# 3A, 50V - 1000V High Efficient Surface Mount Rectifier

## FEATURES

- Low power loss, high efficiency
- Low forward voltage drop
- Low profile package
- Fast switching for high efficiency
- Ideal for automated placement
- Glass passivated chip junction
- 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
- Monitor
- TV

## MECHANICAL DATA

- Case: DO-214AA (SMB)
- 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: 0.093g (approximately)

| KEY PARAMETERS | | |
|---|---|---|
| **PARAMETER** | **VALUE** | **UNIT** |
| $I_F$ | 3 | A |
| $V_{RRM}$ | 50 - 1000 | V |
| $I_{FSM}$ | 100 | A |
| $T_{J\ MAX}$ | 150 | °C |
| Package | DO-214AA (SMB) | |
| Configuration | Single die | |

Pb-Free RoHS COMPLIANT HALOGEN FREE

**DO-214AA (SMB)**


## ABSOLUTE MAXIMUM RATINGS ($T_A$ = 25°C unless otherwise noted)

| PARAMETER | SYMBOL | HS 3AB | HS 3BB | HS 3DB | HS 3FB | HS 3GB | HS 3JB | HS 3KB | HS 3MB | UNIT |
|---|---|---|---|---|---|---|---|---|---|---|
| Marking code on the device | | HS 3AB | HS 3BB | HS 3DB | HS 3FB | HS 3GB | HS 3JB | HS 3KB | HS 3MB | |
| 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 | $I_F$ | 3 | | | | | | | | A |
| Surge peak forward current 8.3ms single half sine-wave superimposed on rated load | $I_{FSM}$ | 100 | | | | | | | | A |
| Junction temperature | $T_J$ | - 55 to +150 | | | | | | | | °C |
| Storage temperature | $T_{STG}$ | - 55 to +150 | | | | | | | | °C |

## THERMAL PERFORMANCE

| PARAMETER | SYMBOL | TYP | UNIT |
|---|---|---|---|
| Junction-to-ambient thermal resistance | $R_{\Theta JA}$ | 60 | °C/W |

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

| PARAMETER | | CONDITIONS | SYMBOL | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Forward voltage[1] | HS3AB HS3BB HS3DB HS3FB | $I_F$ = 3A, $T_J$ = 25°C | $V_F$ | - | 1.0 | V |
| | HS3GB | | | - | 1.3 | V |
| | HS3JB HS3KB HS3MB | | | - | 1.7 | V |
| Reverse current @ rated $V_R$[2] | | $T_J$ = 25°C | $I_R$ | - | 10 | μA |
| | | $T_J$ = 100°C | | - | 250 | μA |
| Junction capacitance | HS3AB HS3BB HS3DB HS3FB HS3GB | 1MHz, $V_R$ = 4.0V | $C_J$ | 80 | - | pF |
| | HS3JB HS3KB HS3MB | | | 50 | - | pF |
| Reverse recovery time | HS3AB HS3BB HS3DB HS3FB HS3GB | $I_F$ = 0.5A, $I_R$ = 1.0A, $I_{rr}$ = 0.25A | $t_{rr}$ | - | 50 | ns |
| | HS3JB HS3KB HS3MB | | | - | 75 | ns |

**Notes:**

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

## ORDERING INFORMATION

| ORDERING CODE[1] | PACKAGE | PACKING |
|---|---|---|
| HS3xB | DO-214AA (SMB) | 3,000 / Tape & Reel |

**Notes:**

1. "x" defines voltage from 50V(HS3AB) to 1000V(HS3MB)

## CHARACTERISTICS CURVES

($T_A$ = 25°C unless otherwise noted)

