

## 1A, 50V - 1000V Glass Passivated High Efficient Rectifier

### FEATURES

- Glass passivated chip junction
- High current capability
- High reliability
- High surge current capability
- High efficiency, Low  $V_F$
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

- High frequency rectification
- Freewheeling application
- Switching mode converters and inverters in computer and telecommunication.

### MECHANICAL DATA

- Case: TS-1
- Molding compound meets UL 94V-0 flammability rating
- Packing code with suffix "G" means green compound (halogen-free)
- Terminal: Pure tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: As marked
- Weight: 0.2 g (approximately)

| KEY PARAMETERS |            |      |
|----------------|------------|------|
| PARAMETER      | VALUE      | UNIT |
| $I_{F(AV)}$    | 1          | A    |
| $V_{RRM}$      | 50 - 1000  | V    |
| $I_{FSM}$      | 30         | A    |
| $T_{J\ MAX}$   | 150        | °C   |
| Package        | TS-1       |      |
| Configuration  | Single Die |      |



TS-1

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

| PARAMETER                                                                                     | SYMBOL       | HT 11G-K     | HT 12G-K | HT 13G-K | HT 14G-K | HT 15G-K | HT 16G-K | HT 17G-K | HT 18G-K | UNIT |
|-----------------------------------------------------------------------------------------------|--------------|--------------|----------|----------|----------|----------|----------|----------|----------|------|
| Marking code on the device                                                                    |              | HT11G        | HT12G    | HT13G    | HT14G    | HT15G    | HT16G    | HT17G    | HT18G    |      |
| Repetitive peak reverse voltage                                                               | $V_{RRM}$    | 50           | 100      | 200      | 300      | 400      | 600      | 800      | 1000     | V    |
| Reverse voltage, total rms value                                                              | $V_{R(RMS)}$ | 35           | 70       | 140      | 210      | 280      | 420      | 560      | 700      | V    |
| Forward current                                                                               | $I_{F(AV)}$  | 1            |          |          |          |          |          |          |          | A    |
| Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode | $I_{FSM}$    | 30           |          |          |          |          |          |          |          | A    |
| Junction temperature                                                                          | $T_J$        | - 55 to +150 |          |          |          |          |          |          |          | °C   |
| Storage temperature                                                                           | $T_{STG}$    | - 55 to +150 |          |          |          |          |          |          |          | °C   |

**THERMAL PERFORMANCE**

| PARAMETER                              | SYMBOL          | LIMIT | UNIT |
|----------------------------------------|-----------------|-------|------|
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 95    | °C/W |

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

| PARAMETER                                              | CONDITIONS                                                        | SYMBOL   | TYP | MAX  | UNIT          |
|--------------------------------------------------------|-------------------------------------------------------------------|----------|-----|------|---------------|
| Forward voltage per diode <sup>(1)</sup>               | $I_F = 1\text{A}, T_J = 25^\circ\text{C}$                         | $V_F$    | -   | 1.0  | V             |
|                                                        |                                                                   |          | -   | 1.30 | V             |
|                                                        |                                                                   |          | -   | 1.70 | V             |
|                                                        |                                                                   |          | -   | -    | -             |
| Reverse current @ rated $V_R$ per diode <sup>(2)</sup> | $T_J = 25^\circ\text{C}$                                          | $I_R$    | -   | 5    | $\mu\text{A}$ |
|                                                        | $T_J = 125^\circ\text{C}$                                         |          | -   | 150  | $\mu\text{A}$ |
| Junction capacitance                                   | 1 MHz, $V_R = 4.0\text{V}$                                        | $C_J$    | 15  | -    | pF            |
|                                                        |                                                                   |          | 10  | -    | pF            |
| Reverse recovery time                                  | $I_F = 0.5\text{A}, I_R = 1.0\text{A}$<br>$I_{RR} = 0.25\text{A}$ | $t_{rr}$ | -   | 50   | ns            |
|                                                        |                                                                   |          | -   | 75   | ns            |

**Notes:**

1. Pulse test with  $PW = 0.3\text{ ms}$
2. Pulse test with  $PW = 30\text{ ms}$

**ORDERING INFORMATION**

| PART NO.               | PACKING CODE | PACKING CODE SUFFIX | PACKAGE | PACKING                        |
|------------------------|--------------|---------------------|---------|--------------------------------|
| HT1XG-K<br>(Note 1, 2) | A0           | G                   | TS-1    | 3,000 / Ammo box (52mm taping) |
|                        | A1           |                     | TS-1    | 3,000 / Ammo box (26mm taping) |
|                        | R0           |                     | TS-1    | 5,000 / 13" Paper reel         |
|                        | B0           |                     | TS-1    | 1,000 / Bulk packing           |

**Notes:**

1. "x" defines voltage from 50V (HT11G-K) to 1000V (HT18G-K)
2. Whole series with green compound (halogen-free)

