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 = 25 A	See fig. 1	-	1.3	1.7	
		I_F = 50 A		-	1.5	2.0	
		I_F = 25 A, T_J = 125 °C		-	1.3	1.7	
Maximum reverse leakage current	I_{RM}	V_R = V_R rated	See fig. 2	-	1.5	20	µA
		T_J = 125 °C, V_R = 0.8 x V_R rated		-	600	2000	
Junction capacitance	C_T	V_R = 200 V	See fig. 3	-	55	100	pF
Series inductance	L_S	Measured lead to lead 5 mm from package body		-	12	-	nH

DYNAMIC RECOVERY CHARACTERISTICS (T_J = 25 °C unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS		MIN.	TYP.	MAX.	UNITS
Reverse recovery time See fig. 5, 10	t_{rr}	I_F = 1.0 A, dI_F/dt = 200 A/µs, V_R = 30 V		-	23	-	ns
	t_{rr1}	T_J = 25 °C	I_F = 25 A dI_F/dt = 200 A/µs V_R = 200 V	-	50	75	
	t_{rr2}	T_J = 125 °C		-	105	160	
Peak recovery current See fig. 6	I_{RRM1}	T_J = 25 °C		-	4.5	10	A
	I_{RRM2}	T_J = 125 °C		-	8.0	15	
Reverse recovery charge See fig. 7	Q_{rr1}	T_J = 25 °C		-	112	375	nC
	Q_{rr2}	T_J = 125 °C		-	420	1200	
Peak rate of fall of recovery current during t_b See fig. 8	$dI_{(rec)M}/dt1$	T_J = 25 °C		-	250	-	A/µs
	$dI_{(rec)M}/dt2$	T_J = 125 °C		-	160	-	

THERMAL - MECHANICAL SPECIFICATIONS

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}		-	-	0.83	K/W
Junction to case, both legs conducting			-	-	0.42	
Thermal resistance, junction to ambient	R_{thJA}	Typical socket mount	-	-	40	
Thermal resistance, case to heatsink	R_{thCS}	Mounting surface, flat, smooth and greased	-	0.25	-	
Weight			-	6.0	-	g
			-	0.21	-	oz.
Mounting torque			6.0 (5.0)	-	12 (10)	kgf · cm (lbf · in)
Marking device		Case style TO-247AC	HFA50PA60C			

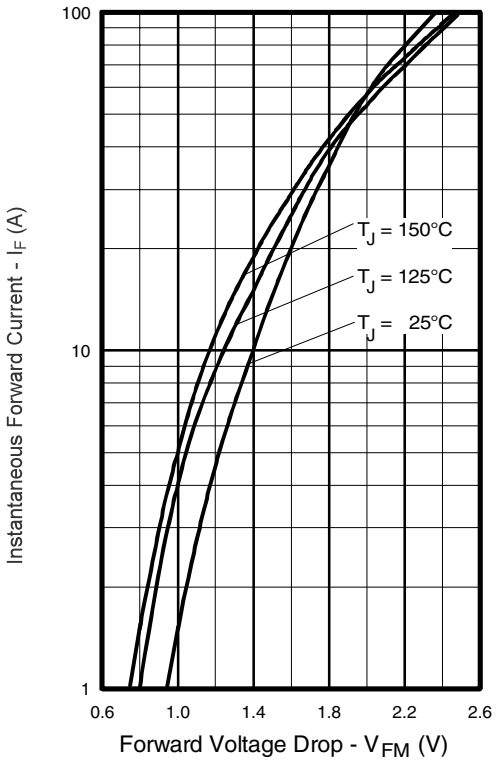


Fig. 1 - Maximum Forward Voltage Drop vs. Instantaneous Forward Current (Per Leg)

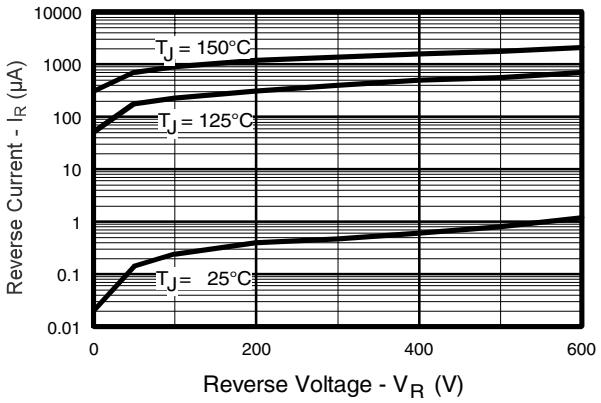


Fig. 2 - Typical Reverse Current vs. Reverse Voltage (Per Leg)

