| ELECTRICAL SPECIFICATIONS PER LEG ($T_J$ = 25 °C unless otherwise specified) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **TEST CONDITIONS** | | **MIN.** | **TYP.** | **MAX.** | **UNITS** |
| Cathode to anode breakdown voltage | $V_{BR}$ | $I_R$ = 100 µA | | 600 | - | - | V |
| Maximum forward voltage | $V_{FM}$ | $I_F$ = 8 A | See fig. 1 | - | 1.4 | 1.7 | |
| | | $I_F$ = 16 A | | - | 1.7 | 2.1 | |
| | | $I_F$ = 8 A, $T_J$ = 125 °C | | - | 1.4 | 1.7 | |
| Maximum reverse leakage current | $I_{RM}$ | $V_R$ = $V_R$ rated | See fig. 2 | - | 0.3 | 5.0 | µA |
| | | $T_J$ = 125 °C, $V_R$ = 0.8 x $V_R$ rated | | - | 100 | 500 | |
| Junction capacitance | $C_T$ | $V_R$ = 200 V | See fig. 3 | - | 10 | 25 | pF |
| Series inductance | $L_S$ | Measured lead to lead 5 mm from package body | | - | 8.0 | - | nH |

| DYNAMIC RECOVERY CHARACTERISTICS PER LEG ($T_J$ = 25 °C unless otherwise specified) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **TEST CONDITIONS** | | **MIN.** | **TYP.** | **MAX.** | **UNITS** |
| Reverse recovery time See fig. 5 and 10 | $t_{rr}$ | $I_F$ = 1.0 A, $dI_F/dt$ = 200 A/µs, $V_R$ = 30 V | | - | 18 | - | ns |
| | $t_{rr1}$ | $T_J$ = 25 °C | $I_F$ = 8.0 A<br>$dI_F/dt$ = 200 A/µs<br>$V_R$ = 200 V | - | 37 | 55 | |
| | $t_{rr2}$ | $T_J$ = 125 °C | | - | 55 | 90 | |
| Peak recovery current See fig. 6 | $I_{RRM1}$ | $T_J$ = 25 °C | | - | 3.5 | 5.0 | A |
| | $I_{RRM2}$ | $T_J$ = 125 °C | | - | 4.5 | 8.0 | |
| Reverse recovery charge See fig. 7 | $Q_{rr1}$ | $T_J$ = 25 °C | | - | 65 | 138 | nC |
| | $Q_{rr2}$ | $T_J$ = 125 °C | | - | 124 | 360 | |
| Peak rate of fall recovery current during $t_b$ See fig. 8 | $dI_{(rec)M}/dt1$ | $T_J$ = 25 °C | | - | 240 | - | A/µs |
| | $dI_{(rec)M}/dt2$ | $T_J$ = 125 °C | | - | 210 | - | |

| THERMAL - MECHANICAL SPECIFICATIONS PER LEG | | | | | | |
|---|---|---|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **TEST CONDITIONS** | **MIN.** | **TYP.** | **MAX.** | **UNITS** |
| Lead temperature | $T_{lead}$ | 0.063" from case (1.6 mm) for 10 s | - | - | 300 | °C |
| Junction to case, single leg conducting | $R_{thJC}$ | | - | - | 3.5 | K/W |
| Junction to case, both legs conducting | | | - | - | 1.75 | |
| Thermal resistance, junction to ambient | $R_{thJA}$ | Typical socket mount | - | - | 80 | |
| Thermal resistance, case to heatsink | $R_{thCS}$ | Mounting surface, flat, smooth and greased | - | 0.5 | - | |
| Weight | | | - | 2.0 | - | g |
| | | | - | 0.07 | - | oz. |
| Mounting torque | | | 6.0 (5.0) | - | 12 (10) | kgf · cm (lbf · in) |
| Marking device | | Case style TO-220AB | HFA16TA60C | | | |