**Fig.1 Forward Current Derating Curve**

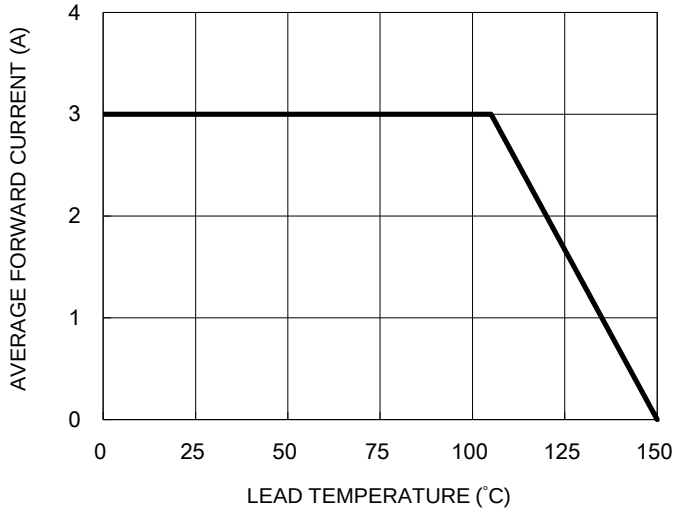



**Fig.2 Typical Junction Capacitance**

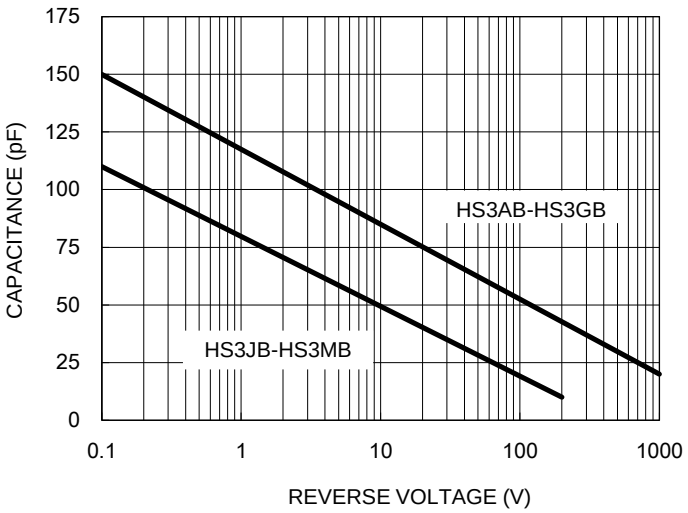



**Fig.3 Typical Reverse Characteristics**

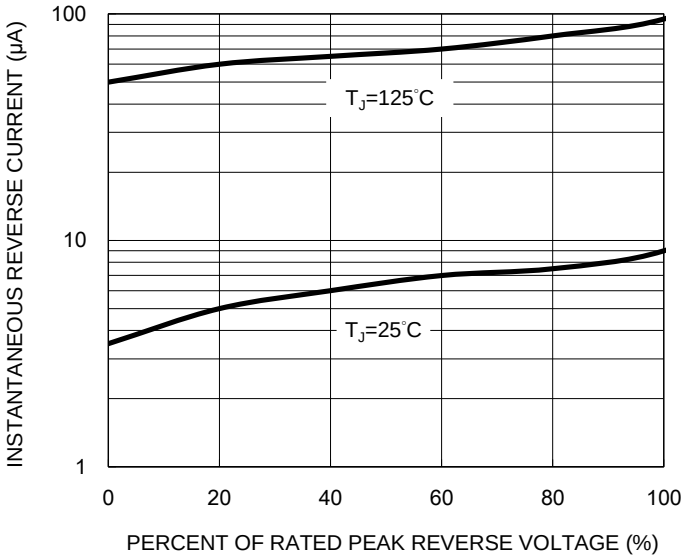
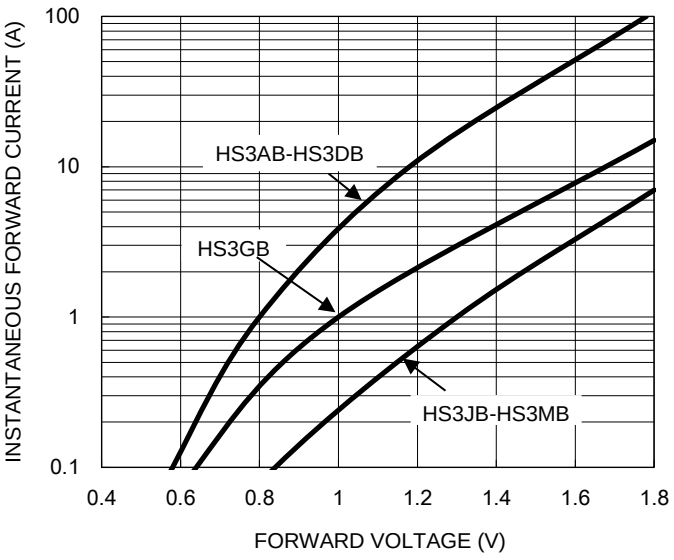



**Fig.4 Typical Forward Characteristics**



## CHARACTERISTICS CURVES

($T_A$ = 25°C unless otherwise noted)

