

SMAJ Plastic-Encapsulate Diodes

ES1A THRU ES1J Super Fast Recovery Rectifier Diodes

Features

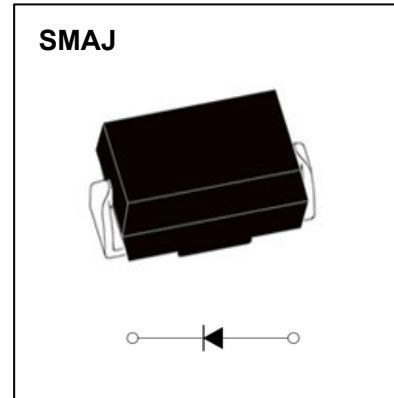
- $I_{F(AV)}$ 1A
- V_{RRM} 50V-600V
- High surge current capability
- Polarity: Color band denotes cathode

Applications

- Rectifier

Marking

- ES1X
- X : From A To J



Limiting Values(Absolute Maximum Rating)

| Item | Symbol | Unit | Test Conditions | ES1 | | | | | | | |
|--|----------------|------------------|--|------------|-----|-----|-----|-----|-----|-----|-----|
| | | | | A | B | C | D | E | G | H | J |
| Repetitive Peak Reverse Voltage | V_{RRM} | V | | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 |
| Maximum RMS Voltage | V_{RMS} | V | | 35 | 70 | 105 | 140 | 210 | 280 | 350 | 420 |
| Average Forward Current | $I_{F(AV)}$ | A | 60Hz Half-sine wave, Resistance load, $T_a=75^\circ\text{C}$ | 1.0 | | | | | | | |
| Surge(Non-repetitive)Forward Current | I_{FSM} | A | 60Hz Half-sine wave, 1 cycle, $T_a=25^\circ\text{C}$ | 30 | | | | | | | |
| Operation Junction and Storage Temperature Range | T_J, T_{STG} | $^\circ\text{C}$ | | -55 ~ +150 | | | | | | | |

Electrical Characteristics (T=25°C Unless otherwise specified)

| Item | Symbol | Unit | Test Condition | ES1 | | | | | | | |
|-------------------------------|------------------|---------------------------|---|-------------------------|----|-----|------|---|------|---|---|
| | | | | A | B | C | D | E | G | H | J |
| Peak Forward Voltage | V_F | V | $I_F=1.0\text{A}$ | 0.95 | | | 1.25 | | 1.70 | | |
| Maximum reverse recovery time | t_{rr} | ns | $I_F=0.5\text{A}, I_R=1.0\text{A}, I_{rr}=0.25\text{A}$ | 35 | | | | | | | |
| Peak Reverse Current | I_{RRM1} | μA | $V_{RM}=V_{RRM}$ | $T_a=25^\circ\text{C}$ | | 5 | | | | | |
| | I_{RRM2} | | | $T_a=100^\circ\text{C}$ | | 100 | | | | | |
| Thermal Resistance(Typical) | $R_{\theta J-A}$ | $^\circ\text{C}/\text{W}$ | Between junction and ambient | | 55 | | | | | | |
| | $R_{\theta J-L}$ | | Between junction and terminal | | 25 | | | | | | |

Notes:

Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

Typical Characteristics

FIG.1: FORWARD CURRENT DERATING CURVE

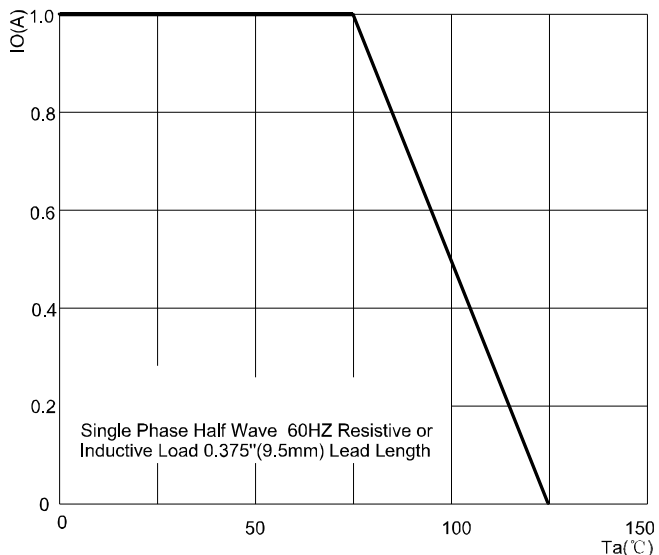


FIG.2: MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

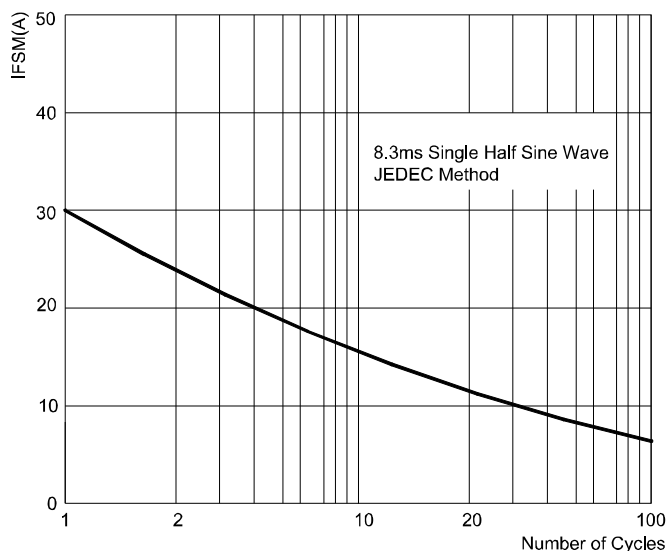


FIG.3: TYPICAL FORWARD CHARACTERISTICS

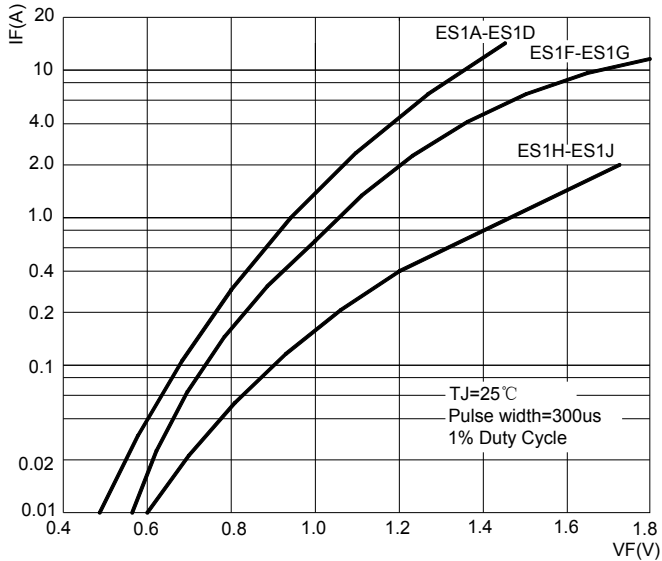


FIG.4: TYPICAL REVERSE CHARACTERISTICS

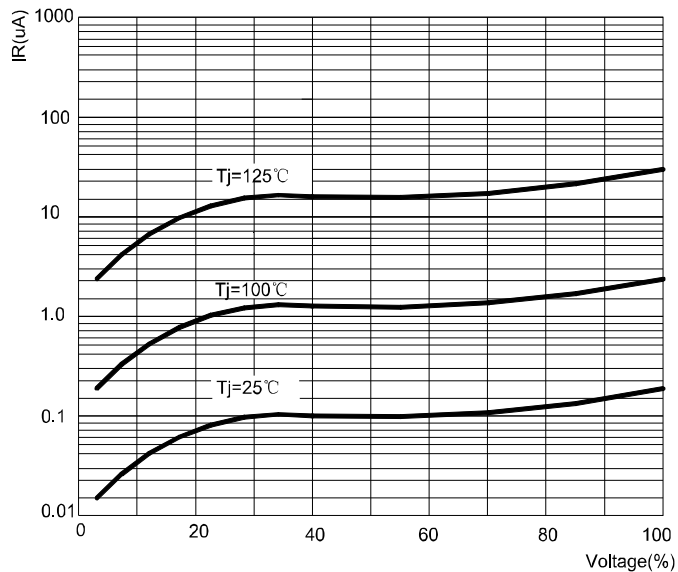
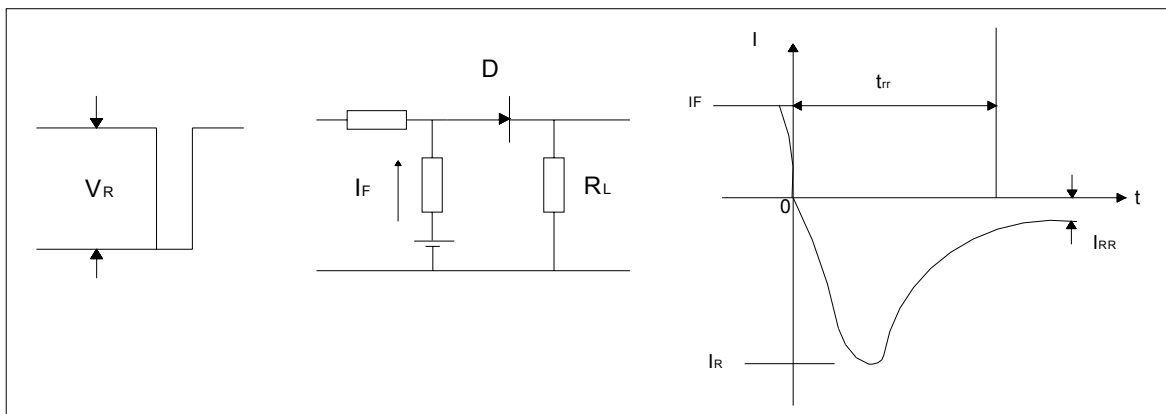
