

1A, 50V - 600V Surface Mount Super Fast Rectifiers

FEATURES

- Glass passivated junction chip
- Ideal for automated placement
- Super fast recovery time for high efficiency
- Built-in strain relief

MECHANICAL DATA

- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition





DO-214AC (SMA)

Case: DO-214AC (SMA) Molding compound, UL flammability classification rating 94V-0 Moisture sensitivity level: level 1, per J-STD-020 Part No. with suffix "H" means AEC-Q101 qualified Packing code with suffix "G" means green compound (halogen-free) Terminal: Matte tin plated leads, solderable per JESD22-B102 Meet JESD 201 class 2 whisker test Polarity: Indicated by cathode band Weight: 0.06 g (approximately)

| MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T _A =25°C unless otherwise noted) | | | | | | | | | | |
|--|--------------------------------------|--------------|-----|-----|-----|------|-----|-----|-----|------|
| PARAMETER | SYMBOL | ES ES ES | | ES | ES | ES | ES | ES | ES | UNIT |
| | STWDOL | 1A | 1B | 1C | 1D | 1F | 1G | 1H | 1J | UNIT |
| Maximum repetitive peak reverse voltage | V _{RRM} | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 | V |
| Maximum RMS voltage | V _{RMS} | 35 | 70 | 105 | 140 | 210 | 280 | 350 | 420 | V |
| Maximum DC blocking voltage | V _{DC} | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 | V |
| Maximum average forward rectified current | I _{F(AV)} | | | | | | | Α | | |
| Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load | I _{FSM} | 30 | | | | | A | | | |
| Maximum instantaneous forward voltage (Note 1) @ 1 A | V _F | 0.95 | | 1.3 | | 1 | .7 | V | | |
| Maximum reverse current @ rated V_R T _J =25°C T _J =125°C | I _R | 5 100 | | | | μA | | | | |
| Maximum reverse recovery time (Note 2) | t _{rr} | 35 | | | ns | | | | | |
| Typical junction capacitance (Note 3) | CJ | 16 18 | | | pF | | | | | |
| Typical thermal resistance | R _{θJL} R _{θJA} | 35 85 | | | | °C/W | | | | |
| Operating junction temperature range | TJ | - 55 to +150 | | | | °C | | | | |
| Storage temperature range | T _{STG} | - 55 to +150 | | | °C | | | | | |

Note 1: Pulse test with PW=300µs, 1% duty cycle

Note 2: Reverse Recovery Test Conditions: I_F =0.5A, I_R =1.0A, I_{RR} =0.25A

Note 3: Measured at 1 MHz and Applied V_R =4.0 Volts



Taiwan Semiconductor

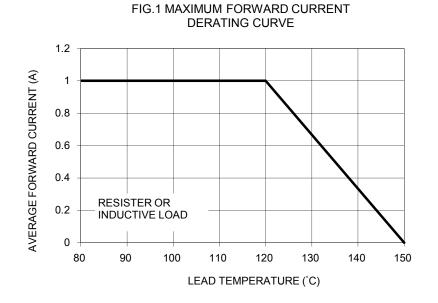
| | | ORDERING INFORMATION | | | | | | |
|------------------|-------------|--|---|---|--|--|--|--|
| PART NO. | PACKING | PACKING CODE | PACKAGE | PACKING | | | | |
| SUFFIX | CODE | SUFFIX | | | | | | |
| | R3 | | SMA | 1,800 / 7" Plastic reel | | | | |
| | R2 | | SMA | 7,500 / 13" Paper reel | | | | |
| ES1x (Note 1) | M2 | | SMA | 7,500 / 13" Plastic reel | | | | |
| | F3 | | Folded SMA | 1,800 / 7" Plastic reel | | | | |
| | F2 | G | Folded SMA | 7,500 / 13" Paper reel | | | | |
| | F4 | | Folded SMA | 7,500 / 13" Plastic reel | | | | |
| NI/A | E3 | | Clip SMA | 1,800 / 7" Plastic reel | | | | |
| IN/A | E2 | | Clip SMA | 7,500 / 13" Plastic reel | | | | |
| | SUFFIX H | SUFFIX CODE R3 R2 M2 F3 F2 F4 N/A E3 | SUFFIX CODE SUFFIX R3 R3 R2 R2 M2 F3 F2 F4 N/A E3 | SUFFIXCODESUFFIXR3R3R2SMAM2SMAF3GF2Folded SMAF4Folded SMAKAClip SMA | | | | |

