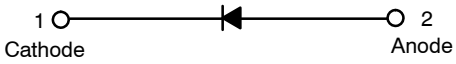
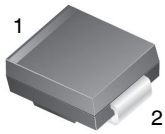
Fast Rectifiers

ES3A - ES3J



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 Devices are Pb−Free and Halid Free



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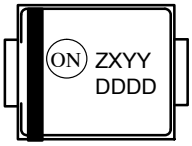
MARKING DIAGRAM



Z = Assembly Plant Code
X = Last Digit of Year of Manufacture
YY = Weekly Code of Manufacture
DDDD = Specific Device Code

ORDERING INFORMATION

Part Number	Device Code Marking	Package	Shipping†
ES3A	ES3A	DO−214AB (SMC) (Pb−Free)	3000 / Tape & Reel
ES3B	ES3B		3000 / Tape & Reel
ES3C	ES3C		3000 / Tape & Reel
ES3D	ES3D		3000 / Tape & Reel
ES3J	ES3J		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.

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

Symbol	Parameter	Value					Unit
		ES3A	ES3B	ES3C	ES3D	ES3J	
V_{RRM}	Maximum Repetitive Reverse Voltage	50	100	150	200	600	V
$I_{F(AV)}$	Average Rectified Forward Current, .375" Lead Length T_A = 75°C	3.0					A
I_{FSM}	Non−Repetitive Peak Forward Surge Current 8.3 ms Single Half−Sine Wave	100					A
T_{STG}	Storage Temperature Range	−55 to +150					°C
T_J	Operating Junction Temperature	−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)	Maximum Land Pattern: 16 x 16 mm	47	°C/W
		Minimum Land Pattern: 2.6 x 3.2 mm	125	
$R_{\theta JL}$	Thermal Resistance, Junction to Lead (Note 1)	Maximum Land Pattern: 16 x 16 mm	12	°C/W
		Minimum Land Pattern: 2.6 x 3.2 mm	16	

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

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

Symbol	Parameter	Conditions		Value					Unit
				ES3A	ES3B	ES3C	ES3D	ES3J	
V_F	Maximum Forward Voltage	I_F = 3.0 A		0.95				1.70	V
t_{rr}	Reverse Recovery Time	I_F = 0.5 A, I_R = 1.0 A I_{RR} = 0.25 A	Typ.	20				35	ns
			Max.	30				45	
I_R	Maximum Reverse Current at Rated V_R	T_A = 25°C		10					μA
		T_A = 100°C		500					
C_T	Total Capacitance	V_R = 4.0 V, f = 1.0 MHz		45					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

