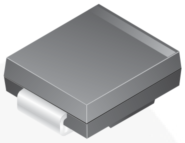
FAIRCHILD™

September 2014

ES3A - ES3J
Fast Rectifiers

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



SMC/DO-214AB

COLOR BAND DENOTES CATHODE

Ordering Information

Part Number	Top Mark	Package	Packing Method
ES3A	ES3A	DO-214AB (SMC)	Tape and Reel
ES3B	ES3B	DO-214AB (SMC)	Tape and Reel
ES3C	ES3C	DO-214AB (SMC)	Tape and Reel
ES3D	ES3D	DO-214AB (SMC)	Tape and Reel
ES3J	ES3J	DO-214AB (SMC)	Tape and Reel

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at 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 at 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_J, T_{STG}	Operating Junction and Storage Temperature Range	-50 to +150					°C

Thermal Characteristics

Values are at 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(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(1)	Maximum Land Pattern: 16 x 16 mm	12	°C/W
		Minimum Land Pattern: 2.6 x 3.2 mm	16	

Note:

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

Electrical Characteristics

Values are at 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

Typical Performance Characteristics

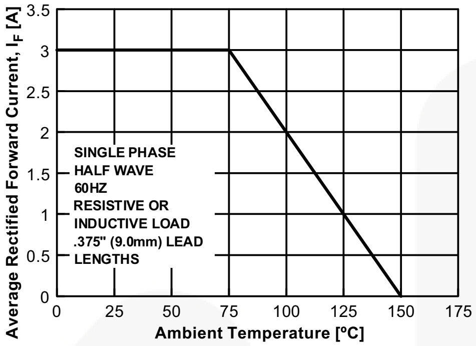


Figure 1. Forward Current Derating Curve

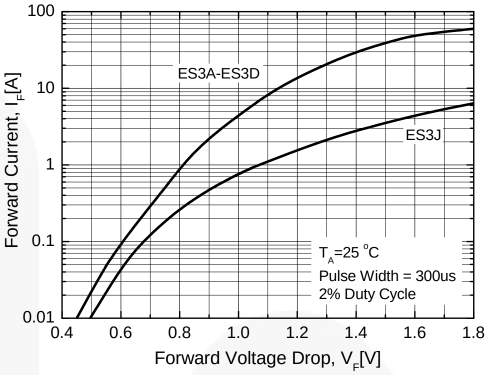


Figure 2. Foward Voltage Characteristics

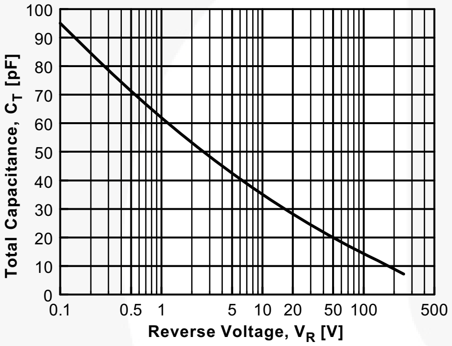


Figure 3. Total Capacitance

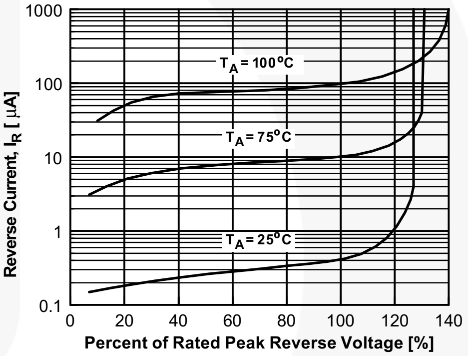
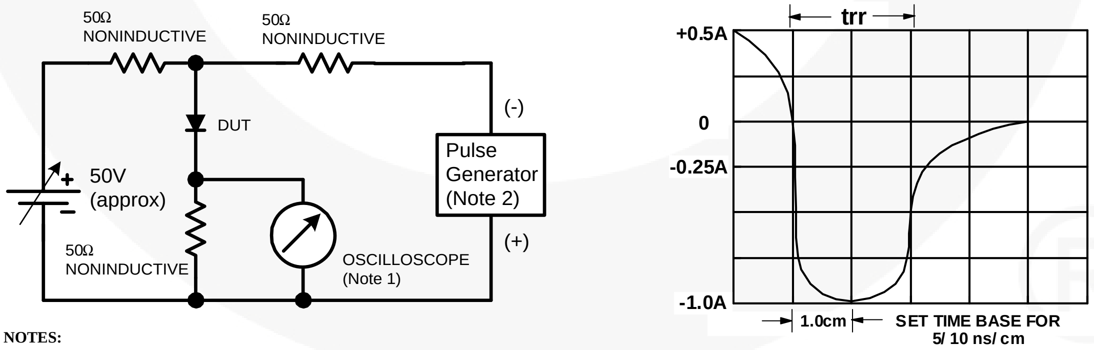


