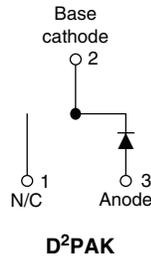


## HEXFRED® Ultrafast Soft Recovery Diode, 8 A


**FEATURES**

- Ultrafast recovery
- Ultrasoft recovery
- Very low  $I_{RRM}$
- Very low  $Q_{rr}$
- Specified at operating conditions
- Designed and qualified for industrial level

**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/ $\mu$ s
$I_{RRM}$ (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 <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	1200	-	-	V
Maximum forward voltage	V <sub>FM</sub>	I <sub>F</sub> = 8.0 A	-	2.6	3.3	
		I <sub>F</sub> = 16 A	-	3.4	4.3	
		I <sub>F</sub> = 8.0 A, T <sub>J</sub> = 125 °C	-	2.4	3.1	
Maximum reverse leakage current	I <sub>RM</sub>	V <sub>R</sub> = V <sub>R</sub> rated	-	0.31	10	μA
		T <sub>J</sub> = 125 °C, V <sub>R</sub> = 0.8 × V <sub>R</sub> rated	-	135	1000	
Junction capacitance	C <sub>T</sub>	V <sub>R</sub> = 200 V	-	11	20	pF
Series inductance	L <sub>S</sub>	Measured lead to lead 5 mm from package body	-	8.0	-	nH

DYNAMIC RECOVERY CHARACTERISTICS (T <sub>J</sub> = 25 °C unless otherwise specified)						
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Reverse recovery time	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	-	28	-	ns
	t <sub>rr1</sub>	T <sub>J</sub> = 25 °C	-	63	95	
	t <sub>rr2</sub>	T <sub>J</sub> = 125 °C	-	106	160	
Peak recovery current	I <sub>RRM1</sub>	T <sub>J</sub> = 25 °C	-	4.5	8.0	A
	I <sub>RRM2</sub>	T <sub>J</sub> = 125 °C	-	6.2	11	
Reverse recovery charge	Q <sub>rr1</sub>	T <sub>J</sub> = 25 °C	-	140	380	nC
	Q <sub>rr2</sub>	T <sub>J</sub> = 125 °C	-	335	880	
Peak rate of fall of recovery current during t <sub>b</sub>	di <sub>(rec)M</sub> /dt1	T <sub>J</sub> = 25 °C	-	133	-	A/μs
	di <sub>(rec)M</sub> /dt2	T <sub>J</sub> = 125 °C	-	85	-	

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>		-	-	1.7	K/W
Thermal resistance, junction to ambient	R <sub>thJA</sub>	Typical socket mount	-	-	40	
Weight			-	2.0	-	g
			-	0.07	-	oz.
Marking device		Case style D <sup>2</sup> PAK	HFA08TB120S			

LINKS TO RELATED DOCUMENTS	
Dimensions	<a href="http://www.vishay.com/doc?95046">http://www.vishay.com/doc?95046</a>
Part marking information	<a href="http://www.vishay.com/doc?95054">http://www.vishay.com/doc?95054</a>
Packaging information	<a href="http://www.vishay.com/doc?95032">http://www.vishay.com/doc?95032</a>



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