



ES2A THRU ES2J

VOLTAGE RANGE 50 to 600 Volts
CURRENT 2.0 Ampere



Features

- Fast recovery glass passivated: chip 60mil
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- High temperature soldering: 260°C/10S at terminals
- Component in accordance to ROHS 2002/95/1 and WEEE 2002/96/EC



DO-214AC (SMA)

Mechanical Data

- Case: JEDEC DO-214AC mold plastic Body over glass passivated chip
- Terminals: Solder plated, solderable per J-STD-002B and JESD22-B102D
- Polarity: Laser band denote cathode band
- Weight: 0.0024 ounce, 0.068 gram

Maximum Ratings and Electrical Characteristics

- Ratings at 25°C ambient temperature unless otherwise specified
- Single phase, half wave, 60Hz, resistive or inductive load
- For capacitive load derate current by 20%

| TYPE NUMBER | SYMBOL | ES 2A | ES 2B | ES 2C | ES 2D | ES 2F | ES 2G | ES 2J | UNIT |
|--|-----------------|---------------------------|-------|-------|-------|-------|-------|-------|--------------------|
| Maximum Repetitive Peak Reverse Voltage | V_{RRM} | 50 | 100 | 150 | 200 | 300 | 400 | 600 | Volts |
| Maximum RMS Voltage | V_{RMS} | 35 | 70 | 105 | 140 | 210 | 280 | 420 | Volts |
| Maximum DC Blocking Voltage | V_{DC} | 50 | 100 | 150 | 200 | 300 | 400 | 600 | Volts |
| Maximum Average Forward Rectified Current At $T_A=125^\circ\text{C}$ | $I_{(AV)}$ | 2.0 | | | | | | | Amps |
| Peak Forward Surge Current 8.3ms single half sine wave superimposed on rated load (JEDEC Method) | I_{FSM} | 50 | | | | | | | Amps |
| Maximum Instantaneous Forward Voltage at 2.0A | V_F | 0.95 | | | | 1.25 | | 1.70 | Volts |
| Maximum DC Reverse Current at rated DC blocking voltage at | I_R | $T_A = 25^\circ\text{C}$ | | | | | | | μAmps |
| | | $T_A = 125^\circ\text{C}$ | | | | | | | |
| Maximum Reverse Recovery Time (NOTE 3) | T_{RR} | 35 | | | | | | | nS |
| Typical Junction Capacitance (NOTE 2) | C_J | 60 | | | | 50 | | | pF |
| Typical Thermal Resistance (NOTE 1) | $R_{\theta JA}$ | 70 | | | | | | | $^\circ\text{C/W}$ |
| | $R_{\theta JL}$ | 28 | | | | | | | |
| Operating Junction Temperature | T_J | (-55 to +150) | | | | | | | $^\circ\text{C}$ |
| Storage Temperature Range | T_{STG} | (-55 to +150) | | | | | | | $^\circ\text{C}$ |

Notes:

1. Thermal resistance from Junction to ambient and from junction to lead mounted on PCB. with 0.2×0.2"(5.0 × 5.0mm) copper pad areas.
2. Measured at 1.0MHz and applied reverse voltage of 4.0V.
3. Reverse Recovery Test Conditions: $I_f=0.5\text{A}$, $I_r=1.0\text{A}$, $I_{rr}=0.25\text{A}$.



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Ratings and Characteristic Curves (T_A=25°C unless otherwise noted)

