# 2A, 50V - 1400V Surface Mount Rectifier

## FEATURES

- AEC-Q101 qualified
- Glass passivated junction chip
- Ideal for automated placement
- Low forward voltage drop
- High surge current capability
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

| KEY PARAMETERS | | |
|---|---|---|
| **PARAMETER** | **VALUE** | **UNIT** |
| $I_{F(AV)}$ | 2 | A |
| $V_{RRM}$ | 50 - 1400 | V |
| $I_{FSM}$ | 50 | A |
| $T_{J\ MAX}$ | 150 | °C |
| Package | DO-214AA (SMB) | |
| Configuration | Single Die | |

## APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- Converter

## 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: As marked
- Weight: 0.09 g (approximately)

Pb-Free RoHS COMPLIANT

**DO-214AA (SMB)**

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

| PARAMETER | SYMBOL | S2A | S2B | S2D | S2G | S2J | S2K | S2M | S2Q | S2V | UNIT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Marking code on the device | | S2A | S2B | S2D | S2G | S2J | S2K | S2M | S2Q | S2V | |
| Repetitive peak reverse voltage | $V_{RRM}$ | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | 1200 | 1400 | V |
| Reverse voltage, total rms value | $V_{R(RMS)}$ | 30 | 70 | 140 | 280 | 420 | 560 | 700 | 840 | 980 | V |
| Maximum DC blocking voltage | $V_{DC}$ | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | 1200 | 1400 | V |
| Forward current | $I_{F(AV)}$ | 2 | | | | | | | | | A |
| Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode | $I_{FSM}$ | 50 | | | | | | | | | 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 Lead Thermal Resistance | $R_{\Theta JL}$ | 16 | °C/W |
| Junction to Ambient Thermal Resistance | $R_{\Theta JA}$ | 53 | °C/W |

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

| PARAMETER | CONDITIONS | SYMBOL | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|
| Forward voltage per diode (1) | $I_F$ = 2A,$T_J$ = 25°C | $V_F$ | - | 1.15 | V |
| Reverse current @ rated $V_R$ per diode (2) | $T_J$ = 25°C | $I_R$ | - | 1 | μA |
| | $T_J$ = 125°C | | - | 125 | μA |
| Junction capacitance | 1 MHz, $V_R$=4.0V | $C_J$ | 30 | - | pF |
| Reverse recovery time | $I_F$=0.5A ,$I_R$=1.0A $I_{RR}$=0.25A | $t_{rr}$ | 1.5 | - | μs |

**Notes:**

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

## EXAMPLE P/N

| ORDERING CODE | PACKAGE | PACKING |
|---|---|---|
| S2AHR5G | SMB | 850 / 7" Plastic reel |
| S2AHR4G | SMB | 3,000 / 13" Paper reel |
| S2AHM4G | SMB | 3,000 / 13" Plastic reel |
| S2BHR5G | SMB | 850 / 7" Plastic reel |
| S2BHR4G | SMB | 3,000 / 13" Paper reel |
| S2BHM4G | SMB | 3,000 / 13" Plastic reel |
| S2DHR5G | SMB | 850 / 7" Plastic reel |
| S2DHR4G | SMB | 3,000 / 13" Paper reel |
| S2DHM4G | SMB | 3,000 / 13" Plastic reel |
| S2GHR5G | SMB | 850 / 7" Plastic reel |
| S2GHR4G | SMB | 3,000 / 13" Paper reel |
| S2GHM4G | SMB | 3,000 / 13" Plastic reel |
| S2JHR5G | SMB | 850 / 7" Plastic reel |
| S2JHR4G | SMB | 3,000 / 13" Paper reel |
| S2JHM4G | SMB | 3,000 / 13" Plastic reel |
| S2KHR5G | SMB | 850 / 7" Plastic reel |
| S2KHR4G | SMB | 3,000 / 13" Paper reel |
| S2KHM4G | SMB | 3,000 / 13" Plastic reel |
| S2MHR5G | SMB | 850 / 7" Plastic reel |
| S2MHR4G | SMB | 3,000 / 13" Paper reel |
| S2MHM4G | SMB | 3,000 / 13" Plastic reel |
| S2QHR5G | SMB | 850 / 7" Plastic reel |

