

ELECTRICAL SPECIFICATIONS (T <sub>J</sub> = 25 °C unless otherwise specified)							
PARAMETER	SYMBOL	TEST CONDITIONS		MIN.	TYP.	MAX.	UNITS
Cathode to anode breakdown voltage	V <sub>BR</sub>	I <sub>R</sub> = 100 μA		600	-	-	V
Maximum forward voltage	V <sub>FM</sub>	I <sub>F</sub> = 15 A	See fig. 1	-	1.3	1.7	
		I <sub>F</sub> = 30 A		-	1.5	2.0	
		I <sub>F</sub> = 15 A, T <sub>J</sub> = 125 °C		-	1.2	1.6	
Maximum reverse leakage current	I <sub>RM</sub>	V <sub>R</sub> = V <sub>R</sub> rated T <sub>J</sub> = 125 °C, V <sub>R</sub> = 0.8 x V <sub>R</sub> rated	See fig. 2	-	1.0	10	μA
				-	400	1000	
Junction capacitance	C <sub>T</sub>	V <sub>R</sub> = 200 V	See fig. 3	-	25	50	pF
Series inductance	L <sub>S</sub>	Measured lead to lead 5 mm from package body		-	12	-	nH

DYNAMIC RECOVERY CHARACTERISTICS (T <sub>J</sub> = 25 °C unless otherwise specified)							
PARAMETER	SYMBOL	TEST CONDITIONS		MIN.	TYP.	MAX.	UNITS
Reverse recovery time See fig. 5, 10	t <sub>rr</sub>	I <sub>F</sub> = 1.0 A, dI <sub>F</sub> /dt = 200 A/μs, V <sub>R</sub> = 30 V		-	19	-	ns
	t <sub>rr1</sub>	T <sub>J</sub> = 25 °C	I <sub>F</sub> = 15 A dI <sub>F</sub> /dt = 200 A/μs V <sub>R</sub> = 200 V	-	42	60	
	t <sub>rr2</sub>	T <sub>J</sub> = 125 °C		-	74	120	
Peak recovery current See fig. 6	I <sub>RRM1</sub>	T <sub>J</sub> = 25 °C		-	4.0	6.0	A
	I <sub>RRM2</sub>	T <sub>J</sub> = 125 °C		-	6.5	10	
Reverse recovery charge See fig. 7	Q <sub>rr1</sub>	T <sub>J</sub> = 25 °C		-	80	180	nC
	Q <sub>rr2</sub>	T <sub>J</sub> = 125 °C		-	220	600	
Peak rate of fall of recovery current during t <sub>b</sub> See fig. 8	dl <sub>(rec)M</sub> /dt1	T <sub>J</sub> = 25 °C		-	188	-	A/μs
	dl <sub>(rec)M</sub> /dt2	T <sub>J</sub> = 125 °C		-	160	-	

<b>THERMAL - MECHANICAL SPECIFICATIONS</b>						
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Lead temperature	$T_{lead}$	0.063" from case (1.6 mm) for 10 s	-	-	300	$^{\circ}\text{C}$
Thermal resistance, junction to case	$R_{thJC}$		-	-	1.7	K/W
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 modified (JEDEC)	HFA15PB60			

