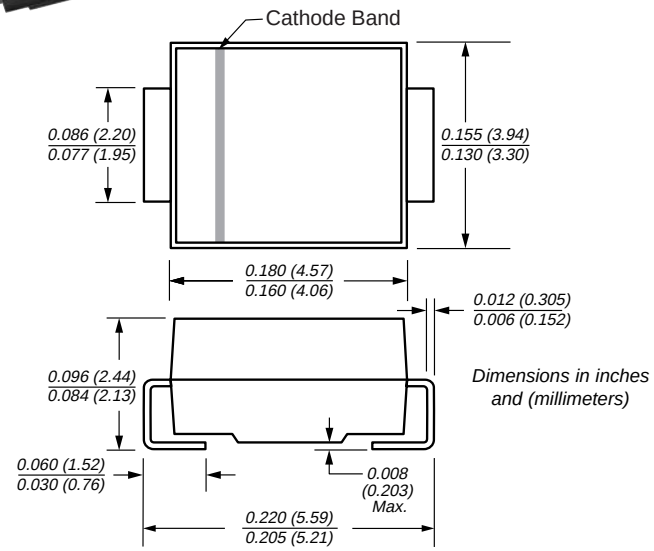
GENERAL SEMICONDUCTOR®

# ES2A thru ES2D

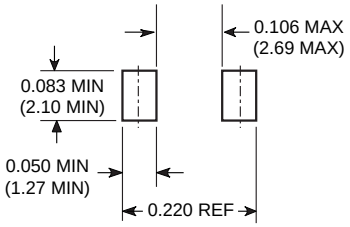
## Surface Mount Ultrafast Plastic Rectifiers

**Reverse Voltage** 50 to 200 V
**Forward Current** 2.0 A
**Reverse Recovery Time** 20 ns

**DO-214AA (SMB)**




**Mounting Pad Layout**




## Mechanical Data

**Case:** JEDEC DO-214AA molded plastic body
**Terminals:** Solder plated, solderable per MIL-STD-750, Method 2026
**Polarity:** Color band denotes cathode end
**Weight:** 0.003 ounce, 0.093 grams

## Features

- Plastic package has Underwriters Laboratories Flammability Classification 94V-0
- Ideally suited for use in very high frequency switching power supplies, inverters and as free wheeling diodes
- Ultrafast recovery time for high efficiency
- Excellent high temperature switching
- Glass passivated junction
- High temperature soldering guaranteed: 250°C/10 seconds, at terminals

## Maximum Ratings & Thermal Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter | Symbol | ES2A | ES2B | ES2C | ES2D | Unit |
|---|---|---|---|---|---|---|
| Device marking code | | EA | EB | EC | ED | |
| Maximum repetitive peak reverse voltage | $V_{RRM}$ | 50 | 100 | 150 | 200 | V |
| Maximum RMS voltage | $V_{RMS}$ | 35 | 70 | 105 | 140 | V |
| Maximum DC blocking voltage | $V_{DC}$ | 50 | 100 | 150 | 200 | V |
| Maximum average forward rectified current at $T_L$ = 110°C | $I_{F(AV)}$ | 2.0 | | | | A |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) at $T_L$ = 110°C | $I_{FSM}$ | 50 | | | | A |
| Maximum thermal resistance (1) | $R_{\theta JA}$<br>$R_{\theta JL}$ | 75<br>20 | | | | °C/W |
| Operating junction and storage temperature range | $T_J$, $T_{STG}$ | –55 to +150 | | | | °C |

## Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

| | | | |
|---|---|---|---|
| Maximum instantaneous forward voltage at 2.0A(2) | $V_F$ | 0.90 | V |
| Maximum DC reverse current at rated DC blocking voltage $T_A$=25°C<br>$T_A$=100°C | $I_R$ | 10<br>350 | µA |
| Max. reverse recovery time $I_F$ = 0.5A, $I_R$ = I.0A, $I_{rr}$ = 0.25A | $t_{rr}$ | 20 | ns |
| Maximum reverse recovery time $T_J$=25°C<br>$I_F$ = 2.0A, $V_R$ = 30V, di/dt = 50A/µs, $I_r$ =10% $I_{RM}$ $T_J$=100°C | $t_{rr}$ | 30<br>50 | ns |
| Maximum stored charge $T_J$=25°C<br>$I_F$ = 2.0A, $V_R$ = 30V, di/dt = 50A/µs, $I_r$ =10% $I_{RM}$ $T_J$=100°C | $Q_{rr}$ | 10<br>25 | nC |
| Typical junction capacitance at 4.0V, 1MHz | $C_J$ | 18 | pF |

