# 1A, 1600V High Efficient Surface Mount Rectifier

## FEATURES

- Glass passivated chip junction
- Ideal for automated placement
- Low power loss, high efficiency
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free

## APPLICATIONS

- Switching mode converters and inverters
- Lighting application
- Snubber
- Freewheeling application
- Bootstrap rectifier

## MECHANICAL DATA

- Case: DO-214AC (SMA)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight:  0.061g (approximately)

| KEY PARAMETERS | | |
|---|---|---|
| **PARAMETER** | **VALUE** | **UNIT** |
| $I_F$ | 1 | A |
| $V_{RRM}$ | 1600 | V |
| $I_{FSM}$ | 30 | A |
| $T_{J\ MAX}$ | 150 | °C |
| Package | DO-214AC (SMA) | |
| Configuration | Single die | |

Pb-Free RoHS COMPLIANT HALOGEN FREE

**DO-214AC (SMA)**


| **ABSOLUTE MAXIMUM RATINGS** ($T_A$ = 25°C unless otherwise noted) | | | | |
|---|---|---|---|---|
| **PARAMETER** | | **SYMBOL** | **VALUE** | **UNIT** |
| Repetitive peak reverse voltage | | $V_{RRM}$ | 1600 | V |
| Reverse voltage, total rms value | | $V_{R(RMS)}$ | 1120 | V |
| Forward current | | $I_F$ | 1 | A |
| Surge peak forward current single half sine-wave superimposed on rated load | t = 8.3ms | $I_{FSM}$ | 30 | A |
| | t = 1.0ms | | 95 | |
| Junction temperature | | $T_J$ | -40 to +150 | °C |
| Storage temperature | | $T_{STG}$ | -55 to +150 | °C |

## THERMAL PERFORMANCE

| PARAMETER | SYMBOL | TYP | UNIT |
|---|---|---|---|
| Junction-to-lead thermal resistance | $R_{\Theta JL}$ | 16 | °C/W |
| Junction-to-ambient thermal resistance | $R_{\Theta JA}$ | 71 | °C/W |
| Junction-to-case thermal resistance | $R_{\Theta JC}$ | 17 | °C/W |

**Thermal Performance Note:** Units mounted on PCB (5mm x 5mm Cu pad test board)

## ELECTRICAL SPECIFICATIONS ($T_A$ = 25°C unless otherwise noted)

| PARAMETER | CONDITIONS | SYMBOL | TYP | MAX | UNIT |
|---|---|---|---|---|---|
| Forward voltage(1) | $I_F$ = 0.5A, $T_J$ = 25°C | $V_F$ | 2.07 | - | V |
| | $I_F$ = 1.0A, $T_J$ = 25°C | | 2.54 | 3.6 | V |
| | $I_F$ = 0.5A, $T_J$ = 125°C | | 1.34 | - | V |
| | $I_F$ = 1.0A, $T_J$ = 125°C | | 1.70 | - | V |
| Reverse current @ rated $V_R$(2) | $T_J$ = 25°C | $I_R$ | - | 5 | μA |
| | $T_J$ = 125°C | | 7 | - | μA |
| Junction capacitance | 1MHz, $V_R$ = 4.0V | $C_J$ | 8.6 | - | pF |
| Reverse recovery time | $I_F$ = 0.5A, $I_R$ = 1.0A, $I_{rr}$ = 0.25A | $t_{rr}$ | - | 75 | ns |

**Notes:**

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

## ORDERING INFORMATION

| ORDERING CODE | PACKAGE | PACKING |
|---|---|---|
| HS1Y | DO-214AC (SMA) | 7,500/ Tape & Reel |

## CHARACTERISTICS CURVES

($T_A$ = 25°C unless otherwise noted)

