



FRONTIER  
ELECTRONICS CO., LTD.

### 3A FAST RECOVERY PLASTIC RECTIFIER

FR30-005  
THRU  
FR30-10

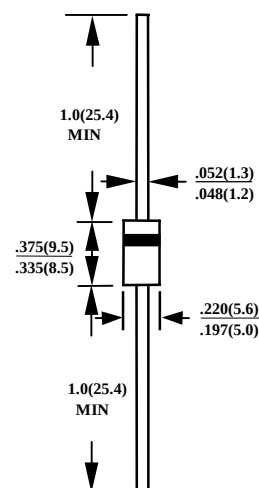
#### FEATURES

- FAST RECOVERY TIMES
- UL 94V-0 FLAME RETARDANT EPOXY MOLDING COMPOUND
- DIFFUSED JUNCTION
- LOW COST
- HIGH SURGE CURRENT CAPABILITY

#### MECHANICAL DATA

- CASE : TRANSFER MOLDED
- LEADS : SOLDERABLE PER MIL-STD-202,METHOD 208
- POLARITY : CATHODE INDICATED BY COLOR BAND
- WEIGHT : 1.2 GRAMS

CASE-DO201AD



DIMENSIONS IN INCHES AND (MILLIMETERS)

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          | FR30-005     | FR30-01 | FR30-02 | FR30-04 | FR30-06 | FR30-08 | FR30-10 | UNITS         |
|---------------------------------------------------------------------------------------------|-----------------|--------------|---------|---------|---------|---------|---------|---------|---------------|
| MAXIMUM RECURRENT PEAK REVERSE VOLTAGE                                                      | $V_{RRM}$       | 50           | 100     | 200     | 400     | 600     | 800     | 1000    | V             |
| MAXIMUM RMS VOLTAGE                                                                         | $V_{RMS}$       | 35           | 70      | 140     | 280     | 420     | 560     | 700     | V             |
| MAXIMUM DC BLOCKING VOLTAGE                                                                 | $V_{DC}$        | 50           | 100     | 200     | 400     | 600     | 800     | 1000    | V             |
| MAXIMUM AVERAGE FORWARD RECTIFIED CURRENT<br>.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       | $I_{FSM}$       | 150          |         |         |         |         |         |         | A             |
| TYPICAL JUNCTION CAPACITANCE (NOTE 1)                                                       | $C_J$           | 28           |         |         |         |         |         |         | PF            |
| TYPICAL THERMAL RESISTANCE (NOTE 2)                                                         | $R_{\theta ja}$ | 20           |         |         |         |         |         |         | $^{\circ}C/W$ |
| 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)

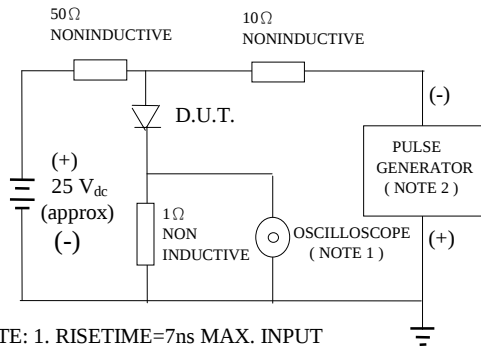
| CHARACTERISTICS                        | SYMBOL   | FR30-005 | FR30-01 | FR30-02 | FR30-04 | FR30-06 | FR30-08 | FR30-10 | UNITS   |
|----------------------------------------|----------|----------|---------|---------|---------|---------|---------|---------|---------|
| MAXIMUM FORWARD VOLTAGE AT $I_O$ DC    | $V_F$    | 1.3      |         |         |         |         |         |         | V       |
| MAXIMUM REVERSE CURRENT AT 25°C        | $I_R$    | 5        |         |         |         |         |         |         | $\mu A$ |
| MAXIMUM REVERSE CURRENT AT 100°C       | $I_R$    | 50       |         |         |         |         |         |         | $\mu A$ |
| MAXIMUM REVERSE RECOVERY TIME (NOTE 3) | $T_{RR}$ | 150      |         |         |         | 250     | 500     |         | nS      |

NOTE :