| EXAMPLE P/N | | |
|---|---|---|
| **ORDERING CODE** | **PACKAGE** | **PACKING** |
| S2QHR4G | SMB | 3,000 / 13" Paper reel |
| S2QHM4G | SMB | 3,000 / 13" Plastic reel |
| S2VHR5G | SMB | 850 / 7" Plastic reel |
| S2VHR4G | SMB | 3,000 / 13" Paper reel |
| S2VHM4G | SMB | 3,000 / 13" Plastic reel |
| S2AHR5 | SMB | 850 / 7" Plastic reel |
| S2AHR4 | SMB | 3,000 / 13" Paper reel |
| S2AHM4 | SMB | 3,000 / 13" Plastic reel |
| S2BHR5 | SMB | 850 / 7" Plastic reel |
| S2BHR4 | SMB | 3,000 / 13" Paper reel |
| S2BHM4 | SMB | 3,000 / 13" Plastic reel |
| S2DHR5 | SMB | 850 / 7" Plastic reel |
| S2DHR4 | SMB | 3,000 / 13" Paper reel |
| S2DHM4 | SMB | 3,000 / 13" Plastic reel |
| S2GHR5 | SMB | 850 / 7" Plastic reel |
| S2GHR4 | SMB | 3,000 / 13" Paper reel |
| S2GHM4 | SMB | 3,000 / 13" Plastic reel |
| S2JHR5 | SMB | 850 / 7" Plastic reel |
| S2JHR4 | SMB | 3,000 / 13" Paper reel |
| S2JHM4 | SMB | 3,000 / 13" Plastic reel |
| S2KHR5 | SMB | 850 / 7" Plastic reel |
| S2KHR4 | SMB | 3,000 / 13" Paper reel |
| S2KHM4 | SMB | 3,000 / 13" Plastic reel |
| S2MHR5 | SMB | 850 / 7" Plastic reel |
| S2MHR4 | SMB | 3,000 / 13" Paper reel |
| S2MHM4 | SMB | 3,000 / 13" Plastic reel |
| S2QHR5 | SMB | 850 / 7" Plastic reel |
| S2QHR4 | SMB | 3,000 / 13" Paper reel |
| S2QHM4 | SMB | 3,000 / 13" Plastic reel |
| S2VHR5 | SMB | 850 / 7" Plastic reel |
| S2VHR4 | SMB | 3,000 / 13" Paper reel |
| S2VHM4 | SMB | 3,000 / 13" Plastic reel |
| S2A R5G | SMB | 850 / 7" Plastic reel |
| S2A R4G | SMB | 3,000 / 13" Paper reel |
| S2A M4G | SMB | 3,000 / 13" Plastic reel |
| S2B R5G | SMB | 850 / 7" Plastic reel |
| S2B R4G | SMB | 3,000 / 13" Paper reel |
| S2B M4G | SMB | 3,000 / 13" Plastic reel |

