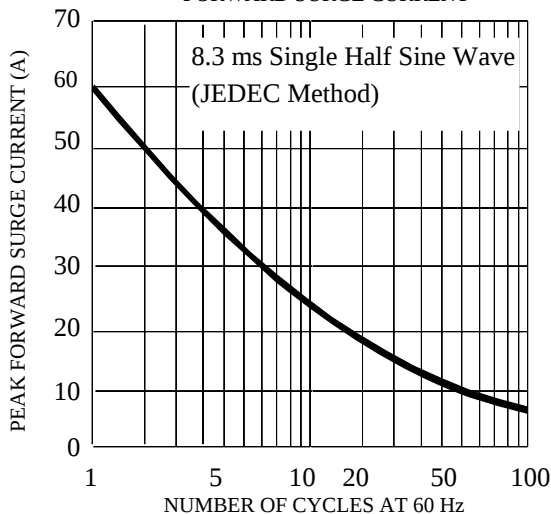


FIG. 6-TYPICAL JUNCTION CAPACITANCE