FIG.1-TYPICAL FORWARD CURRENT DERATING CURVE

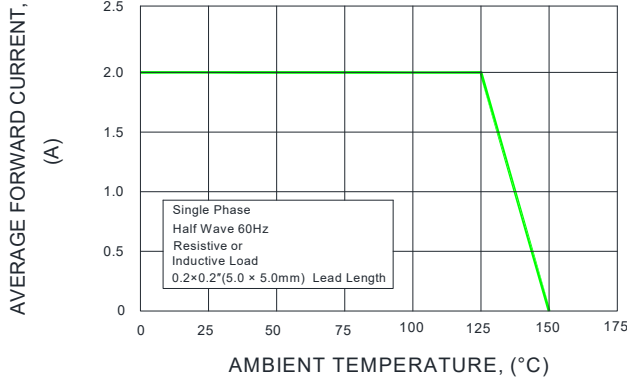


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

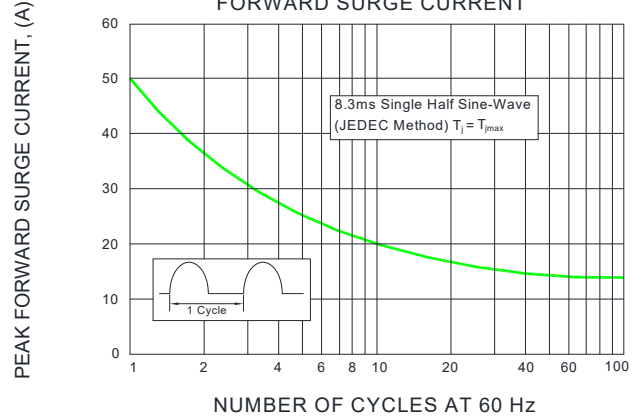


FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

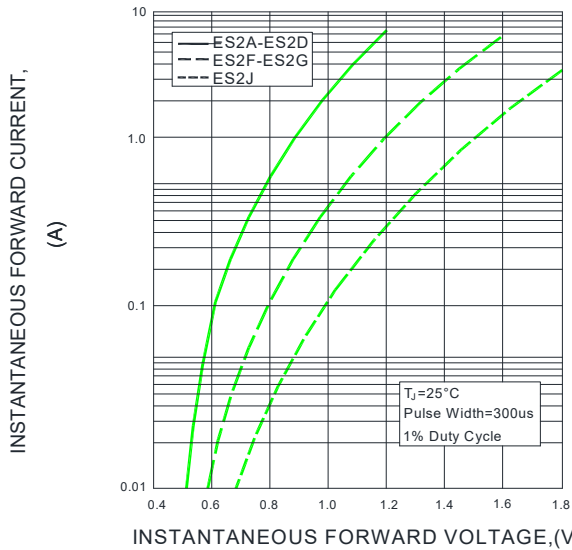


FIG.4-TYPICAL REVERSE CHARACTERISTICS

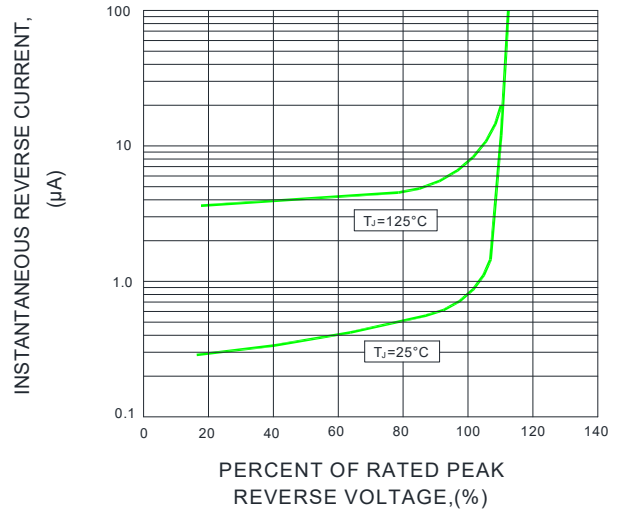


FIG.5-TYPICAL JUNCTION CAPACITANCE

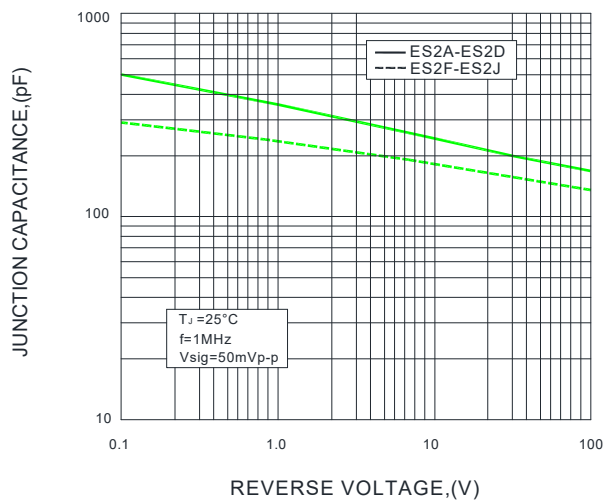
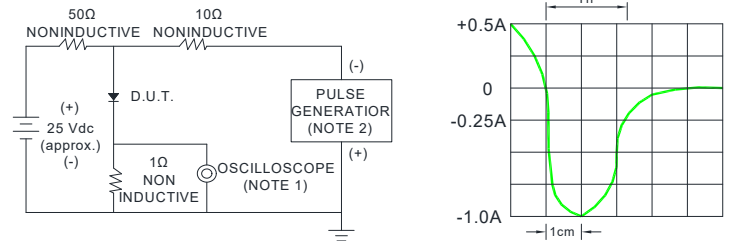


