

International IR Rectifier

PD-96034

HFA08TB120SPbF

Ultrafast, Soft Recovery Diode

HEXFRED™

Features

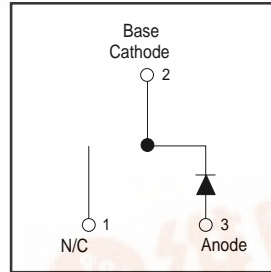
- Ultrafast Recovery
- Ultrasoft Recovery
- Very Low I_{RRM}
- Very Low Q_{rr}
- Specified at Operating Conditions
- Lead-Free

Benefits

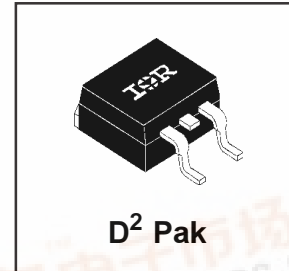
- Reduced RFI and EMI
- Reduced Power Loss in Diode and Switching Transistor
- Higher Frequency Operation
- Reduced Snubbing
- Reduced Parts Count

Description

International Rectifier's HFA08TB120S is a state of the art ultra fast 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 volts and 8 amps continuous current, the HFA08TB120S is especially well suited for use as the companion diode for IGBTs and MOSFETs. In addition to ultra fast 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.



$V_R = 1200V$
$V_F(\text{typ.})^* = 2.4V$
$I_{F(AV)} = 8.0A$
$Q_{rr}(\text{typ.}) = 140nC$
$I_{RRM}(\text{typ.}) = 4.5A$
$t_{rr}(\text{typ.}) = 28ns$
$di_{(rec)}/dt(\text{typ.})^* = 85A/\mu s$



Absolute Maximum Ratings

	Parameter	Max.	Units
V_R	Cathode-to-Anode Voltage	1200	V
$I_F @ T_C = 100^\circ C$	Continuous Forward Current	8.0	A
I_{FSM}	Single Pulse Forward Current	130	
I_{FRM}	Maximum Repetitive Forward Current	32	
$P_D @ T_C = 25^\circ C$	Maximum Power Dissipation	73.5	W
$P_D @ T_C = 100^\circ C$	Maximum Power Dissipation	29	
T_J	Operating Junction and	-55 to +150	$^\circ C$
T_{STG}	Storage Temperature Range		

* 125°C

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1
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Electrical Characteristics @ T_J = 25°C (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Test Conditions
V _{BR}	Cathode Anode Breakdown Voltage	1200	—	—	V	I _R = 100μA
V _{FM}	Max Forward Voltage	—	2.6	3.3	V	I _F = 8.0A
		—	3.4	4.3		I _F = 16A
		—	2.4	3.1		I _F = 8.0A, T _J = 125°C
I _{RM}	Max Reverse Leakage Current	—	0.31	10	μA	V _R = V _R Rated
		—	135	1000		T _J = 125°C, V _R = 0.8 x V _R Rated
C _T	Junction Capacitance	—	11	20	pF	V _R = 200V
L _S	Series Inductance	—	8.0	—	nH	Measured lead to lead 5mm from package body

Dynamic Recovery Characteristics @ T_J = 25°C (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Test Conditions	
t _{rr}	Reverse Recovery Time	—	28	—	ns	I _F = 1.0A, di _F /dt = 200A/μs, V _R = 30V	
t _{rr1}	See Fig. 5	—	63	95		T _J = 25°C	I _F = 8.0A
t _{rr2}		—	106	160		T _J = 125°C	
I _{RRM1}	Peak Recovery Current	—	4.5	8.0	A	T _J = 25°C	
I _{RRM2}	See Fig. 6	—	6.2	11		T _J = 125°C	V _R = 200V
Q _{rr1}	Reverse Recovery Charge	—	140	380	nC	T _J = 25°C	di _F /dt = 200A/μs
Q _{rr2}	See Fig. 7	—	335	880		T _J = 125°C	
di _{(rec)M} /dt1	Peak Rate of Fall of Recovery Current	—	133	—	A/μs	T _J = 25°C	
di _{(rec)M} /dt2	During t _b See Fig. 8	—	85	—		T _J = 125°C	

