Preliminary Data Sheet PD-20603 rev. A 01/99

International
IOR Rectifier

HFA08TB120S

HEXFRED™

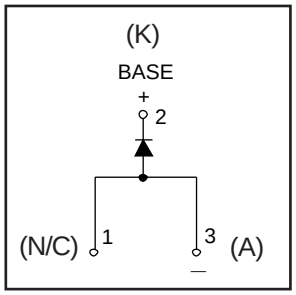
Ultrafast, Soft Recovery Diode

Features

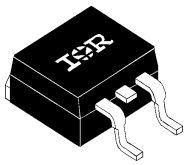
- Ultrafast Recovery
- Ultrasoft Recovery
- Very Low I_{RRM}
- Very Low Q_{rr}
- Guaranteed Avalanche
- Specified at Operating Conditions

Benefits

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



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



D^2 Pak

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.

Absolute Maximum Ratings

	Parameter	Max.	Units
V_R	Cathode-to-Anode Voltage	1200	V
I_F @ T_C = 100°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°C	Maximum Power Dissipation	73.5	W
P_D @ T_C = 100°C	Maximum Power Dissipation	29	
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to +150	°C

* 125°C

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)

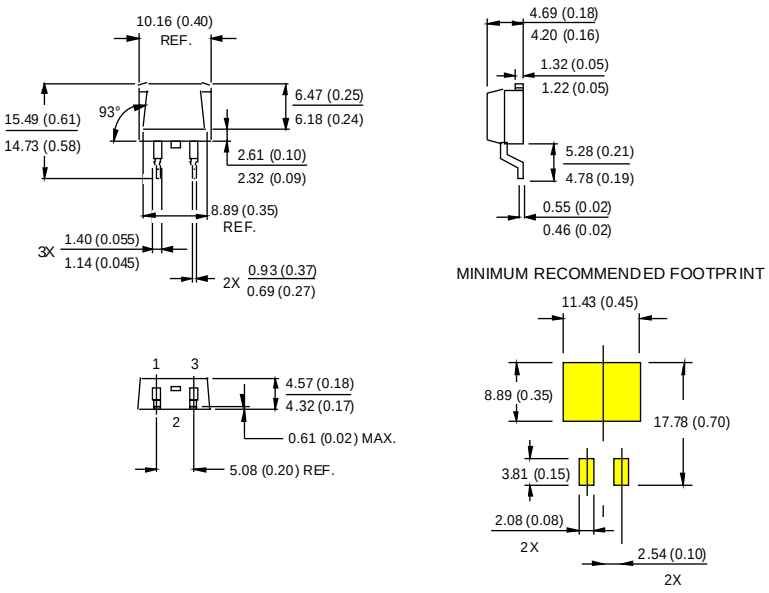
	Parameter	Min.	Typ.	Max.	Units	Test Conditions	
t_{rr}	Reverse Recovery Time	——	28	——	ns	I_F = 1.0A, di_f/dt = 200A/µs, V_R = 30V	
t_{rr1}		——	63	95		T_J = 25°C	I_F = 8.0A
t_{rr2}		——	106	160		T_J = 125°C	
I_{RRM1}	Peak Recovery Current	——	4.5	8.0	A	T_J = 25°C	V_R = 200V
I_{RRM2}		——	6.2	11		T_J = 125°C	
Q_{rr1}	Reverse Recovery Charge	——	140	380	nC	T_J = 25°C	di_f/dt = 200A/µs
Q_{rr2}		——	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	——	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