FIG.6-TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC



NOTES : 1. Rise Time=7ns max. Input Impedance= 1 magohm. 22pF
2. Rise time=10ns max. Source Impedance= 50 ohms

SET TIME BASE FOR 50/100ns/cm

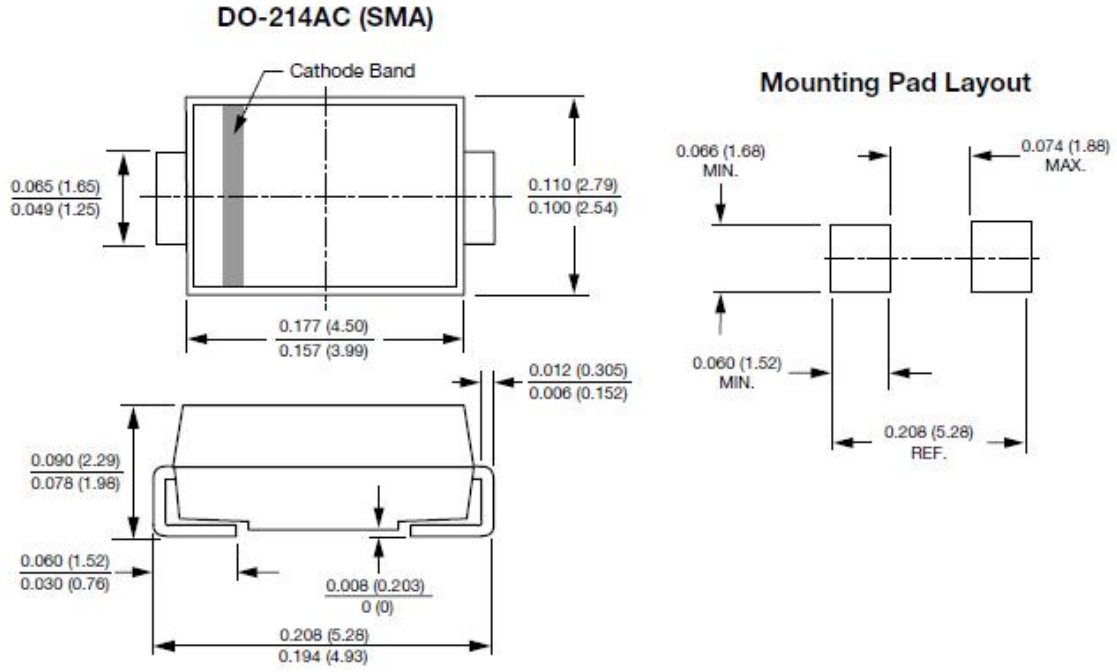


SURFACE MOUNT SUPER FAST RECOVERY RECTIFIER

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Package Outline Dimensions in inches (millimeters)



