# 2A, 600V High Efficient Surface Mount Rectifier

## FEATURES

- Fast forward recovery time for high frequency operation
- Negligible switching losses
- Reduces switching and conduction losses
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

## APPLICATIONS

- Designed for high frequency switching mode inverters and converters for consumer, computers, lighting, telecommunications
- The low $I_{RRM}$ is an immediately advantage to reduce the switching losses in associated of switching devices. Also suitable as priority protection and other rectifications purposes

## 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: 0.070g (approximately)

| KEY PARAMETERS | | |
|---|---|---|
| **PARAMETER** | **VALUE** | **UNIT** |
| $I_F$ | 2 | A |
| $V_{RRM}$ | 600 | V |
| $I_{FSM}$ | 40 | 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 | UG2JA | UNIT |
|---|---|---|---|
| Marking code on the device | | UG2JA | |
| Repetitive peak reverse voltage | $V_{RRM}$ | 600 | V |
| Reverse voltage, total rms value | $V_{R(RMS)}$ | 420 | V |
| Forward current | $I_F$ | 2 | A |
| Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load | $I_{FSM}$ | 40 | 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 | $R_{\Theta JL}$ | 25 | °C/W |
| Junction-to-ambient thermal resistance | $R_{\Theta JA}$ | 70 | °C/W |

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

| PARAMETER | CONDITIONS | SYMBOL | TYP | MAX | UNIT |
|---|---|---|---|---|---|
| Forward voltage[1] | $I_F$ = 2A, $T_J$ = 25°C | $V_F$ | - | 1.3 | V |
| Reverse current @ rated $V_R$[2] | $T_J$ = 25°C | $I_R$ | - | 2 | μA |
| | $T_J$ = 125°C | | - | 50 | μA |
| Junction capacitance | 1MHz, $V_R$ = 4.0V | $C_J$ | 20 | - | pF |
| Reverse recovery time | $I_F$ = 0.5A, $I_R$ = 1.0A, $I_{rr}$ = 0.25A | $t_{rr}$ | 40 | 55 | ns |
| Forward recovery time | $I_F$ = 2A, $dI_F/dt$ = 100A/μs, $V_{FR}$ = 1.1 x $V_{Fmax}$ | $t_{fr}$ | - | 100 | ns |
| Forward recovery voltage | $I_F$ = 2A, $dI_F/dt$ = 100A/μs, $V_{FR}$ = 1.1 x $V_{Fmax}$ | $V_{FP}$ | - | 9 | V |

**Notes:**

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

## ORDERING INFORMATION

| ORDERING CODE | PACKAGE | PACKING |
|---|---|---|
| UG2JA | DO-214AC (SMA) | 7,500 / Tape & Reel |

## CHARACTERISTICS CURVES

($T_A$ = 25°C unless otherwise noted)

