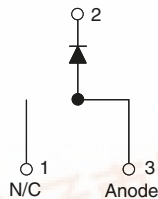


HEXFRED® Ultrafast Soft Recovery Diode, 8 A



D-PAK



FEATURES

- Ultrafast recovery time
- Ultrasoft recovery
- Very low I_{RRM}
- Very low Q_{rr}
- Guaranteed avalanche
- Specified at operating conditions
- Compliant to RoHS Directive 2002/95/EC

RoHS
COMPLIANT

BENEFITS

- Reduced RFI and EMI
- Reduced power loss in diode and switching transistor
- Higher frequency operation
- Reduced snubbing
- Reduced parts count

DESCRIPTION

These diodes are optimized to reduce losses and EMI/RFI in high frequency power conditioning systems. The softness of the recovery eliminates the need for a snubber in most applications. These devices are ideally suited for freewheeling, flyback, power converters, motor drives, and other applications where high speed and reduced switching losses are design requirements.

PRODUCT SUMMARY

V_R	600 V
V_F at 8 A at 25 °C	1.7 V
$I_{F(AV)}$	8 A
t_{rr} (typical)	18 ns
T_J (maximum)	150 °C

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Cathode to anode voltage	V_{RRM}		600	V
Maximum continuous forward current	I_F	$T_C = 100\text{ °C}$	8	A
Single pulse forward current	I_{FSM}		60	
Peak repetitive forward current	I_{FRM}		24	
Maximum power dissipation	P_D	$T_C = 100\text{ °C}$	14	W
Operating junction and storage temperature range	T_J, T_{Stg}		- 55 to + 150	°C

ELECTRICAL SPECIFICATIONS ($T_J = 25\text{ °C}$ unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Breakdown voltage, blocking voltage	V_{BR}, V_R	$I_R = 100\text{ }\mu\text{A}$	600	-	-	V
Forward voltage	V_F	$I_F = 8\text{ A}$	-	1.4	1.7	
		$I_F = 16\text{ A}$	-	1.7	2.1	
		$I_F = 8\text{ A}, T_J = 125\text{ °C}$	-	1.4	1.7	
Maximum reverse leakage current	I_R	$V_R = V_R$ rated	-	0.3	5.0	μA
		$T_J = 125\text{ °C}, V_R = 0.8 \times V_R$ rated	-	100	500	
Junction capacitance	C_T	$V_R = 200\text{ V}$	-	10	25	pF
Series inductance	L_S	Measured lead to lead 5 mm from package body	-	8.0	-	nH

DYNAMIC RECOVERY CHARACTERISTICS ($T_J = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)						
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Reverse recovery time	t_{rr}	$I_F = 1.0\text{ A}$, $di_F/dt = 200\text{ A}/\mu\text{s}$, $V_R = 30\text{ V}$	-	18	-	ns
		$T_J = 25\text{ }^{\circ}\text{C}$	-	37	55	
		$T_J = 125\text{ }^{\circ}\text{C}$	-	55	90	
Peak recovery current	I_{RRM}	$T_J = 25\text{ }^{\circ}\text{C}$	-	3.5	5.0	A
		$T_J = 125\text{ }^{\circ}\text{C}$	-	4.5	8.0	
Reverse recovery charge	Q_{rr}	$T_J = 25\text{ }^{\circ}\text{C}$	-	65	138	nC
		$T_J = 125\text{ }^{\circ}\text{C}$	-	124	360	
Rate of fall of recovery current	$di_{(rec)M}/dt$	$T_J = 25\text{ }^{\circ}\text{C}$	-	240	-	A/ μs
		$T_J = 125\text{ }^{\circ}\text{C}$	-	210	-	

