

Super Fast Recovery Surface Mount Rectifiers

Reverse Voltage: 50 to 600V
Forward Current: 3.0 Amp

Features

- Low profile package
- For surface mounted applications
- Glass passivated chip junction
- High forward surge capability
- Super fast reverse recovery time
- High temperature soldering guaranteed
260 °C/10 seconds at terminals

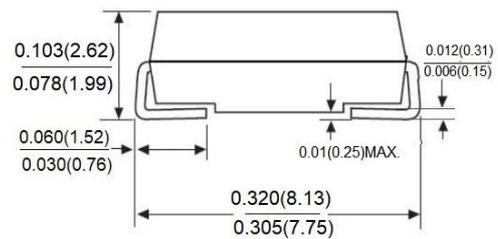
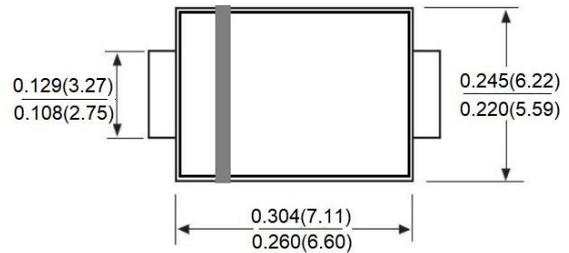
Mechanical Data

- **Package:** DO-214AB (SMC)
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals:** Tin plated leads, solderable per MIL-STD-750, Method 2026
- **Polarity:** Cathode line denotes the cathode end

Typical Applications

For use in high frequency rectification of power supplies, inverters, converters, and freewheeling diodes for consumer, and telecommunication.

DO-214AB (SMC)

ROHS COMPLIANT **HALOGEN FREE**


Package Outline Dimensions in Inches (Millimeters)

Maximum Ratings and Electrical Characteristics

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

| Parameter&Test Conditions | SYM. | ES3AC | ES3BC | ES3CC | ES3DC | ES3FC | ES3GC | ES3JC | Unit | |
|---|-----------------------------------|-------------|-------|-------|-------|-------|-------|-------|------|------|
| Device marking code | | ES3A | ES3B | ES3C | ES3D | ES3F | ES3G | ES3J | | |
| Maximum Recurrent Peak Reverse Voltage | V _{RRM} | 50 | 100 | 150 | 200 | 300 | 400 | 600 | V | |
| Maximum RMS Voltage | V _{RMS} | 35 | 70 | 105 | 140 | 210 | 280 | 420 | V | |
| Maximum DC Blocking Voltage | V _{DC} | 50 | 100 | 150 | 200 | 300 | 400 | 600 | V | |
| Average rectified output current @60Hz sine wave, Resistance load, TL (FIG.1) | I _{O(AV)} | 3.0 | | | | | | | | A |
| Peak Forward Surge Current 8.3ms Single Half Sine-wave Superimposed On Rated Load | I _{FSM} | 100 | | | | | | | | A |
| Maximum Thermal Resistance, Junction To Ambient (Note 1) | R _{θJA} | 50 | | | | | | | | °C/W |
| Operating junction and storage temperature range | T _J , T _{STG} | -55 to +150 | | | | | | | | °C |

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

| Parameter&Test Conditions | SYM. | ES3AC | ES3BC | ES3CC | ES3DC | ES3FC | ES3GC | ES3JC | Unit |
|---|-----------------|-------|-------|-------|-------|-------|-------|-------|------|
| Maximum Instantaneous Forward Voltage IFM =3A | V _{FM} | 0.95 | | | 1.3 | | 1.7 | | V |
| Maximum DC reverse current at rated DC blocking voltage | TA = 25°C | 5 | | | | | | | μA |
| | TA = 125°C | 200 | | | | | | | |
| Maximum reverse recovery time(Note 2) | T _{rr} | 35 | | | | | | | ns |
| Typical junction capacitance(Note 3) | C _J | 60 | | | 35 | | 29 | | pF |

Notes:

1. Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.6" x 0.6" (16 mm x 16 mm) copper pad area.
2. Reverse recovery time test condition: IF=0.5A IR=1.0A Irr=0.25A .
3. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
4. The typical data above is for reference only.