## HEXFRED® Ultrafast Soft Recovery Diode, 15 A

Vishay High Power Products

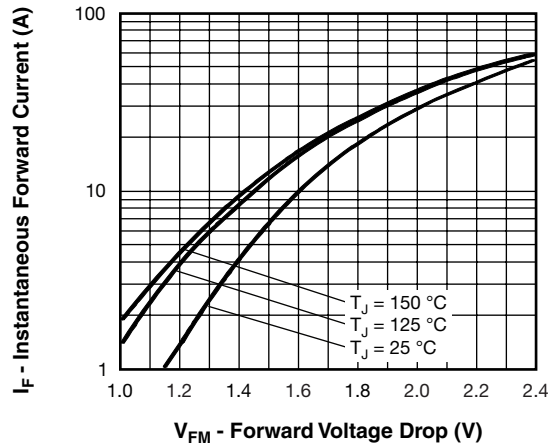


Fig. 1 - Maximum Forward Voltage Drop vs. Instantaneous Forward Current

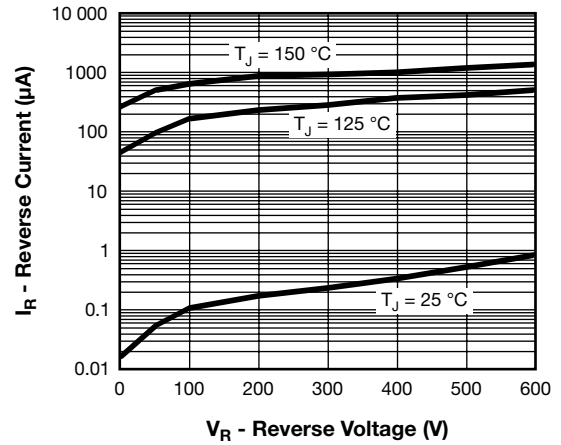


Fig. 2 - Typical Reverse Current vs. Reverse Voltage

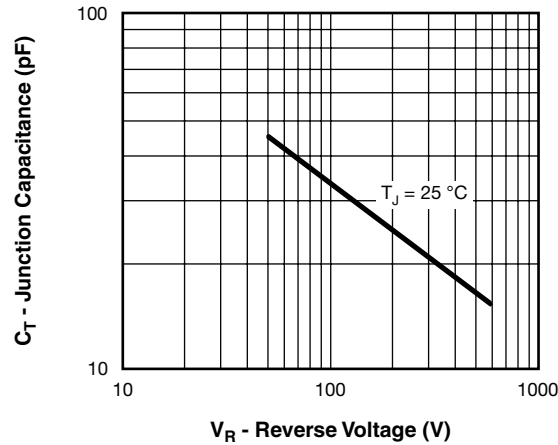


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

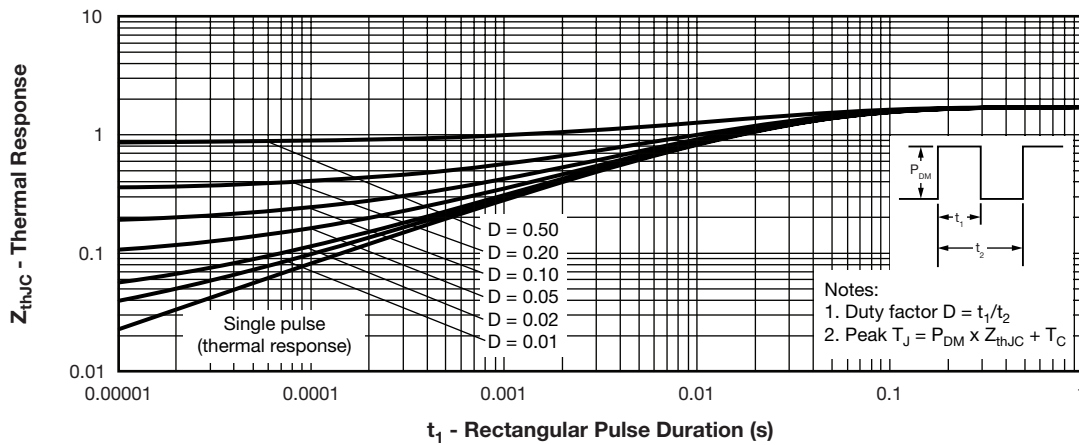
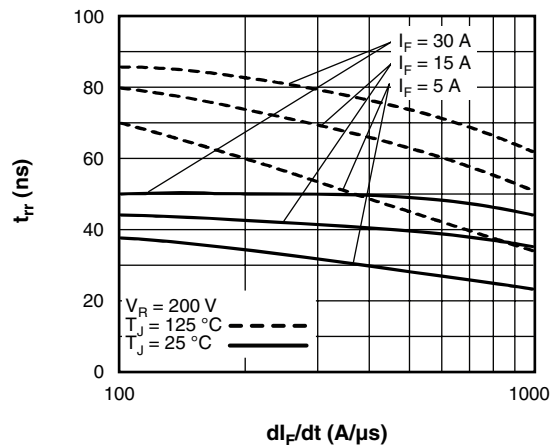
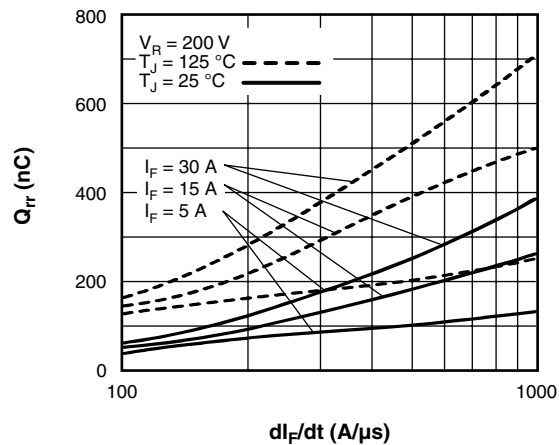
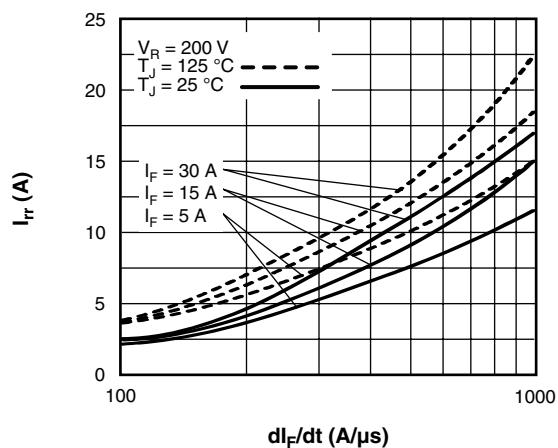
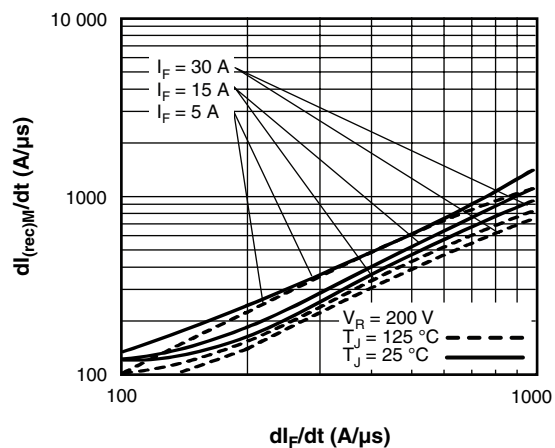


