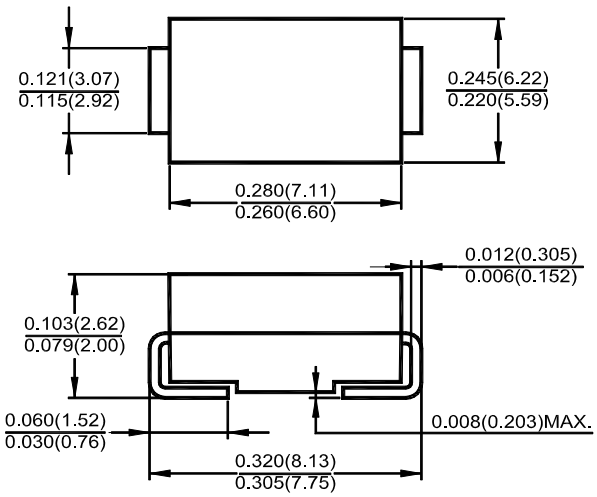
# ES3A THRU ES3M

## SURFACE MOUNT SUPER FAST RECTIFIERS

### Reverse Voltage – 50 to 1000 V
### Forward Current – 3 A

SMC (DO-214AB)




Dimensions in inches and (millimeters)

**Features**

- High current capability
- High surge current capability
- High reliability
- Low reverse current
- Low forward voltage drop
- Super fast recovery time

**Mechanical Data**

- Case: DO-214AB (SMC) molded plastic body
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Lead formed for surface mount
- Mounting Position: Any

**Maximum Ratings and Electrical Characteristics**

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

| Parameter | Symbols | ES3A | ES3B | ES3C | ES3D | ES3F | ES3G | ES3J | ES3K | ES3M | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Maximum Recurrent Peak Reverse Voltage | $V_{RRM}$ | 50 | 100 | 150 | 200 | 300 | 400 | 600 | 800 | 1000 | V |
| Maximum RMS Voltage | $V_{RMS}$ | 35 | 70 | 105 | 140 | 210 | 280 | 420 | 560 | 700 | V |
| Maximum DC Blocking Voltage | $V_{DC}$ | 50 | 100 | 150 | 200 | 300 | 400 | 600 | 800 | 1000 | V |
| Maximum Average Forward Current | $I_{F(AV)}$ | 3 | | | | | | | | | A |
| Peak Peak Forward Surge Current, 8.3 ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) | $I_{FSM}$ | 100 | | | | | | | | | A |
| Maximum Forward Voltage at $I_F$ = 3 A | $V_F$ | 0.95 | | | | 1.3 | | 1.7 | | | V |
| Maximum DC Reverse Current $T_A$ = 25 °C<br>at Rated DC Blocking Voltage $T_A$ = 100 °C | $I_R$ | 10<br>500 | | | | | | | | | μA |
| Maximum Reverse Recovery Time [1] | $t_{rr}$ | 35 | | | | | | | | | ns |
| Typical Junction Capacitance [2] | $C_J$ | 50 | | | | 40 | | | | | pF |
| Junction Temperature Range | $T_j$ | - 55 to + 150 | | | | | | | | | °C |
| Storage temperature range | $T_s$ | - 55 to + 150 | | | | | | | | | °C |

[1] Reverse recovery test conditions: $I_F$ = 0.5 A, $I_R$ = 1 A, $I_{rr}$ = 0.25 A

[2] Measured at 1 MHz and applied reverse voltage of 4 V D.C.


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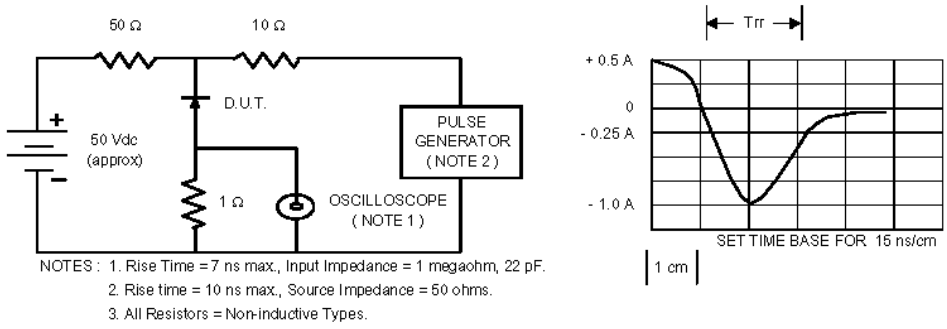
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ISO/TS 16949 : 2002 Certificate No. 05103
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*Dated : 01/06/2006 E*

FIG.1 - REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM




NOTES : 1. Rise Time = 7 ns max., Input Impedance = 1 megaohm, 22 pF.
2. Rise time = 10 ns max., Source Impedance = 50 ohms.
3. All Resistors = Non-inductive Types.

FIG.2 - DERATING CURVE FOR OUTPUT RECTIFIED CURRENT

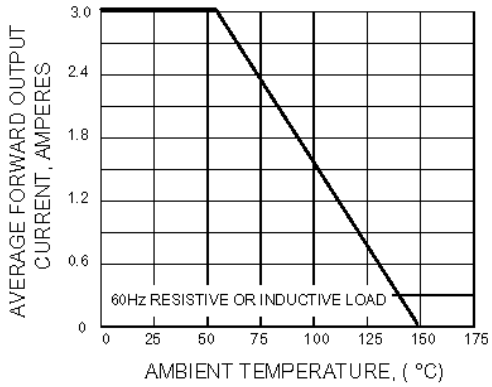



FIG.3 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

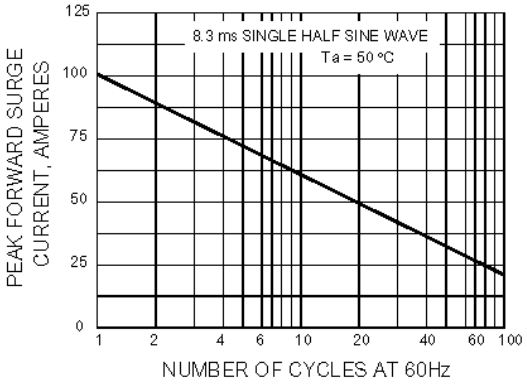



FIG.4 - TYPICAL FORWARD CHARACTERISTICS

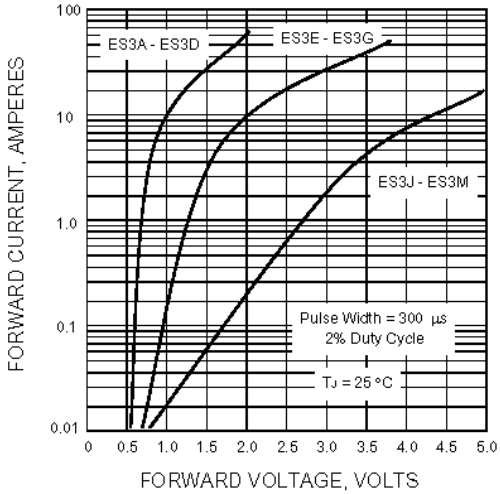



FIG.5 - TYPICAL REVERSE CHARACTERISTICS

