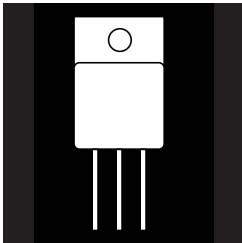


# HERMETIC JEDEC TO-254AA HIGH EFFICIENCY, CENTER-TAP HIGH VOLTAGE RECTIFIER



**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

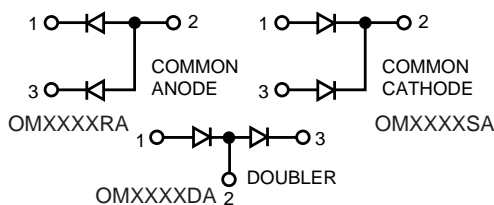
This soft recovery rectifier is ideally suited as a free wheeling diode in converters and motor control circuits, as well as a rectifier in SMPS. The package is designed for those applications where a small size and a hermetically sealed package is desirable. Center-Tap configuration.

## ABSOLUTE MAXIMUM RATINGS (Per Diode) $T_J = 25^\circ\text{C}$

|  |                |
|--|----------------|
| 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, $T_C = 100^\circ\text{C}$ , Duty Cycle = 50%, $I_{F(AV)}$ ..... | 12A            |
| Surge Non-Repetitive Forward Current, 8.3ms, $I_{FSM}$ .....                             | 75A            |
| Power Dissipation, $T_C = 100^\circ\text{C}$ , 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        |

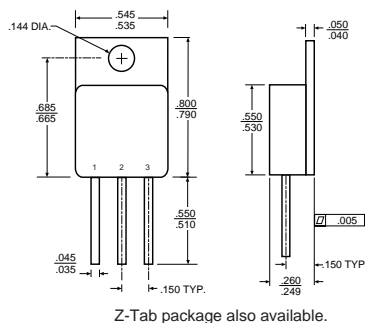
3.2

## 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



# OM5262SA/RA/DA

## ELECTRICAL CHARACTERISTICS

### STATIC CHARACTERISTICS

| Symbol | Test Conditions           |                    | Min. | Typ. | Max. | Unit          |
|--------|---------------------------|--------------------|------|------|------|---------------|
| $I_R$  | $T_J = 25^\circ\text{C}$  | $V_R = V_{RRM}$    |      |      | 50   | $\mu\text{A}$ |
|        | $T_J = 100^\circ\text{C}$ |                    |      |      | 2.5  | $\text{mA}$   |
| $V_F$  | $T_J = 25^\circ\text{C}$  | $I_F = 12\text{A}$ |      |      | 1.9  | $\text{V}$    |
|        | $T_J = 100^\circ\text{C}$ |                    |      |      | 1.8  |               |

### RECOVERY CHARACTERISTICS

| Symbol   | Test Conditions          |  | Min. | Typ. | Max. | Unit        |
|----------|--------------------------|--|------|------|------|-------------|
| $t_{rr}$ | $T_J = 25^\circ\text{C}$ | $I_F = 1\text{A}, di_F/dt = -15\text{A}/\mu\text{s}, V_R = 30\text{V}$ |      |      | 155  | $\text{nS}$ |
|          |                          | $I_F = 0.5\text{A}, I_R = 1\text{A}, I_{rr} = 0.25\text{A}$            |      |      | 65   |             |

### TURN-OFF SWITCHING CHARACTERISTICS (Without Series Inductance)

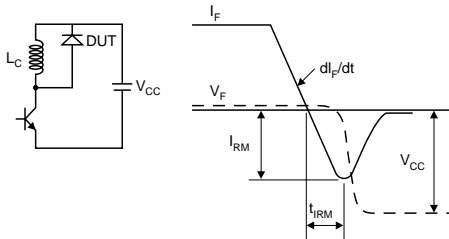
| Symbol    | Test Conditions                      |  | Min. | Typ. | Max. | Unit        |
|-----------|--------------------------------------|--|------|------|------|-------------|
| $t_{IRM}$ | $di_F/dt = -50\text{A}/\mu\text{s}$  | $V_{CC} = 200\text{V}, I_F = 12\text{A}$<br>$L_P = 0.05\mu\text{H}, T_J = 100^\circ\text{C}$<br>See Figure 1 |      |      | 200  | $\text{nS}$ |
|           | $di_F/dt = -100\text{A}/\mu\text{s}$ |  |      | 120  |      |             |
| $I_{RM}$  | $di_F/dt = -50\text{A}/\mu\text{s}$  |  |      |      | 7.8  | $\text{A}$  |
|           | $di_F/dt = -100\text{A}/\mu\text{s}$ |  |      |      | 9    |             |

### TURN-OFF OVERVOLTAGE COEFFICIENT (With Series Inductance)

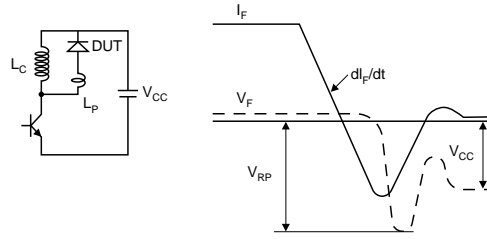
| Symbol                      | Test Conditions  |   | Min. | Typ. | Max. | Unit |
|-----------------------------|--|---|------|------|------|------|
| $C = \frac{V_{RP}}{V_{CC}}$ | $T_J = 100^\circ\text{C}$<br>$di_F/dt = -12\text{A}/\mu\text{s}$ | $V_{CC} = 200\text{V}, I_F = I_{F(AV)}$<br>$L_P = 12\mu\text{H}$ , See Figure 2 |      |      | 4.5  |      |

To evaluate the conduction losses use the following equations:

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

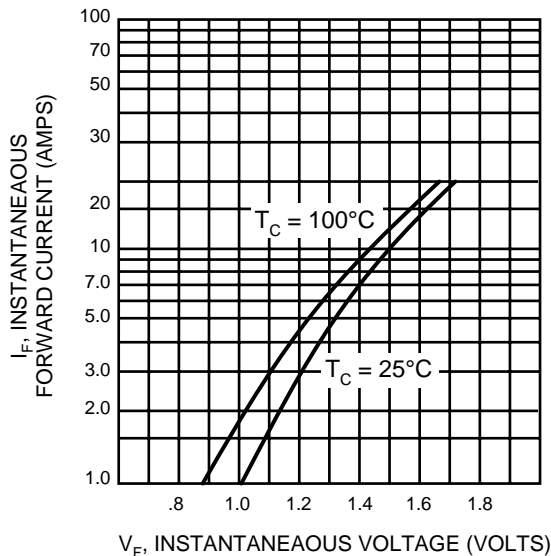


**Figure 1:** Turn-off switching characteristics (without series inductance).



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

### TYPICAL FORWARD VOLTAGE



### TYPICAL REVERSE CURRENT