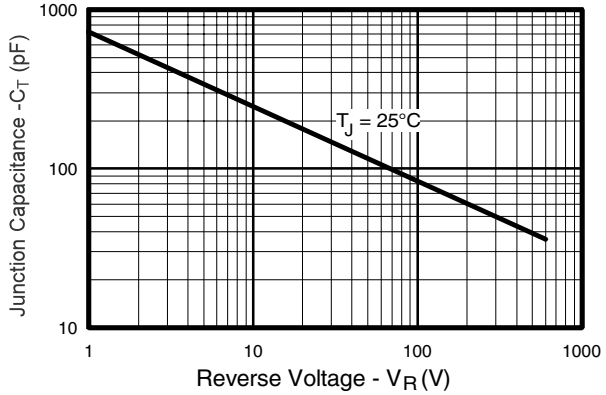


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

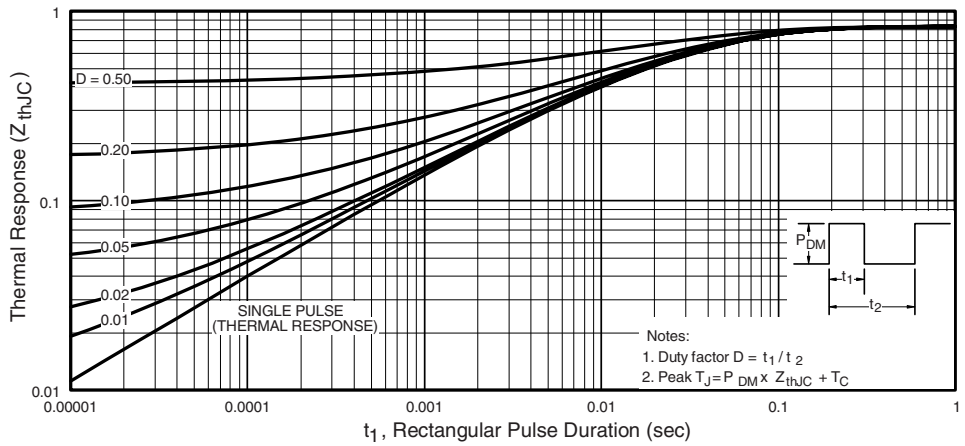


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics (Per Leg)

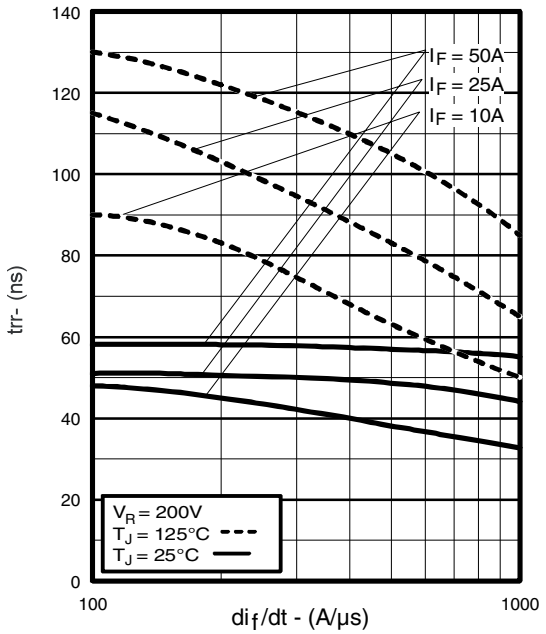


Fig. 5 - Typical Reverse Recovery Time vs. dI_F/dt (Per Leg)

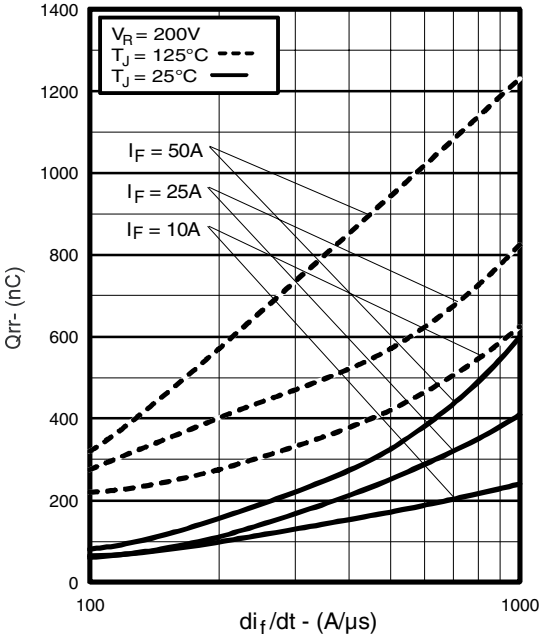


Fig. 7 - Typical Stored Charge vs. dI_F/dt (Per Leg)

