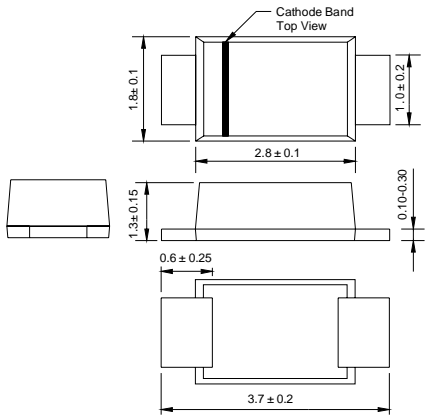
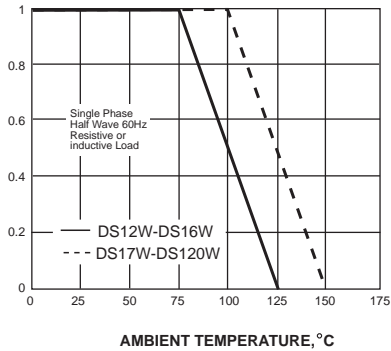


Surface Mount Schottky Barrier Rectifier

| <p style="text-align: center;">SOD-123FL</p>  <p style="text-align: center;">Dimensions in millimeters</p> | <p style="text-align: center;">FEATURES</p> <ul style="list-style-type: none"> ◆ The plastic package carries Underwriters Laboratory Flammability Classification 94V-0 ◆ Metal silicon junction, majority carrier conduction ◆ Low power loss, high efficiency ◆ High forward surge current capability ◆ High temperature soldering guaranteed: 250°C/10 seconds, 0.375" (9.5mm) lead length, 5 lbs. (2.3kg) tension | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|-------------|-------|-------|-------|-------|-------------|-------|--------|--------|--------|------------|--------|-------|---|-----------|----|----|----|----|----|----|----|----|-----|-----|-----|-------|---------------------|-----------|----|----|----|----|----|----|----|----|----|-----|-----|-------|-----------------------------|----------|----|----|----|----|----|----|----|----|-----|-----|-----|-------|---|------------|-----|--|--|--|--|--|--|--|--|--|-----|---|-----------|------|--|--|--|--|--|--|--|--|--|------|---|-------|------|--|--|------|--|--|------|--|--|------|-------|---|-------|-----|--|--|--|--|-----|--|--|--|--|------------|----|--|--|------|--|--|--|--|----|--|--|--|--|---------------------------------------|-------|-----|--|--|--|--|----|--|--|--|--|----|--------------------------------------|-------|-------------|--|--|--|--|-------------|--|--|--|--|----|---------------------------|-----------|-------------|--|--|--|--|--|--|--|--|--|----|
| <p style="text-align: center;">MECHANICAL DATA</p> <p>Case: JEDEC SOD-123FL molded plastic body Terminals: Solderable per MIL-STD-750, Method 2026 Polarity: Color band denotes cathode end Mounting Position: Any Weight: 0.0007 ounce, 0.02 grams</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p style="text-align: center;">MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Ratings at 25°C ambient temperature unless otherwise specified. Single phase half-wave 60Hz, resistive or inductive load, for capacitive load current derate by 20%.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Catalog Number</p> | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">SYMBOLS</th> <th>DS12W</th> <th>DS13W</th> <th>DS14W</th> <th>DS15W</th> <th>DS16W</th> <th>DS17W</th> <th>DS18W</th> <th>DS19W</th> <th>DS110W</th> <th>DS115W</th> <th>DS120W</th> <th>UNITS</th> </tr> </thead> <tbody> <tr> <td>Maximum repetitive peak reverse voltage</td> <td>V_{RRM}</td> <td>20</td> <td>30</td> <td>40</td> <td>50</td> <td>60</td> <td>70</td> <td>80</td> <td>90</td> <td>100</td> <td>150</td> <td>200</td> <td>VOLTS</td> </tr> <tr> <td>Maximum RMS voltage</td> <td>V_{RMS}</td> <td>14</td> <td>21</td> <td>28</td> <td>35</td> <td>42</td> <td>49</td> <td>56</td> <td>63</td> <td>70</td> <td>105</td> <td>140</td> <td>VOLTS</td> </tr> <tr> <td>Maximum DC blocking voltage</td> <td>V_{DC}</td> <td>20</td> <td>30</td> <td>40</td> <td>50</td> <td>60</td> <td>70</td> <td>80</td> <td>90</td> <td>100</td> <td>150</td> <td>200</td> <td>VOLTS</td> </tr> <tr> <td>Maximum average forward rectified current</td> <td>$I_{(AV)}$</td> <td colspan="10" style="text-align: center;">1.0</td> <td>Amp</td> </tr> <tr> <td>Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)</td> <td>I_{FSM}</td> <td colspan="10" style="text-align: center;">25.0</td> <td>Amps</td> </tr> <tr> <td>Maximum instantaneous forward voltage at 1.0A</td> <td>V_F</td> <td colspan="3" style="text-align: center;">0.55</td> <td colspan="3" style="text-align: center;">0.70</td> <td colspan="3" style="text-align: center;">0.85</td> <td style="text-align: center;">0.95</td> <td>Volts</td> </tr> <tr> <td>Maximum DC reverse current at rated DC blocking voltage $T_A=25^\circ\text{C}$ $T_A=100^\circ\text{C}$</td> <td>I_R</td> <td colspan="5" style="text-align: center;">0.5</td> <td colspan="5" style="text-align: center;">5.0</td> <td style="text-align: center;">0.2 2.0</td> <td rowspan="2">mA</td> </tr> <tr> <td></td> <td></td> <td colspan="5" style="text-align: center;">10.0</td> <td colspan="5" style="text-align: center;">80</td> </tr> <tr> <td>Typical junction capacitance (NOTE 1)</td> <td>C_J</td> <td colspan="5" style="text-align: center;">110</td> <td colspan="5" style="text-align: center;">80</td> <td>pF</td> </tr> <tr> <td>Operating junction temperature range</td> <td>T_J</td> <td colspan="5" style="text-align: center;">-65 to +125</td> <td colspan="5" style="text-align: center;">-65 to +150</td> <td>°C</td> </tr> <tr> <td>Storage temperature range</td> <td>T_{STG}</td> <td colspan="10" style="text-align: center;">-65 to +150</td> <td>°C</td> </tr> </tbody> </table> | SYMBOLS | DS12W | DS13W | DS14W | DS15W | DS16W | DS17W | DS18W | DS19W | DS110W | DS115W | DS120W | UNITS | Maximum repetitive peak reverse voltage | V_{RRM} | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 150 | 200 | VOLTS | Maximum RMS voltage | V_{RMS} | 14 | 21 | 28 | 35 | 42 | 49 | 56 | 63 | 70 | 105 | 140 | VOLTS | Maximum DC blocking voltage | V_{DC} | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 150 | 200 | VOLTS | Maximum average forward rectified current | $I_{(AV)}$ | 1.0 | | | | | | | | | | Amp | Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) | I_{FSM} | 25.0 | | | | | | | | | | Amps | Maximum instantaneous forward voltage at 1.0A | V_F | 0.55 | | | 0.70 | | | 0.85 | | | 0.95 | Volts | Maximum DC reverse current at rated DC blocking voltage $T_A=25^\circ\text{C}$ $T_A=100^\circ\text{C}$ | I_R | 0.5 | | | | | 5.0 | | | | | 0.2 2.0 | mA | | | 10.0 | | | | | 80 | | | | | Typical junction capacitance (NOTE 1) | C_J | 110 | | | | | 80 | | | | | pF | Operating junction temperature range | T_J | -65 to +125 | | | | | -65 to +150 | | | | | °C | Storage temperature range | T_{STG} | -65 to +150 | | | | | | | | | | °C |
| SYMBOLS | DS12W | DS13W | DS14W | DS15W | DS16W | DS17W | DS18W | DS19W | DS110W | DS115W | DS120W | UNITS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Maximum repetitive peak reverse voltage | V_{RRM} | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 150 | 200 | VOLTS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Maximum RMS voltage | V_{RMS} | 14 | 21 | 28 | 35 | 42 | 49 | 56 | 63 | 70 | 105 | 140 | VOLTS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Maximum DC blocking voltage | V_{DC} | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 150 | 200 | VOLTS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Maximum average forward rectified current | $I_{(AV)}$ | 1.0 | | | | | | | | | | Amp | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) | I_{FSM} | 25.0 | | | | | | | | | | Amps | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Maximum instantaneous forward voltage at 1.0A | V_F | 0.55 | | | 0.70 | | | 0.85 | | | 0.95 | Volts | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Maximum DC reverse current at rated DC blocking voltage $T_A=25^\circ\text{C}$ $T_A=100^\circ\text{C}$ | I_R | 0.5 | | | | | 5.0 | | | | | 0.2 2.0 | mA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 10.0 | | | | | 80 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Typical junction capacitance (NOTE 1) | C_J | 110 | | | | | 80 | | | | | pF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Operating junction temperature range | T_J | -65 to +125 | | | | | -65 to +150 | | | | | °C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Storage temperature range | T_{STG} | -65 to +150 | | | | | | | | | | °C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Note: 1. Measured at 1MHz and applied reverse voltage of 4.0V D.C.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