Thermal - Mechanical Characteristics

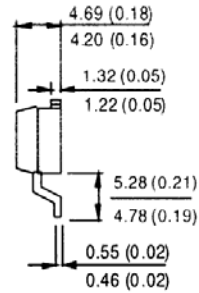
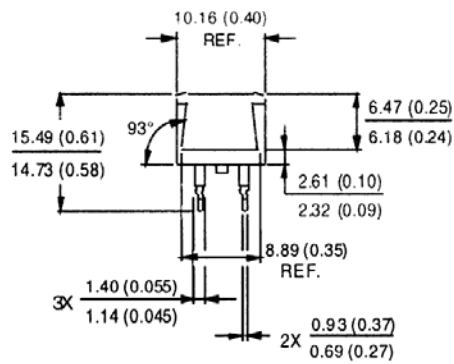
	Parameter	Min.	Typ.	Max.	Units
T _{lead} ①	Lead Temperature	—	—	300	°C
R _{thJC}	Thermal Resistance, Junction to Case	—	—	1.7	K/W
R _{thJA} ②	Thermal Resistance, Junction to Ambient	—	—	40	
Wt	Weight	—	2.0	—	g
		—	0.07	—	(oz)

① 0.063 in. from Case (1.6mm) for 10 sec

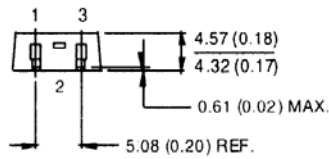
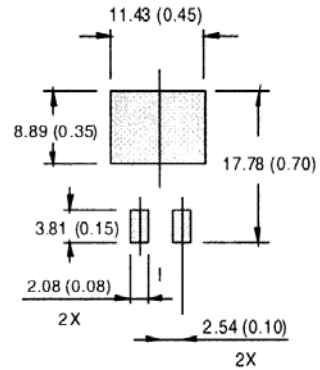
② Typical Socket Mount

D²PAK Package Outline

Dimensions are shown in millimeters (inches)



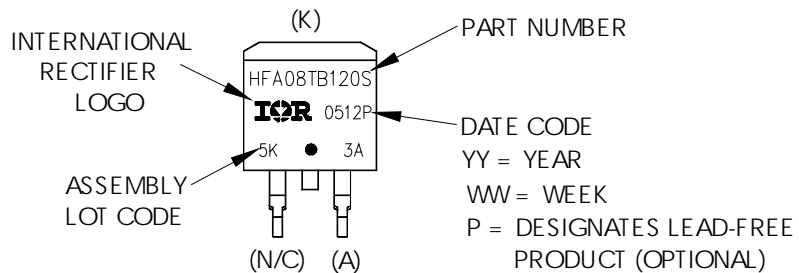
MINIMUM RECOMMENDED FOOTPRINT



Conforms to JEDEC Outline D²PAK
 Dimensions in millimeters and inches

D²PAK Part Marking Information

EXAMPLE: THIS IS A HFA08TB120S

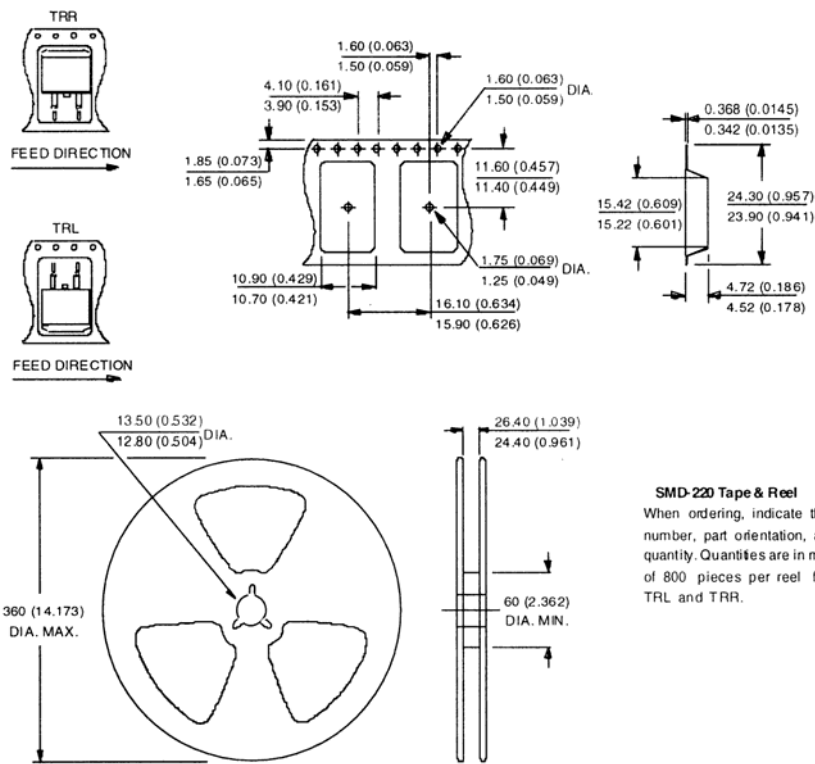


HFA08TB120SPbF

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D²PAK Tape & Reel Information

Dimensions are shown in millimeters (inches)



Data and specifications subject to change without notice.
 This product has been designed and qualified for the Consumer market.
 Qualifications Standards can be found on IR's Web site.

International
IR Rectifier

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