THERMAL - MECHANICAL SPECIFICATIONS						
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Maximum junction and storage temperature range	T_J, T_{Stg}		- 55	-	150	$^{\circ}\text{C}$
Thermal resistance, junction to case	R_{thJC}		-	-	3.5	$^{\circ}\text{C}/\text{W}$
Thermal resistance, junction to ambient	R_{thJA}	Typical socket mount	-	-	80	
Weight			-	2.0	-	g
			-	0.07	-	oz.
Marking device		Case style D-PAK	HFA08SD60S			

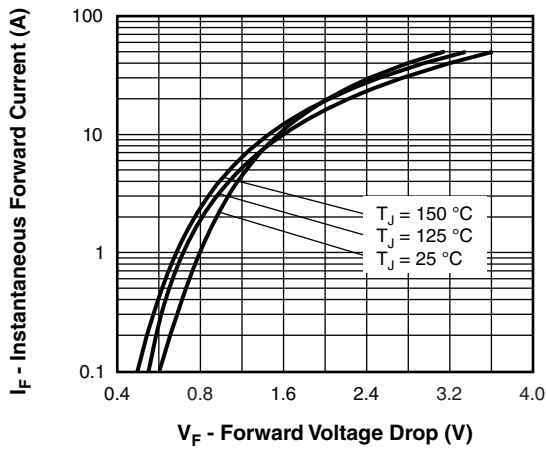


Fig. 1 - Typical Forward Voltage Drop Characteristics

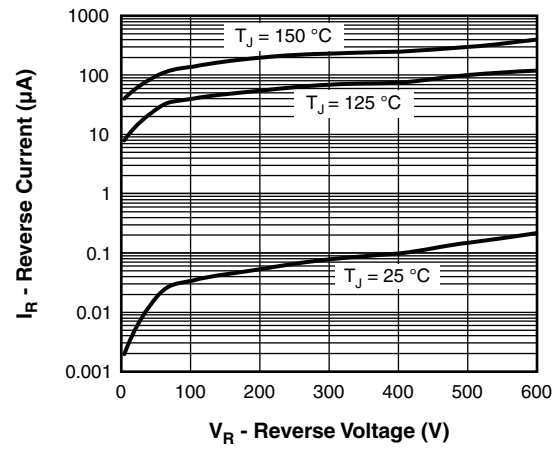


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

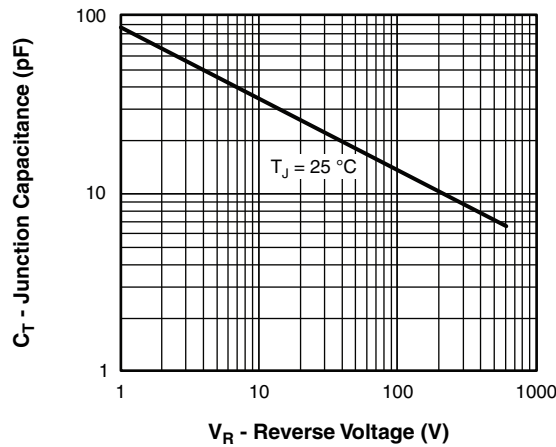


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

