

# Fast Rectifiers

## ES2A-ES2D



SMB  
CASE 403AF

### Features

- For Surface Mount Applications
- Glass–Passivated Junction
- Low–Profile Package
- Easy Pick and Place
- Built–in Strain Relief
- Superfast Recovery Times for High Efficiency
- These are Pb–Free Devices

### MARKING DIAGRAM



(COLOR BAND DENOTES CATHODE)

Z = Assembly Plant Code  
Y = Year  
WW = Work Week  
ES2x = Specific Device Code  
x = A, B, C, D

### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V <sub>RRM</sub>	Maximum Repetitive Reverse Voltage ES2A ES2B ES2C ES2D	50 100 150 200	V
I <sub>F(AV)</sub>	Average Rectified Forward Current, 0.375" Lead Length at T <sub>L</sub> = 115°C	2.0	A
I <sub>FSM</sub>	Non–Repetitive Peak Forward Surge Current, 8.3 ms Single Half–Sine Wave	50	A
T <sub>STG</sub>	Storage Temperature Range	–55 to +150	°C
T <sub>J</sub>	Operating Junction Temperature Range	–55 to +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

### ORDERING INFORMATION

See detailed ordering and shipping information on page 3 of this data sheet.

### THERMAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
P <sub>D</sub>	Power Dissipation	1.66	W
R <sub>θJA</sub>	Thermal Resistance, Junction to Ambient (Note 1)	75	°C/W
R <sub>θJL</sub>	Thermal Resistance, Junction to Lead (Note 1)	20	°C/W

1. Device mounted on FR–4 PCB 0.013 mm.

### ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Value				Unit
			ES2A	ES2B	ES2C	ES2D	
V <sub>F</sub>	Maximum Forward Voltage	I <sub>F</sub> = 2.0 A	0.90				V
t <sub>rr</sub>	Reverse Recovery Time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>RR</sub> = 0.25 A	20				ns
I <sub>R</sub>	Maximum Reverse Current at Rated V <sub>R</sub>	T <sub>A</sub> = 25°C T <sub>A</sub> = 100°C	10 350				μA
C <sub>T</sub>	Total Capacitance	V <sub>R</sub> = 4.0 V, f = 1.0 MHz	18				pF