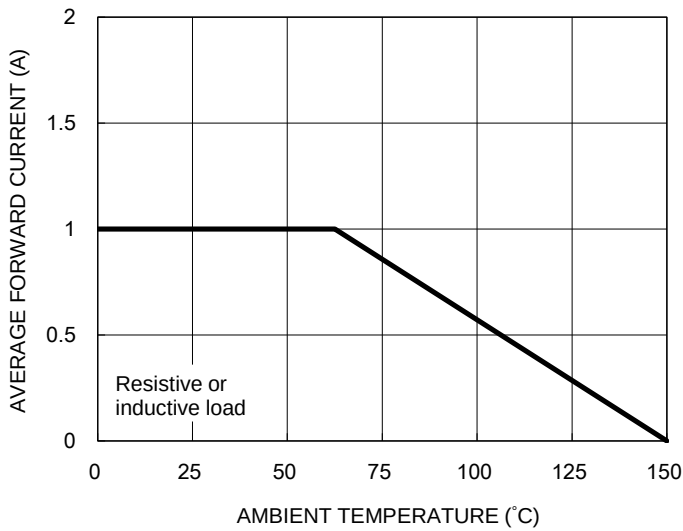
**EXAMPLE P/N**

| EXAMPLE P/N | PART NO. | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION    |
|-------------|----------|--------------|---------------------|----------------|
| HT11G-K A0G | HT11G-K  | A0           | G                   | Green compound |

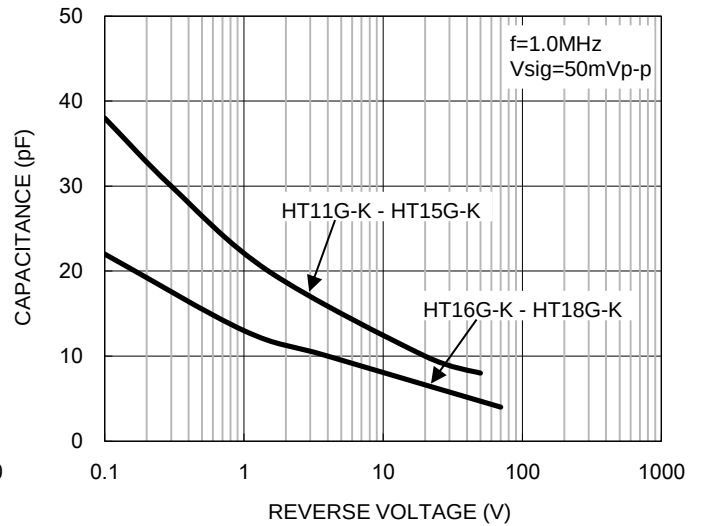
## CHARACTERISTICS CURVES

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

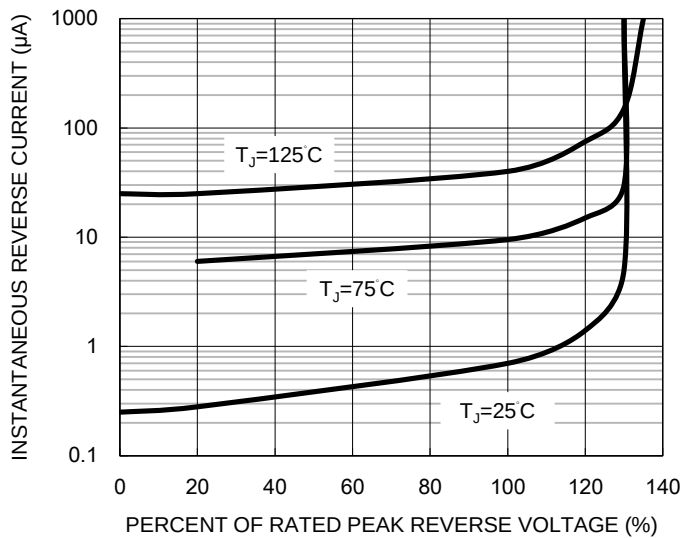
**Fig.1 Forward Current Derating Curve**



