



# Frontier Electronics Corp.

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## 3A FAST EFFICIENT RECTIFIER

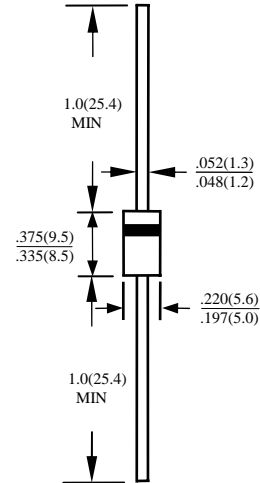
### FE30-005 THRU FE30-08

#### 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          | FE30-005      | FE30-01 | FE30-015 | FE30-02 | FE30-03 | FE30-04 | FE30-05 | FE30-06 | FE30-08 | 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 $T_A=55^\circ\text{C}$ | $I_o$           | 3.0           |         |          |         |         |         |         |         |         | A                  |
| PEAK FORWARD SURGE CURRENT, 8.3ms SINGLE HALF 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            |         |          |         |         |         |         |         |         | $^\circ\text{C/W}$ |
| STORAGE TEMPERATURE RANGE   | $T_{STG}$       | - 55 TO + 150 |         |          |         |         |         |         |         |         | $^\circ\text{C}$   |
| OPERATING TEMPERATURE RANGE   | $T_{OP}$        | - 55 TO + 150 |         |          |         |         |         |         |         |         | $^\circ\text{C}$   |

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

| CHARACTERISTICS                        | SYMBOL   | FE30-005 | FE30-01 | FE30-015 | FE30-02 | FE30-03 | FE30-04 | FE30-05 | FE30-06 | FE30-08 | UNITS         |
|--|----------|----------|---------|----------|---------|---------|---------|---------|---------|---------|---------------|
| MAXIMUM FORWARD VOLTAGE AT $I_o$ DC    | $V_F$    | 0.98     |         |          | 1.25    |         | 1.85    |         | 2.60    |         | V             |
| MAXIMUM REVERSE CURRENT AT 25°C        | $I_R$    | 10       |         |          |         |         |         |         |         |         | $\mu\text{A}$ |
| MAXIMUM REVERSE CURRENT AT 100°C       | $I_R$    | 50       |         |          |         |         |         |         |         |         | $\mu\text{A}$ |
| MAXIMUM REVERSE RECOVERY TIME (NOTE 3) | $T_{RR}$ | 25       |         |          |         |         |         |         |         |         | nS            |

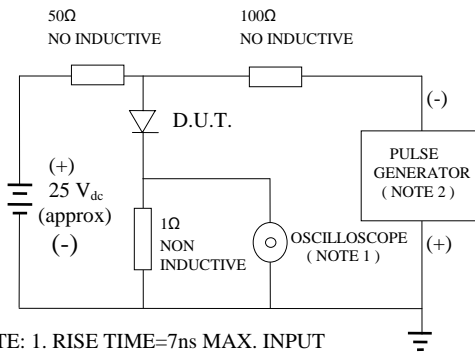
NOTE: 1. MEASURED AT 1 MHZ AND APPLIED REVERSE VOLTAGE OF 4.0 VOLTS

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

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

# 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

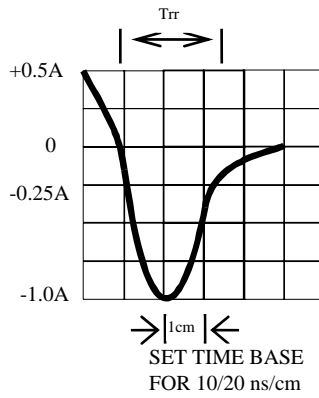


FIG. 2-TYPICAL FORWARD CURRENT DERATING CURVE

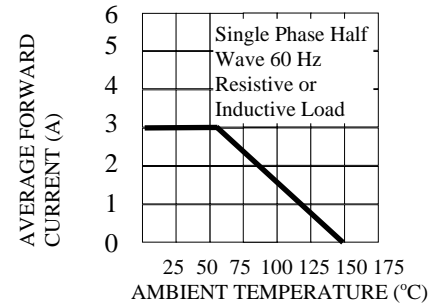


FIG. 3-TYPICAL REVERSE CHARACTERISTICS

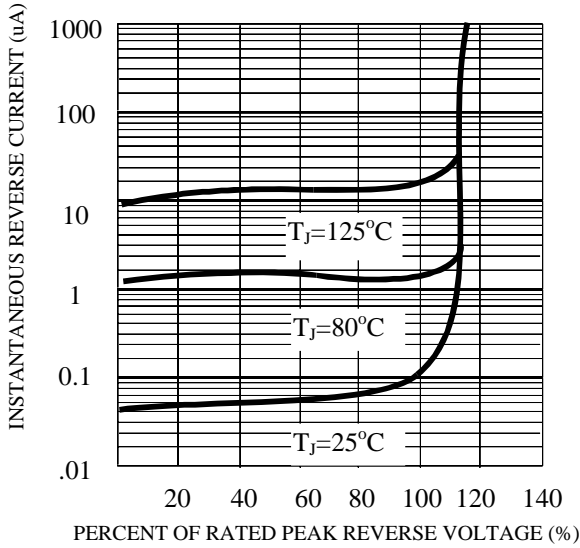


FIG. 4-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

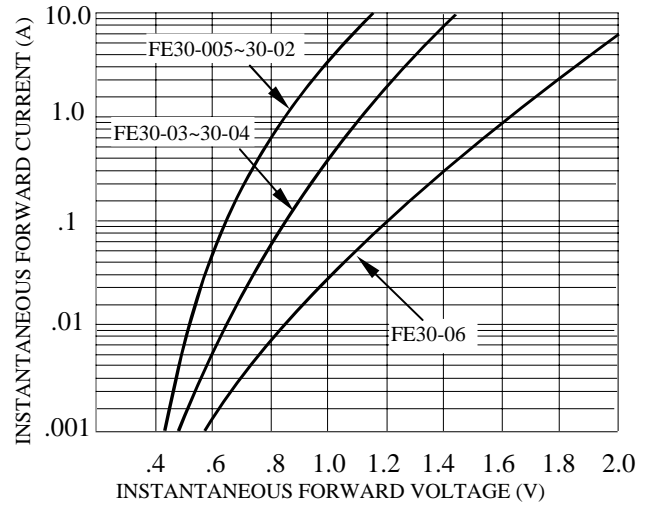


FIG. 5-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

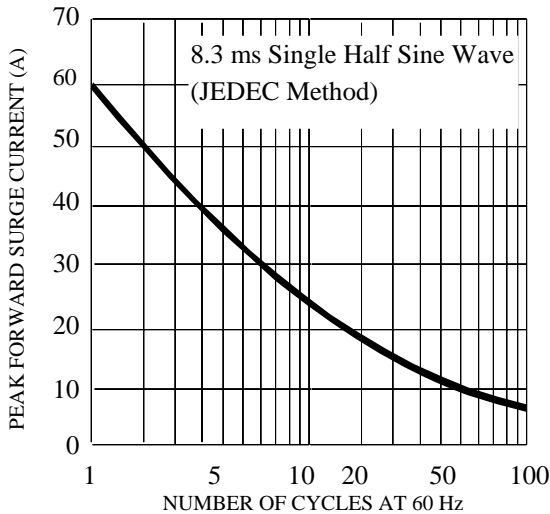


FIG. 6-TYPICAL JUNCTION CAPACITANCE