Note 1: "x" defines voltage from 50V (ES1A) to 600V (ES1J)

| EXAMPLE | | | | | | |
|-----------------------|----------|--------------------|--------------|------------------------|--------------------------------------|--|
| PREFERRED PART NO. | PART NO. | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION | |
| ES1JHR3G | ES1J | Н | R3 | G | AEC-Q101 qualified Green compound | |

RATINGS AND CHARACTERISTICS CURVES

(T_A =25°C unless otherwise noted)



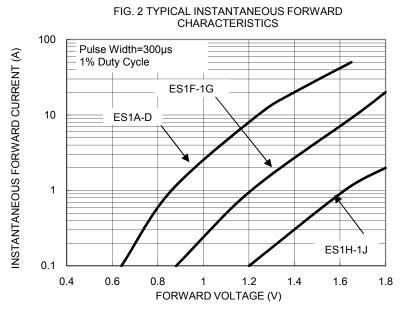


FIG. 3 MAXIMUM NON-REPETITIVE FORWARD PEAK SURGE CURRENT

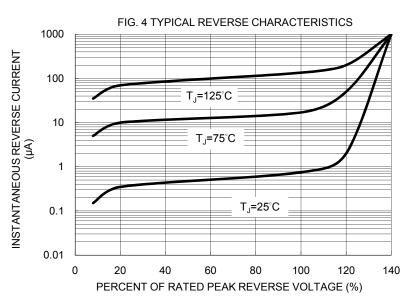




FIG. 5 TYPICAL JUNCTION CAPACITANCE

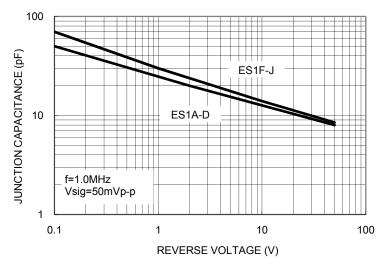
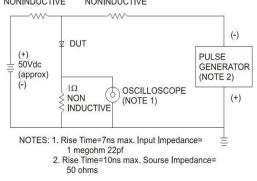


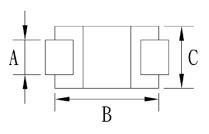
FIG.6- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



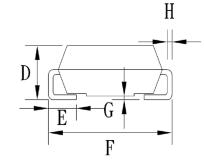


+0.5A 0 -0.25A -1.0A

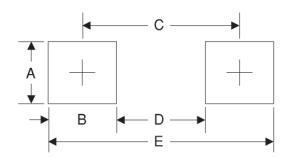
PACKAGE OUTLINE DIMENSIONS DO-214AC (SMA)



| DIM. | Unit | (mm) | Unit (inch) | | | |
|------|---------|------|-------------|-------|--|--|
| | Min Max | | Min | Max | | |
| А | 1.27 | 1.58 | 0.050 | 0.062 | | |
| В | 4.06 | 4.60 | 0.160 | 0.181 | | |
| С | 2.29 | 2.83 | 0.090 | 0.111 | | |
| D | 1.99 | 2.50 | 0.078 | 0.098 | | |
| E | 0.90 | 1.41 | 0.035 | 0.056 | | |
| F | 4.95 | 5.33 | 0.195 | 0.210 | | |
| G | 0.10 | 0.20 | 0.004 | 0.008 | | |
| Н | 0.15 | 0.31 | 0.006 | 0.012 | | |



SUGGESTED PAD LAYOUT



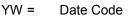
F =

| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| А | 1.68 | 0.066 |
| В | 1.52 | 0.060 |
| С | 3.93 | 0.155 |
| D | 2.41 | 0.095 |
| E | 5.45 | 0.215 |

MARKING DIAGRAM



P/N = Specific Device Code G = Green Compound



Factory Code



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