Rating and Characteristic Curves

FIG. 1- DERATING CURVE OUTPUT RECTIFIED

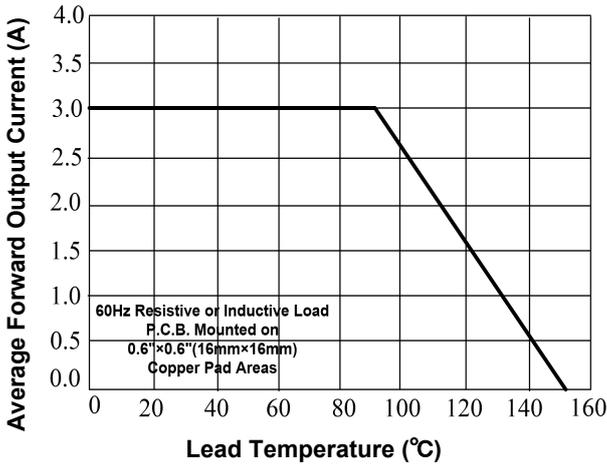


FIG. 2- -MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT PER LEG

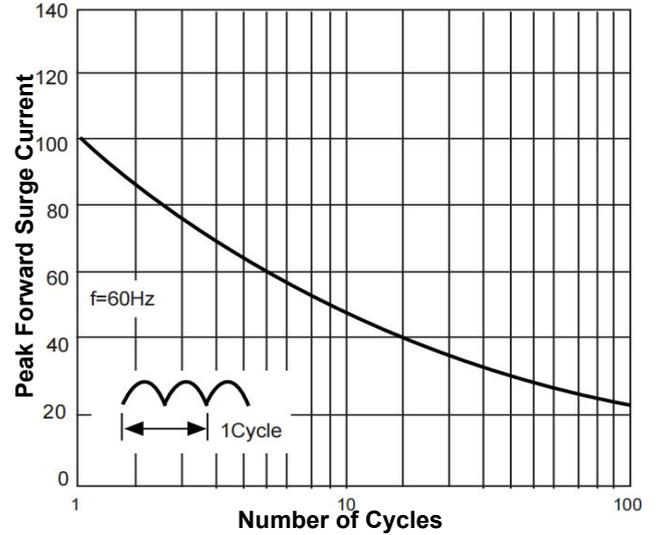


FIG. 3- TYPICAL FORWARD VOLTAGE

