

Surface Mount Super Fast Rectifiers

FEATURES

- Glass passivated junction chip
- Ideal for automated placement
- Low profile package
- Low power loss, high efficiency
- Moisture sensitivity level: level 1, per J-STD-020
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



Sub SMA

MECHANICAL DATA

Case: Sub SMA

Molding compound, UL flammability classification rating 94V-0

Base P/N with suffix "G" on packing code - green compound (halogen-free)

Base P/N with prefix "H" on packing code - AEC-Q101 qualified

Terminal: Matte tin plated leads, solderable per JESD22-B102

Meet JESD 201 class 1A whisker test

with prefix "H" on packing code meet JESD 201 class 2 whisker test

Polarity: Indicated by cathode band

Weight: 0.019 g (approximately)

| MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T _A =25°C unless otherwise noted) | | | | | | | | | | |
|--|--------------------------------------|--------------|--------|--------|--------|--------|--------|--------|--------|------|
| PARAMETER | SYMBOL | ES 1AL | ES 1BL | ES 1CL | ES 1DL | ES 1FL | ES 1GL | ES 1HL | ES 1JL | UNIT |
| Marking code | | EAL | EBL | ECL | EDL | EFL | EGL | EHL | EJL | |
| 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)} | 1 | | | | | | | | A |
| 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 VR T _J =25 °C T _J =125 °C | I _R | 5 100 | | | | | | | | μA |
| Typical junction capacitance (Note 2) | C _j | 10 | | | 8 | | | | | pF |
| Maximum reverse recovery time (Note 3) | T _{rr} | 35 | | | | | | | | ns |
| Typical thermal resistance | R _{θJL} R _{θJA} | 35 85 | | | | | | | | °C/W |
| Operating junction temperature range | T _J | - 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: Measured at 1 MHz and Applied VR=4.0 Volts.

Note 3: Reverse Recovery Test Conditions: I_F=0.5A, I_R=1.0A, I_{RR}=0.25A

| ORDERING INFORMATION | | | | | |
|----------------------|--------------------|--------------|---------------------|---------|---------------------------------------|
| PART NO. | AEC-Q101 QUALIFIED | PACKING CODE | GREEN COMPOUND CODE | PACKAGE | PACKING |
| ES1xL (Note 1) | Prefix "H" | RU | Suffix "G" | Sub SMA | 1,800 / 7" Plastic reel (8mm tape) |
| | | RV | | Sub SMA | 3,000 / 7" Plastic reel (8mm tape) |
| | | RT | | Sub SMA | 7,500 / 13" Paper reel (8mm tape) |
| | | MT | | Sub SMA | 7,500 / 13" Plastic reel (8mm tape) |
| | | RQ | | Sub SMA | 10,000 / 13" Paper reel (8mm tape) |
| | | MQ | | Sub SMA | 10,000 / 13" Plastic reel (8mm tape) |
| | | R3 | | Sub SMA | 1,800 / 7" Plastic reel (12mm tape) |
| | | RF | | Sub SMA | 3,000 / 7" Plastic reel (12mm tape) |
| | | R2 | | Sub SMA | 7,500 / 13" Paper reel (12mm tape) |
| | | M2 | | Sub SMA | 7,500 / 13" Plastic reel (12mm tape) |
| | | RH | | Sub SMA | 10,000 / 13" Paper reel (12mm tape) |
| | | MH | | Sub SMA | 10,000 / 13" Plastic reel (12mm tape) |

Note 1: "x" defines voltage from 50V (ES1AL) to 600V (ES1JL)

| EXAMPLE | | | | | |
|---------------|----------|--------------------|--------------|---------------------|--------------------|
| PREFERRED P/N | PART NO. | AEC-Q101 QUALIFIED | PACKING CODE | GREEN COMPOUND CODE | DESCRIPTION |
| ES1JL RU | ES1JL | | RU | | |
| ES1JL RUG | ES1JL | | RU | G | Green compound |
| ES1JLHRU | ES1JL | H | RU | | AEC-Q101 qualified |