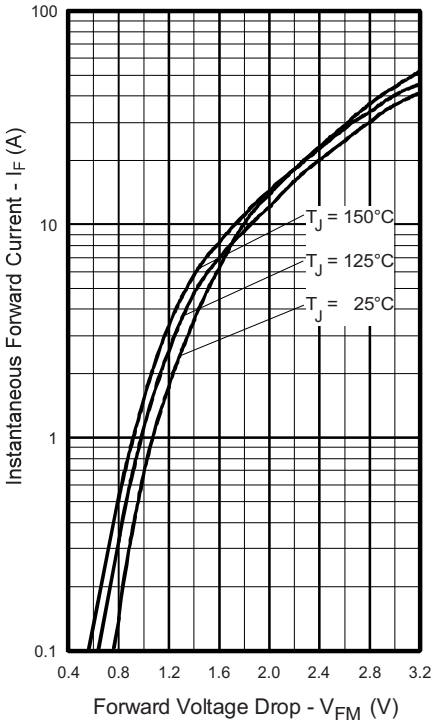



Fig. 1 - Maximum Forward Voltage Drop vs. Instantaneous Forward Current (Per Leg)

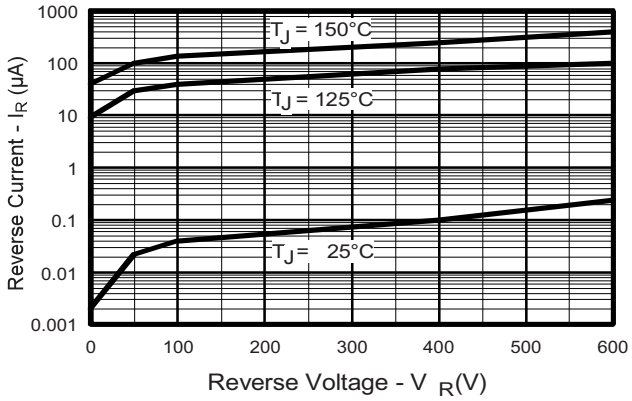



Fig. 2 - Typical Reverse Current vs. Reverse Voltage (Per Leg)

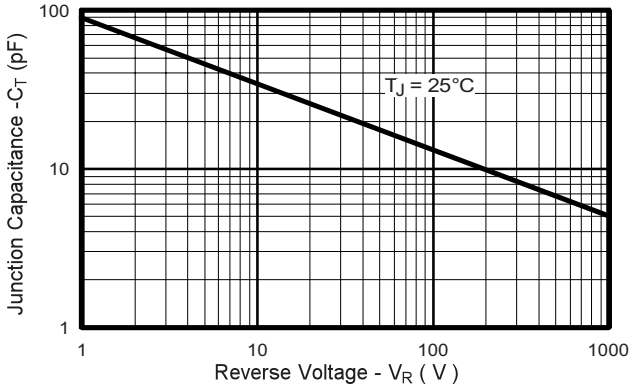



Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

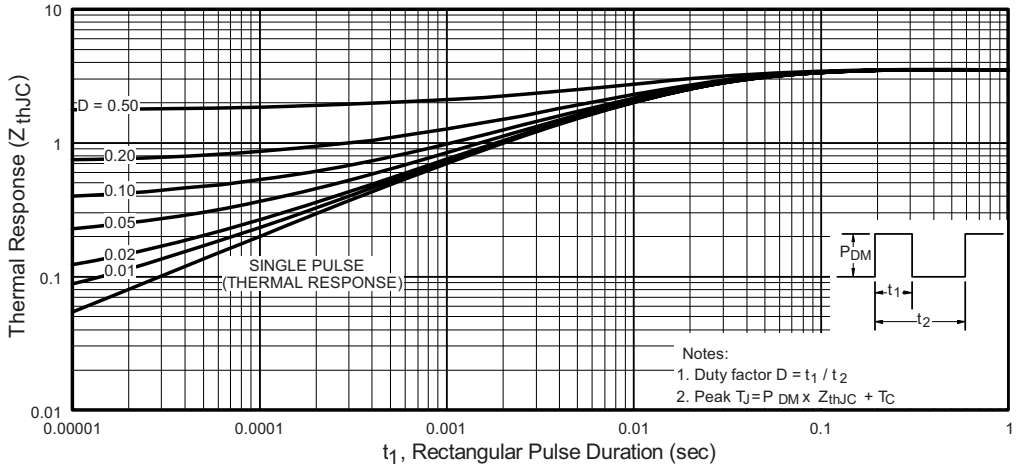



Fig. 4 - Maximum Thermal Impedance $Z_{thJC}$ Characteristics (Per Leg)