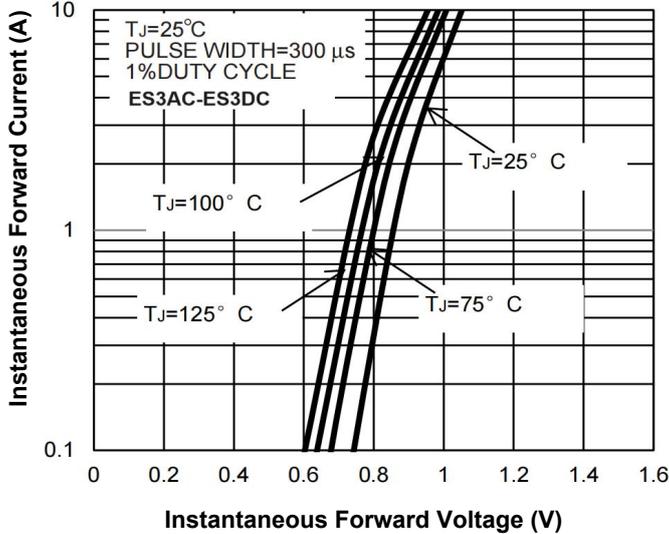


FIG. 4- TYPICAL FORWARD VOLTAGE

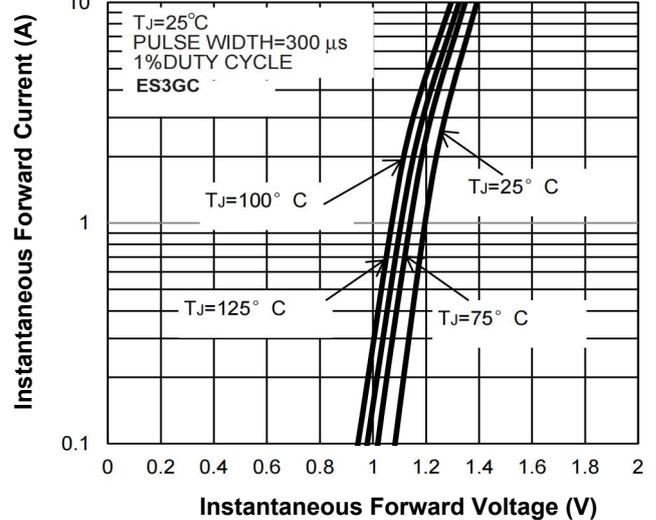


FIG. 5- TYPICAL FORWARD VOLTAGE

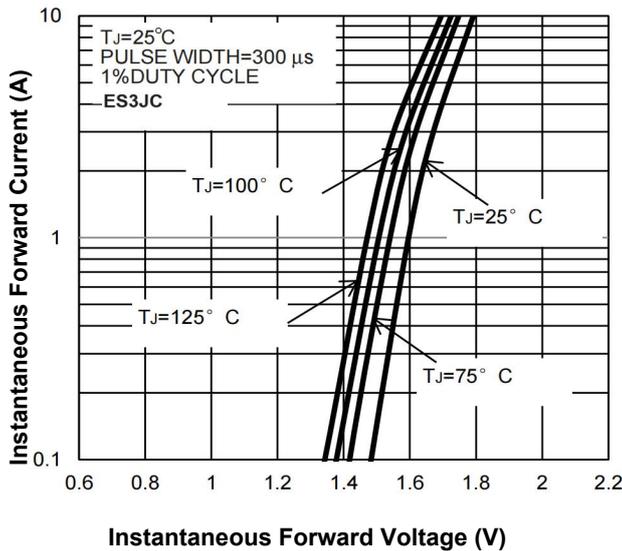
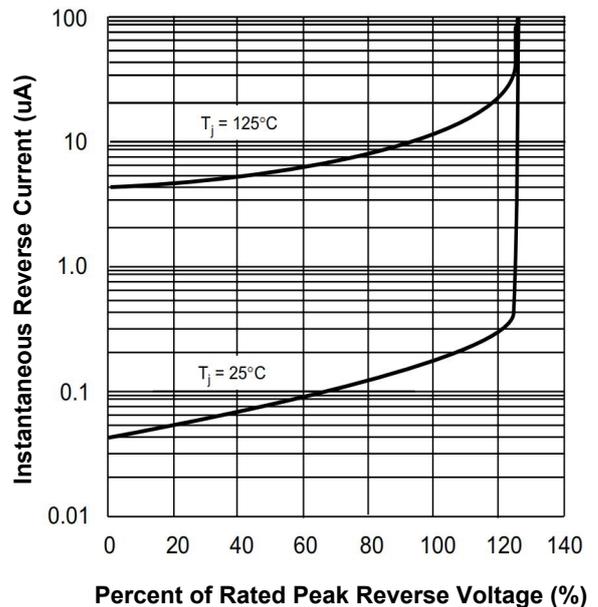


