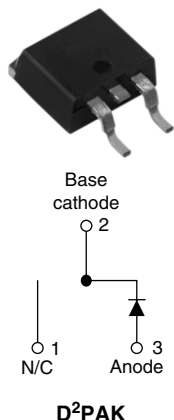


HEXFRED®

Ultrafast Soft Recovery Diode, 8 A



FEATURES

- Ultrafast recovery
- Ultrasoft recovery
- Very low I_{RRM}
- Very low Q_{rr}
- Specified at operating conditions
- Compliant to RoHS directive 2002/95/EC
- Halogen-free according to IEC 61249-2-21 definition
- AEC-Q101 qualified



RoHS*
COMPLIANT
**HALOGEN
FREE**

BENEFITS

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

DESCRIPTION

HFA08TB120S is a state of the art ultrafast recovery diode. Employing the latest in epitaxial construction and advanced processing techniques it features a superb combination of characteristics which result in performance which is unsurpassed by any rectifier previously available. With basic ratings of 1200 V and 8 A continuous current, the HFA08TB120S is especially well suited for use as the companion diode for IGBTs and MOSFETs. In addition to ultrafast recovery time, the HEXFRED® product line features extremely low values of peak recovery current (I_{RRM}) and does not exhibit any tendency to “snap-off” during the t_b portion of recovery. The HEXFRED features combine to offer designers a rectifier with lower noise and significantly lower switching losses in both the diode and the switching transistor. These HEXFRED advantages can help to significantly reduce snubbing, component count and heatsink sizes. The HEXFRED HFA08TB120S is ideally suited for applications in power supplies and power conversion systems (such as inverters), motor drives, and many other similar applications where high speed, high efficiency is needed.

PRODUCT SUMMARY

V_R	1200 V
V_F at 8 A at 25 °C	3.3 V
$I_{F(AV)}$	8 A
t_{rr} (typical)	28 ns
T_J (maximum)	150 °C
Q_{rr} (typical)	140 nC
$di_{(rec)M}/dt$ (typical) at 125 °C	85 A/μs
I_{RRM} (typical)	4.5 A

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Cathode to anode voltage	V_R		1200	V
Maximum continuous forward current	I_F	$T_C = 100\text{ °C}$	8	A
Single pulse forward current	I_{FSM}		130	
Maximum repetitive forward current	I_{FRM}		32	
Maximum power dissipation	P_D	$T_C = 25\text{ °C}$	73.5	W
		$T_C = 100\text{ °C}$	29	
Operating junction and storage temperature range	T_J, T_{Stg}		- 55 to + 150	°C

* Pb containing terminations are not RoHS compliant, exemptions may apply

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Cathode to anode breakdown voltage	V_{BR}	$I_R = 100\text{ }\mu\text{A}$	1200	-	-	V
Maximum forward voltage	V_{FM}	$I_F = 8.0\text{ A}$	-	2.6	3.3	
		$I_F = 16\text{ A}$	-	3.4	4.3	
		$I_F = 8.0\text{ A}$, $T_J = 125\text{ }^{\circ}\text{C}$	-	2.4	3.1	
Maximum reverse leakage current	I_{RM}	$V_R = V_R$ rated	-	0.31	10	μA
		$T_J = 125\text{ }^{\circ}\text{C}$, $V_R = 0.8 \times V_R$ rated	-	135	1000	
Junction capacitance	C_T	$V_R = 200\text{ V}$	-	11	20	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}	$I_F = 1.0\text{ A}$, $dI_F/dt = 200\text{ A}/\mu\text{s}$, $V_R = 30\text{ V}$	-	28	-	ns
	t_{rr1}	$T_J = 25\text{ }^{\circ}\text{C}$	-	63	95	
	t_{rr2}	$T_J = 125\text{ }^{\circ}\text{C}$	-	106	160	
Peak recovery current	I_{RRM1}	$T_J = 25\text{ }^{\circ}\text{C}$	-	4.5	8.0	A
	I_{RRM2}	$T_J = 125\text{ }^{\circ}\text{C}$	-	6.2	11	
Reverse recovery charge	Q_{rr1}	$T_J = 25\text{ }^{\circ}\text{C}$	-	140	380	nC
	Q_{rr2}	$T_J = 125\text{ }^{\circ}\text{C}$	-	335	880	
Peak rate of fall of recovery current during t_b	$dI_{(rec)M}/dt1$	$T_J = 25\text{ }^{\circ}\text{C}$	-	133	-	$\text{A}/\mu\text{s}$
	$dI_{(rec)M}/dt2$	$T_J = 125\text{ }^{\circ}\text{C}$	-	85	-	

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	$^{\circ}\text{C}$
Thermal resistance, junction to case	R_{thJC}		-	-	1.7	K/W
Thermal resistance, junction to ambient	R_{thJA}	Typical socket mount	-	-	40	
Weight			-	2.0	-	g
			-	0.07	-	oz.
Marking device		Case style D ² PAK	HFA08TB120S			

LINKS TO RELATED DOCUMENTS

Dimensions	www.vishay.com/doc?95046
Part marking information	www.vishay.com/doc?95054
Packaging information	www.vishay.com/doc?95032



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