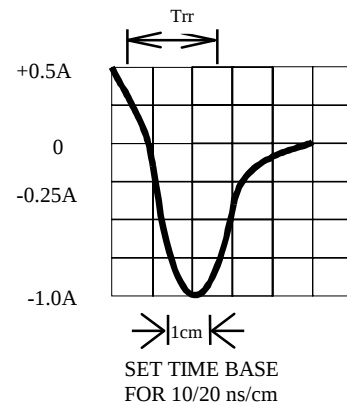
1. MEASURED AT 1 MHZ AND APPLIED REVERSE VOLTAGE OF 4.0 VOLTS
2. BOTH LEADS ATTACHED TO HEATSINK 63.5x 63.5x 1t(mm) COPPER PLATE AT LEAD LENGTH 5mm
3. REVERSE RECOVERY TEST CONDITIONS:  $I_F=0.5A$ ,  $I_R=1.0A$ ,  $I_{RR}=0.25A$

# RATINGS AND CHARACTERISTIC CURVE FR30-005 THRU FR30-10

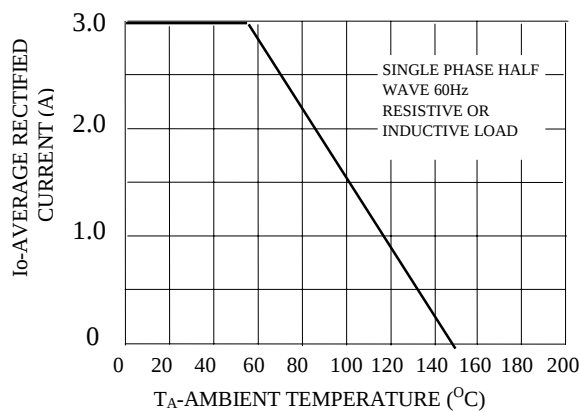
**FIG. 1-TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC**



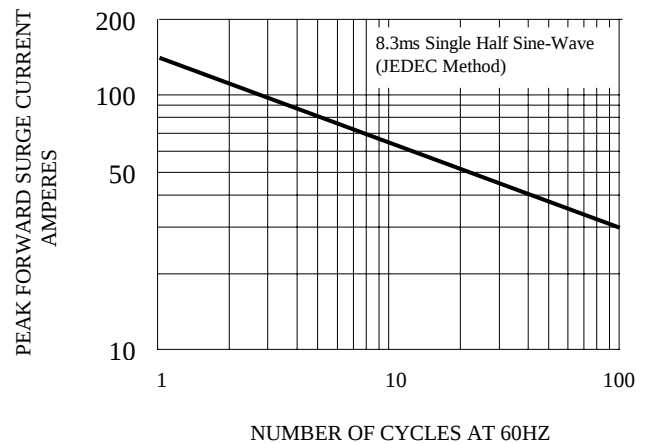
NOTE: 1. RISE TIME = 7ns MAX. INPUT IMPEDANCE = 1 MEGOHM 22PF  
2. RISE TIME = 10ns MAX. SOURCE IMPEDANCE = 50OHMS



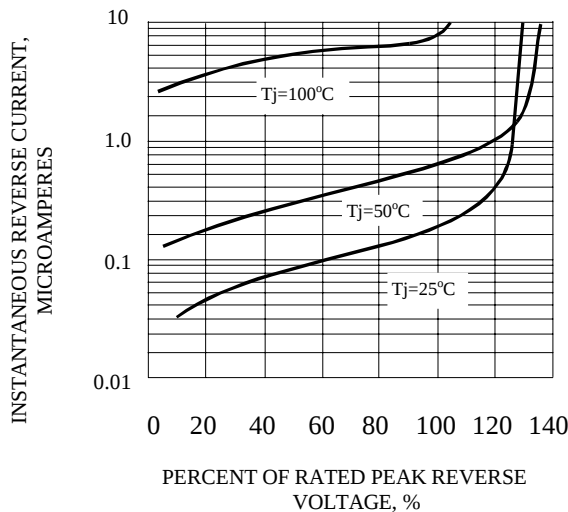
**Fig. 2-MAXIMUM CURRENT DERATING CURVE**



**Fig. 3-MAXIMUM FORWARD SURGE NUMBER OF CYCLES**



**FIG. 4-TYPICAL REVERSE CHARACTERISTICS**



**FIG. 5-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS**