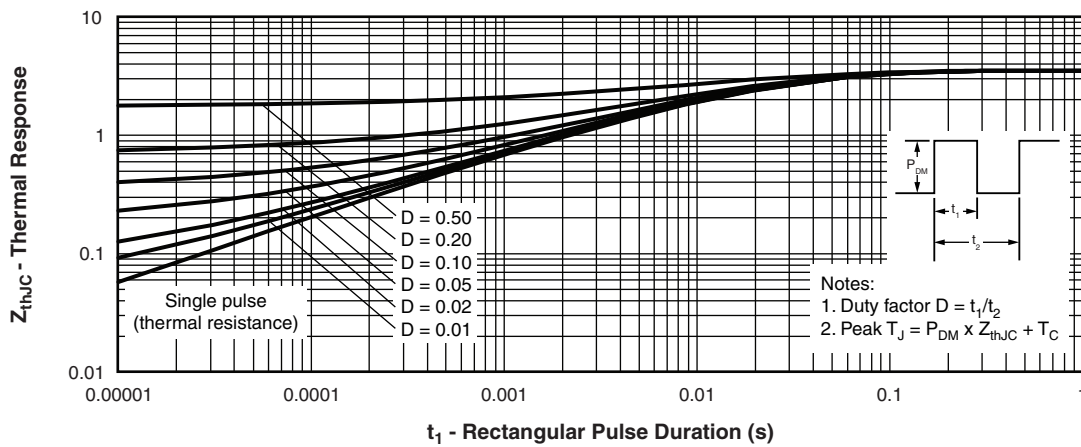


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

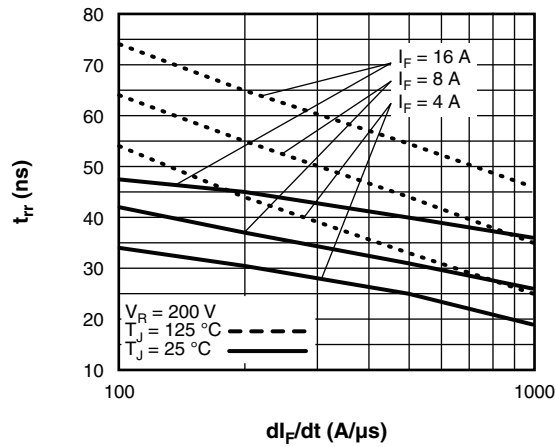


Fig. 5 - Typical Reverse Recovery Time vs. dI_F/dt

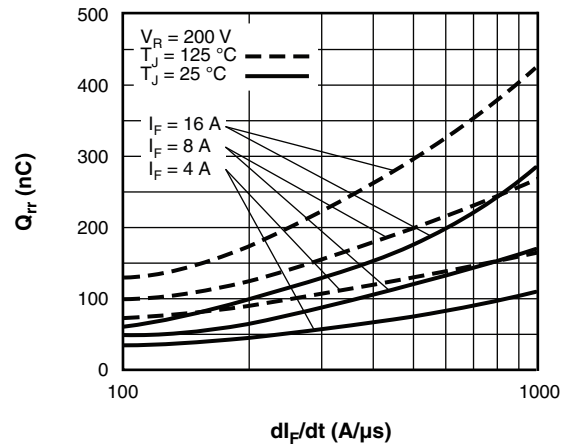


Fig. 7 - Typical Stored Charge vs. dI_F/dt

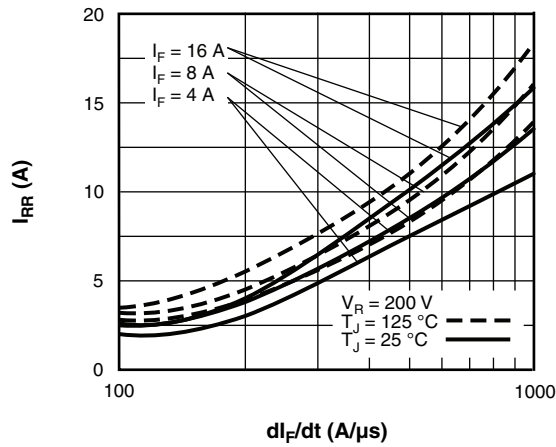


Fig. 6 - Typical Recovery Current vs. dI_F/dt

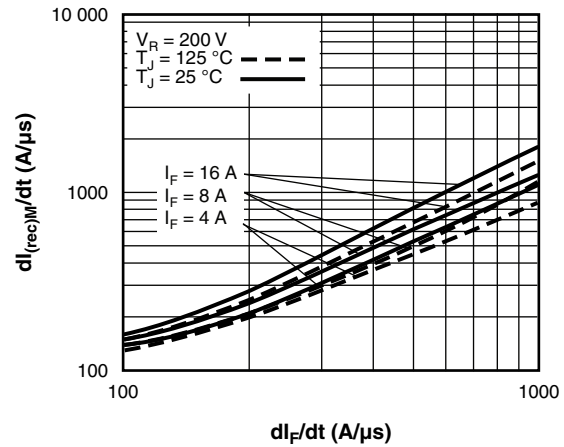


Fig. 8 - Typical $dI_{(rec)M}/dt$ vs. dI_F/dt

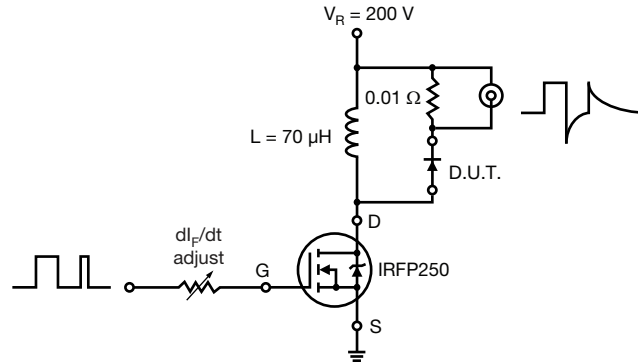


Fig. 9 - Reverse Recovery Parameter Test Circuit

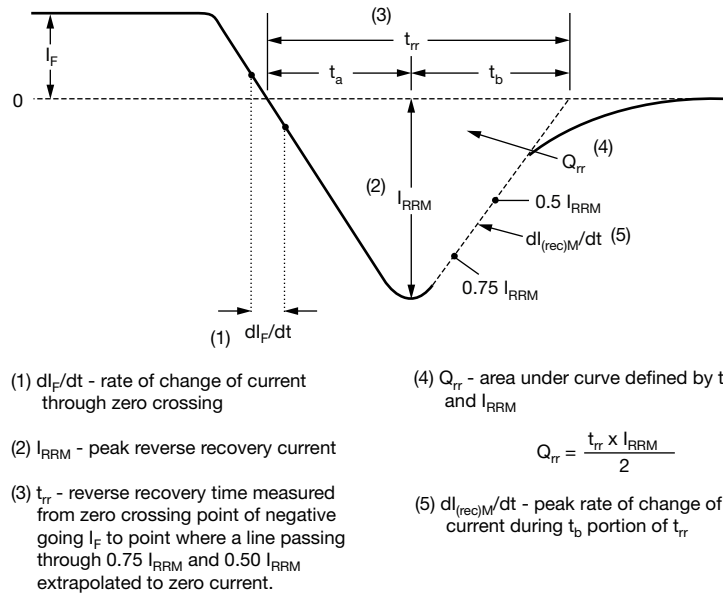


Fig. 10 - Reverse Recovery Waveform and Definitions

VS-HFA08SD60SPbF



Vishay Semiconductors 供应商 HEXFRED® Ultrafast Soft
Recovery Diode, 8 A

ORDERING INFORMATION TABLE

Device code	VS-	HFA	A	08	SD	60	S	TR	PbF
	①	②	③	④	⑤	⑥	⑦	⑧	⑨

- | | | |
|----------|---|---|
| 1 | - | Vishay Semiconductors product |
| 2 | - | HEXFRED® family |
| 3 | - | Electron irradiated |
| 4 | - | Current rating (08 = 8 A) |
| 5 | - | D-PAK |
| 6 | - | Voltage rating (60 = 600 V) |
| 7 | - | S = D-PAK |
| 8 | - | <ul style="list-style-type: none">• TR = Tape and reel• TRR = Tape and reel (right oriented)• TRL = Tape and reel (left oriented) |
| 9 | - | PbF = Lead (Pb)-free |

LINKS TO RELATED DOCUMENTS	
Dimensions	www.vishay.com/doc?95016
Part marking information	www.vishay.com/doc?95059
Packaging information	www.vishay.com/doc?95033

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