| EXAMPLE P/N | | |
|---|---|---|
| **ORDERING CODE** | **PACKAGE** | **PACKING** |
| S2D R5G | SMB | 850 / 7" Plastic reel |
| S2D R4G | SMB | 3,000 / 13" Paper reel |
| S2D M4G | SMB | 3,000 / 13" Plastic reel |
| S2G R5G | SMB | 850 / 7" Plastic reel |
| S2G R4G | SMB | 3,000 / 13" Paper reel |
| S2G M4G | SMB | 3,000 / 13" Plastic reel |
| S2J R5G | SMB | 850 / 7" Plastic reel |
| S2J R4G | SMB | 3,000 / 13" Paper reel |
| S2J M4G | SMB | 3,000 / 13" Plastic reel |
| S2K R5G | SMB | 850 / 7" Plastic reel |
| S2K R4G | SMB | 3,000 / 13" Paper reel |
| S2K M4G | SMB | 3,000 / 13" Plastic reel |
| S2M R5G | SMB | 850 / 7" Plastic reel |
| S2M R4G | SMB | 3,000 / 13" Paper reel |
| S2M M4G | SMB | 3,000 / 13" Plastic reel |
| S2Q R5G | SMB | 850 / 7" Plastic reel |
| S2Q R4G | SMB | 3,000 / 13" Paper reel |
| S2Q M4G | SMB | 3,000 / 13" Plastic reel |
| S2V R5G | SMB | 850 / 7" Plastic reel |
| S2V R4G | SMB | 3,000 / 13" Paper reel |
| S2V M4G | SMB | 3,000 / 13" Plastic reel |
| S2A R5 | SMB | 850 / 7" Plastic reel |
| S2A R4 | SMB | 3,000 / 13" Paper reel |
| S2A M4 | SMB | 3,000 / 13" Plastic reel |
| S2B R5 | SMB | 850 / 7" Plastic reel |
| S2B R4 | SMB | 3,000 / 13" Paper reel |
| S2B M4 | SMB | 3,000 / 13" Plastic reel |
| S2D R5 | SMB | 850 / 7" Plastic reel |
| S2D R4 | SMB | 3,000 / 13" Paper reel |
| S2D M4 | SMB | 3,000 / 13" Plastic reel |
| S2G R5 | SMB | 850 / 7" Plastic reel |
| S2G R4 | SMB | 3,000 / 13" Paper reel |
| S2G M4 | SMB | 3,000 / 13" Plastic reel |
| S2J R5 | SMB | 850 / 7" Plastic reel |
| S2J R4 | SMB | 3,000 / 13" Paper reel |
| S2J M4 | SMB | 3,000 / 13" Plastic reel |
| S2K R5 | SMB | 850 / 7" Plastic reel |
| S2K R4 | SMB | 3,000 / 13" Paper reel |

| EXAMPLE P/N | | |
|---|---|---|
| **ORDERING CODE** | **PACKAGE** | **PACKING** |
| S2K M4 | SMB | 3,000 / 13" Plastic reel |
| S2M R5 | SMB | 850 / 7" Plastic reel |
| S2M R4 | SMB | 3,000 / 13" Paper reel |
| S2M M4 | SMB | 3,000 / 13" Plastic reel |
| S2Q R5 | SMB | 850 / 7" Plastic reel |
| S2Q R4 | SMB | 3,000 / 13" Paper reel |
| S2Q M4 | SMB | 3,000 / 13" Plastic reel |
| S2V R5 | SMB | 850 / 7" Plastic reel |
| S2V R4 | SMB | 3,000 / 13" Paper reel |
| S2V M4 | SMB | 3,000 / 13" Plastic reel |

## CHARACTERISTICS CURVES

($T_A$ = 25°C unless otherwise noted)

