



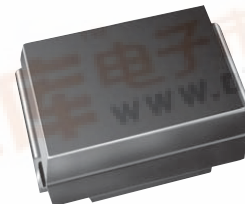
# ESH2B, ESH2C & ESH2D

New Product Vishay General Semiconductor

## Surface Mount Ultrafast Plastic Rectifiers

### Major Ratings and Characteristics

$I_{F(AV)}$	2 A
$V_{RRM}$	100 V, 150 V, 200 V
$t_{rr}$	25 ns
$V_F$	0.93 V
$T_J \text{ max.}$	175 °C



DO-214AA (SMB)

### Features

- Glass passivated chip junction
- Ideal for automated placement
- Ultrafast recovery times for high efficiency
- Low forward voltage, low power loss
- High forward surge capability
- Meets MSL level 1 per J-STS-020C
- Solder Dip 260 °C, 40 seconds



### Mechanical Data

**Case:** DO-214AA (SMB)

Epoxy meets UL 94V-0 Flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade, HE3 suffix for high reliability grade (AEC Q101 qualified)

**Polarity:** Color band denotes cathode end

### Typical Applications

For use in high frequency rectification and freewheeling application in switching mode converter and inverter for both consumer and automotive

### Maximum Ratings

$T_A = 25 \text{ °C}$ , unless otherwise specified

Parameter	Symbol	ESH2B	ESH2C	ESH2D	Unit
Device marking code		EHB	EHC	EHD	
Maximum repetitive peak reverse voltage	$V_{RRM}$	100	150	200	V
Maximum RMS voltage	$V_{RMS}$	70	105	140	V
Maximum DC blocking voltage	$V_{DC}$	100	150	200	V
Maximum average forward rectified current (Fig. 1)	$I_{F(AV)}$	2.0			A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	60			A
Operating junction and storage temperature range	$T_J, T_{STG}$	- 55 to + 175			°C



# ESH2B, ESH2C & ESH2D



Vishay General Semiconductor

## Electrical Characteristics

$T_A = 25\text{ }^\circ\text{C}$ , unless otherwise specified

Parameter	Test condition	Symbol	Value	Unit
Maximum instantaneous forward voltage	at $I_F = 2\text{ A}^{(1)}$	$V_F$	0.93	V
Maximum DC reverse current at rated DC blocking voltage	$T_A = 25\text{ }^\circ\text{C}$ $T_A = 125\text{ }^\circ\text{C}$	$I_R$	2.0 50	$\mu\text{A}$
Maximum reverse recovery time	at $I_F = 0.5\text{ A}$ , $I_R = 1\text{ A}$ , $I_{rr} = 0.25\text{ A}$	$t_{rr}$	25	ns
Typical reverse recovery time	at $I_F = 2\text{ A}$ , $V_R = 30\text{ V}$ di/dt = $50\text{ A}/\mu\text{s}$ , $I_{rr} = 10\%$ IRM $T_J = 25\text{ }^\circ\text{C}$ $T_J = 100\text{ }^\circ\text{C}$	$t_{rr}$	35 55	ns
Typical stored charge	at $I_F = 2\text{ A}$ , $V_R = 30\text{ V}$ di/dt = $50\text{ A}/\mu\text{s}$ , $I_{rr} = 10\%$ IRM $T_J = 25\text{ }^\circ\text{C}$ $T_J = 100\text{ }^\circ\text{C}$	$Q_{rr}$	20 35	nC
Typical junction capacitance	at 4.0 V, 1 MHz	$C_J$	30	pF

Note:

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

## Thermal Characteristics

$T_A = 25\text{ }^\circ\text{C}$ , unless otherwise specified

Parameter	Symbol	ESH2B	ESH2C	ESH2D	Unit
Typical thermal resistance <sup>(1)</sup>	$R_{\theta JA}$ $R_{\theta JL}$		65 20		$^\circ\text{C}/\text{W}$

Note:

(1) Units mounted on P.C.B. with 8.0 x 8.0 mm land areas.

## Ratings and Characteristics Curves

( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise specified)