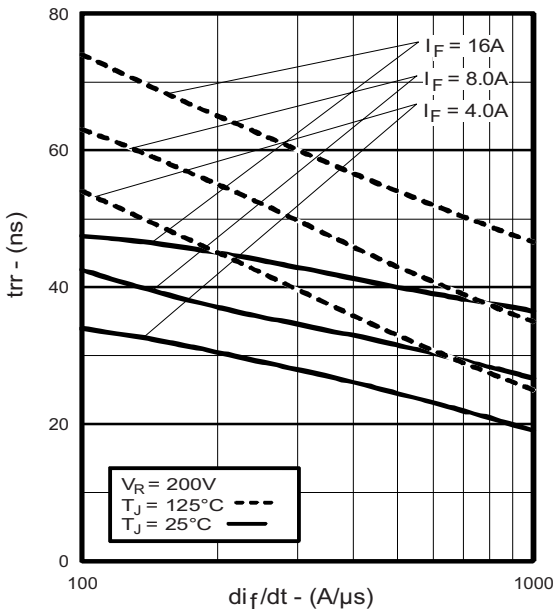



Fig. 5 - Typical Reverse Recovery Time vs. $dI_F/dt$ (Per Leg)

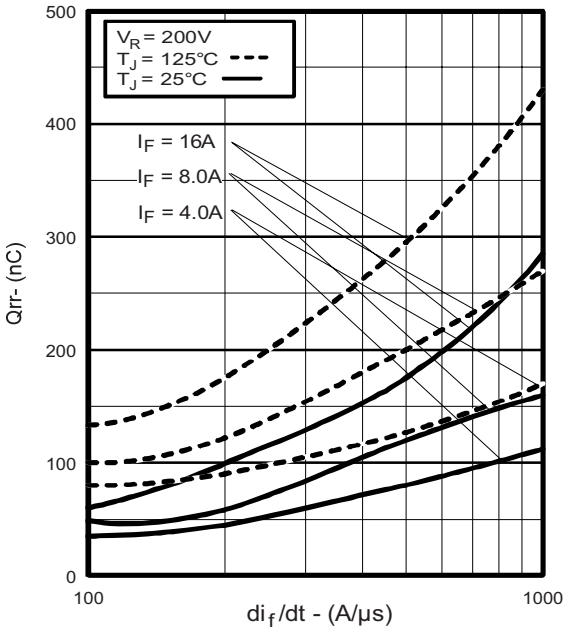



Fig. 7 - Typical Stored Charge vs. $dI_F/dt$ (Per Leg)

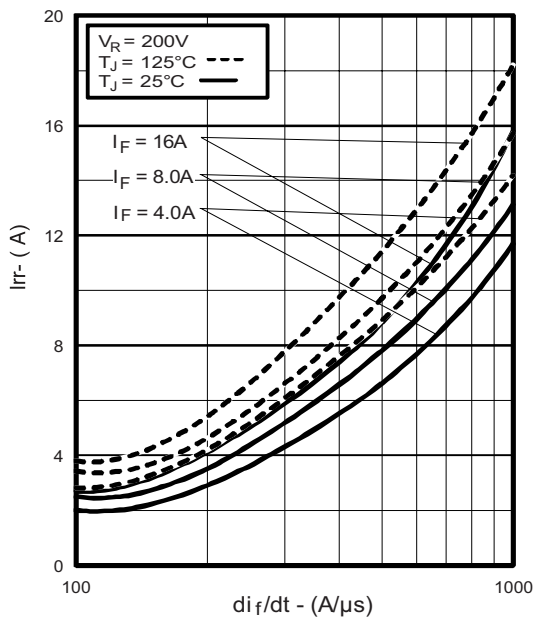



Fig. 6 - Typical Recovery Current vs. $dI_F/dt$ (Per Leg)