**Fig.1 Forward Current Derating Curve**

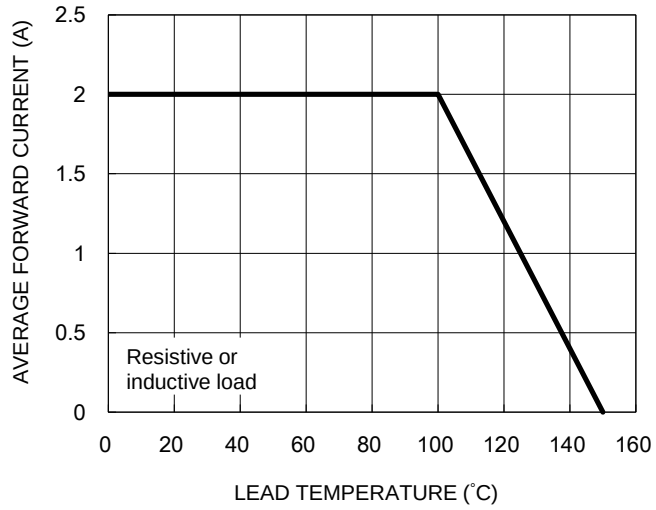



**Fig.2 Typical Junction Capacitance**

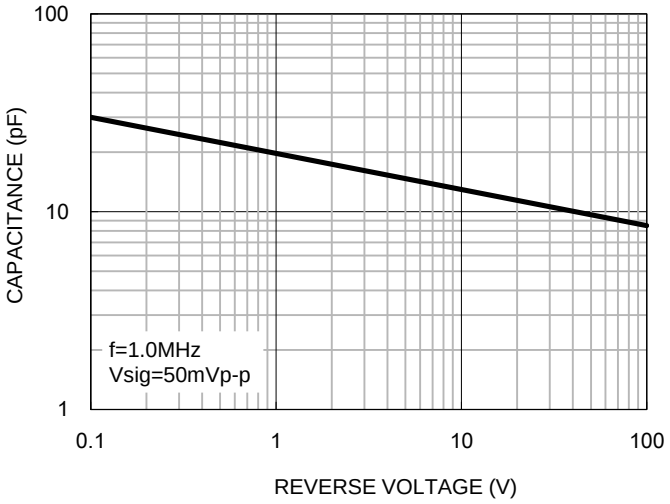



**Fig.3 Typical Reverse Characteristics**

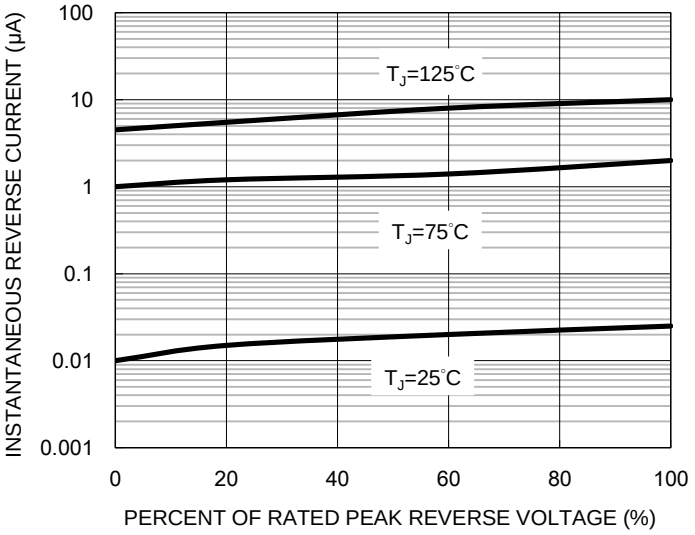
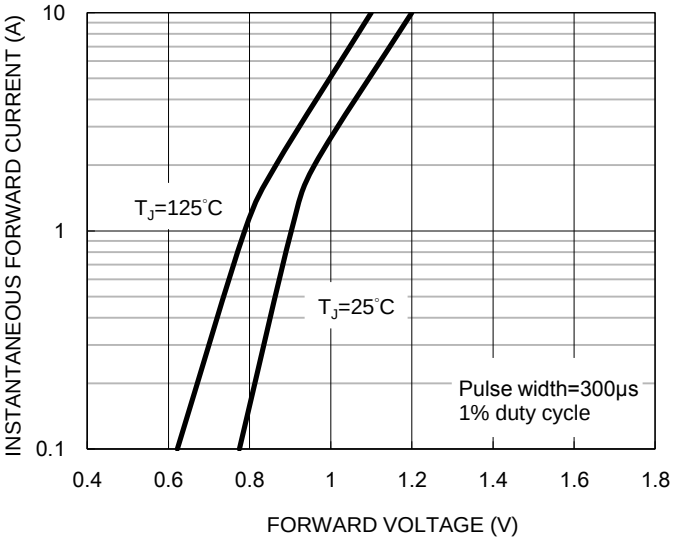



**Fig.4 Typical Forward Characteristics**



## CHARACTERISTICS CURVES

($T_A$ = 25°C unless otherwise noted)