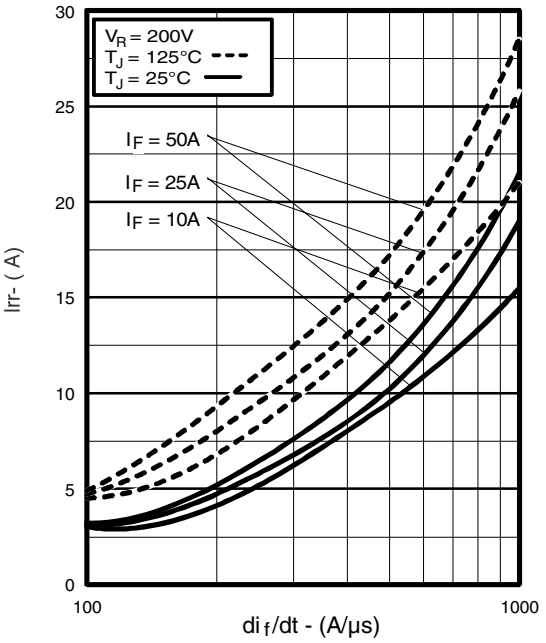


Fig. 6 - Typical Recovery Current vs. dI_F/dt (Per Leg)

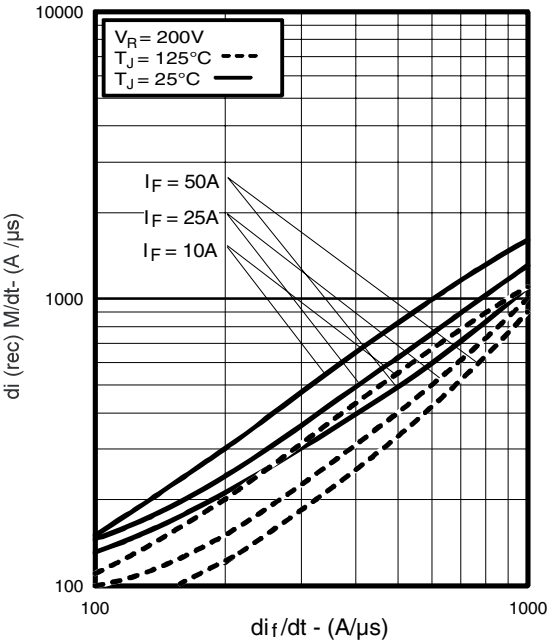


Fig. 8 - Typical $dI_{(rec)M}/dt$ vs. dI_F/dt (Per Leg)

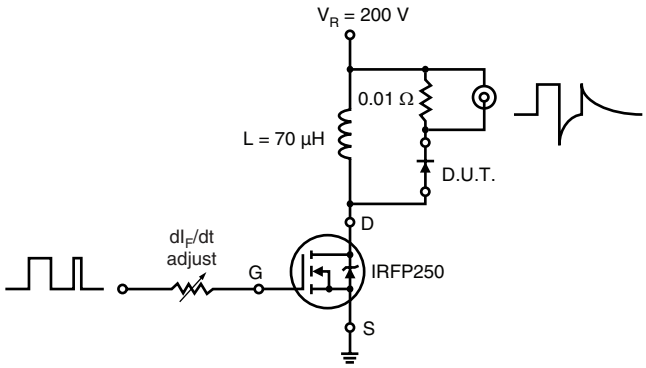
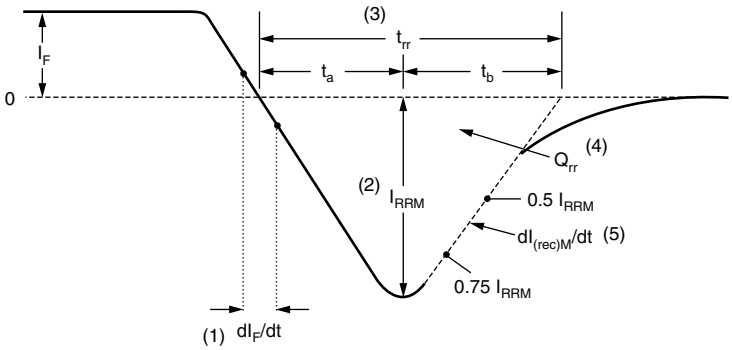


Fig. 9 - Reverse Recovery Parameter Test Circuit



(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}

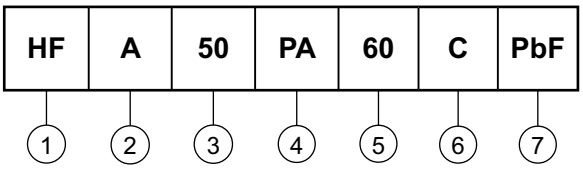
$$Q_{rr} = \frac{t_{rr} \times I_{RRM}}{2}$$

(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

ORDERING INFORMATION TABLE

Device code



1 - HEXFRED® family

2 - Process designator: A = Subs. electron irradiated
B = Subs. platinum

3 - Current rating (50 = 50 A)

4 - Package outline (PA = TO-247, 3 pins)

5 - Voltage rating (60 = 600 V)

6 - Configuration (C = Center tap common cathode)

7 - • None = Standard production
• PbF = Lead (Pb)-free

LINKS TO RELATED DOCUMENTS	
Dimensions	http://www.vishay.com/doc?95223
Part marking information	http://www.vishay.com/doc?95226

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