Features
- Low Insertion Loss
- Fast Turn-on Time
- Wide Bandwidth
- RoHS* Compliant

Description
The MLP71xx Series limiter diodes are specially processed PIN diodes with thin intrinsic regions designed for use in passive or active limiters from 100 MHz to beyond 20 GHz. The different “I” region thicknesses and capacitances provide variable threshold and leakage power levels and power handling capability.

This rugged device is capable of reliable operation in military, commercial and industrial applications.

The MPL71xx Series is designed to be used in receiver protection applications.

Electrical Specifications: $T_A = +25^\circ$C

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Breakdown Voltage ($V_B$)</th>
<th>Junction Capacitance* ($C_J$)</th>
<th>Series Resistance ($R_S$)</th>
<th>Lifetime ($T_L$)</th>
<th>Thermal Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>$I_R = 10$ µA</td>
<td>$V_B = 0$ V, 1 MHz</td>
<td>$V_B = 6$ V, 1 MHz</td>
<td>$I_F = 10$ mA, 1 GHz</td>
<td>$I_F = 10$ mA, 6 mA</td>
</tr>
<tr>
<td>Unit</td>
<td>V</td>
<td>pF</td>
<td>Ω</td>
<td>ns</td>
<td>ºC/W</td>
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<tr>
<td>MLP7100</td>
<td>20 - 45</td>
<td>0.2</td>
<td>0.15</td>
<td>1.5</td>
<td>5</td>
</tr>
<tr>
<td>MLP7101</td>
<td>20 - 45</td>
<td>0.5</td>
<td>0.30</td>
<td>1.2</td>
<td>4.5</td>
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<tr>
<td>MLP7102</td>
<td>20 - 45</td>
<td>0.7</td>
<td>0.50</td>
<td>1.0</td>
<td>4.0</td>
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<tr>
<td>MLP7110</td>
<td>45 - 75</td>
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<td>0.15</td>
<td>1.5</td>
<td>4.0</td>
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<tr>
<td>MLP7111</td>
<td>45 - 75</td>
<td>0.5</td>
<td>0.30</td>
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<td>3.5</td>
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<tr>
<td>MLP7112</td>
<td>45 - 75</td>
<td>0.7</td>
<td>0.50</td>
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<td>MLP7120</td>
<td>120 - 180</td>
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<tr>
<td>MLP7121</td>
<td>120 - 180</td>
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<td>3.0</td>
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<tr>
<td>MLP7122</td>
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<tr>
<td>MLP7130</td>
<td>15 - 30</td>
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<td>0.10</td>
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<td>4.0</td>
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<tr>
<td>MLP7131</td>
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<td>1.5</td>
<td>3.0</td>
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<tr>
<td>MLP7140</td>
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<tr>
<td>MLP7141</td>
<td>30 - 60</td>
<td>0.2</td>
<td>0.15</td>
<td>1.5</td>
<td>4.0</td>
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</table>


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MLP71xx Series

Low Power Limiter Diodes

RF Characteristics: $T_A = +25°C$

<table>
<thead>
<tr>
<th>Unit</th>
<th>Peak Power In</th>
<th>Threshold</th>
<th>Leakage Output Power</th>
<th>Insertion Loss</th>
<th>CW Input Power</th>
<th>Recovery Time</th>
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<tbody>
<tr>
<td></td>
<td>dBm</td>
<td>dBm</td>
<td>dBm</td>
<td>dB</td>
<td>W</td>
<td>ns</td>
</tr>
<tr>
<td>MLP7100</td>
<td>50</td>
<td>10</td>
<td>22</td>
<td>0.1</td>
<td>2</td>
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<td>MLP7101</td>
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<td>10</td>
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<td>MLP7102</td>
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<td>20</td>
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<tr>
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<td>MLP7120</td>
<td>60</td>
<td>20</td>
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<td>5</td>
<td>50</td>
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<td>MLP7121</td>
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<td>20</td>
<td>41</td>
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<td>50</td>
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<td>MLP7122</td>
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<td>44</td>
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<td>MLP7130</td>
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<td>7</td>
<td>19</td>
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<tr>
<td>MLP7131</td>
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<td>7</td>
<td>22</td>
<td>0.1</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>MLP7140</td>
<td>47</td>
<td>12</td>
<td>24</td>
<td>0.1</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>MLP7141</td>
<td>50</td>
<td>12</td>
<td>27</td>
<td>0.1</td>
<td>4</td>
<td>10</td>
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Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Absolute Maximum</th>
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<tbody>
<tr>
<td>Leakage Current</td>
<td>100 nA @ 80% of min. $V_B$</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-55°C to +150°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-65°C to +100°C</td>
</tr>
</tbody>
</table>

