ES1A-ES1D

1.0 A Ultra Fast Recovery Rectifier

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
• This Device is Pb-Free and is RoHS Compliant

Applications
• This Product is General Usage and Suitable for Many Different Applications

MARKING DIAGRAM

SY&Z&3
ES1X

SY = ON Semiconductor Logo
&Z = Assembly Plant Code
&3 = Data Code (Year & Week)
ES1X = Specific Device Code
X = A/B/C/D

ORDERING INFORMATION
See detailed ordering and shipping information on page 2 of this data sheet.
ABSOLUTE MAXIMUM RATINGS  \( T_A = 25 \degree C \) Unless Otherwise Noted

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>( V_{RRM} )</td>
<td>Maximum Repetitive Reverse Voltage</td>
<td>50 100 150 200</td>
<td>V</td>
</tr>
<tr>
<td>( I_{F(AV)} )</td>
<td>Average Rectified Forward Current, @ ( T_A = 120 \degree C )</td>
<td>1.0</td>
<td>A</td>
</tr>
<tr>
<td>( I_{FSM} )</td>
<td>Non-repetitive Peak Forward Surge Current 8.3 ms Single Half–Sine–Wave</td>
<td>30</td>
<td>A</td>
</tr>
<tr>
<td>( T_{stg} )</td>
<td>Storage Temperature Range</td>
<td>-50 to +150</td>
<td>°C</td>
</tr>
<tr>
<td>( T_{Jm} )</td>
<td>Operating Junction Temperature</td>
<td>-50 to +150</td>
<td>°C</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>( P_D )</td>
<td>Power Dissipation</td>
<td>1.47</td>
<td>W</td>
</tr>
<tr>
<td>( R_{JJA} )</td>
<td>Thermal Resistance, Junction to Ambient*</td>
<td>85</td>
<td>°C/W</td>
</tr>
<tr>
<td>( R_{JUL} )</td>
<td>Thermal Resistance, Junction to Lead*</td>
<td>35</td>
<td>°C/W</td>
</tr>
</tbody>
</table>

*Device mounted on FR-4 PCB 0.013 mm.

ELECTRICAL CHARACTERISTICS  \( T_J = 25 \degree C \) Unless Otherwise Noted

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Device</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>( V_F )</td>
<td>Forward Voltage @ 1.0 A</td>
<td>0.92</td>
<td>V</td>
</tr>
<tr>
<td>( t_{rr} )</td>
<td>Reverse Recovery Time ( I_F = 0.5 , A, , I_R = 1.0 , A, , I_{RR} = 0.25 , A )</td>
<td>15</td>
<td>ns</td>
</tr>
<tr>
<td>( I_R )</td>
<td>Reverse Current @ rated ( V_R ) ( T_A = 25 , ^\circ C )</td>
<td>5.0</td>
<td>( \mu A )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>( C_T )</td>
<td>Total Capacitance ( V_R = 4.0 , V, , f = 1.0 , MHz )</td>
<td>7.0</td>
<td>pF</td>
</tr>
</tbody>
</table>

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.

PACKAGE MARKING AND ORDERING INFORMATION  TBD

<table>
<thead>
<tr>
<th>Device Marking</th>
<th>Device</th>
<th>Package</th>
<th>Quantity†</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESD1</td>
<td>ESD1</td>
<td>SMA</td>
<td>7500 / Tape &amp; Reel</td>
</tr>
</tbody>
</table>

†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.
ES1A–ES1D

TYPICAL 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
TYPICAL CHARACTERISTICS (continued)

Figure 6. Reverse Recovery Time Characteristic and Test Circuit Diagram

NOTES:
1. Rise time = 7.0 ns max; Input impedance = 1.0 MΩ 22 pf.
2. Rise time = 10 ns max; Source impedance = 50 Ω.
SMA
CASE 403AE
ISSUE O

DATE 31 AUG 2016

NOTES:
A. EXCEPT WHERE NOTED, CONFORMS TO JEDEC DO214 VARIATION AC.
B. DOES NOT COMPLY JEDEC STANDARD VALUE.
C. ALL DIMENSIONS ARE IN MILLIMETERS.
D. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR PROTRUSIONS.
E. LAND PATTERN STD. DIOM5025X231M

GAGE PLANE

DETAIL A
SCALE 20 : 1

MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

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