

## 150mA, 75V Switching Diode

### FEATURES

- Low power loss, high efficiency
- Ideal for automated placement
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- On-board DC/DC converter

### MECHANICAL DATA

- Case: 1206 (Ceramics)
- Molding compound meets UL flammability classification rating 94HB
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: Indicated by cathode band
- Weight: 0.01g (approximately)

| KEY PARAMETERS        |                 |      |
|-----------------------|-----------------|------|
| PARAMETER             | VALUE           | UNIT |
| $P_D$                 | 500             | mW   |
| $I_F$                 | 150             | mA   |
| $V_{RRM}$             | 75              | V    |
| $I_{FSM}$             | 2               | A    |
| $V_F$ at $I_F = 10mA$ | 1               | V    |
| $T_J$ Max             | 150             | °C   |
| Package               | 1206 (Ceramics) |      |
| Configuration         | Single die      |      |



**1206 (Ceramics)**



| ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted) |             |             |      |
|---|-------------|-------------|------|
| PARAMETER   | SYMBOL      | VALUE       | UNIT |
| Power dissipation   | $P_D$       | 500         | mW   |
| Repetitive peak reverse voltage   | $V_{RRM}$   | 75          | V    |
| Non-repetitive peak reverse voltage   | $V_{RSM}$   | 100         | V    |
| Forward current   | $I_{F(AV)}$ | 150         | mA   |
| Repetitive peak forward current   | $I_{FRM}$   | 300         | mA   |
| Non-repetitive peak forward surge current                                   | $I_{FSM}$   | 0.5         | A    |
|   |             | 2.0         | A    |
| Junction temperature range  | $T_J$       | -55 to +150 | °C   |
| Storage temperature range   | $T_{STG}$   | -55 to +150 | °C   |

| <b>THERMAL PERFORMANCE</b>             |                 |            |             |
|--|-----------------|------------|-------------|
| <b>PARAMETER</b>                       | <b>SYMBOL</b>   | <b>TYP</b> | <b>UNIT</b> |
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 375        | °C/W        |

| <b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted) |   |               |            |            |               |
|---|---|---------------|------------|------------|---------------|
| <b>PARAMETER</b>  | <b>CONDITIONS</b>                                       | <b>SYMBOL</b> | <b>TYP</b> | <b>MAX</b> | <b>UNIT</b>   |
| Reverse breakdown voltage <sup>(2)</sup>  | $I_R = 100\mu\text{A}, T_J = 25^\circ\text{C}$          | $V_R$         | 75         | -          | V             |
| Forward voltage <sup>(1)</sup>  | $I_F = 10\text{mA}, T_J = 25^\circ\text{C}$             | $V_F$         | -          | 1.00       | V             |
|   | $I_F = 100\text{mA}, T_J = 25^\circ\text{C}$            |               | -          | 1.25       | V             |
| Reverse recovery time   | $I_F = 10\text{mA}, I_R = 10\text{mA}, R_L = 100\Omega$ | $t_{rr}$      | -          | 4          | ns            |
| Reverse current @ rated $V_R$ <sup>(2)</sup>  | $V_R = 20\text{V}, T_J = 25^\circ\text{C}$              | $I_R$         | -          | 25         | nA            |
|   | $V_R = 75\text{V}, T_J = 25^\circ\text{C}$              |               | -          | 5          | $\mu\text{A}$ |
| Junction capacitance  | 1MHz, $V_R = 0\text{V}$                                 | $C_J$         | -          | 4          | pF            |

