

## HEXFRED™ ULTRA FAST, SOFT RECOVERY DIODE 600V, 30A

### Major Ratings and Characteristics

Characteristics		Units
$V_{br}$ (per leg)	600	V
$I_F(AV)$	30	A
$t_{rr}$ (per leg)	60	ns
$Q_{rr}$ (per leg)	180	nC
IRRM (per leg)	6	A
$V_F$ (per leg)	1.7	V

### Description

International Rectifier's HFA35HA60C 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 600 volts and 30 amps continuous current, the HFA35HA60C 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 (IRRM) and does not exhibit any tendency to "snap-off" during the  $t_{p}$  portion of recovery.

### Features:

- Ultrafast Recovery
- Ultra Soft Recovery
- Very Low IRRM
- Very Low  $Q_{rr}$
- Guaranteed Avalanche
- Specified at Operating Conditions
- Hermetic
- Center Tap

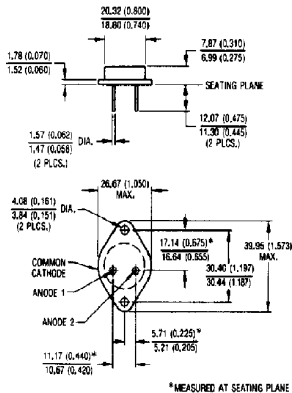
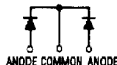
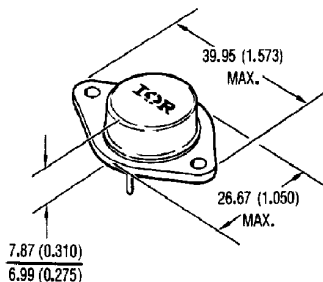
### Benefits:

- 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 HFA35HA60C 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



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

Parameter			Units
$V_{br}$ (per leg)	Max D.C. Reverse Voltage (V)	600	V
$V_{ISO}$ (per leg)	Max PK Repetitive Reverse Voltage (V)		

70K ft,  $I_R < 25\mu\text{A}$

## Absolute Maximum Ratings

Parameter		Min	Typ	Max	Units	Conditions
$I_{F(AV)}$	Max Average Forward Current	—	—	30	A	$T_C = 100^\circ\text{C}$ , d.c. = 50%, rect. wave $V_R = 0.8 V_{RRM}$
$I_{FSM}$ (per leg)	Max Single Pulse Forward Current	—	—	150		$T_C = 25^\circ\text{C}$ , 1/2 Sine Wave, 60 Hz $PW = 8.33\text{ ms}$
$I_{AS}$	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
$V_{FM}$ (per leg)	Max Forward Voltage	—	—	1.7	V	$I_F = 15\text{A}$
		—	—	2.0		$I_F = 30\text{A}$
		—	—	1.6		$I_F = 15\text{A}$ , $T_J = 125^\circ\text{C}$
$I_{RM}$ (per leg)	Max Reverse Leakage Current	—	—	10.0	$\mu\text{A}$	$V_R = V_R$ Rated
		—	—	1.0	$\text{mA}$	$T_J = 125^\circ\text{C}$ , $V_R = 0.8 \times V_R$ Rated
$C_T$ (per leg)	Junction Capacitance	—	—	50	$\text{pF}$	$V_R = 200\text{V}$
$L_S$	Internal Source Inductance	—	13	—	$\text{nH}$	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
$t_{rr}$ (per leg)	Reverse Recovery Time	—	—	60	ns	$I_F = 15\text{A}$ , $di/dt \leq 200\text{A}/\mu\text{s}$ , $V_R = 200\text{V}$
$I_{RRM}$ (per leg)	Max Reverse Recovery Current	—	—	6	A	$I_F = 15\text{A}$ , $di/dt \leq 200\text{A}/\mu\text{s}$ , $V_R = 200\text{V}$
$Q_{RR}$ (per leg)	Reverse Recovered Charge	—	—	180	nC	$I_F = 15\text{A}$ , $di/dt \leq 200\text{A}/\mu\text{s}$ , $V_R = 200\text{V}$

## 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	—	—	2.00	$\text{KW}$	
$W_T$	Weight	—	11.5	—	g	
Case	TO-204AA	—	JEDEC	—		