Fig. 4 - Maximum Thermal Impedance  $Z_{thJC}$  Characteristics

Fig. 5 - Typical Reverse Recovery Time vs.  $dI_F/dt$ Fig. 7 - Typical Stored Charge vs.  $dI_F/dt$ Fig. 6 - Typical Recovery Current vs.  $dI_F/dt$ Fig. 8 - Typical  $dI_{(rec)M}/dt$  vs.  $dI_F/dt$

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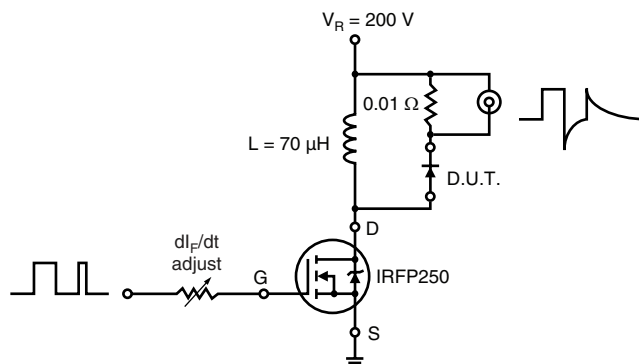


Fig. 9 - Reverse Recovery Parameter Test Circuit

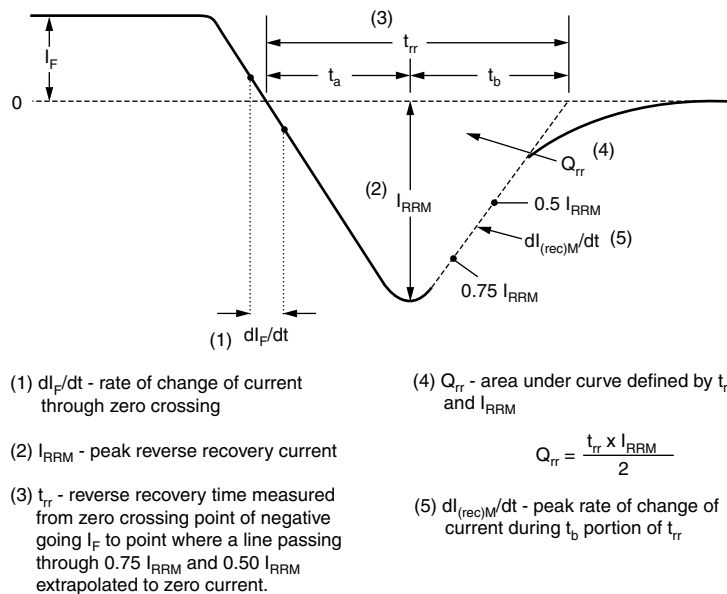


Fig. 10 - Reverse Recovery Waveform and Definitions

**ORDERING INFORMATION TABLE**

Device code	HF	A	15	PB	60	PbF
	1	2	3	4	5	6

- |   |   |  |
|---|---|--|
| 1 | - | HEXFRED® family  |
| 2 | - | Process designator: A = Electron irradiated<br>B = Platinum diffused |
| 3 | - | Current rating (15 = 15 A)   |
| 4 | - | Package outline (PB = TO-247, 2 pins)                                |
| 5 | - | Voltage rating (60 = 600 V)  |
| 6 | - | • None = Standard production<br>• PbF = Lead (Pb)-free               |

LINKS TO RELATED DOCUMENTS	
Dimensions	<a href="http://www.vishay.com/doc?95253">www.vishay.com/doc?95253</a>
Part marking information	<a href="http://www.vishay.com/doc?95255">www.vishay.com/doc?95255</a>



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