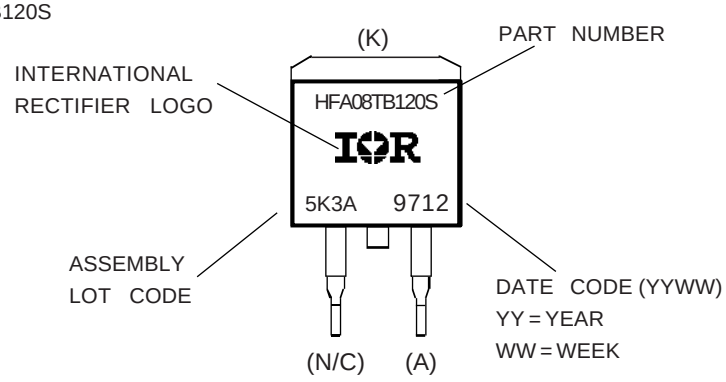
Outline Table



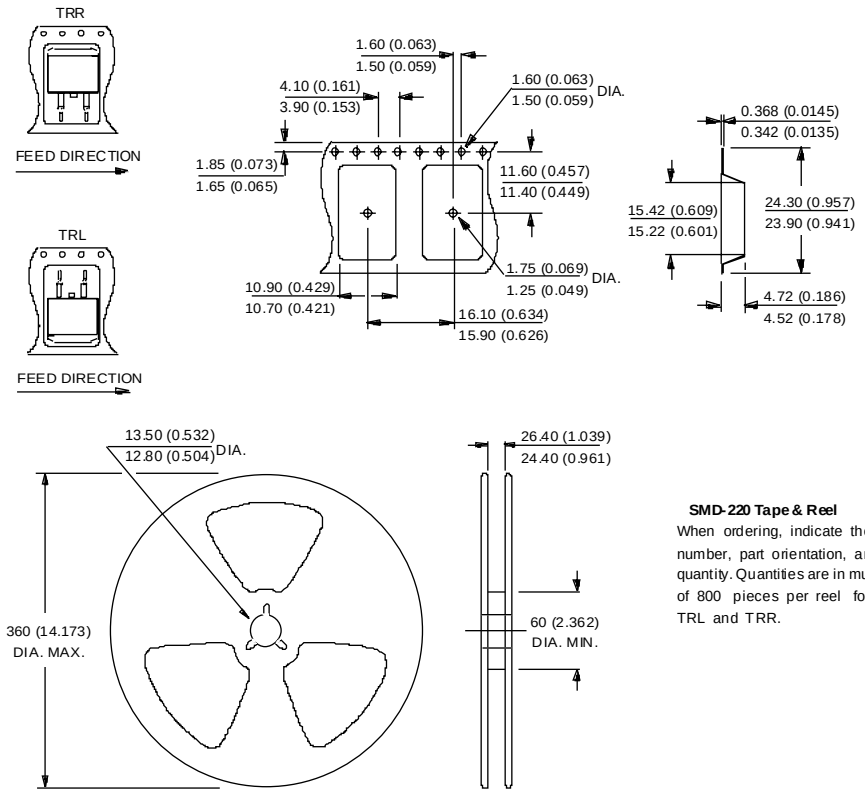
Conforms to JEDEC Outline D^2PAK
Dimensions in millimeters and inches

Part Marking Information

EXAMPLE: THIS IS AN HFA08TB120S



Tape & Reel Information



SMD-220 Tape & Reel
When ordering, indicate the part number, part orientation, and the quantity. Quantities are in multiples of 800 pieces per reel for both TRL and TRR.

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WORLD HEADQUARTERS: 233 Kansas St., El Segundo, California 90245 U.S.A. Tel: (310) 322 3331. Fax: (310) 322 3332.
EUROPEAN HEADQUARTERS: Hurst Green, Oxted, Surrey RH8 9BB, U.K. Tel: ++ 44 1883 732020. Fax: ++ 44 1883 733408.
IR CANADA: 15 Lincoln Court, Brampton, Markham, Ontario L6T3Z2. Tel: (905) 453 2200. Fax: (905) 475 8801.
IR GERMANY: Saalburgstrasse 157, 61350 Bad Homburg. Tel: ++ 49 6172 96590. Fax: ++ 49 6172 965933.
IR ITALY: Via Liguria 49, 10071 Borgaro, Torino. Tel: ++ 39 11 4510111. Fax: ++ 39 11 4510220.
IR FAR EAST: K&H Bldg., 2F, 30-4 Nishi-Ikebukuro 3-Chome, Toshima-Ku, Tokyo, Japan 171. Tel: 81 3 3983 0086.
IR SOUTHEAST ASIA: 1 Kim Seng Promenade, Great World City West Tower,13-11, Singapore 237994. Tel: ++ 65 838 4630.
IR TAIWAN: 16 Fl. Suite D.207, Sec. 2, Tun Haw South Road, Taipei, 10673, Taiwan. Tel: 886 2 2377 9936.