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

TYPICAL PERFORMANCE CHARACTERISTICS

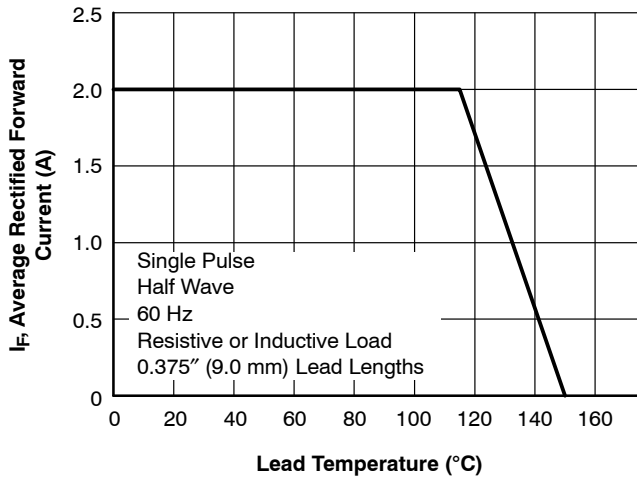


Figure 1. Forward Current Derating Curve

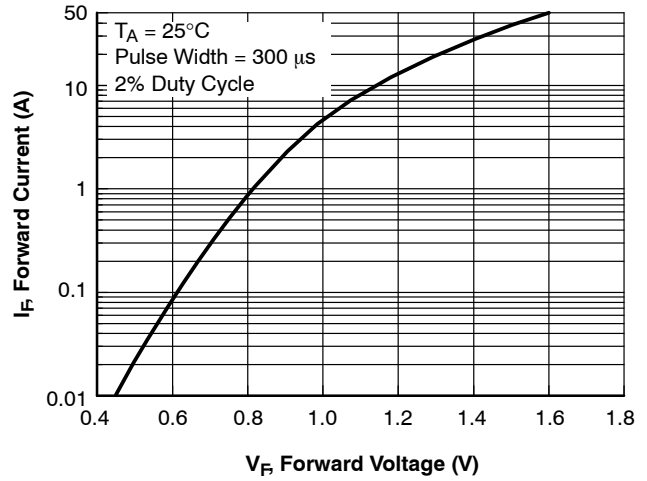


Figure 2. Forward Voltage Characteristics

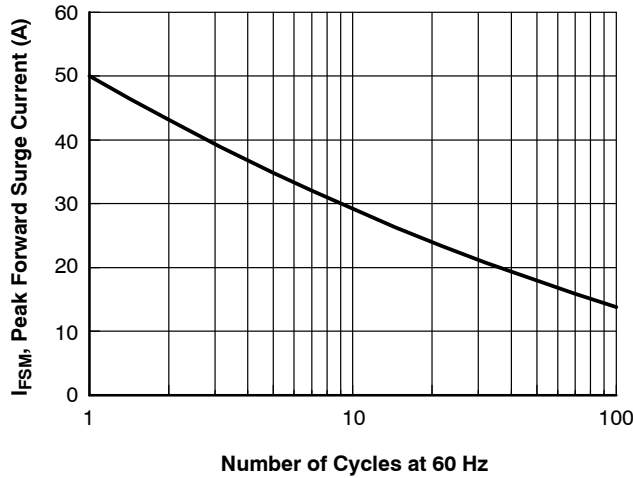


Figure 3. Non-Repetitive Surge Current

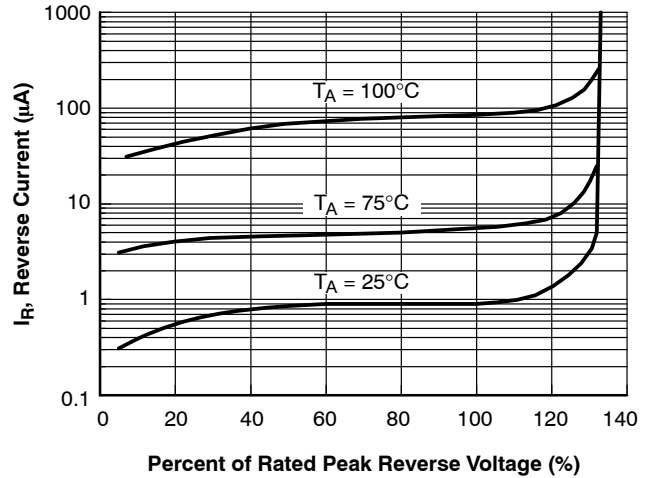


Figure 4. Reverse Current vs. Reverse Voltage

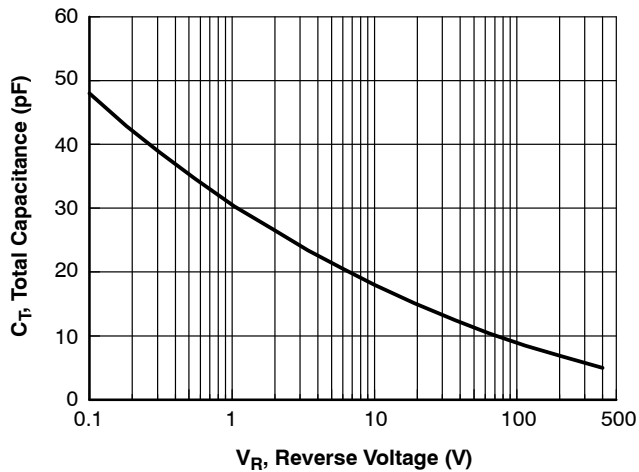
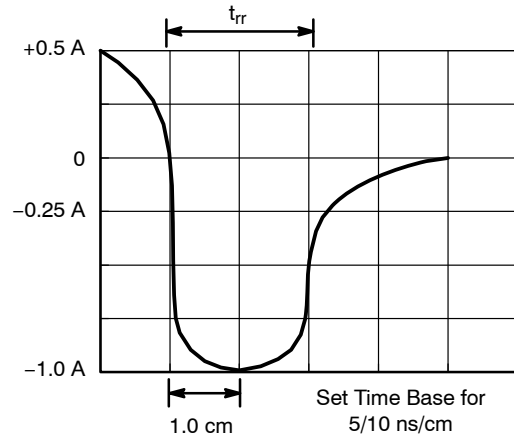
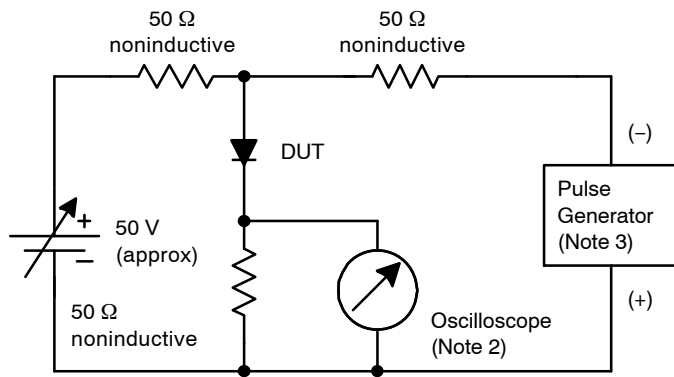


Figure 5. Total Capacitance

## ES2A-ES2D



### NOTES:

2. Rise time = 7.0 ns max; Input impedance = 1.0 M $\Omega$  22 pF.
3. Rise time = 10 ns max; Source impedance = 50  $\Omega$ .

**Figure 6. Reverse Recovery Time Characteristic and Test Circuit Diagram**

### ORDERING INFORMATION

Part Number	Device Code Marking	Package Type	Shipping <sup>†</sup>
ES2A	ES2A	SMB (Pb-Free)	3000 / Tape & Reel
ES2B	ES2B	SMB (Pb-Free)	3000 / Tape & Reel
ES2C	ES2C	SMB (Pb-Free)	3000 / Tape & Reel
ES2D	ES2D	SMB (Pb-Free)	3000 / Tape & Reel

<sup>†</sup>For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, [BRD8011/D](#).