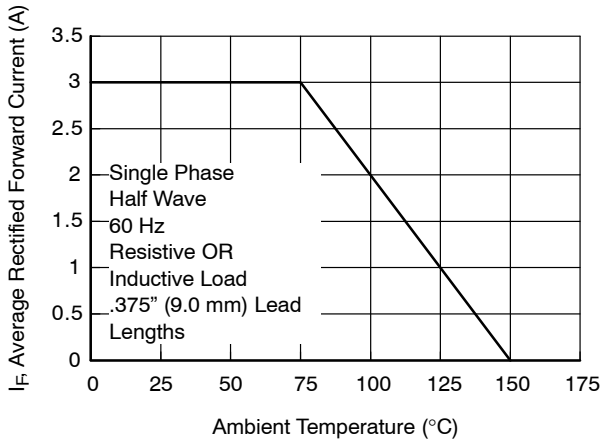


Figure 1. Forward Current Derating Curve

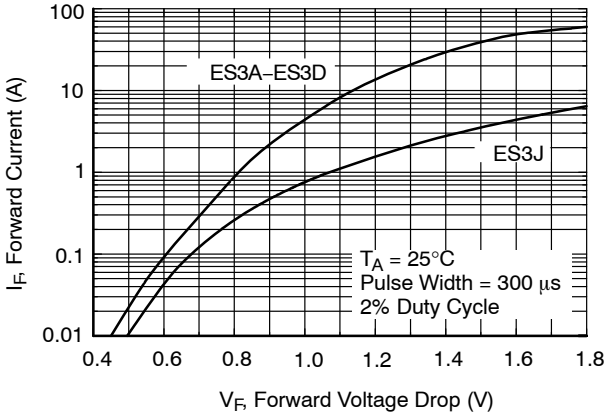


Figure 2. Forward Voltage Characteristics

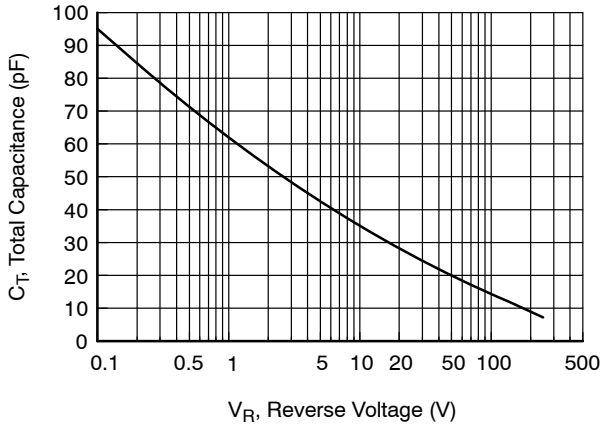


Figure 3. Total Capacitance

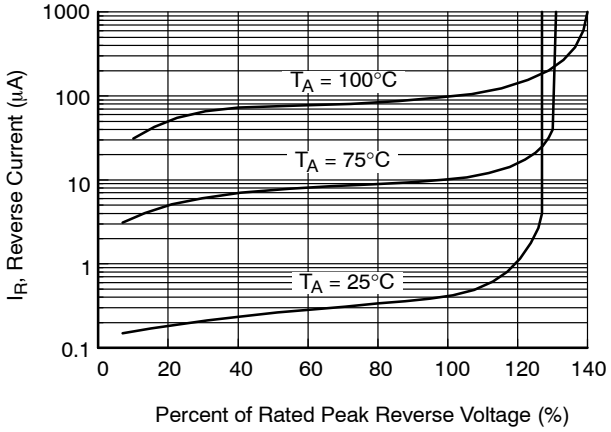
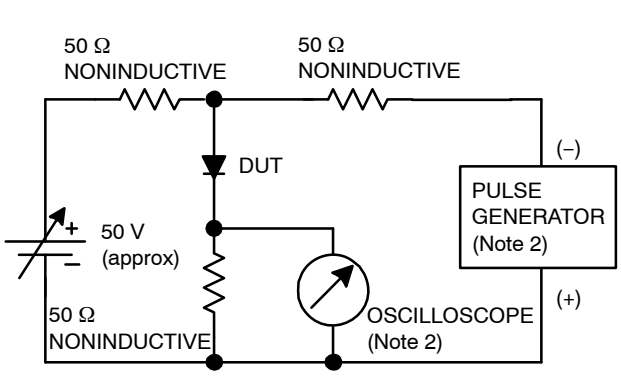


Figure 4. Reverse Current vs. Reverse Voltage



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.

