

Features

- Reduced RFI and EMI
- Reduced Snubbing
- Extensive Characterization of Recovery Parameters
- Hermetic
- Electrically Isolated
- Ceramic Eyelets

$$V_R = 600V$$

$$V_F = 1.7V$$

$$Q_{rr} = 375nC$$

Description

These Ultrafast, soft recovery diodes are optimized to reduce losses and EMI/RFI in high frequency power conditioning systems. An extensive characterization of the recovery behavior for different values of current, temperature and di/dt simplifies the calculations of losses in the operating conditions. The softness of the recovery eliminates the need for a snubber in most applications. These devices are ideally suited for power converters, motors drives and other applications where switching losses are significant portion of the total losses.

Absolute Maximum Ratings

	Parameter	Max.	Units
V_R	Cathode to Anode Voltage (Per Leg)	600	V
$I_{F(AV)}$	Continuous Forward Current, ① $T_C = 100^\circ C$	45*	A
I_{FSM}	Single Pulse Forward Current, ② $T_C = 25^\circ C$ (Per Leg)	225	
$P_D @ T_C = 25^\circ C$	Maximum Power Dissipation	104	W
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55 to +150	$^\circ C$

Note: ① D.C. = 50% rect. wave

② 1/2 sine wave, 60 Hz, P.W. = 8.33 ms

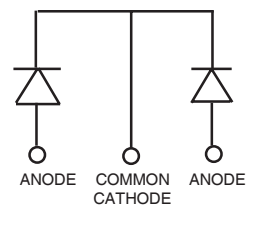
* Current is limited by package

CASE STYLE



TO-259AA

(ISOLATED BASE)



Electrical Characteristics (Per Leg)@ $T_J = 25^\circ\text{C}$ (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Test Conditions
V_{BR}	Cathode Anode Breakdown Voltage	600	—	—	V	$I_R = 100\mu\text{A}$
V_F	Forward Voltage	—	—	1.7	V	$I_F = 22\text{A}$
		—	—	2.0		$I_F = 45\text{A}$
		—	—	1.5		$I_F = 22\text{A}, T_J = 125^\circ\text{C}$
I_R	Reverse Leakage Current	—	—	10	μA	$V_R = V_R \text{ Rated}$
		—	—	1.0	mA	$V_R = 480\text{V}, T_J = 125^\circ\text{C}$
C_T	Junction Capacitance	—	—	100	pF	$V_R = 200\text{V}$
L_S	Series Inductance	—	13	—	nH	Measured from anode lead to cathode lead, 6mm (0.025 in) from package

Dynamic Recovery Characteristics (Per Leg) @ $T_J = 25^\circ\text{C}$ (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Test Conditions
t_{rr}	Reverse Recovery Time	—	—	97	ns	$I_F = 22\text{A}, di/dt \leq 200\text{A}/\mu\text{s}, V_R = 200\text{V}$
I_{RRM}	Max Reverse Recovery Current	—	—	10	A	$I_F = 22\text{A}, di/dt \leq 200\text{A}/\mu\text{s}, V_R = 200\text{V}$
Q_{RR}	Reverse Recovered Charge	—	—	375	nC	$I_F = 22\text{A}, di/dt \leq 200\text{A}/\mu\text{s}, V_R = 200\text{V}$

Thermal - Mechanical Characteristics

	Parameter	Typ.	Max.	Units
R_{thJC}	Junction-to-Case, Single Leg Conducting	—	1.2	$^\circ\text{C}/\text{W}$
Wt	Weight	10.9	—	g

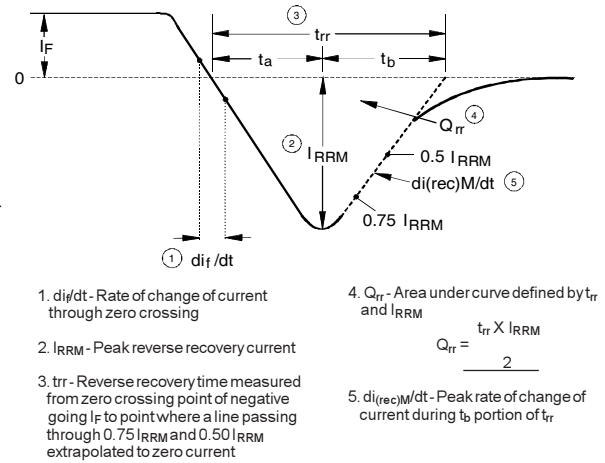
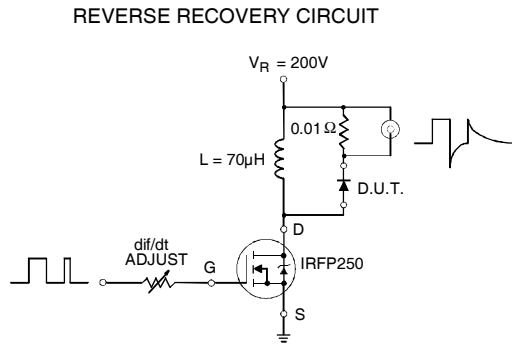
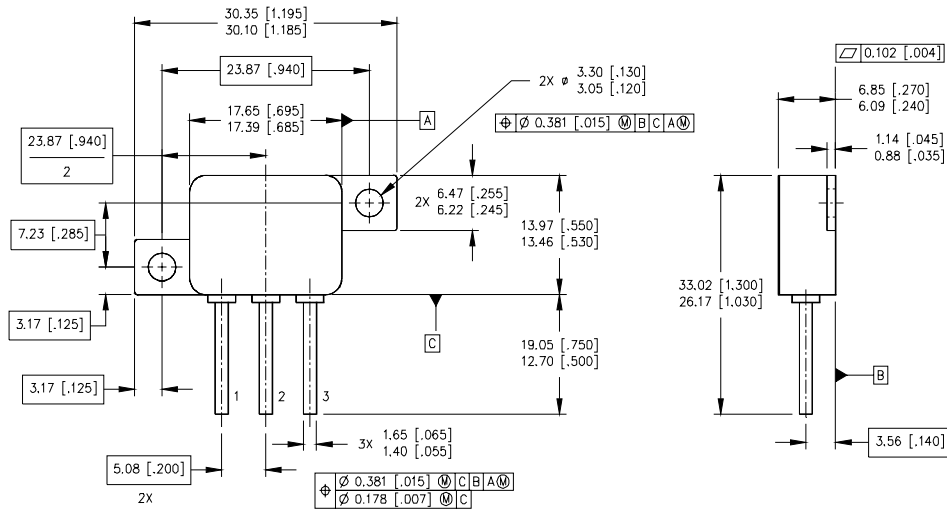


Fig. 9 - Reverse Recovery Parameter Test Circuit

Fig. 10 - Reverse Recovery Waveform and Definitions

Case Outline and Dimensions — TO-259AA



NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME 14.5M-1994.
2. DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].
3. CONTROLLING DIMENSION: INCH
4. CONFORMS TO JEDEC OUTLINE TO-259AA.

PIN ASSIGNMENTS

- 1 = ANODE 1
- 2 = COMMON CATHODE
- 3 = ANODE 2