



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> = 25 A	-	1.3	1.7	
		I <sub>F</sub> = 50 A	-	1.5	2.0	
		I <sub>F</sub> = 25 A, T <sub>J</sub> = 125 °C	-	1.3	1.7	
Maximum reverse leakage current	I <sub>RM</sub>	V <sub>R</sub> = V <sub>R</sub> rated	-	1.5	20	μA
		T <sub>J</sub> = 125 °C, V <sub>R</sub> = 0.8 x V <sub>R</sub> rated	-	600	2000	
Junction capacitance	C <sub>T</sub>	V <sub>R</sub> = 200 V	-	55	100	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	-	23	-	ns
	t <sub>rr1</sub>	T <sub>J</sub> = 25 °C	-	50	75	
	t <sub>rr2</sub>	T <sub>J</sub> = 125 °C	-	105	160	
Peak recovery current See fig. 6, 10	I <sub>RRM1</sub>	T <sub>J</sub> = 25 °C	-	4.5	10	A
	I <sub>RRM2</sub>	T <sub>J</sub> = 125 °C	-	8.0	15	
Reverse recovery charge See fig. 7, 10	Q <sub>rr1</sub>	T <sub>J</sub> = 25 °C	-	112	375	nC
	Q <sub>rr2</sub>	T <sub>J</sub> = 125 °C	-	420	1200	
Peak rate of fall of recovery current during t <sub>b</sub> See fig. 8, 10	di <sub>(rec)M</sub> /dt1	T <sub>J</sub> = 25 °C	-	250	-	A/μs
	di <sub>(rec)M</sub> /dt2	T <sub>J</sub> = 125 °C	-	160	-	

THERMAL - MECHANICAL SPECIFICATIONS						
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Lead temperature	T <sub>lead</sub>	0.063" from case (1.6 mm) for 10 s	-	-	300	°C
Thermal resistance, junction to case	R <sub>thJC</sub>		-	-	0.83	K/W
Thermal resistance, junction to ambient	R <sub>thJA</sub>	Typical socket mount	-	-	40	
Thermal resistance, case to heatsink	R <sub>thCS</sub>	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)	HFA25PB60			