Figure 4. Reverse Current vs. Reverse Voltage

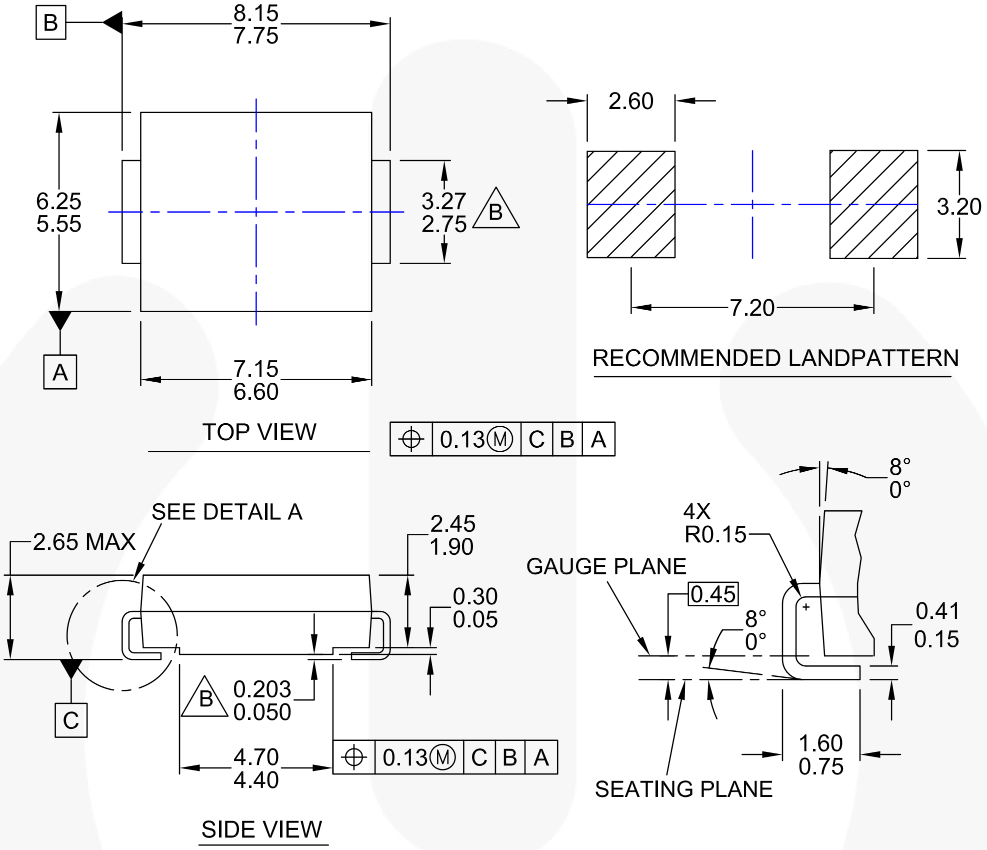


NOTES:

1. Rise time = 7.0 ns max; Input impedance = 1.0 megaohm 22 pf.
2. Rise time = 10 ns max; Source impedance = 50 ohms.

Figure 5. Reverse Recovery Time Characteristic and Test Circuit Diagram

Physical Dimension



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 Y14.5M-1994

F. LAND PATTERN STANDARD: DIOM7957X241M

G. DRAWING FILE NAME: DO214ABREV1

Figure 6. 2-LEAD, SMC, JEDEC DO-214, VARIATION AB (ACTIVE)

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