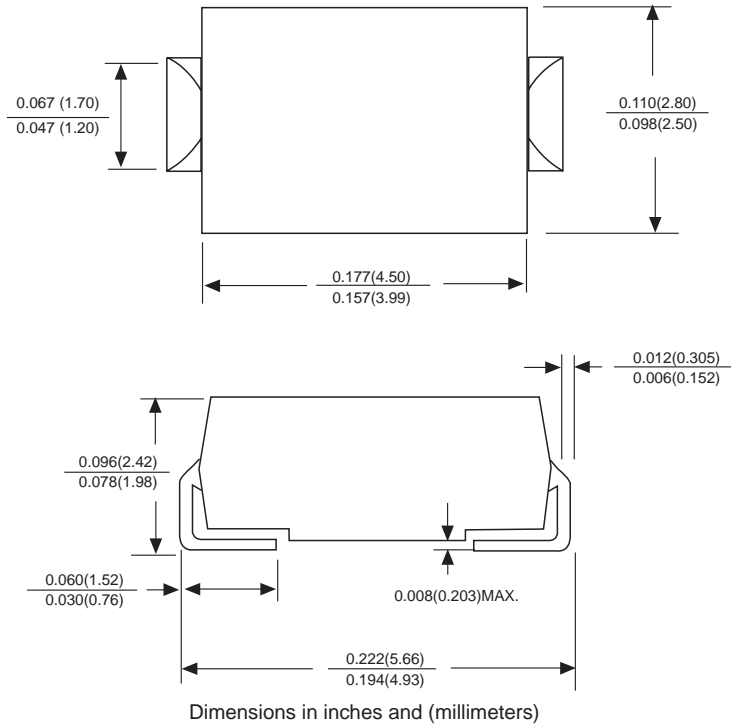


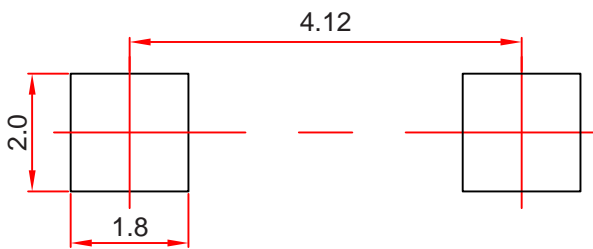
FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



SMAJ Package Outline Dimensions



SMAJ Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.05 mm.
3. The pad layout is for reference purposes only.

NOTICE

JSCJ reserves the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. JSCJ does not assume any liability arising out of the application or use of any product described herein.