HEXFRED®  
Ultrafast Soft Recovery Diode, 25 A

Vishay High Power Products

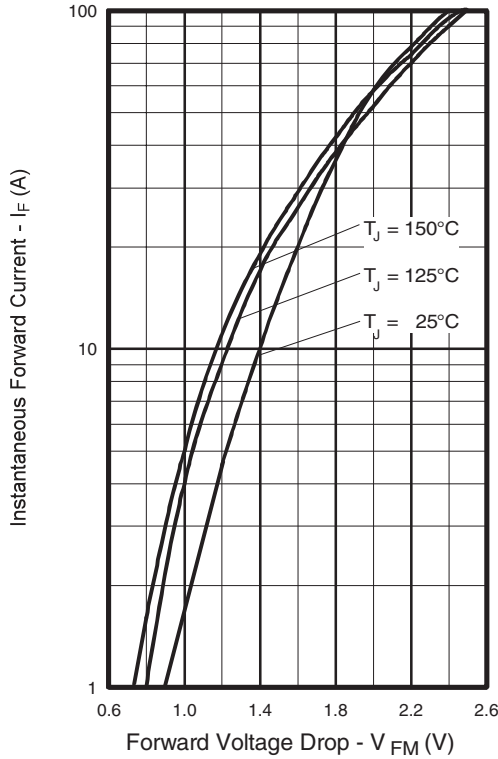


Fig. 1 - Maximum Forward Voltage Drop vs. Instantaneous Forward Current

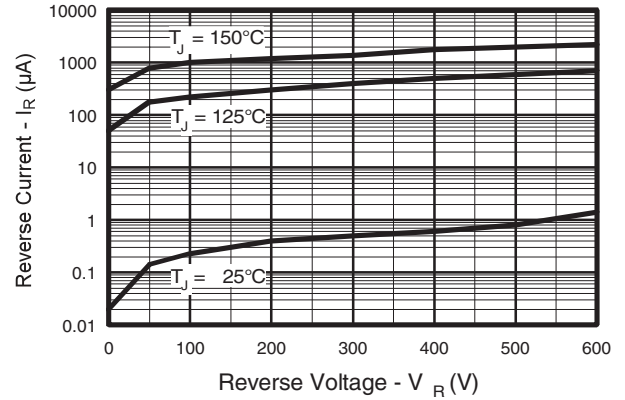


Fig. 2 - Typical Reverse Current vs. Reverse Voltage

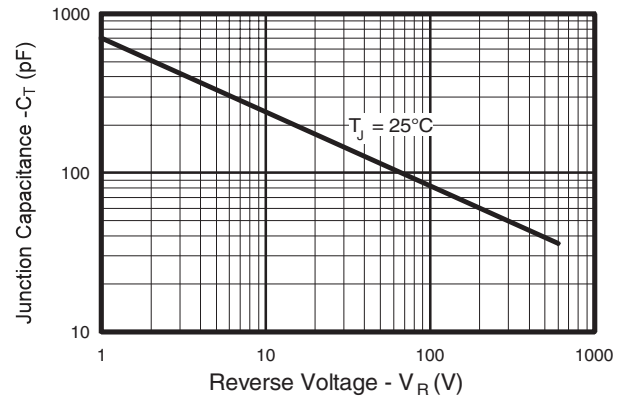


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

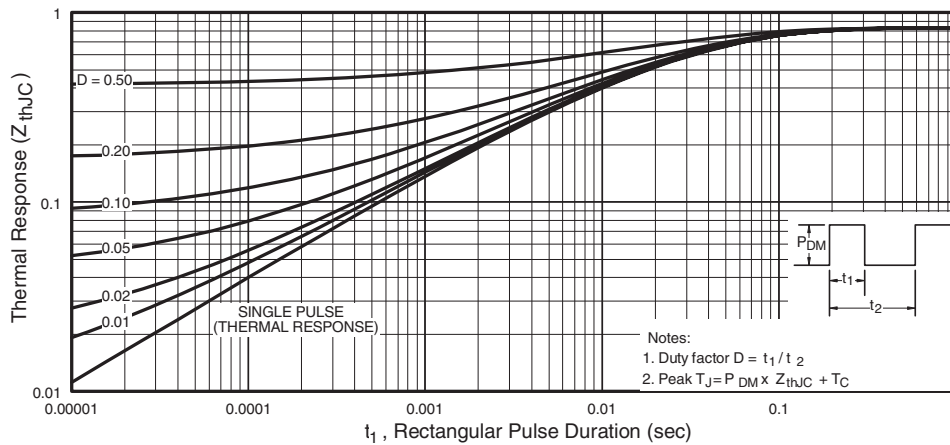


Fig. 4 - Maximum Thermal Impedance  $Z_{thJC}$  Characteristics

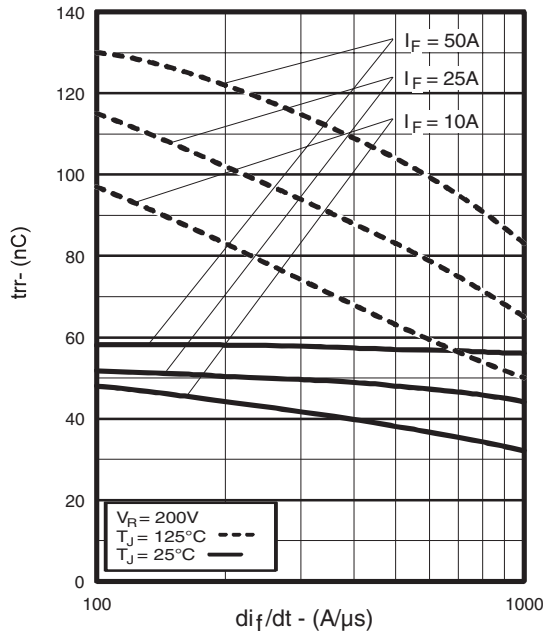


Fig. 5 - Typical Reverse Recovery Time vs.  $di_f/dt$

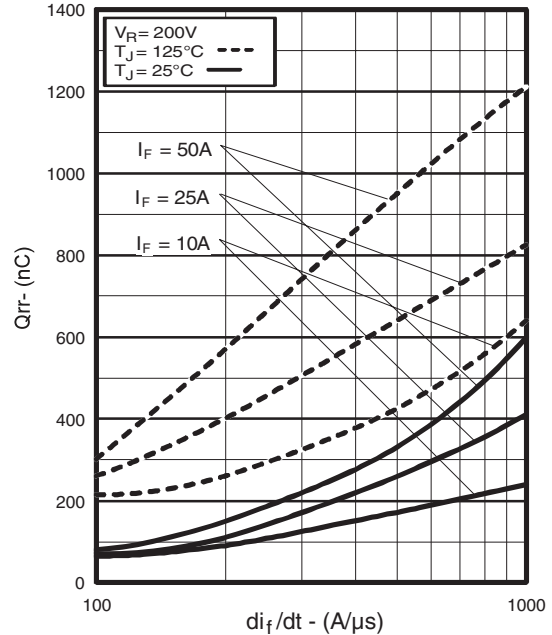


Fig. 7 - Typical Stored Charge vs.  $di_f/dt$

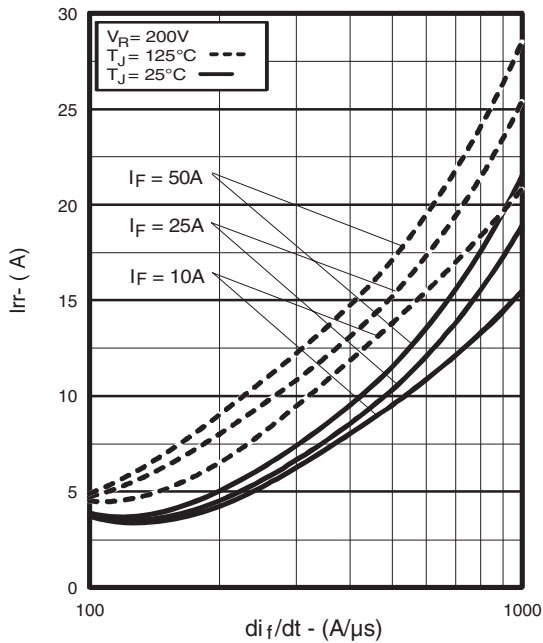


Fig. 6 - Typical Recovery Current vs.  $di_f/dt$