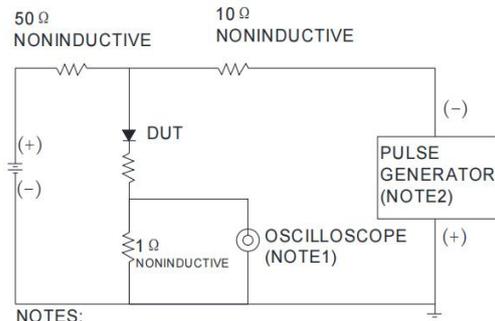
FIG. 6- TYPICAL REVERSE LEAKAGE



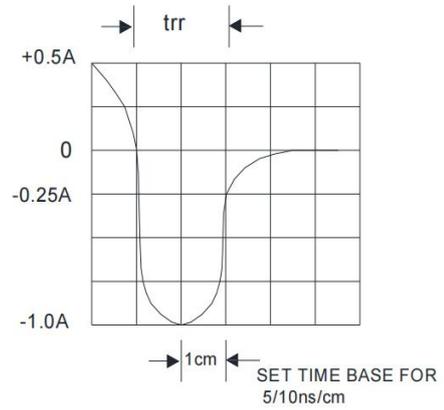
The curve above is for reference only.

Rating and Characteristic Curves

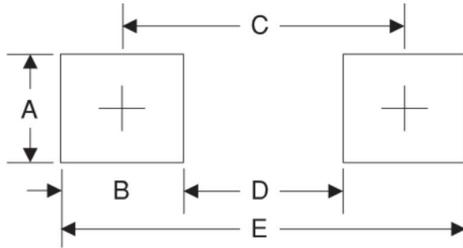
FIG. 7- Diagram of circuit and Testing wave form of reverse recovery



NOTES:
 1. Rise Time=7ns max .Input Impedance=1MΩ 22pf
 2. Rise Time=10ns max. Source Impedance=50 Ω



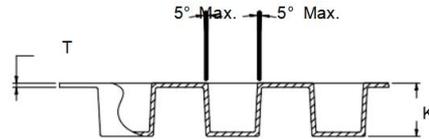
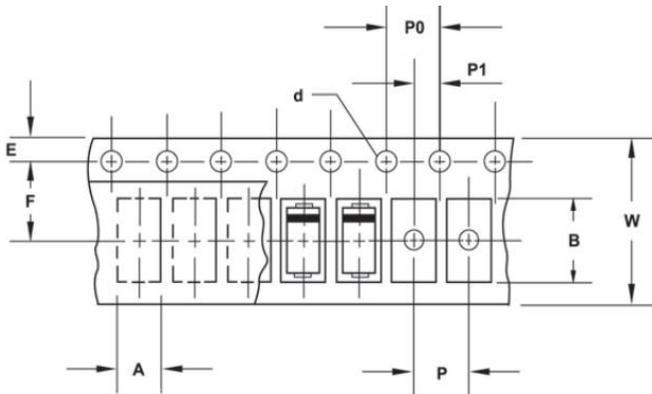
Recommended Pad Layout



| SYMBOL | Millimeters |
|--------|-------------|
| A | 3.80 |
| B | 3.00 |
| C | 6.90 |
| D | 3.80 |
| E | 9.90 |

Package Information

Carrier Dimension(mm)



| | | | |
|------|------|--------|-----------|
| W | F | d | E |
| 16.0 | 7.5 | ∅ 1.55 | 1.75 |
| A | B | K | T |
| 6.15 | 8.45 | 2.54 | 0.25 |
| P0 | P1 | P | Tolerance |
| 4.0 | 2.0 | 8.0 | 0.10 |

Package Specifications

| Package | Reel Size | Reel DIA. (mm) | Q'TY/Reel (Kpcs) | Box Size (mm) | QTY/Box (Kpcs) | Carton Size (mm) | Q'TY/Carton (Kpcs) |
|---------|-----------|----------------|------------------|---------------|----------------|------------------|--------------------|
| SMC | 13' | 330 | 3 | 340 | 6 | 365*355*370 | 42 |
| | 13' | 330 | 3 | 340 | 6 | 360*360*360 | 48 |

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