RATINGS AND CHARACTERISTICS CURVES

(TA=25°C unless otherwise noted)

FIG. 1 FORWARD CURRENT DERATING CURVE

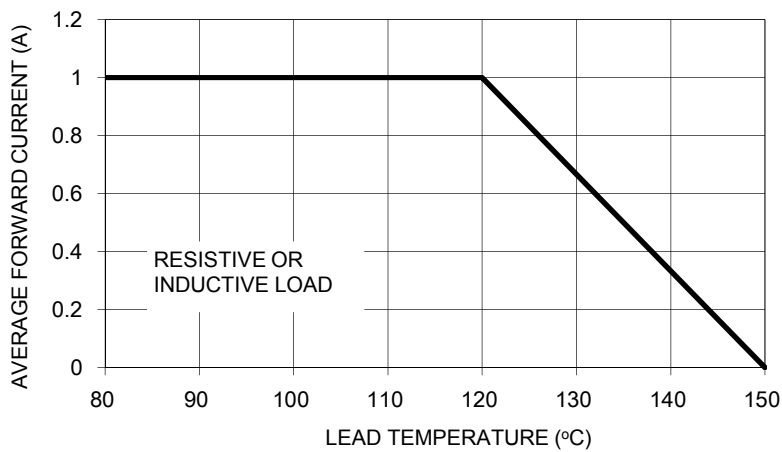


FIG. 2 TYPICAL FORWARD CHARACTERISTICS

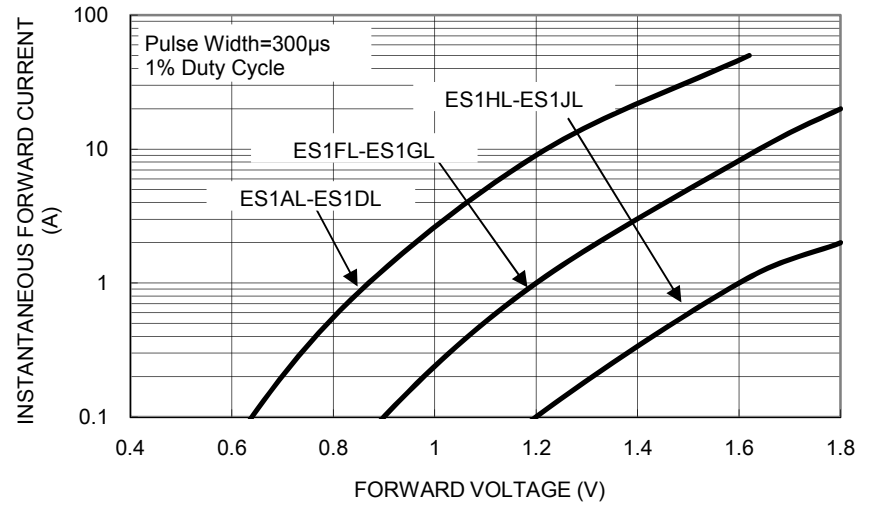


FIG. 3 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

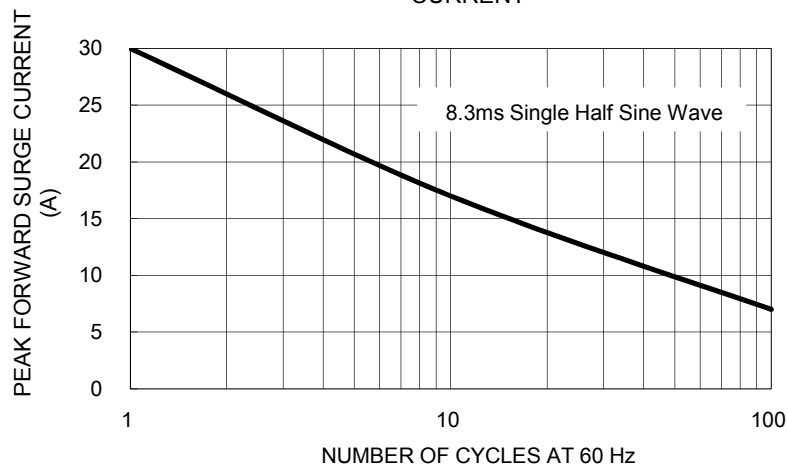


FIG. 4 TYPICAL REVERSE CHARACTERISTICS

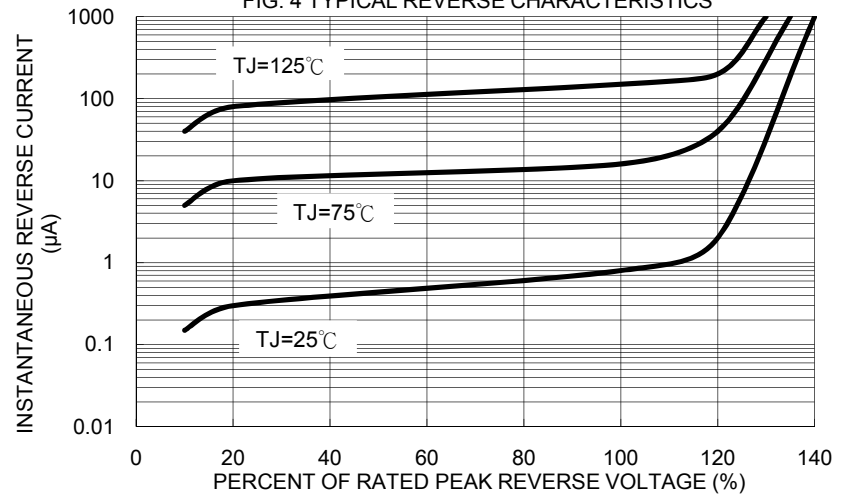


FIG. 5 TYPICAL JUNCTION CAPACITANCE

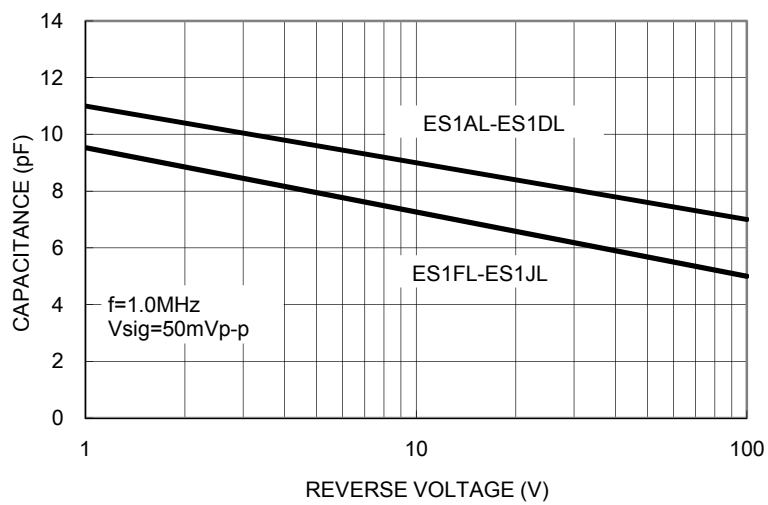