Handling Procedures

Please observe the following precautions to avoid damage:

Static Sensitivity

These electronic devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these HBM Class 0 devices.

Moisture Sensitivity

These electronic devices are rated MSL 1.
MLP71xx Series

Low Power Limiter Diodes

Outline Drawing - CS11

Outline Drawing - CS20 (H20)

Outline Drawing - CS37 (T86)

Outline Drawing - SOD323

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DC-0011395
Outline Drawing - CS16-x

<table>
<thead>
<tr>
<th>Package Style</th>
<th>Dimensions</th>
<th>Solder Layout (Typ.)</th>
<th>Package</th>
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</thead>
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<tr>
<td></td>
<td>W</td>
<td>X</td>
<td>Y</td>
</tr>
<tr>
<td>CS16-1</td>
<td>0.012 (0.304)</td>
<td>0.060 (1.52)</td>
<td>0.040 (1.01)</td>
</tr>
<tr>
<td>CS16-2</td>
<td>0.012 (0.304)</td>
<td>0.075 (1.91)</td>
<td>0.050 (1.27)</td>
</tr>
<tr>
<td>CS16-3</td>
<td>0.012 (0.304)</td>
<td>0.100 (2.54)</td>
<td>0.050 (1.27)</td>
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<tr>
<td>CS16-4</td>
<td>0.012 (0.304)</td>
<td>0.120 (3.05)</td>
<td>0.060 (1.52)</td>
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<tr>
<td>CS16-5</td>
<td>0.012 (0.304)</td>
<td>0.200 (5.08)</td>
<td>0.100 (2.54)</td>
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<tr>
<td>CS16-6</td>
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<td>0.040 (1.01)</td>
<td>0.020 (0.508)</td>
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<td>CS16-7</td>
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<td>0.060 (1.52)</td>
<td>0.020 (0.508)</td>
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<tr>
<td>Tolerance (+/-)</td>
<td>0.002 (0.051)</td>
<td>0.003 (0.76)</td>
<td>0.003 (0.76)</td>
</tr>
</tbody>
</table>
Low Power Limiter Diodes

Outline Drawing - CS20NL

Outline Drawing - CS32 (* CS32SP–OFHC Cu)
## Ordering Information

<table>
<thead>
<tr>
<th>Case Style</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-11</td>
<td>CS11, limiter PIN diode in chip form</td>
</tr>
<tr>
<td>-16-x</td>
<td>CS16, surface mount, AlN carrier, epoxy encapsulated package</td>
</tr>
<tr>
<td>-20</td>
<td>CS20 (H20), surface mount, ceramic package</td>
</tr>
<tr>
<td>-20NL</td>
<td>CS20NL, surface mount, ceramic package</td>
</tr>
<tr>
<td>-32</td>
<td>CS32, Kovar pill package</td>
</tr>
<tr>
<td>-32SP</td>
<td>CS32SP, OFHC Cu pill package</td>
</tr>
<tr>
<td>-37</td>
<td>CS37 (T86), pill package, ceramic body</td>
</tr>
<tr>
<td>-SOD323</td>
<td>SOD323, surface mount plastic package</td>
</tr>
</tbody>
</table>

Example Part Number: MLP71XX-YY, Replace -YY with the desired case style suffix
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