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

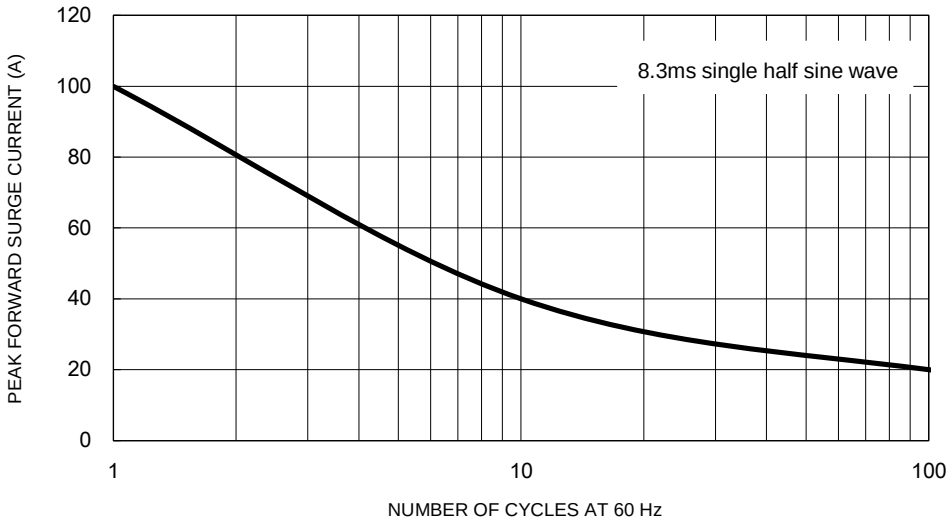
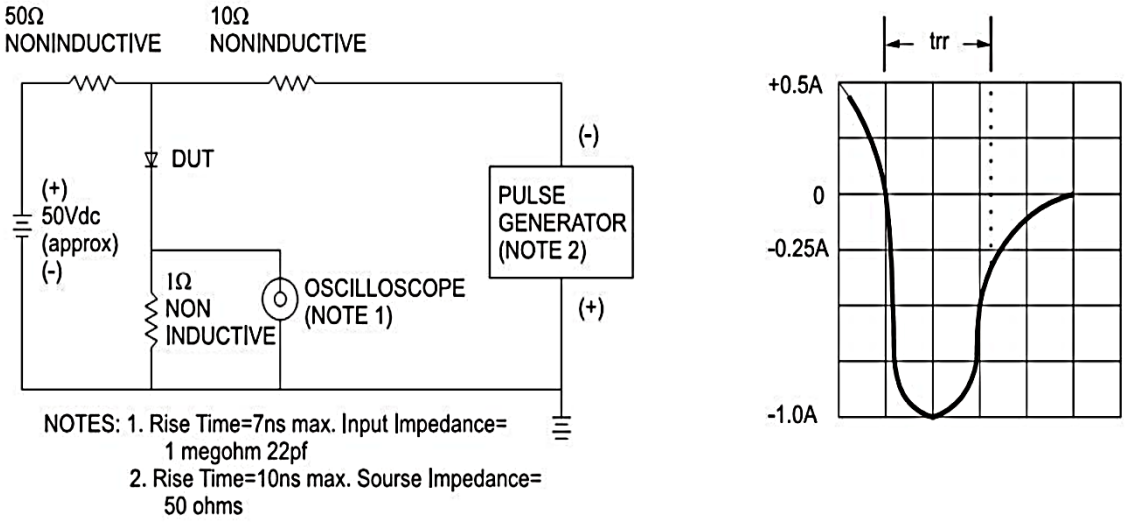
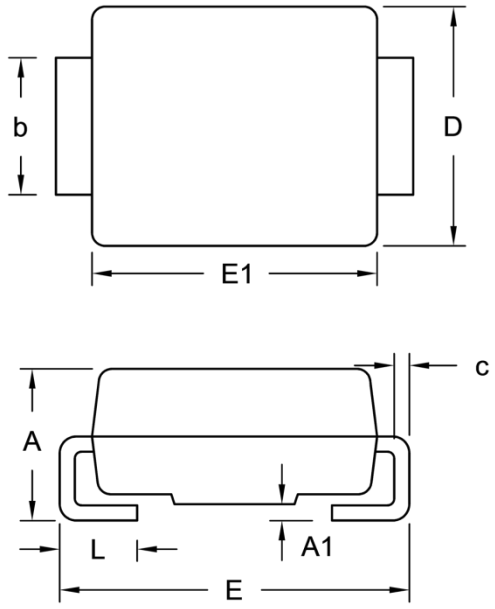



**Fig.6 Reverse Recovery Time Characteristic and Test Circuit Diagram**



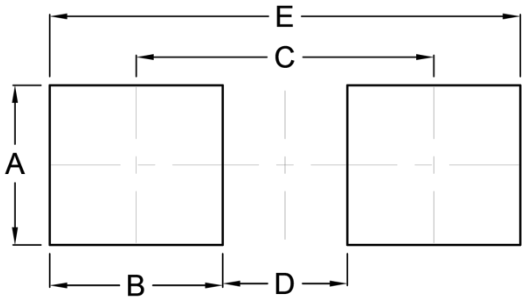
## PACKAGE OUTLINE DIMENSIONS

DO-214AA (SMB)




| DIM. | Unit (mm) | | Unit (inch) | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 1.95 | 2.65 | 0.077 | 0.104 |
| A1 | 0.05 | 0.20 | 0.002 | 0.008 |
| b | 1.95 | 2.20 | 0.077 | 0.087 |
| c | 0.15 | 0.31 | 0.006 | 0.012 |
| D | 3.30 | 3.95 | 0.130 | 0.156 |
| E | 5.10 | 5.60 | 0.201 | 0.220 |
| E1 | 4.05 | 4.60 | 0.159 | 0.181 |
| L | 0.75 | 1.60 | 0.030 | 0.063 |

## SUGGESTED PAD LAYOUT




| Symbol | Unit (mm) | Unit (inch) |
|---|---|---|
| A | 2.30 | 0.091 |
| B | 2.50 | 0.098 |
| C | 4.30 | 0.169 |
| D | 1.80 | 0.071 |
| E | 6.80 | 0.268 |

## MARKING DIAGRAM


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

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