**Fig.1 Forward Current Derating Curve**

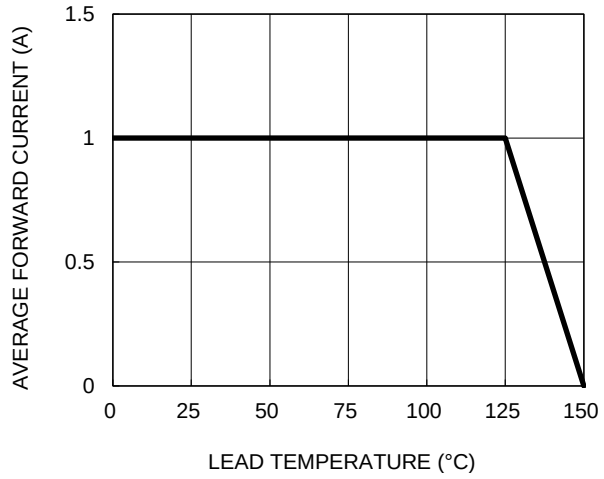



**Fig.2 Typical Junction Capacitance**

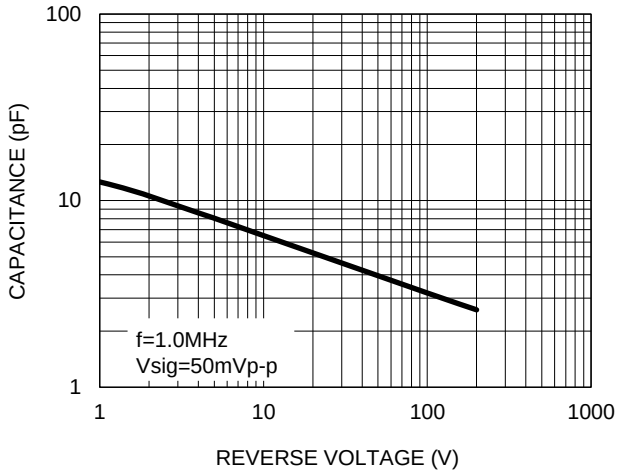



**Fig.3 Typical Reverse Characteristics**

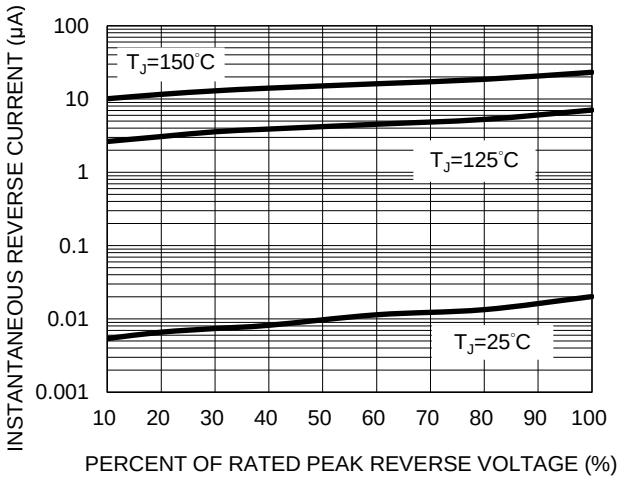



**Fig.4 Typical Forward Characteristics**

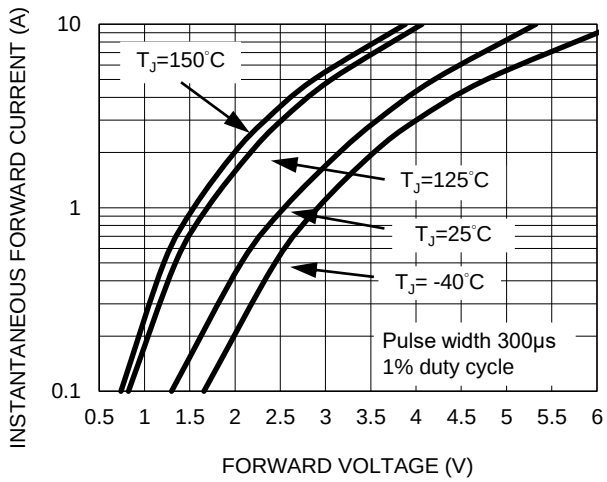
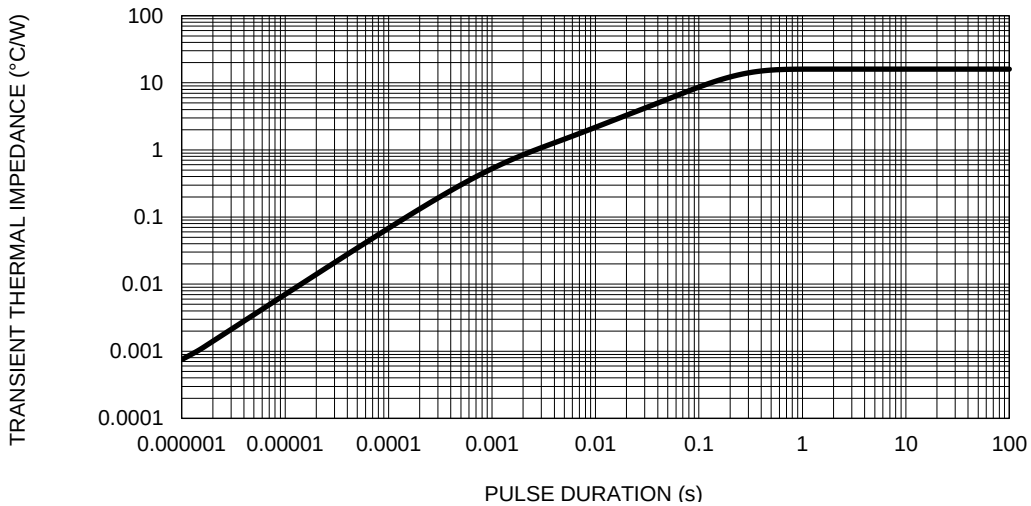
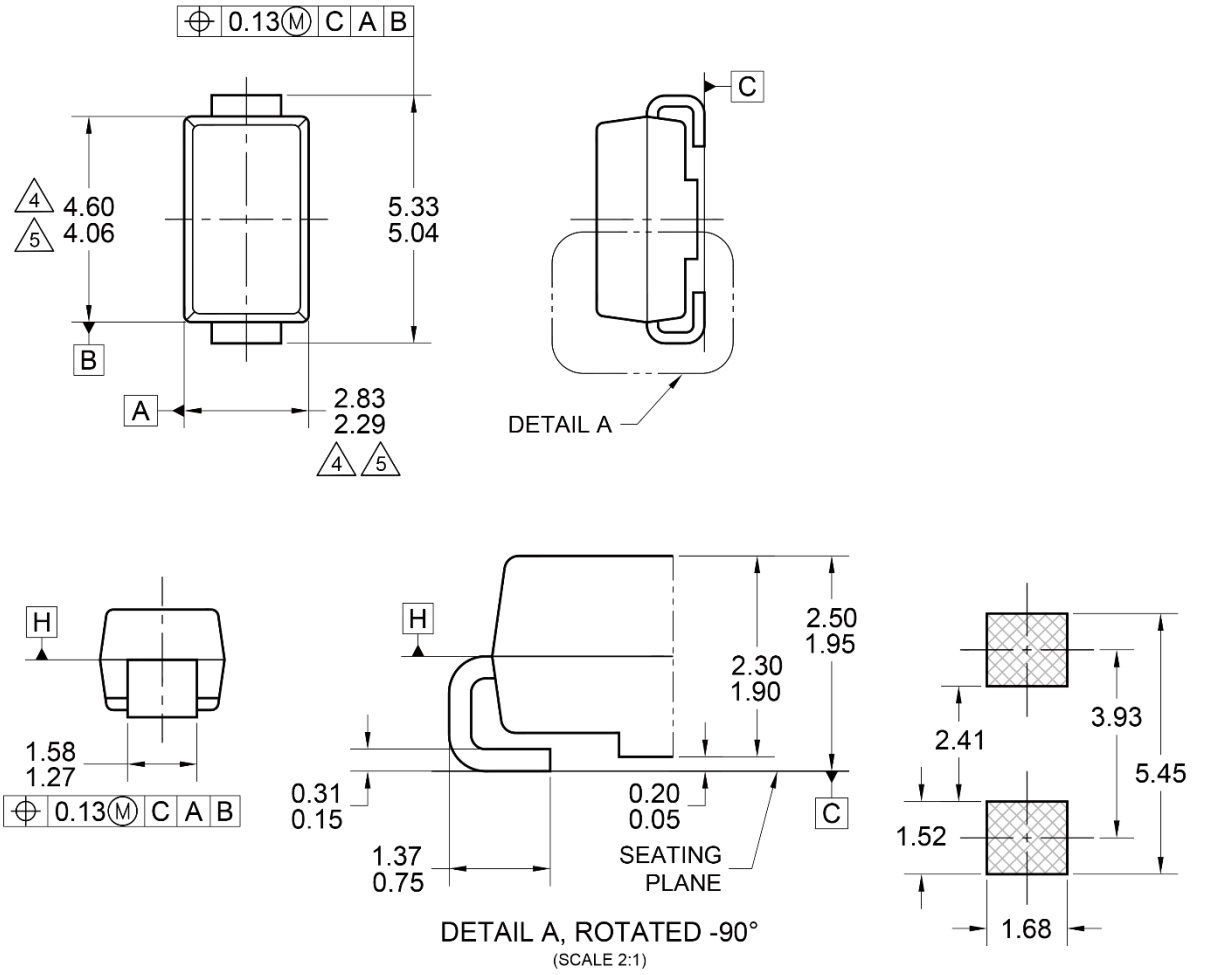


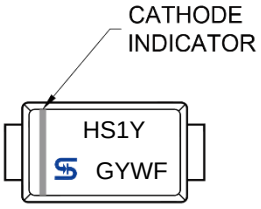

**Fig.5 Typical Transient Thermal Impedance**



## PACKAGE OUTLINE DIMENSIONS

**DO-214AC (SMA)**




MARKING DIAGRAM

G = GREEN COMPOUND
YW = DATE CODE
F = FACTORY CODE

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. PACKAGE OUTLINE REFERENCE: JEDEC DO-214, VARIATION AC, ISSUE D.
4. MOLDED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH.
5. MOLDED PLASTIC BODY LATERAL DIMENSIONS TO BE DETERMINED AT DATUM PLANE H.
6. DWG NO. REF: HQ2SD07-DO214SMAHV-121 REV A.

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