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

ORDERING INFORMATION

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

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{RRM}	Maximum Repetitive Reverse Voltage ES2A ES2B ES2C ES2D	 50 100 150 200	V
$I_{F(AV)}$	Average Rectified Forward Current, 0.375″ Lead Length at T_L = 115°C	2.0	A
I_{FSM}	Non−Repetitive Peak Forward Surge Current, 8.3 ms Single Half−Sine Wave	50	A
T_{STG}	Storage Temperature Range	−55 to +150	°C
T_J	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.

THERMAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
P_D	Power Dissipation	1.66	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient (Note 1)	75	°C/W
$R_{\theta JL}$	Thermal Resistance, Junction to Lead (Note 1)	20	°C/W

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

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Value				Unit
			ES2A	ES2B	ES2C	ES2D	
V_F	Maximum Forward Voltage	I_F = 2.0 A	0.90				V
t_{rr}	Reverse Recovery Time	I_F = 0.5 A, I_R = 1.0 A, I_{RR} = 0.25 A	20				ns
I_R	Maximum Reverse Current at Rated V_R	T_A = 25°C T_A = 100°C	10 350				μA
C_T	Total Capacitance	V_R = 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

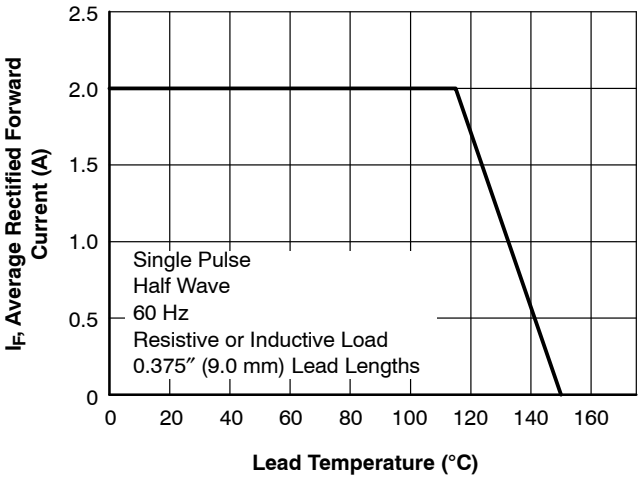


Figure 1. Forward Current Derating Curve

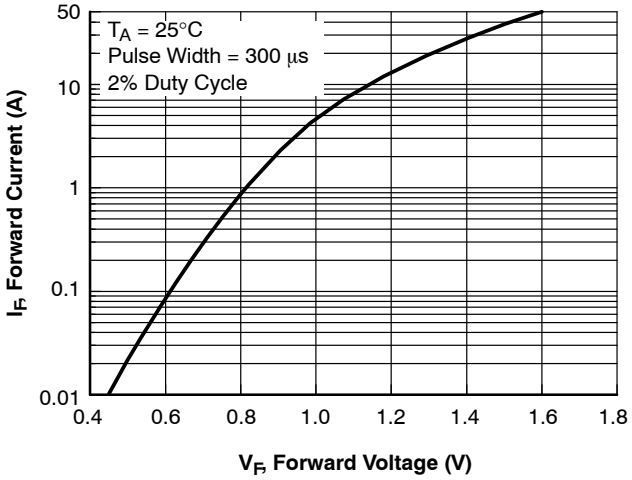


Figure 2. Foward Voltage Characteristics

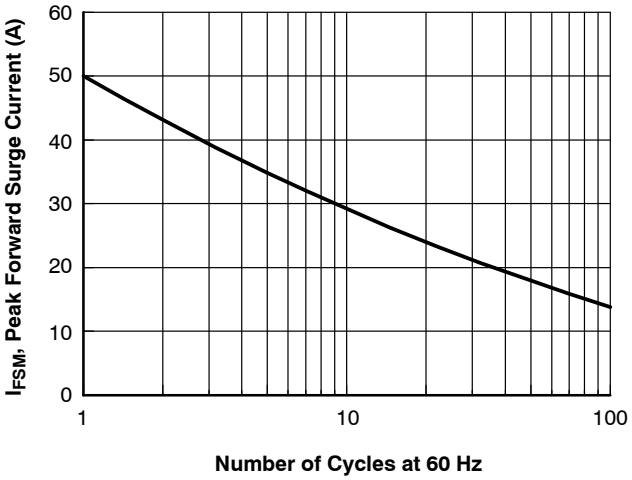


Figure 3. Non−Repetitive Surge Current

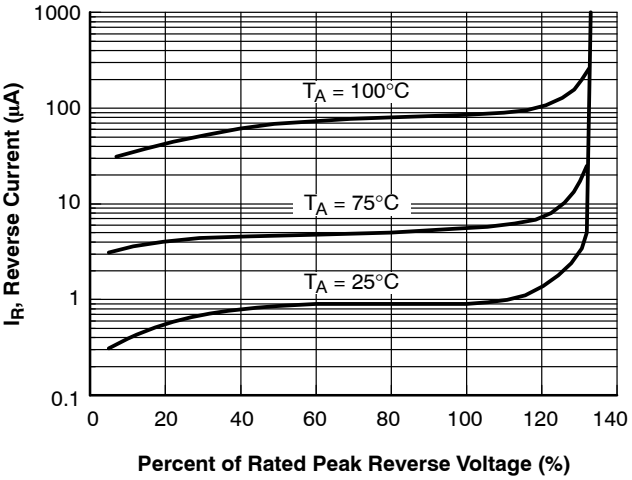


Figure 4. Reverse Current vs. Reverse Voltage

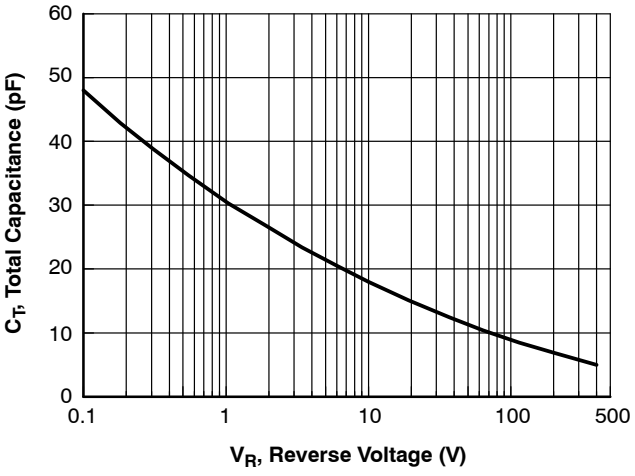
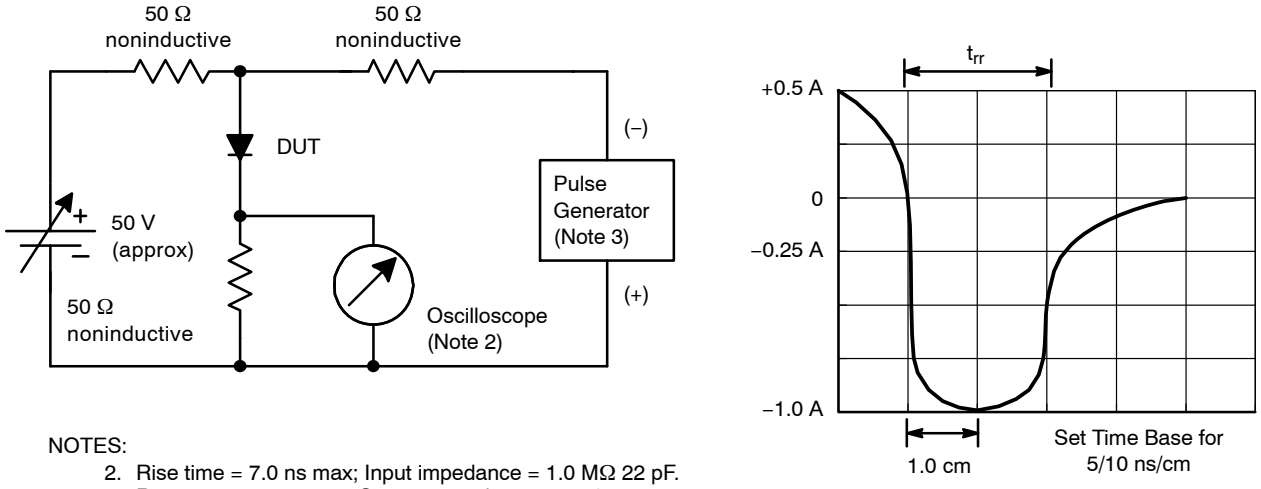


Figure 5. Total Capacitance



NOTES:

2. Rise time = 7.0 ns max; Input impedance = 1.0 MΩ 22 pF.
3. Rise time = 10 ns max; Source impedance = 50 Ω.

Figure 6. Reverse Recovery Time Characteristic and Test Circuit Diagram

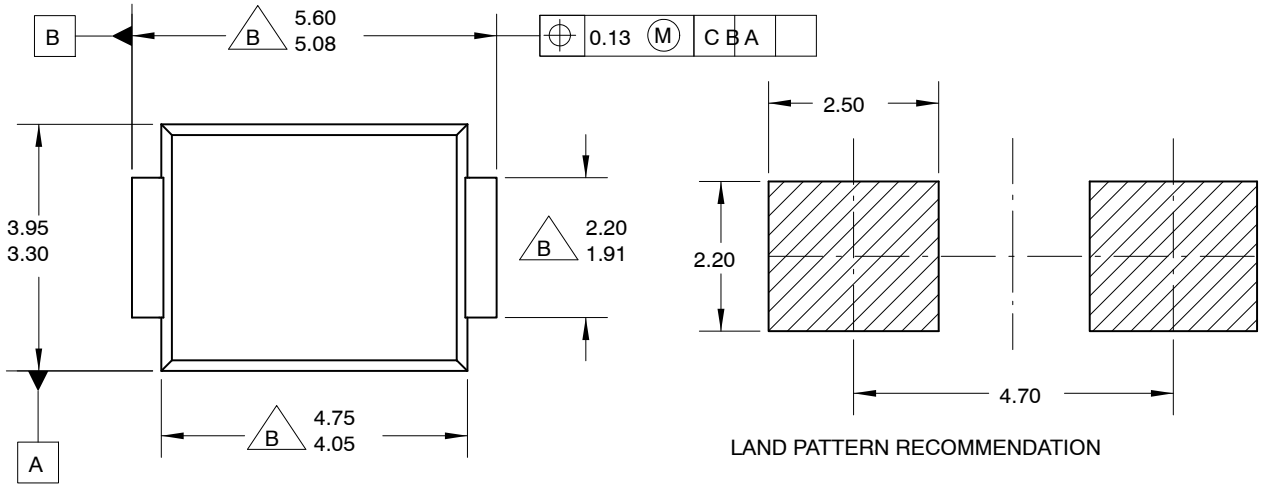
ORDERING INFORMATION

Part Number	Device Code Marking	Package Type	Shipping†
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

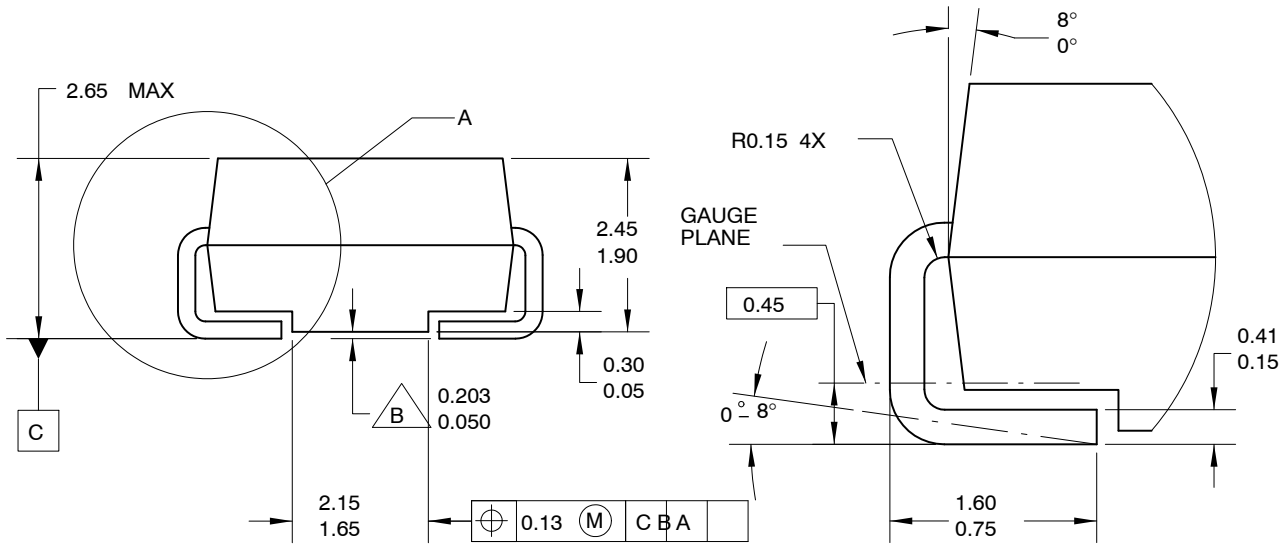
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

SMB
CASE 403AF
ISSUE O

DATE 31 AUG 2016



LAND PATTERN RECOMMENDATION



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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