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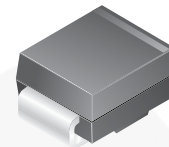


August 2014

# ES2A - ES2D 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



**SMB/DO-214AA**  
COLOR BAND DENOTES CATHODE

## Ordering Information

Part Number	Top Mark	Package	Packing Method
ES2A	ES2A	DO-214AA (SMB)	Tape and Reel
ES2B	ES2B	DO-214AA (SMB)	Tape and Reel
ES2C	ES2C	DO-214AA (SMB)	Tape and Reel
ES2D	ES2D	DO-214AA (SMB)	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  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value				Unit
		ES2A	ES2B	ES2C	ES2D	
$V_{RRM}$	Maximum Repetitive Reverse Voltage	50	100	150	200	V
$I_{F(AV)}$	Average Rectified Forward Current, .375" Lead Length at $T_L = 115^\circ\text{C}$	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				$^\circ\text{C}$
$T_J$	Operating Junction Temperature Range	-55 to +150				$^\circ\text{C}$

## Thermal Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value	Unit
$P_D$	Power Dissipation	1.66	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient <sup>(1)</sup>	75	$^\circ\text{C}/\text{W}$
$R_{\theta JL}$	Thermal Resistance, Junction to Lead <sup>(1)</sup>	20	$^\circ\text{C}/\text{W}$

### Note:

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

## Electrical Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Conditions	Value				Unit
			ES2A	ES2B	ES2C	ES2D	
$V_F$	Maximum Forward Voltage	$I_F = 2.0\text{ A}$	0.90				V
$t_{rr}$	Reverse Recovery Time	$I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $I_{RR} = 0.25\text{ A}$	20				ns
$I_R$	Maximum Reverse Current at Rated $V_R$	$T_A = 25^\circ\text{C}$	10				$\mu\text{A}$
		$T_A = 100^\circ\text{C}$	350				
$C_T$	Total Capacitance	$V_R = 4.0\text{ V}$ , $f = 1.0\text{ MHz}$	18				pF