**Notes:**

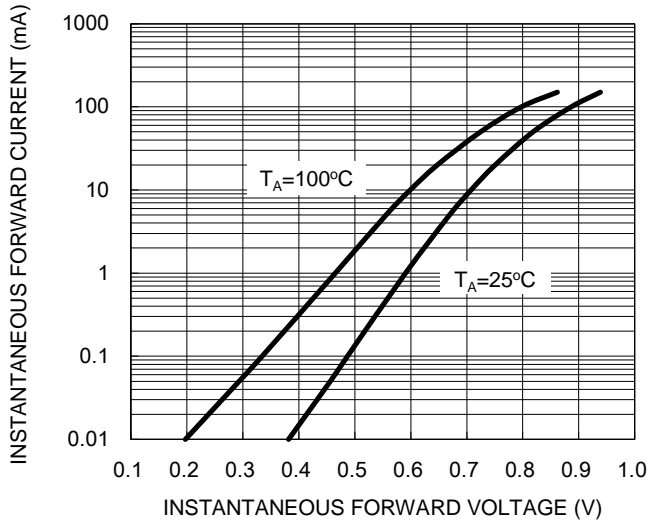
1. Pulse test with PW = 0.3ms
2. Pulse test with PW = 30ms

| <b>ORDERING INFORMATION</b> |                 |                |
|-----------------------------|-----------------|----------------|
| <b>ORDERING CODE</b>        | <b>PACKAGE</b>  | <b>PACKING</b> |
| TS4148 RXG                  | 1206 (Ceramics) | 5K / 7" Reel   |
| TS4148 RAG                  | 1206 (Ceramics) | 10K / 13" Reel |

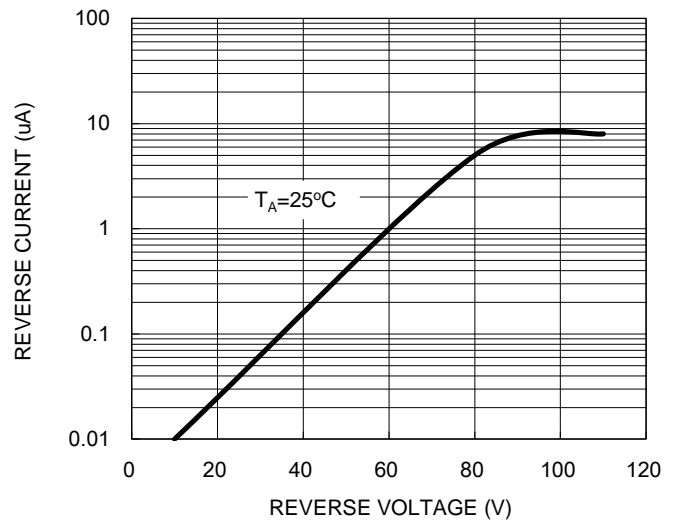
**CHARACTERISTICS CURVES**

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

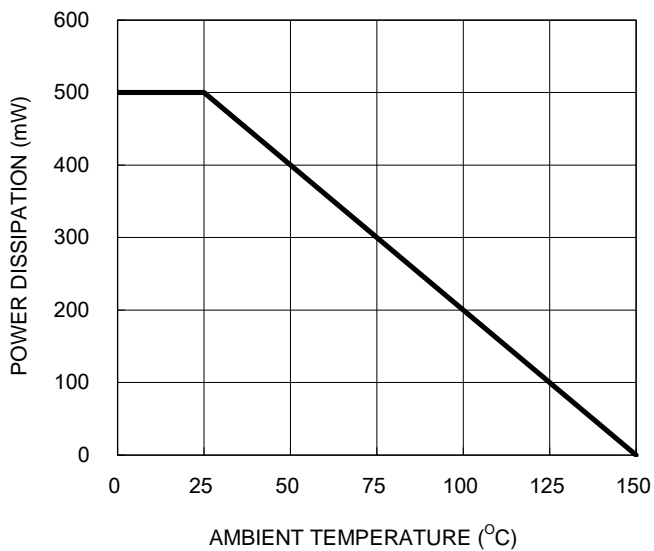
**Fig.1 Typical Forward Characteristics**



