

HEXFRED™ ULTRA FAST, SOFT RECOVERY DIODE 1200V, 11A

Major Ratings and Characteristics

| Characteristics | | Units |
|-----------------|------|-------|
| V_{br} | 1200 | V |
| $I_{F(AV)}$ | 11 | A |
| t_{rr} | 135 | ns |
| Q_{rr} | 675 | nC |
| I_{RRM} | 10 | A |
| V_F | 3.0 | V |

Description

International Rectifier's HFA35HB120 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 11 amps continuous current, the HFA35HB120 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.

Features:

- Ultrafast Recovery
- Ultra Soft Recovery
- Very Low I_{RRM}
- Very Low Q_{rr}
- Guaranteed Avalanche
- Specified at Operating Conditions
- Hermetic
- Electrically Isolated
- Ceramic Eyelets

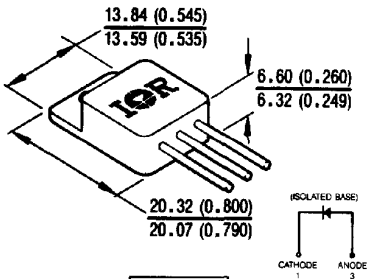
Benefits:

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

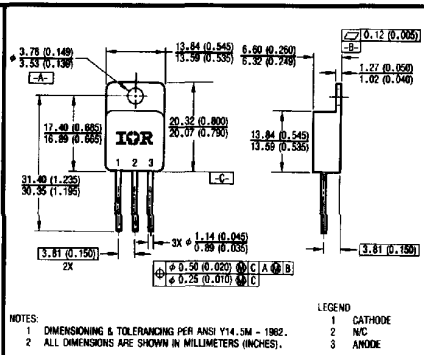
The HEXFRED features combine to offer designers a rectifier with lower noise and significantly lower switching losses in both the diode and the switching transistor. These HEXFRED advantages can help to significantly reduce snubbing, component count and heatsink sizes.

The HEXFRED HFA35HB120 is ideally suited for applications in power supplies and power conversion systems (such as inverters, converters, UPS systems, and power factor correction circuits), motor drives, and many other similar applications where high speed, high efficiency rectification is needed.

CASE STYLE AND DIMENSIONS



BERYLLIA WARNING PER MIL-S-10500
SEE PAGE K-31



NOTES:

- 1 DIMENSIONING & TOLERANCING PER ANSI Y14.5M - 1982.
- 2 ALL DIMENSIONS ARE SHOWN IN MILLIMETERS (INCHES).
- 3 ANODE

LEGEND

- 1 CATHODE
- 2 N/C
- 3 ANODE

*For leadform configurations see page K-31, fig. 1

Conforms to JEDEC Outline TO-254AA*
Dimensions in Millimeters and (Inches)

Voltage Ratings: $T_J = 25 - 150^{\circ}\text{C}$

| Parameter | | | Units | |
|-----------|---------------------------------------|------|-------|---|
| V_{BR} | Max D.C. Reverse Voltage (V) | 1200 | V | $V_{ISO} @ 70\text{K ft, } I_R < 25\mu\text{A}$ |
| V_{ISO} | Max PK Repetitive Reverse Voltage (V) | 600 | | |

Absolute Maximum Ratings

| Parameter | | Min | Typ | Max | Units | Conditions |
|-------------|------------------------------------|-----|-----|-----|-------|---|
| $I_{F(AV)}$ | Max Average Forward Current | — | — | 11 | A | $T_C = 100^{\circ}\text{C}$, d.c. = 50%, rect. wave $V_R = 0.8 V_{RRM}$ |
| I_{FSM} | Max Single Pulse Forward Current | — | — | 190 | | $T_C = 25^{\circ}\text{C}$, 1/2 Sine Wave, 60 Hz P.W. = 8.33 ms |
| I_{AS} | Max Single Pulse Avalanche Current | — | — | 2 | | $L = 100 \mu\text{H}$ |

Electrical Specifications: $T_J = 25^{\circ}\text{C}$ unless otherwise specified

| Parameter | | Min | Typ | Max | Units | Conditions |
|-----------|-----------------------------|-----|-----|-----|---------------|--|
| V_{FM} | Max Forward Voltage | — | — | 3.0 | V | $I_F = 11\text{A}$ |
| | | — | — | 3.9 | | $I_F = 22\text{A}$ |
| | | — | — | 2.7 | | $I_F = 11\text{A}$, $T_J = 125^{\circ}\text{C}$ |
| I_{RM} | Max Reverse Leakage Current | — | — | 20 | μA | $V_R = V_R$ Rated |
| | | — | — | 2.0 | mA | $T_J = 125^{\circ}\text{C}$, $V_R = 0.8 \times V_R$ Rated |
| C_T | Junction Capacitance | — | — | 40 | pF | $V_R = 200\text{V}$ |
| L_S | Internal Source Inductance | — | 8.7 | — | nH | Measured lead to lead 5mm from package body |

Dynamic Recovery Specifications: $T_J = 25^{\circ}\text{C}$ unless otherwise specified

| Parameter | | Min | Typ | Max | Units | Conditions |
|-----------|------------------------------|-----|-----|-----|-------|---|
| t_{rr} | Reverse Recovery Time | — | — | 135 | ns | $I_F = 11\text{A}$, $di/dt \leq 200\text{A}/\mu\text{s}$, $V_R = 200\text{V}$ |
| I_{RRM} | Max Reverse Recovery Current | — | — | 10 | A | $I_F = 11\text{A}$, $di/dt \leq 200\text{A}/\mu\text{s}$, $V_R = 200\text{V}$ |
| Q_{RR} | Reverse Recovered Charge | — | — | 675 | nC | $I_F = 11\text{A}$, $di/dt \leq 200\text{A}/\mu\text{s}$, $V_R = 200\text{V}$ |

Thermal-Mechanical Specifications

| Parameter | | Min | Typ | Max | Units | Conditions |
|-----------------|--------------------------------------|-----|-------|------|--------------------|------------|
| T_J, T_{STG} | Junction and Storage Temp Range | -55 | — | 150 | $^{\circ}\text{C}$ | |
| $R_{\theta JC}$ | Thermal Resistance; Junction to Case | — | — | 1.50 | K/W | |
| W_T | Weight | — | 9.3 | — | g | |
| Case | TO-259AA | — | JEDEC | — | | |