## Typical Performance Characteristics

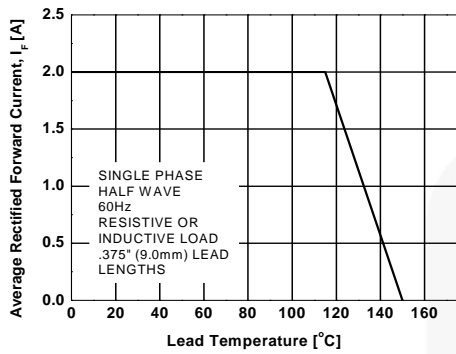


Figure 1. Forward Current Derating Curve

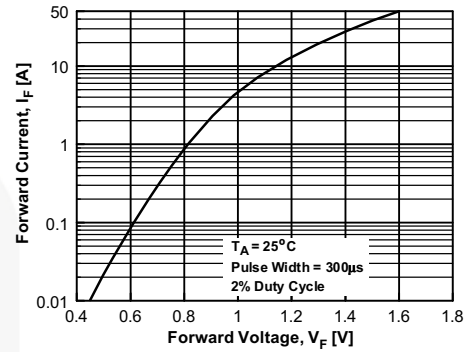


Figure 2. Forward Voltage Characteristics

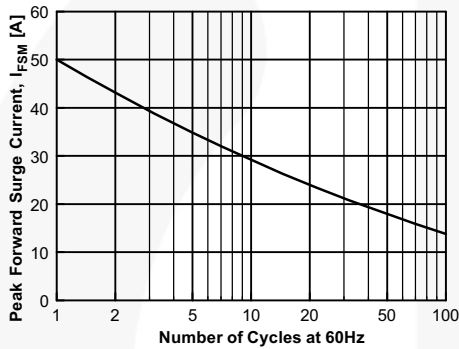


Figure 3. Non-Repetitive Surge Current

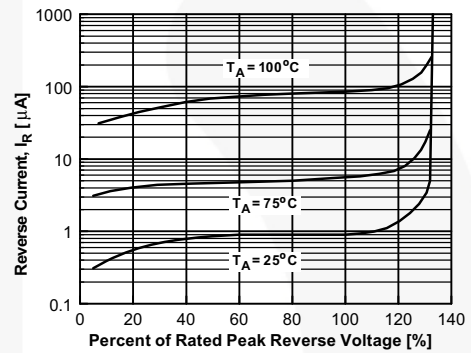


Figure 4. Reverse Current vs. Reverse Voltage

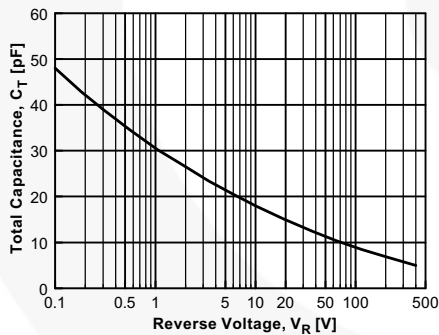
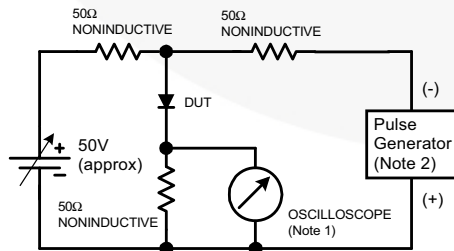
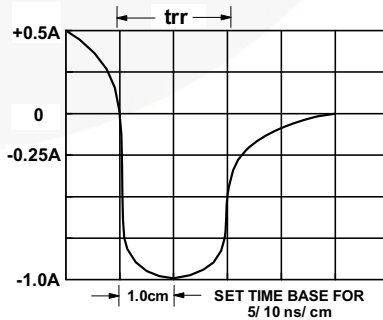


Figure 5. Total Capacitance

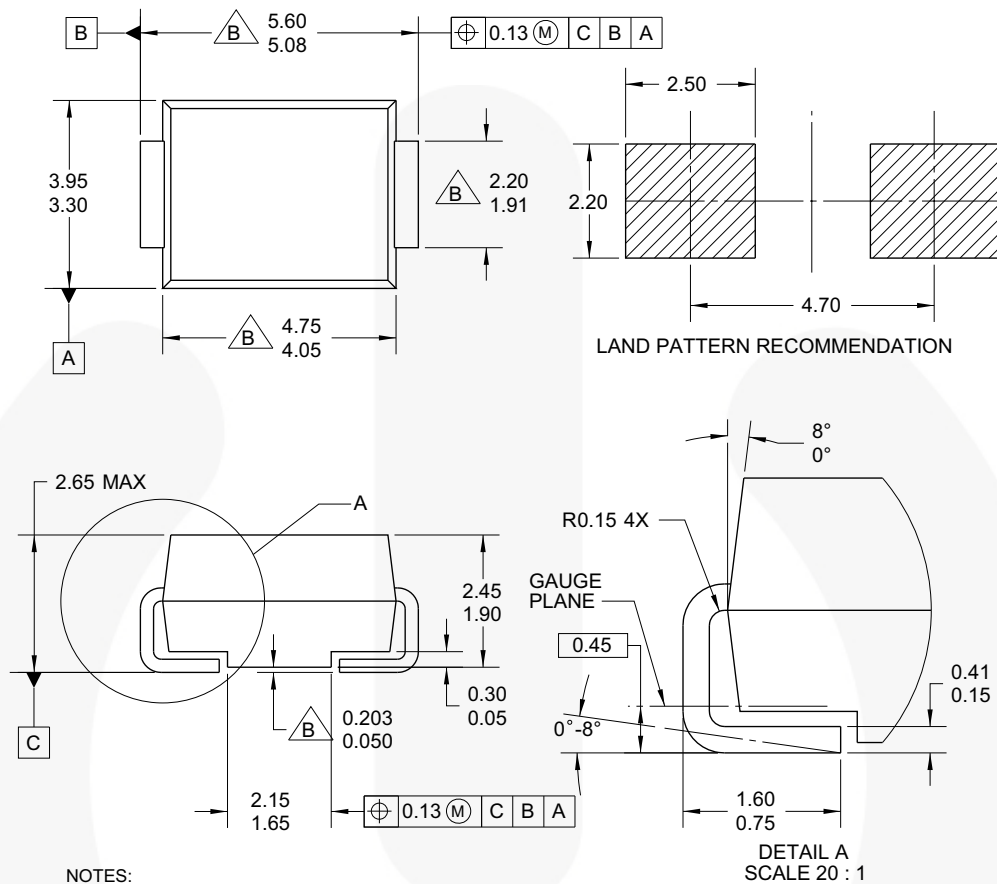


- NOTES:  
 1. Rise time = 7.0 ns max; Input impedance = 1.0 megaohm 22 pf.  
 2. Rise time = 10 ns max; Source impedance = 50 ohms.

Figure 6. Reverse Recovery Time Characteristic and Test Circuit Diagram



Physical Dimension



NOTES:

- A. EXCEPT WHERE NOTED CONFORMS TO JEDEC DO214 VARIATION AA.
- $\triangle$  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.
- G. DRAWING FILE NAME: DO214AAREV1

Figure 7. 2-LEAD, SMB, JEDEC DO-214, VARIATION AA (ACTIVE)

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| FACT®                    | MTi®   | SuperSOT™-8                           | VoltagePlus™     |
| FAST®                    | MTx®   | SupreMOS®                             | XS™              |
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