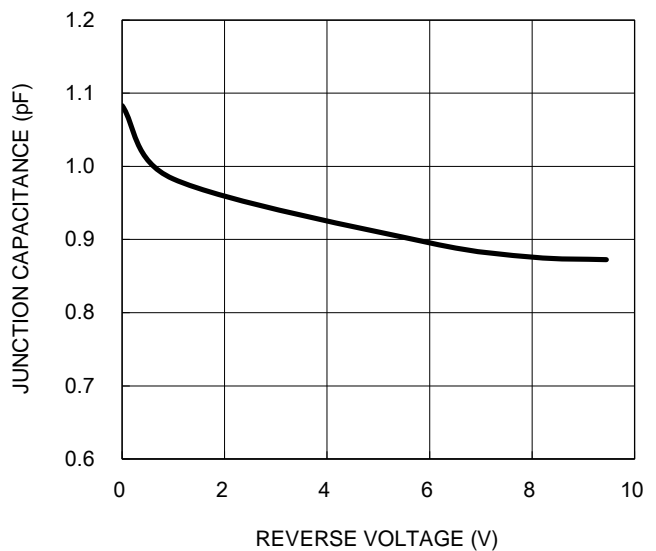
**Fig.2 Reverse Current VS. Reverse Voltage**



**Fig.3 Admissible Power Dissipation Curve**



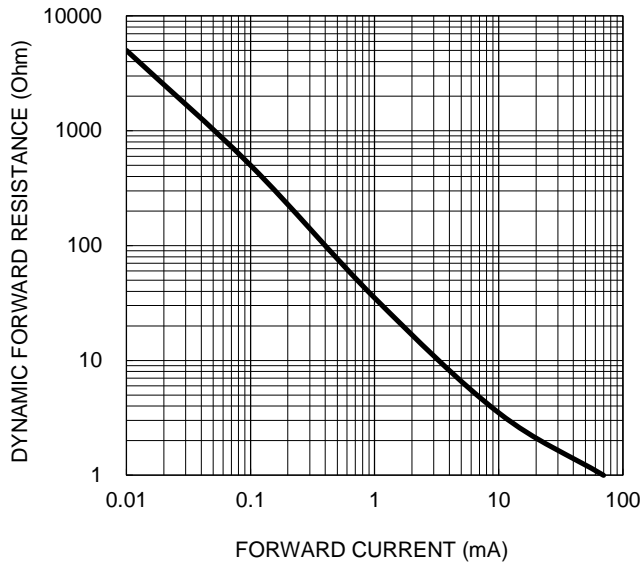
**Fig.4 Typical Junction Capacitance**



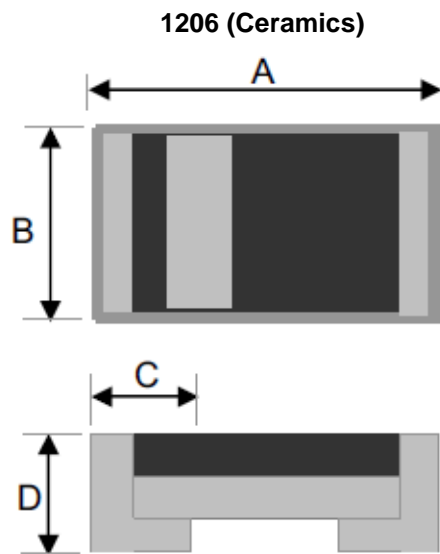
**CHARACTERISTICS CURVES**

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

**Fig.5 Forward Resistance VS. Forward Current**



**PACKAGE OUTLINE DIMENSION**



| DIM. | Unit (mm) |      | Unit (inch) |       |
|------|-----------|------|-------------|-------|
|      | Min       | Max  | Min         | Max   |
| A    | 3.00      | 3.40 | 0.118       | 0.134 |
| B    | 1.30      | 1.70 | 0.051       | 0.067 |
| C    | 0.35      | 0.75 | 0.014       | 0.030 |
| D    | 0.65      | 0.85 | 0.026       | 0.033 |

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