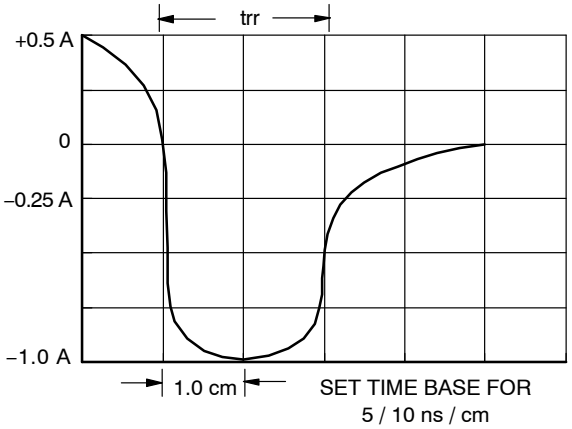


Figure 5. Reverse Recovery Time Characteristics and Test Circuit Diagram

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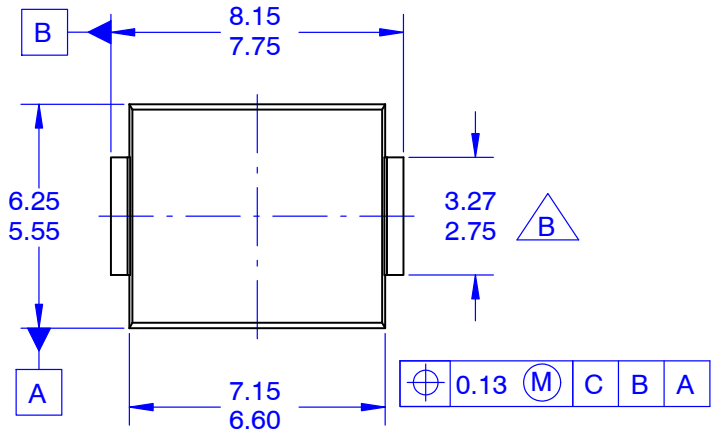
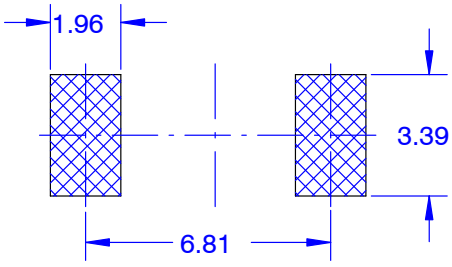
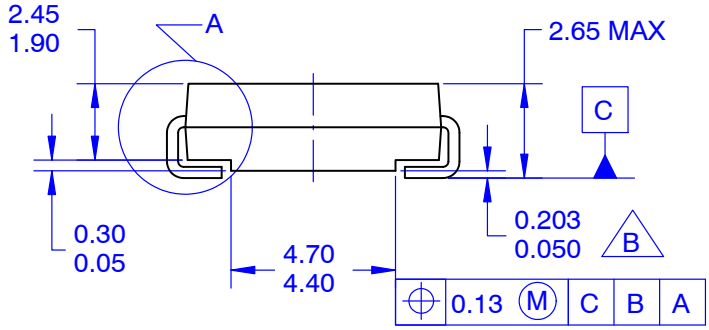


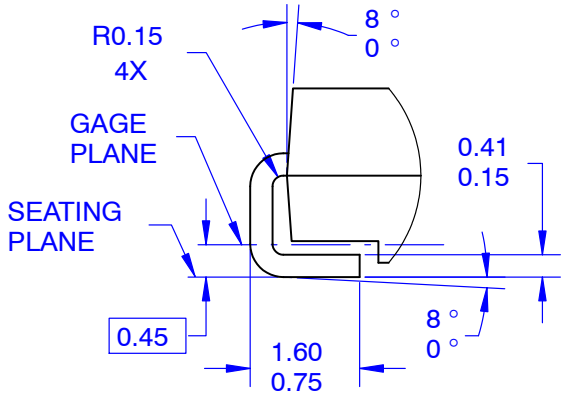
TOP VIEW



LAND PATTERN RECOMMENDATION



SIDE VIEW



DETAIL A
SCALE 2:1

NOTES:

A. EXCEPT WHERE NOTED, CONFORMS TO JEDEC DO−214, VARIATION AB

B DOES NOT COMPLY TO JEDEC STD. VALUE
C. ALL DIMENSIONS ARE IN MILLIMETERS
D. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR PROTRUSIONS.
E. DIMENSIONS AND TOLERANCING AS PER ASME Y14.5−2009
F. LAND PATTERN STANDARD: DIOM7957X241M

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