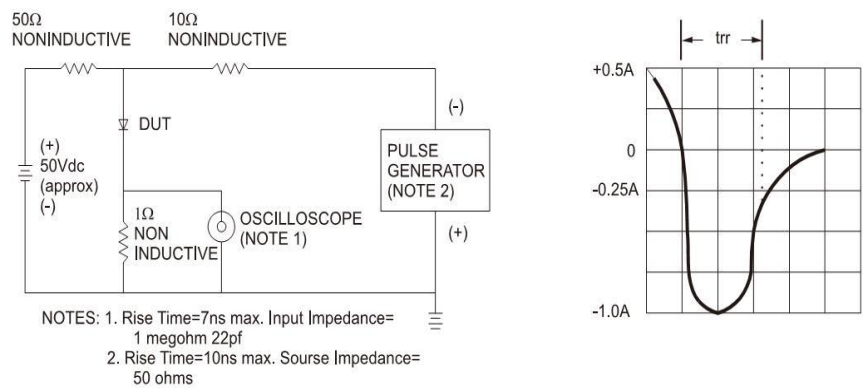
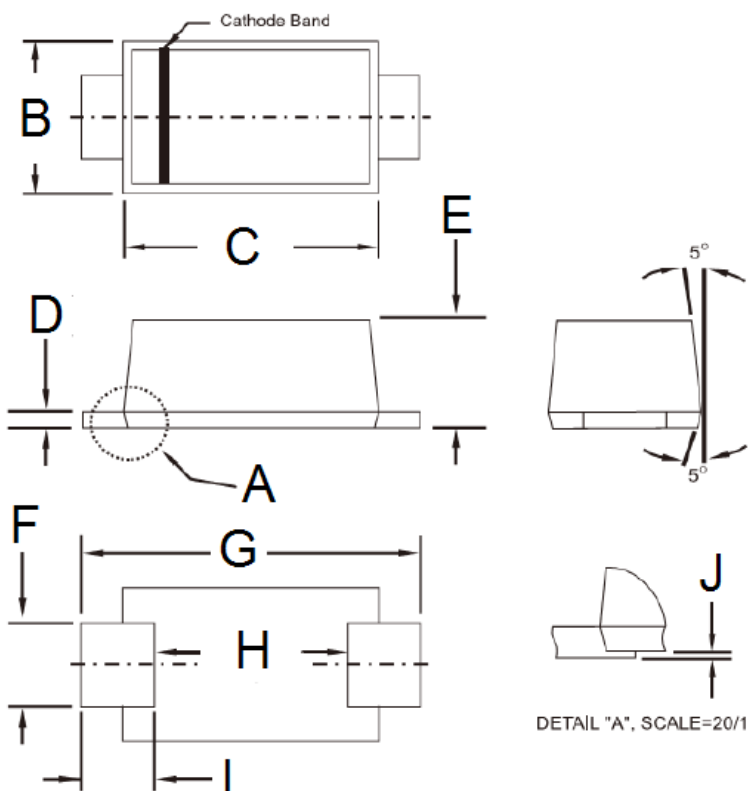


FIG.6- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM

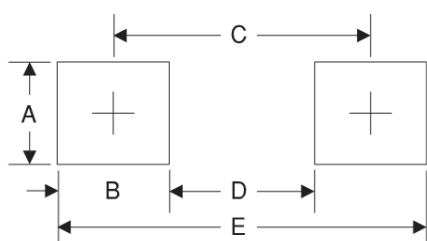


PACKAGE OUTLINE DIMENSIONS



| DIM. | Unit (mm) | | Unit (inch) | |
|------|-----------|------|-------------|-------|
| | Min | Max | Min | Max |
| B | 1.70 | 1.90 | 0.067 | 0.075 |
| C | 2.70 | 2.90 | 0.106 | 0.114 |
| D | 0.16 | 0.30 | 0.006 | 0.012 |
| E | 1.23 | 1.43 | 0.048 | 0.056 |
| F | 0.80 | 1.20 | 0.031 | 0.047 |
| G | 3.40 | 3.80 | 0.134 | 0.150 |
| H | 2.45 | 2.60 | 0.096 | 0.102 |
| I | 0.35 | 0.85 | 0.014 | 0.033 |
| J | 0.00 | 0.10 | 0.000 | 0.004 |

SUGGESTED PAD LAYOUT



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| A | 1.4 | 0.055 |
| B | 1.2 | 0.047 |
| C | 3.1 | 0.122 |
| D | 1.9 | 0.075 |
| E | 4.3 | 0.169 |

MARKING DIAGRAM



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

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