**Fig.1 Forward Current Derating Curve**

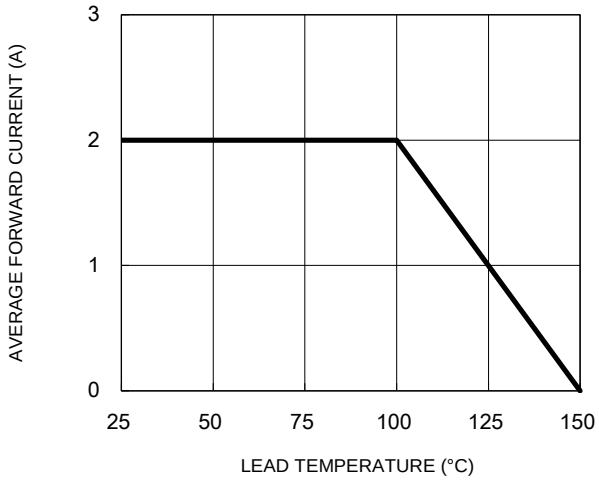



**Fig.2 Typical Junction Capacitance**

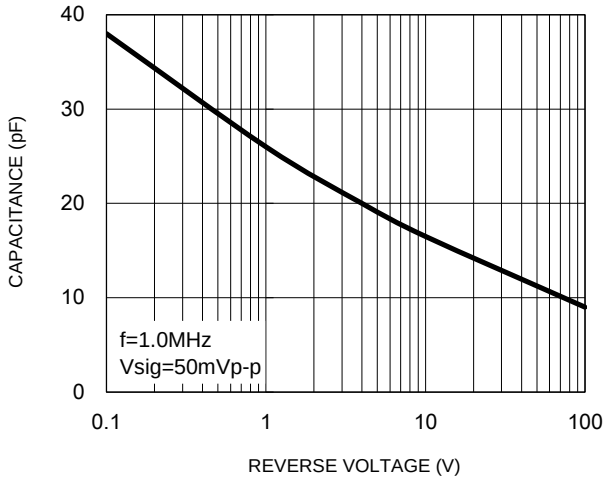



**Fig.3 Typical Reverse Characteristics**

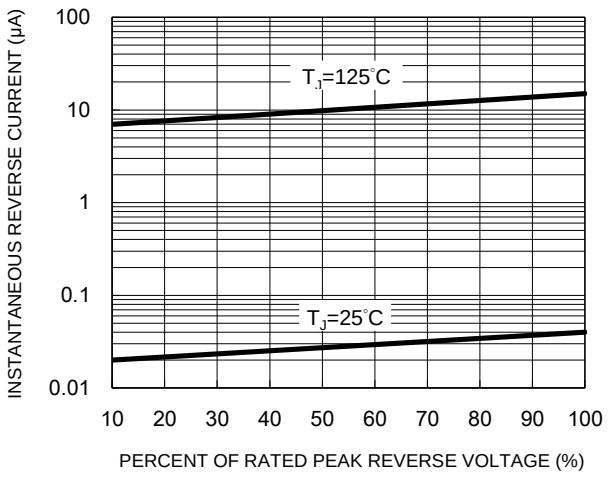



**Fig.4 Typical Forward Characteristics**

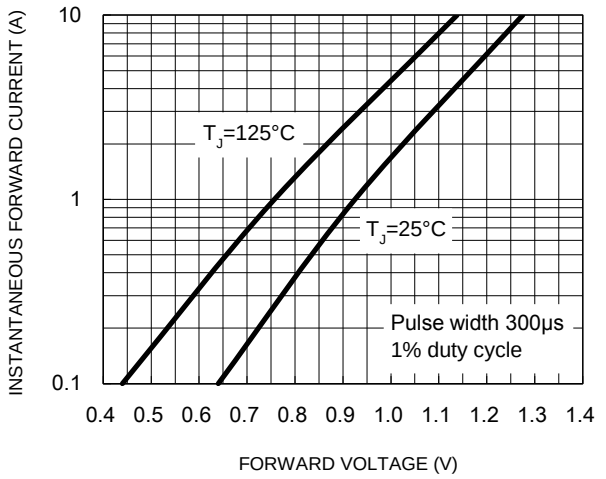
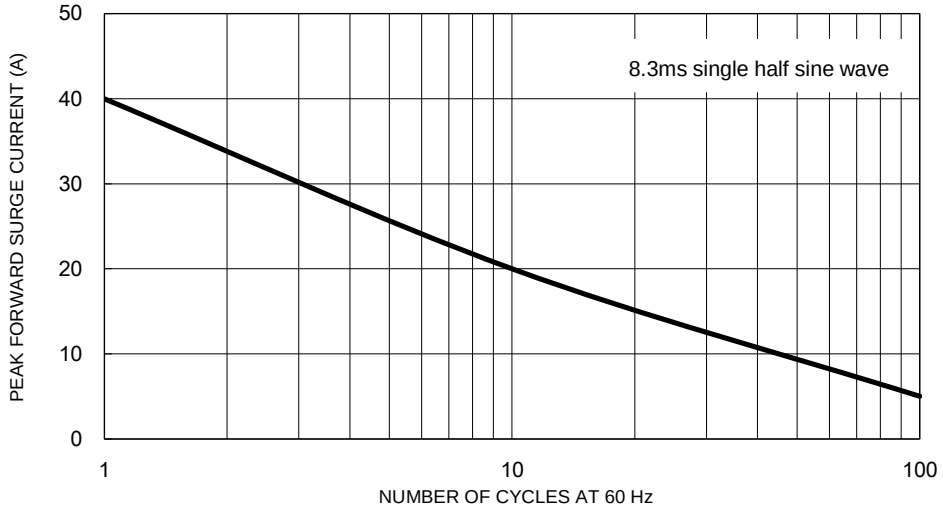