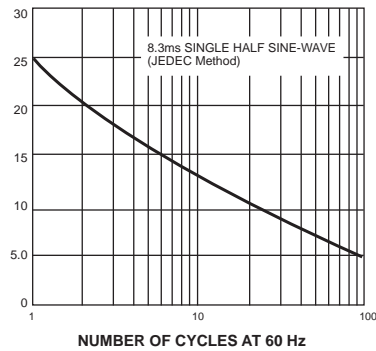
AVERAGE FORWARD RECTIFIED CURRENT,
AMPERES

FIG. 1- FORWARD CURRENT DERATING CURVE



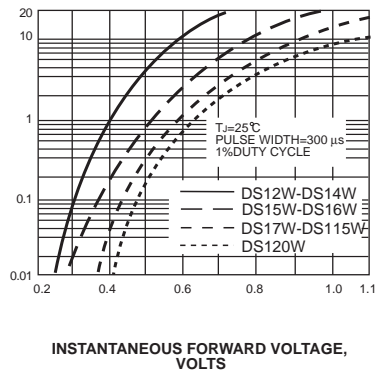
PEAK FORWARD SURGE CURRENT,
AMPERES

FIG. 2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



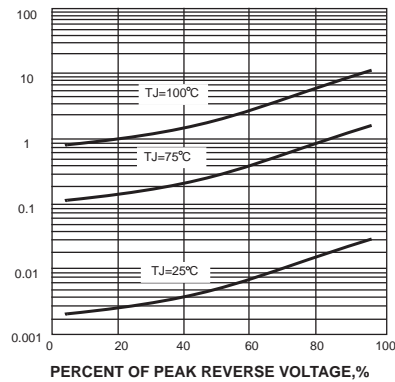
INSTANTANEOUS FORWARD CURRENT,AMPERES

FIG. 3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS



INSTANTANEOUS REVERSE CURRENT,
MILLIAMPERES

FIG. 4-TYPICAL REVERSE CHARACTERISTICS



JUNCTION CAPACITANCE, pF

FIG. 5-TYPICAL JUNCTION CAPACITANCE

