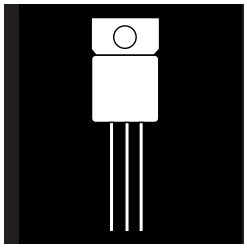
HERMETIC JEDEC TO-257AA HIGH EFFICIENCY, CENTER-TAP HIGH VOLTAGE RECTIFIER



16 Amp, 1000 Volt, 65 ns trr Soft Recovery

FEATURES

- Soft Recovery Characteristics
- Hermetic Metal Package, JEDEC TO-257AA
- Very Low Forward Voltage
- Very High Reverse Voltage Capability
- Very Low Reverse Recovery Time
- Very Low Switching Losses
- Isolated Package
- Low Thermal Resistance
- Available Screened To MIL-S-19500, TX, TXV And S Levels

DESCRIPTION

This soft recovery rectifier is ideally suited as a free wheeling diode in converters and motor control circuits, as well as a rectifier in SMPS. The package is designed for those applications where a small size and a hermetically sealed package is desirable. Center-Tap configuration.

ABSOLUTE MAXIMUM RATINGS (Per Diode) T_J = 25°C

Repetitive Peak Reverse Voltage, V_{RRM} 1000V
Non-Repetitive Peak Reverse Voltage, V_{RSM} 1000V
Repetitive Peak Forward Current, I_{FRM} 100A
RMS Forward Current, $I_{(RMS)}$ 16A
Average Forward Current, T_C = 100°C, Duty Cycle = 50%, $I_{F(AV)}$ 8A
Surge Non-Repetitive Forward Current, 8.3ms, I_{FSM} 50A
Power Dissipation, T_C = 100°C, P. 17W
Storage and Junction Range, T_{stg} . . . . . -55°C to 150°C
Thermal Resistance, Junction-To-Case, $R_{th(JC)}$ . . . . . 2.4°C/W

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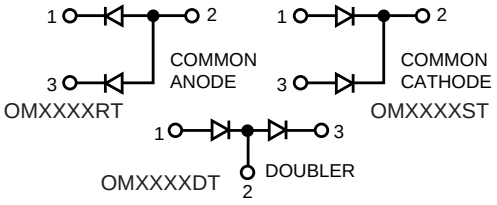
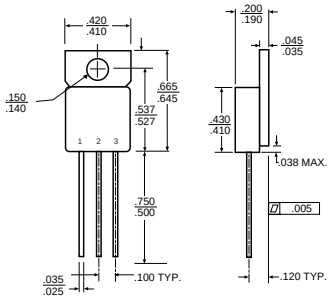
SCHEMATIC



Common cathode is standard. Contact the factory for performance characteristics for common anode and doubler.

PIN CONNECTION



Z-Tab package also available.

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I_R	T_J = 25°C	$V_R = V_{RRM}$			35	µA
	T_J = 100°C				2	mA
V_F	T_J = 25°C	I_F = 8A			1.9	V
	T_J = 100°C				1.8	

RECOVERY CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
t_{rr}	T_J = 25°C	I_F = 1A, dI_F/dt = -15A/µs, V_R = 30V			155	nS
		I_F = 0.5A, I_R = 1A, I_{rr} = 0.25A			65	

TURN-OFF SWITCHING CHARACTERISTICS (Without Series Inductance)

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
t_{IRM}	dI_F/dt = -32A/µs	V_{CC} = 200V, I_F = 8A L_P 0.05µH, T_J = 100°C See Figure 1			200	nS
	dI_F/dt = -64A/µs			120		
I_{RM}	dI_F/dt = -32A/µs				5.5	A
	dI_F/dt = -64A/µs			6		

TURN-OFF OVERVOLTAGE COEFFICIENT (With Series Inductance)

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
$C = \frac{V_{RP}}{V_{CC}}$	T_J = 100°C	V_{CC} = 200V, I_F = $I_{F(AV)}$			4.5	
	dI_F/dt = -8A/µs	L_P 12µH, See Figure 2				

To evaluate the conduction losses use the following equations:

$V_F = 1.47 + 0.04\ I_F$ $\qquad$ $P = 1.47 \times I_{F(AV)} + 0.04\ I_F{}^2{}_{(RMS)}$

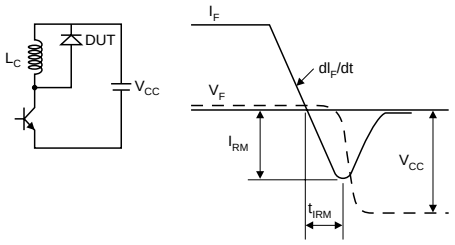


Figure 1: Turn-off switching characteristics (without series inductance).

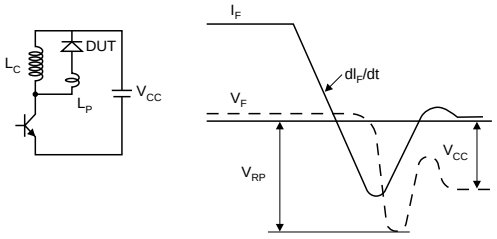


Figure 2: Turn-off switching characteristics (with series inductance).

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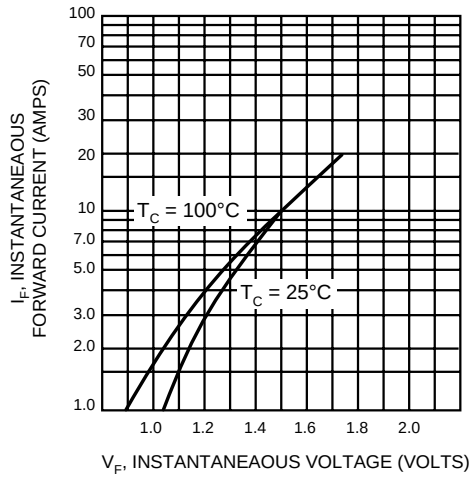
TYPICAL FORWARD VOLTAGE



TYPICAL REVERSE CURRENT