**Notes**: (1) Units mounted on P.C.B. 5.0 x 5.0mm (0.013mm thick) land areas
(2) Pulse test: 300µs pulse width, 1% duty cycle

**2/12/01**

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

**Fig. 1 – Maximum Forward Current Derating Curve**

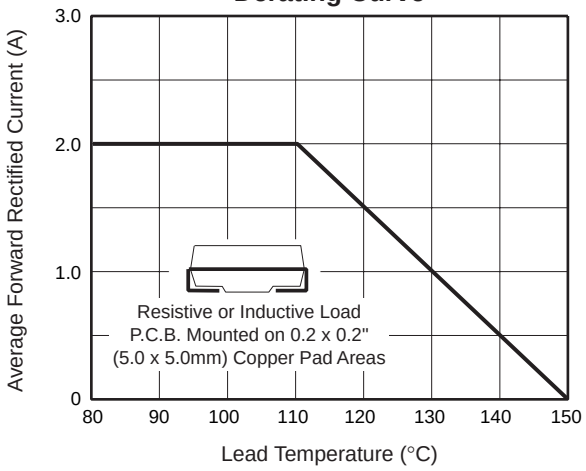



**Fig. 2 – Maximum Non-Repetitive Peak Forward Surge Current**

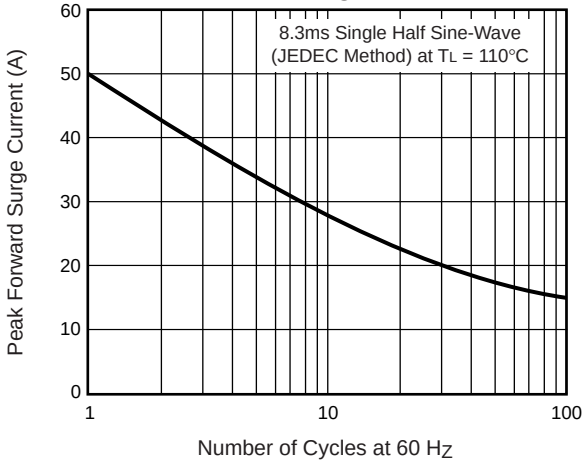



**Fig. 3 – Typical Instantaneous Forward Characteristics**

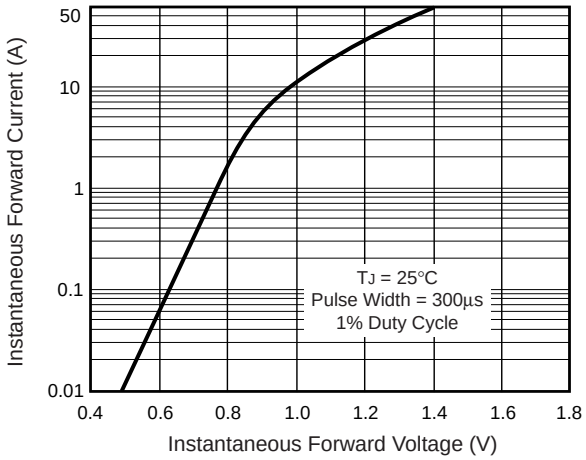



**Fig. 4 – Typical Reverse Leakage Characteristics**

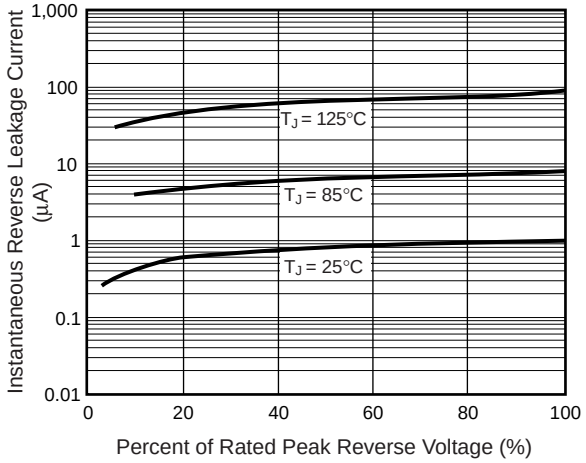



**Fig. 5 – Typical Junction Capacitance**