Reel Taping Specifications For Surface Mount Devices-SMAJ

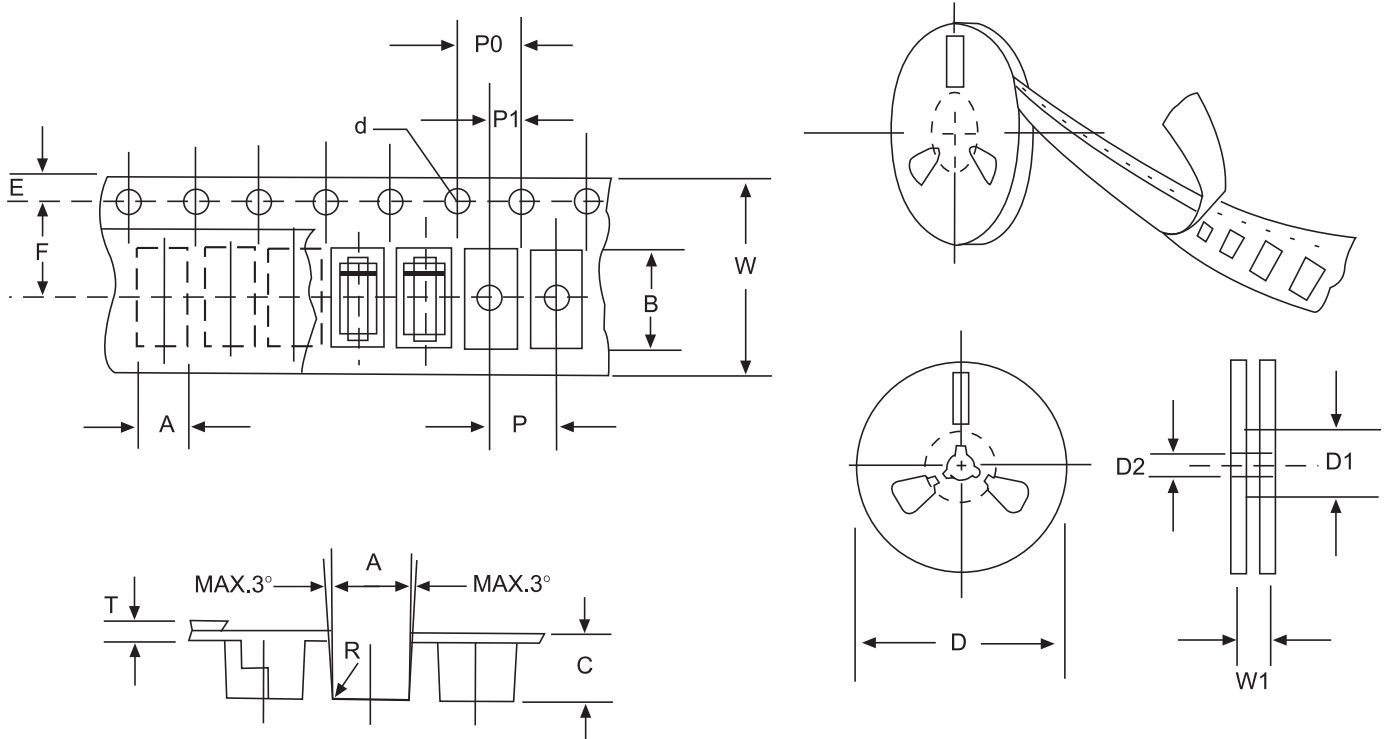


FIG: CONFIGURATION OF SURFACE MOUNTED DEVICES TAPING

| ITEM | SYMBOL | SMAJ mm(inch) |
|-----------------------|--------|---------------------------|
| Carrier width | A | 2.79±0.1(0.110±0.004) |
| Carrier length | B | 5.33±0.1(0.210±0.004) |
| Carrier depth | C | 2.36±0.1(0.093±0.004) |
| Sprocket hole | d | 1.55±0.05(0.061±0.002) |
| Reel outside diameter | D | 279±2.0 (11± 0.079) |
| Reel inner diameter | D1 | 75 ±1.0 (2.95 ±0.039) |
| Feed hole diameter | D2 | 13±0.5(0.512±0.020) |
| Stroket hole position | E | 1.75±0.1(0.069±0.004) |
| Punch hole position | F | 5.5±0.05(0.217±0.002) |
| Punch hole pitch | P | 4.0±0.1(0.157±0.004) |
| Sprocket hole pitch | P0 | 4.0±0.1(0.157±0.004) |
| Embossment center | P1 | 2.0±0.1(0.079±0.004) |
| Totall tape thickness | T | 0.28±0.02(0.011 ±0.0008) |
| Tape width | W | 12.0±0.2(0.472±0.008) |
| Reel width | W1 | 16.8±2.0(0.661±0.079) |

NOTE: Devices are packed in accordance with EIA standard RS-481-A and specification given above.