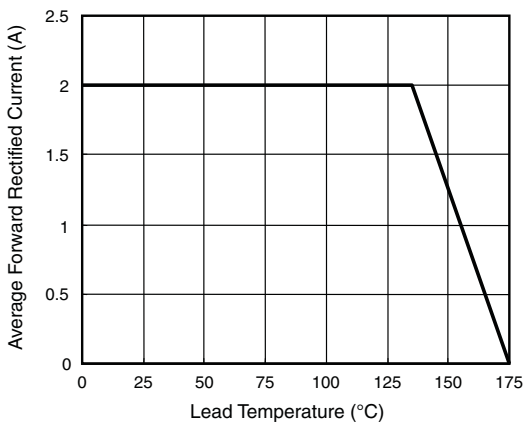


Figure 1. Maximum Forward Current Derating Curve

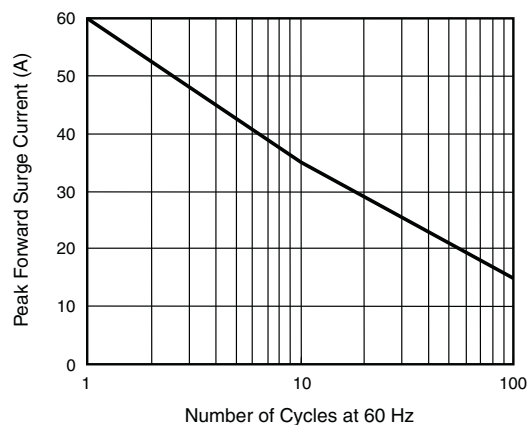


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

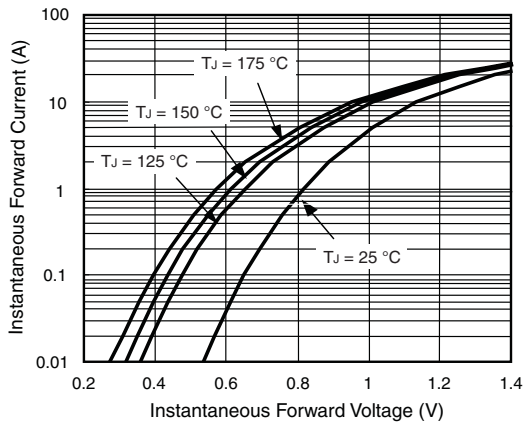


Figure 3. Typical Instantaneous Forward Characteristics

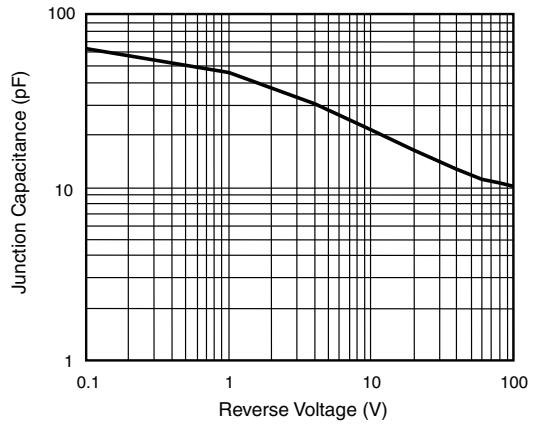


Figure 5. Typical Junction Capacitance

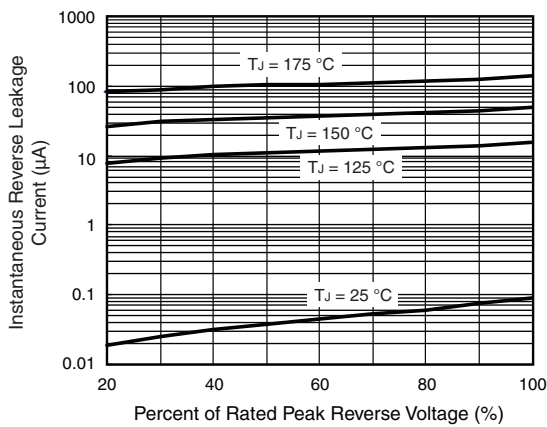


Figure 4. Typical Reverse Leakage Characteristics

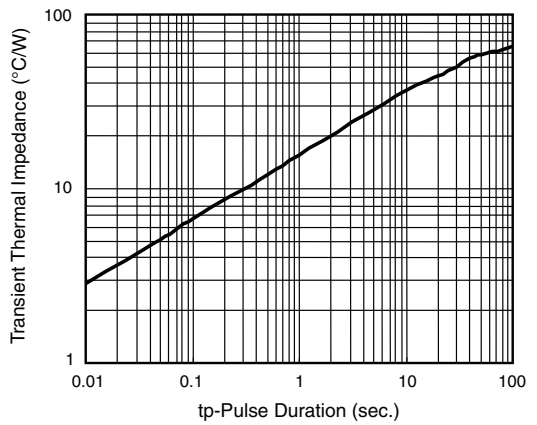
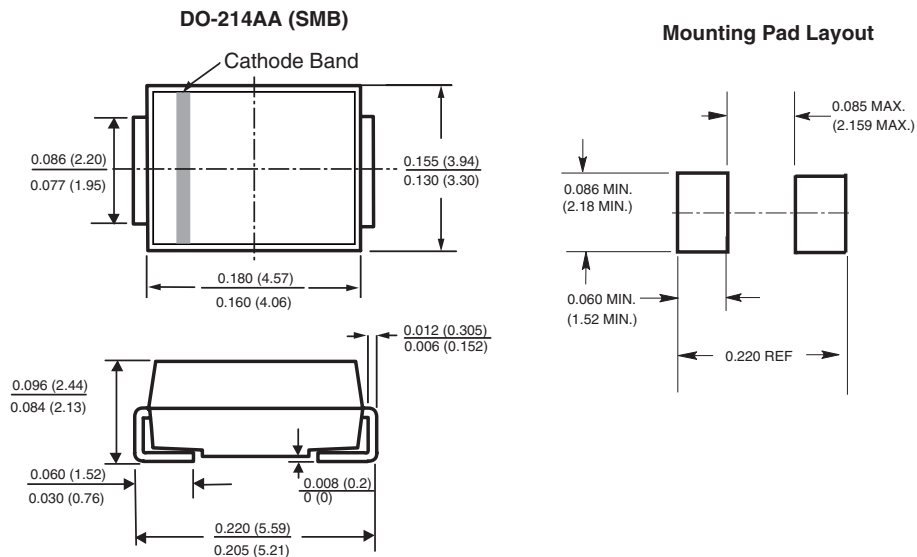


Figure 6. Typical Transient Thermal Impedance

## Package dimensions in inches (millimeters)





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