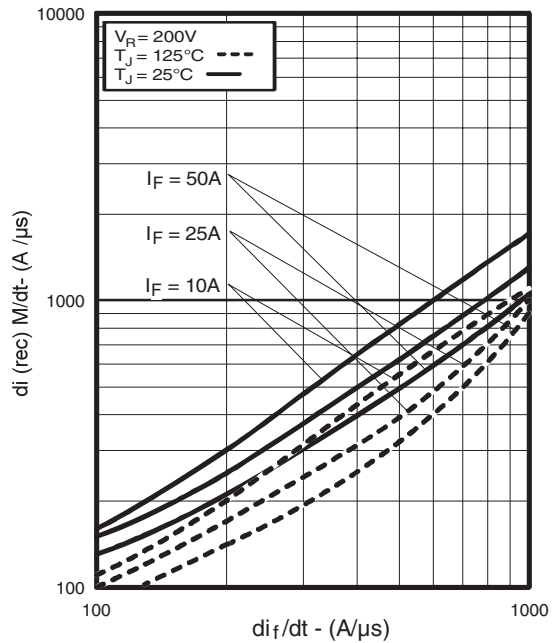


Fig. 8 - Typical  $di_{(rec)}M/dt$  vs.  $di_f/dt$

**HEXFRED®**  
 Ultrafast Soft Recovery Diode, 25 A

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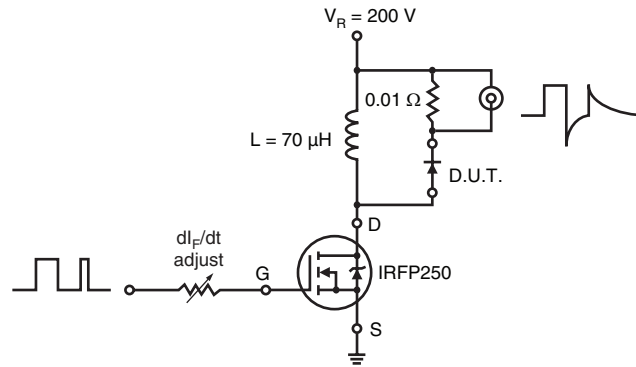
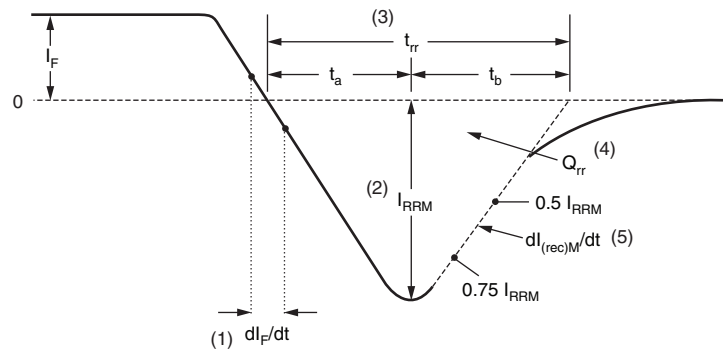


Fig. 9 - Reverse Recovery Parameter Test Circuit

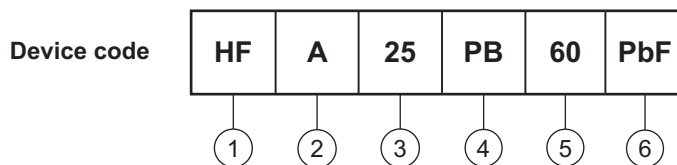


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|---|---|
| <p>(1) <math>dl_F/dt</math> - rate of change of current through zero crossing</p> <p>(2) <math>I_{RRM}</math> - peak reverse recovery current</p> <p>(3) <math>t_{rr}</math> - reverse recovery time measured from zero crossing point of negative going <math>I_F</math> to point where a line passing through <math>0.75 I_{RRM}</math> and <math>0.50 I_{RRM}</math> extrapolated to zero current.</p> | <p>(4) <math>Q_{rr}</math> - area under curve defined by <math>t_{rr}</math> and <math>I_{RRM}</math></p> $Q_{rr} = \frac{t_{rr} \times I_{RRM}}{2}$ <p>(5) <math>dl_{(rec)M}/dt</math> - peak rate of change of current during <math>t_b</math> portion of <math>t_{rr}</math></p> |
|---|---|

Fig. 10 - Reverse Recovery Waveform and Definitions



## ORDERING INFORMATION TABLE



- 1** - HEXFRED® family
- 2** - Process designator: A = Electron irradiated  
B = Platinum diffused
- 3** - Current rating (25 = 25 A)
- 4** - Package outline (PB = TO-247, 2 pins)
- 5** - Voltage rating (60 = 600 V)
- 6** -
  - None = Standard production
  - PbF = Lead (Pb)-free

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



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