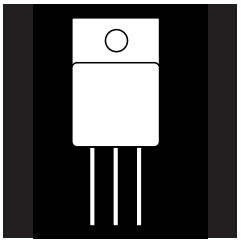
HERMETIC JEDEC TO-254AA HIGH EFFICIENCY, CENTER-TAP HIGH VOLTAGE RECTIFIER



24 Amp, 1000 Volt, 65 ns trr Soft Recovery

FEATURES

- Soft Recovery Characteristics
- Hermetic Metal Package, JEDEC TO-254AA
- 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

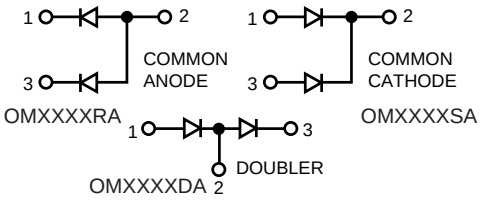
This soft recovery rectifier is ideally suited as a free wheeling diode in converters and motor control circuits, as well as a rectifier in SMPS. The package is designed for those applications where a small size and a hermetically sealed package is desirable. Center-Tap configuration.

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} 150A
RMS Forward Current, $I_{(RMS)}$ 25A
Average Forward Current, T_C = 100°C, Duty Cycle = 50%, $I_{F(AV)}$ 12A
Surge Non-Repetitive Forward Current, 8.3ms, I_{FSM} 75A
Power Dissipation, T_C = 100°C, P 25W
Storage and Junction Range, T_{stg} ..... -55°C to 150°C
Thermal Resistance, Junction-To-Case, $R_{th(JC)}$ ..... 2.4°C/W

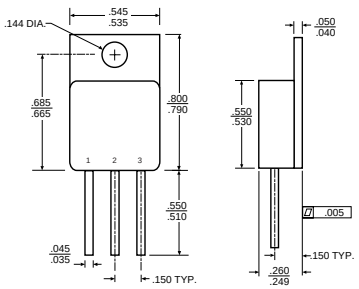
3.2

SCHEMATIC



Common cathode is standard. Contact the factory for performance characteristics for common anode and doubler.
Standard Products are supplied with glass feedthroughs.
For ceramic feedthroughs, add the letter "C" to the part number.
Example - OMXXXXCSA.

PIN CONNECTION



Z-Tab package also available.

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I_R	T_J = 25°C	$V_R = V_{RRM}$			50	µA
	T_J = 100°C				2.5	mA
V_F	T_J = 25°C	I_F = 12A			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 = -50A/µs	V_{CC} = 200V, I_F = 12A L_P 0.05µH, T_J = 100°C See Figure 1			200	nS
	dI_F/dt = -100A/µs			120		
I_{RM}	dI_F/dt = -50A/µs				7.8	A
	dI_F/dt = -100A/µs			9		

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 = -12A/µs	L_P 12µH, See Figure 2				

To evaluate the conduction losses use the following equations:

$V_F = 1.47 + 0.026\ I_F$ $\qquad$ $P = 1.47 \times I_{F(AV)} + 0.026\ I_{F^2(RMS)}$

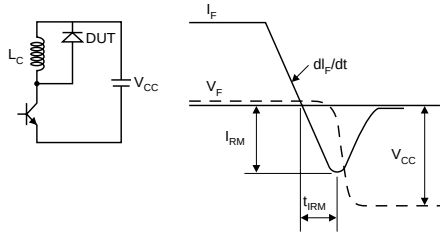


Figure 1: Turn-off switching characteristics (without series inductance).

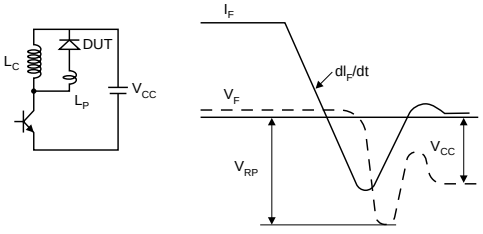
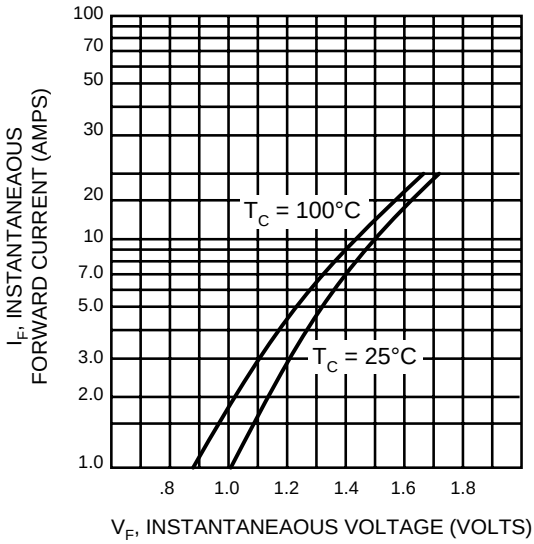
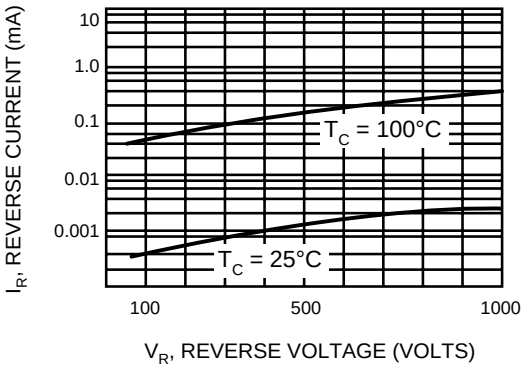


Figure 2: Turn-off switching characteristics (with series inductance).

TYPICAL FORWARD VOLTAGE



TYPICAL REVERSE CURRENT



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