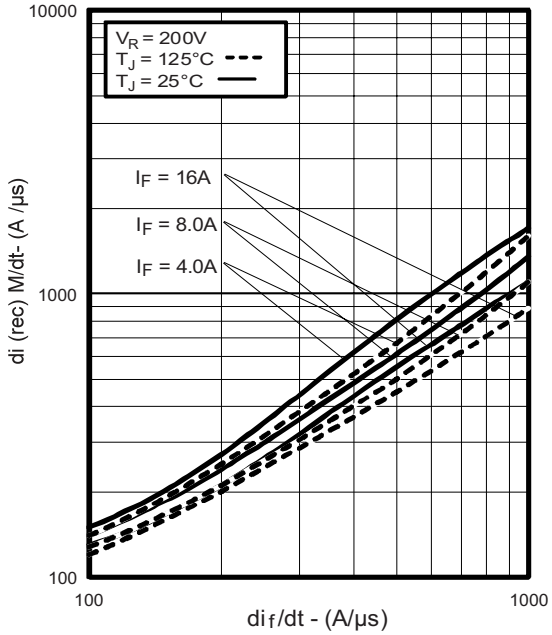



Fig. 8 - Typical $dI_{(rec)M}/dt$ vs. $dI_F/dt$ (Per Leg)

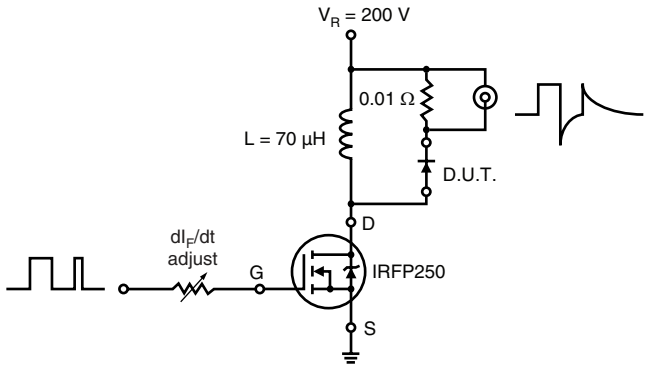
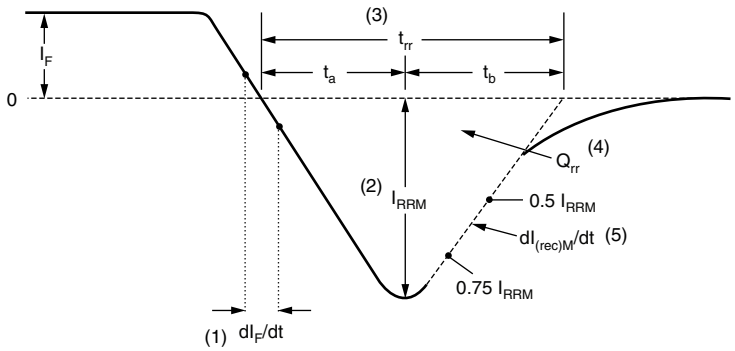



Fig. 9 - Reverse Recovery Parameter Test Circuit




(1) $dI_F/dt$ - rate of change of current through zero crossing

(2) $I_{RRM}$ - peak reverse recovery current

(3) $t_{rr}$ - reverse recovery time measured from zero crossing point of negative going $I_F$ to point where a line passing through 0.75 $I_{RRM}$ and 0.50 $I_{RRM}$ extrapolated to zero current.

(4) $Q_{rr}$ - area under curve defined by $t_{rr}$ and $I_{RRM}$

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

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

Fig. 10 - Reverse Recovery Waveform and Definitions

| LINKS TO RELATED DOCUMENTS | |
|---|---|
| Dimensions | http://www.vishay.com/doc?95222 |
| Part marking information | http://www.vishay.com/doc?95225 |

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