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

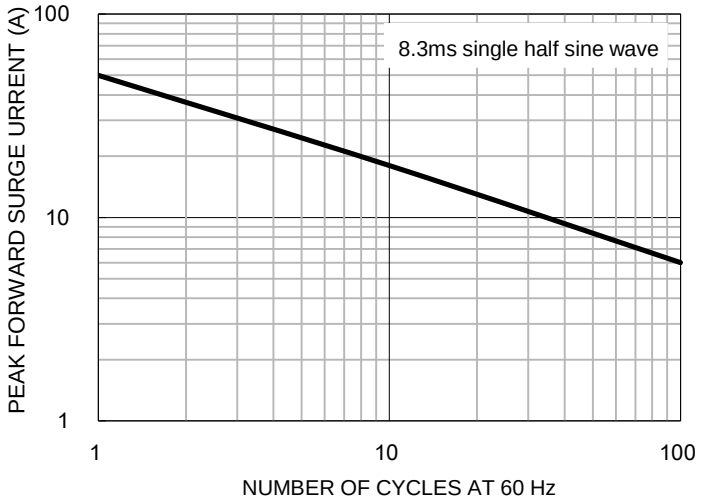
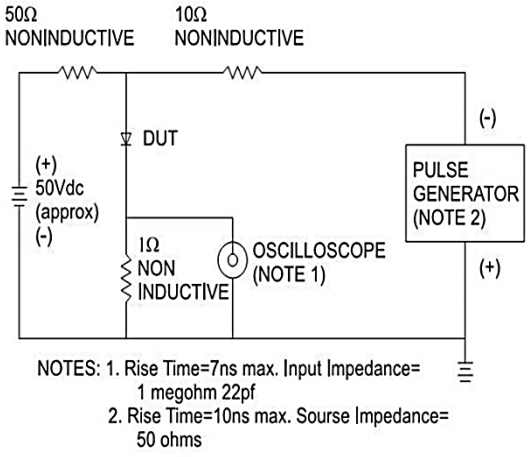
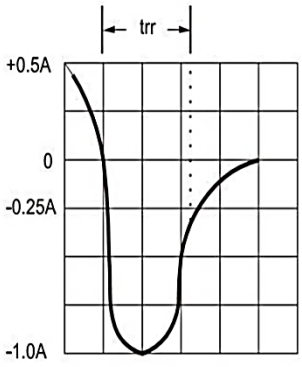


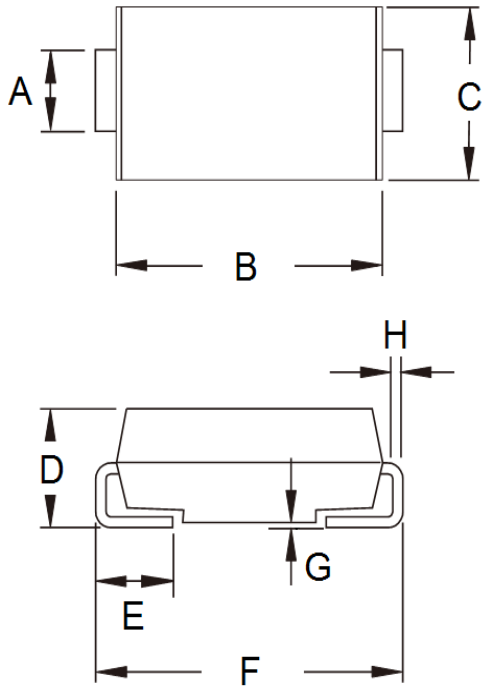

**Fig.6 Reverse Recovery Time Characteristic And Test Circuit Diagram**



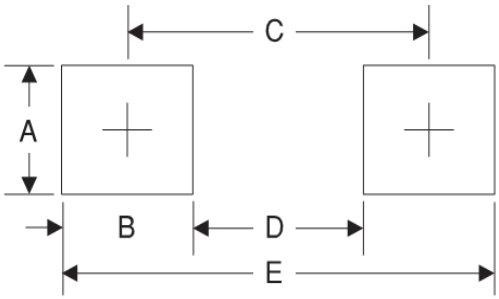
## PACKAGE OUTLINE DIMENSIONS

**DO-214AA (SMB)**




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

## SUGGESTED PAD LAYOUT




| Symbol | Unit (mm) | Unit (inch) |
|---|---|---|
| A | 2.3 | 0.091 |
| B | 2.5 | 0.098 |
| C | 4.3 | 0.169 |
| D | 1.8 | 0.071 |
| E | 6.8 | 0.268 |

## MARKING DIAGRAM


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

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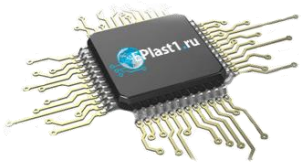
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.




**Как с нами связаться**

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