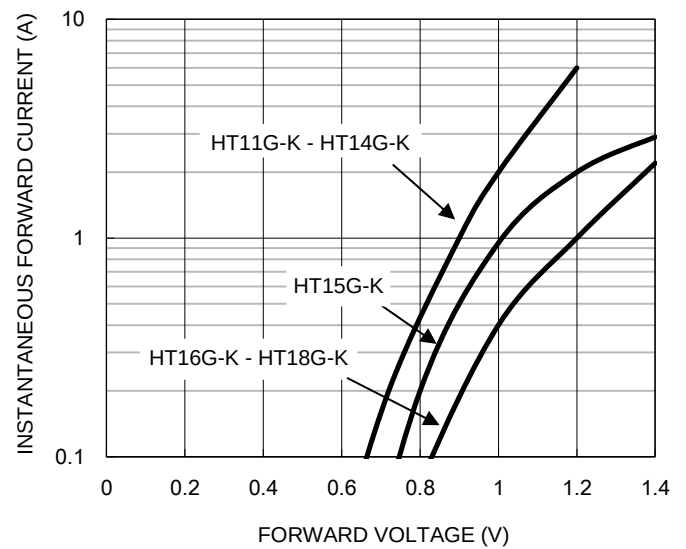
**Fig.2 Typical Junction Capacitance**



**Fig.3 Typical Reverse Characteristics**



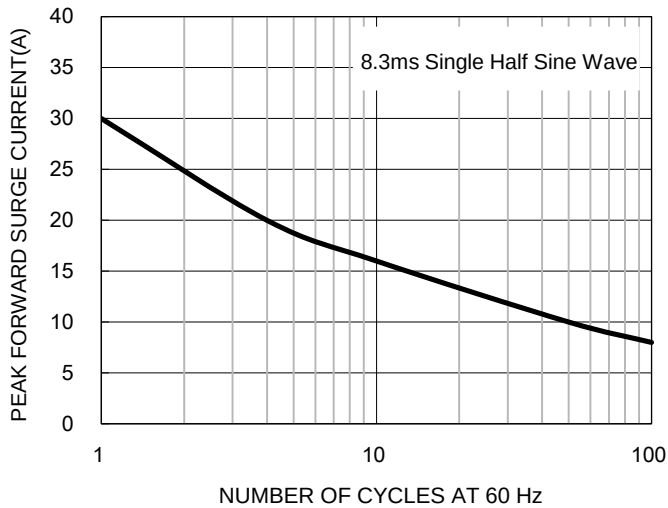
**Fig.4 Typical Forward Characteristics**



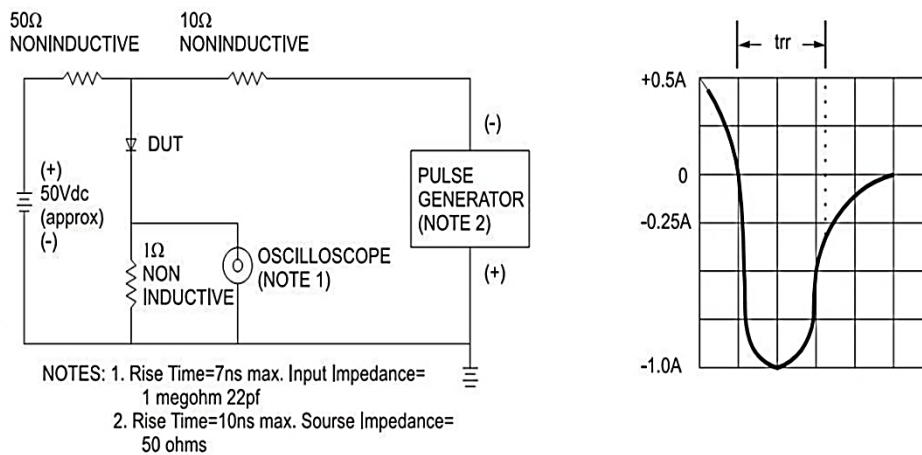
## CHARACTERISTICS CURVES

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

**Fig.5 Maximum Non-repetitive Forward Surge Current**

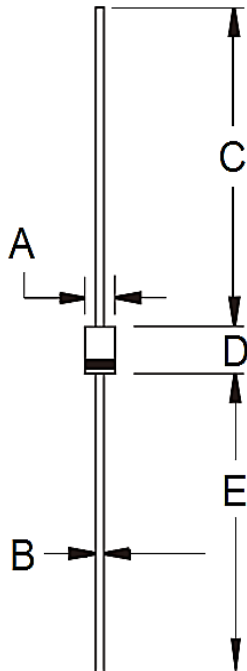


**Fig.6 Reverse Recovery Time Characteristic And Test Circuit Diagram**



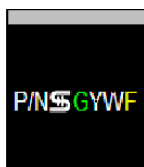
## PACKAGE OUTLINE DIMENSIONS

TS-1



| DIM. | Unit (mm) |      | Unit (inch) |       |
|------|-----------|------|-------------|-------|
|      | Min       | Max  | Min         | Max   |
| A    | 2.00      | 2.70 | 0.079       | 0.106 |
| B    | 0.53      | 0.64 | 0.021       | 0.025 |
| C    | 25.40     | -    | 1.000       | -     |
| D    | 3.00      | 3.30 | 0.118       | 0.130 |
| E    | 25.40     | -    | 1.000       | -     |

## MARKING DIAGRAM



P/N = Marking Code  
G = Green Compound  
YW = Date Code  
F = Factory Code

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