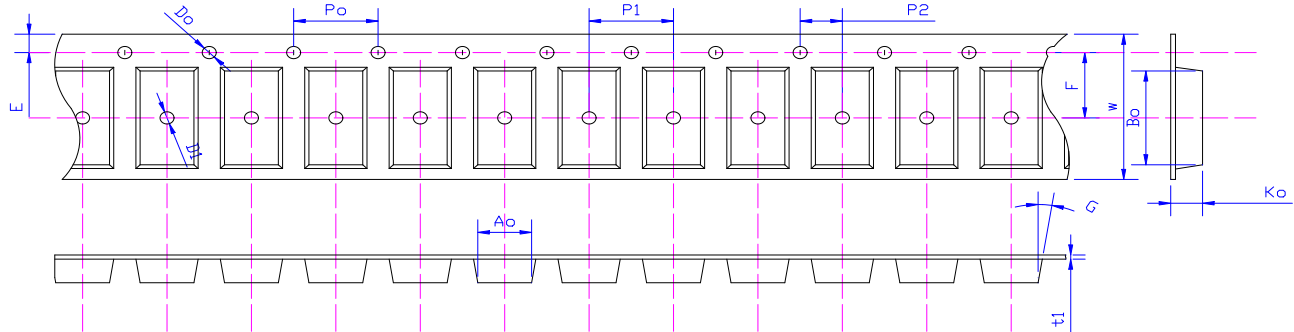


SURFACE MOUNT SUPER FAST RECOVERY RECTIFIER

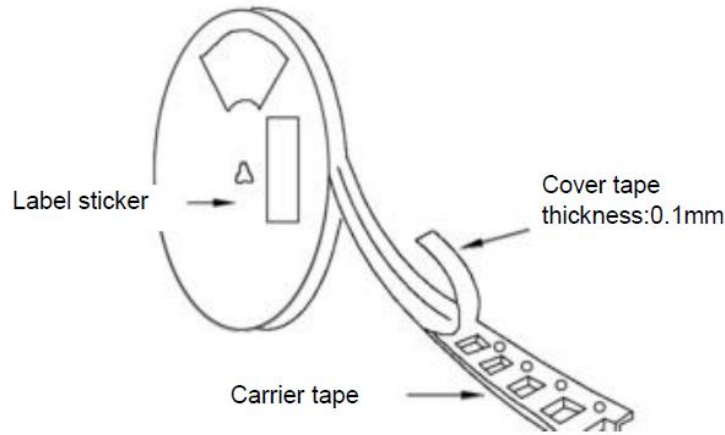
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Package Reel Information



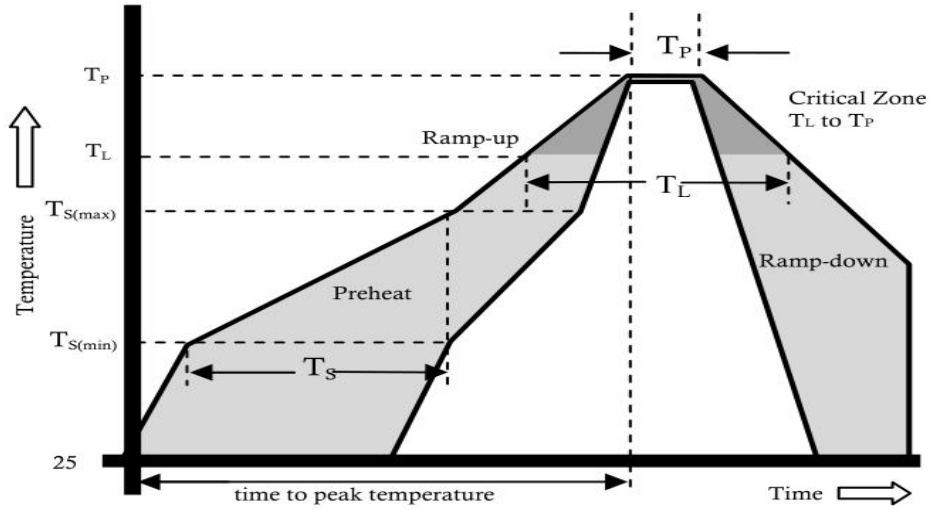
| Specifications | Ao | Bo | Ko | Po | W | t1 |
|----------------|-----------|-----------|-----------|----------|-----------|-----------|
| SMA | 2.55±0.10 | 5.10±0.10 | 2.36±0.10 | 4.00±0.1 | 12.0±0.05 | 0.23±0.02 |



| DEVICE TYPE | Tape Width | 13"Reel | | | 07"Reel | | | |
|-------------|------------|----------------|------------|------------------|----------------|----------|------------|------------------|
| | | Q'TY/REEL(pcs) | BOX/CARTON | Q'TY/CARTON(pcs) | Q'TY/REEL(pcs) | REEL/BOX | BOX/CARTON | Q'TY/CARTON(pcs) |
| SMA | 12mm | 5000 | 8 | 80000 | 1500 | 2 | 16 | 48000 |



Reflow Profile



| Reflow Condition | | Pb-Free Assembly |
|--|---------------------------------|------------------|
| Pre Heat | Temperature Min. | +150°C |
| | Temperature Max. | +200°C |
| | Time(Min to Max) | 60-180 secs. |
| Average ramp up rate(Liquidus Temp(T_L) to peak) | | 3°C/sec. Max. |
| $T_{S(max)}$ to T_L - Ramp-up Rate | | 3°C/sec. Max. |
| Reflow | Temperature (T_L)(Liquidus) | +217°C |
| | Temperature (T_L) | 60-150 secs. |
| Peak Temp (T_P) | | +(260+0/-5)°C |
| Time within 5°C of actual Peak Temp (T_P) | | 25 secs. |
| Ramp-down Rate | | 6°C/sec. Max. |
| Time 25°C to peak Temp (T_P) | | 8 min. Max. |
| Do not exceed | | +260°C |



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