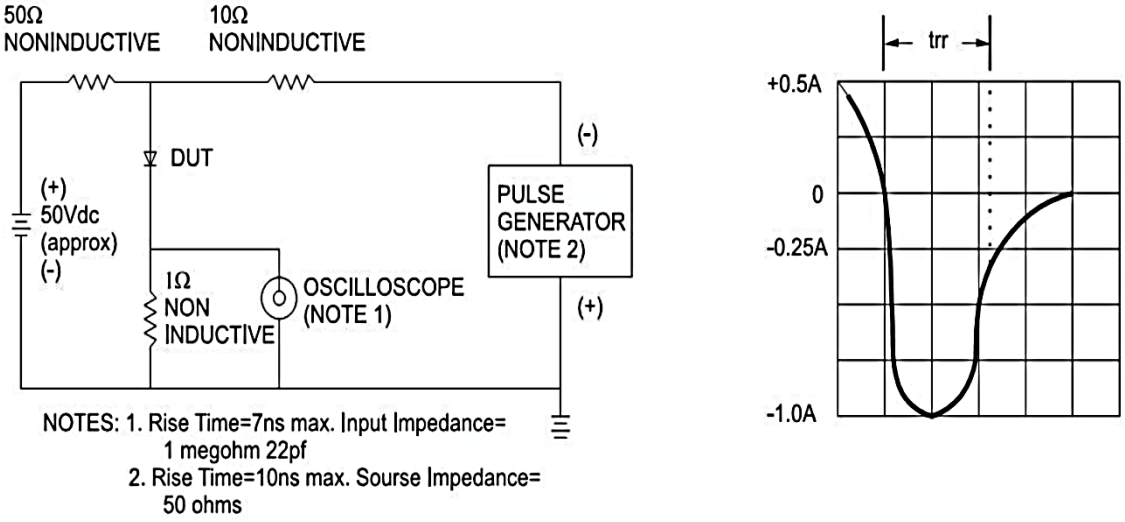

**Fig.5 Maximum Non-Repetitive Forward Surge Current**



## CHARACTERISTICS CURVES

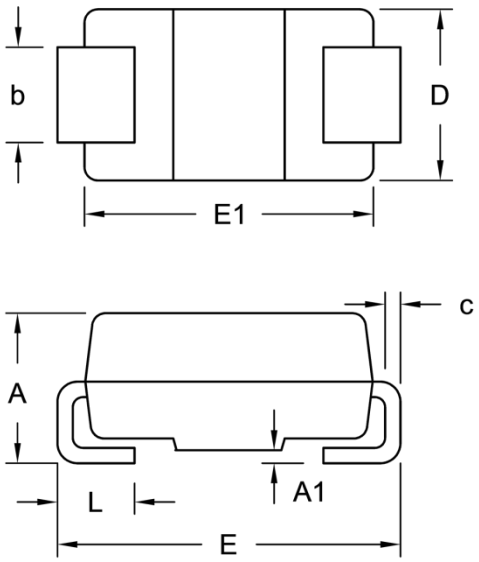
($T_A$ = 25°C unless otherwise noted)

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



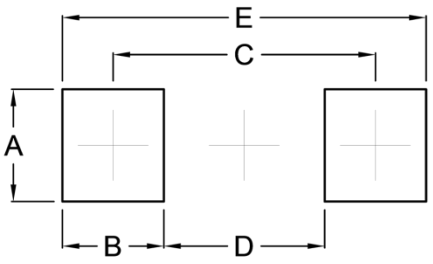
## PACKAGE OUTLINE DIMENSIONS

**DO-214AC (SMA)**




| DIM. | Unit (mm) | | Unit (inch) | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 1.99 | 2.50 | 0.078 | 0.098 |
| A1 | 0.10 | 0.20 | 0.004 | 0.008 |
| b | 1.27 | 1.58 | 0.050 | 0.062 |
| c | 0.15 | 0.31 | 0.006 | 0.012 |
| D | 2.29 | 2.83 | 0.090 | 0.111 |
| E | 4.95 | 5.33 | 0.195 | 0.210 |
| E1 | 4.06 | 4.60 | 0.160 | 0.181 |
| L | 0.90 | 1.41 | 0.035 | 0.056 |

## SUGGESTED PAD LAYOUT




| Symbol | Unit (mm) | Unit (inch) |
|---|---|---|
| A | 1.68 | 0.066 |
| B | 1.52 | 0.060 |
| C | 3.93 | 0.155 |
| D | 2.41 | 0.095 |
| E | 5.45 | 0.215 |

## MARKING DIAGRAM


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

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