# MECHANICAL CASE OUTLINE

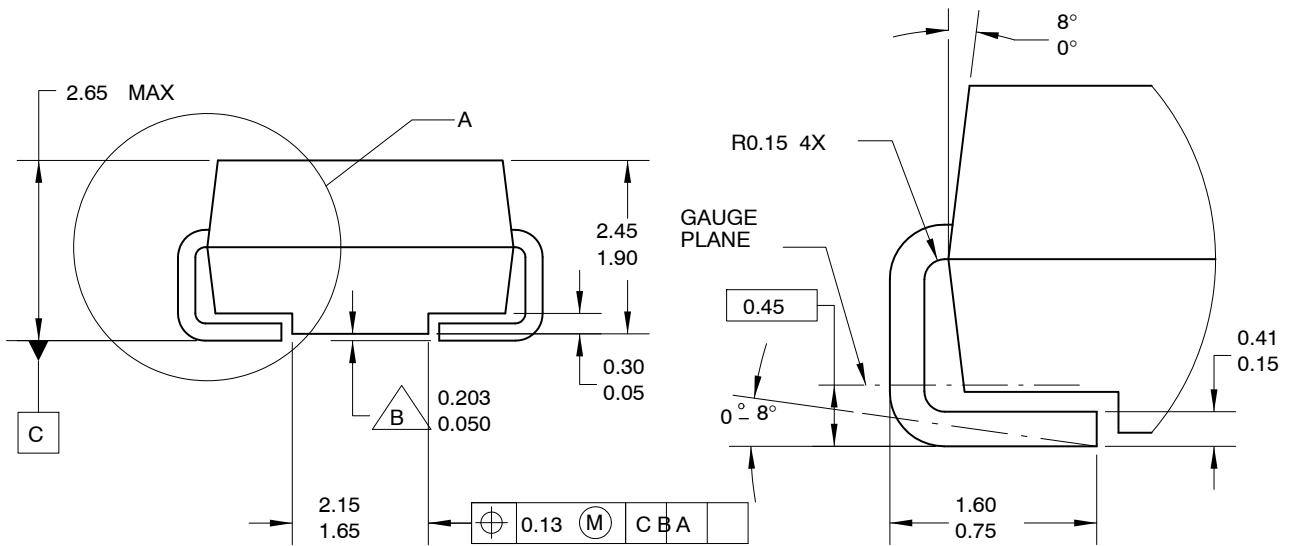
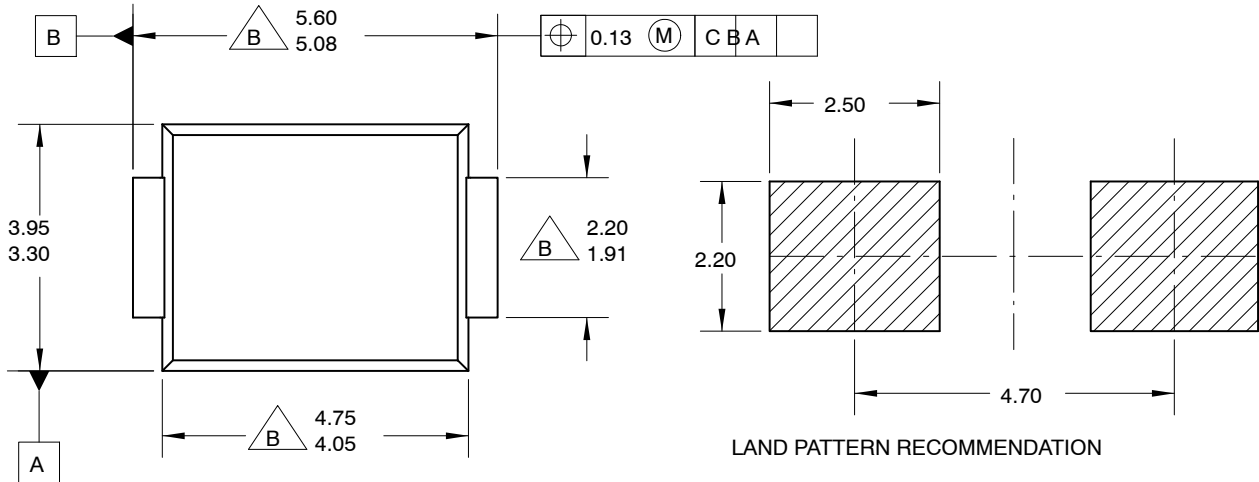
## PACKAGE DIMENSIONS

ON Semiconductor®



### SMB CASE 403AF ISSUE O

DATE 31 AUG 2016



DETAIL A  
SCALE 20 : 1

**NOTES:**

- A. EXCEPT WHERE NOTED CONFORMS TO JEDEC DO214 VARIATION AA.
- B. DOES NOT COMPLY JEDEC STD. VALUE.
- C. ALL DIMENSIONS ARE IN MILLIMETERS.
- D. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR PROTRUSIONS.
- E. DIMENSION AND TOLERANCE AS PER ASME Y14.5-1994.
- F. LAND PATTERN STD. DIOM5336X240M.

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