PMI MODEL: LM-618-10-1 W-SHS-1-M IS A HIGH SPEED, HIGH POWER HARD DIODE-LIMITER. IT OPERATES OVER THE FREQUENCY RANGE OF 6.0 TO 18.0GHz, WITH A MALE SMA ON THE INPUT RF CONNECTOR.

June 29, 2017

Designed By: Dr. Ashok Gorwara

Tested & Reported By:
Sebastian Palacio & Alfredo Lopez
Typical Characteristics
On
LM-618-10-1W-SHS-1-M

DESCRIPTION
PMI MODEL: LM-618-10-1 W-SHS-1-M IS A HIGH SPEED, HIGH POWER HARD DIODE LIMITER. IT OPERATES OVER THE FREQUENCY RANGE OF 6.0 TO 18.0 GHz, WITH A MALE SMA ON THE INPUT RF CONNECTOR.

SPECIFICATIONS
- FREQUENCY RANGE: 6.0 TO 18.0 GHz
- INSERTION LOSS
  @-20dBm INPUT: 2.0dB MAX, 1.5dB TYP
  @VSWR @-20dBm INPUT: 2.0:1 MAX, 1.5:1 TYP
- LEAKAGE @ 1 WATT
  CW INPUT: +14dBm MAX, +10dBm TYP
- SPEED: 10ns
- INPUT POWER:
  1 WATT CW, 100 WATTS PEAK,
  1s PULSE, 0.1% DUTY CYCLE
  DERATED TO 20% AT 125°C
- LIMITING THRESHOLD: +10dBm TYP
- CONNECTORS:
  SMA: RF IN = MALE, RF OUT = FEMALE
- FINISH:
  PAINTED BLUE
- SIZE: 0.5" X 0.5" X 0.22"

ENVIRONMENTAL RATINGS
- TEMPERATURE:
  -54°C TO +85°C (OPERATING)
  -85°C TO +125°C (STORAGE)
- HUMIDITY:
  MIL-STD-202F, METHOD 103B COND. B
- SHOCK:
  MIL-STD-202F, METHOD 213B COND. B
- VIBRATION:
  MIL-STD-202F, METHOD 204D COND. B
- ALTITUDE:
  MIL-STD-202F, METHOD 105C COND. B
- TEMPERATURE CYCLE:
  MIL-STD-202F, METHOD 107D COND. A

Note: Specifications are subject to change or revision.

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ISO 9001 CERTIFIED

PMI CONFIDENTIAL AND PROPRIETARY

PRODUCT FEATURE
LM-618-10-1W-SHS-1-M

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Email: sales@pmi-rf.com
# Typical Characteristics

On

LM-618-10-1W-SHS-1-M

<table>
<thead>
<tr>
<th>TEST. ITEM NO</th>
<th>PARAMETERS</th>
<th>SPECIFIED VALUE</th>
<th>TEST RESULTS</th>
<th>QA QC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Frequency Range:</td>
<td>6.0 GHz TO 18 GHz</td>
<td>0.5 GHz TO 18GHz (See Plot)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Insertion Loss @ -20dBm Input:</td>
<td>2.0 dB Max</td>
<td>+196 dB (See Plot)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>VSWR @ -20 dBm Input:</td>
<td>2.0:1 Max</td>
<td>1.60:1 (See Plot)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Leakage @ 1 Watt CW Input:</td>
<td>+14dBm Max</td>
<td>+13 dBm (See Plot)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Speed:</td>
<td>10ns</td>
<td>10 ns (See Plot)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Input Power:</td>
<td>1 Watt CW, 100 Watts Peak, 1us Pulse, 0.1% Duty Cycle, Derated to 20% @ 125°C</td>
<td>1 Watt (See Graph)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Limiting Threshold:</td>
<td>+10dBm Typ</td>
<td>+7 dBm (See Plot)</td>
<td></td>
</tr>
</tbody>
</table>
Typical Characteristics
On
LM-618-10-1W-SHS-1-M

Insertion Loss & Return Loss
Typical Characteristics
On
LM-618-10-1W-SHS-1-M

Input Power vs. Output Power

HIGH POWER TEST

<table>
<thead>
<tr>
<th>POWER INPUT (dBm)</th>
<th>POWER OUTPUT (dBm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-0.60</td>
</tr>
<tr>
<td>5</td>
<td>3.96</td>
</tr>
<tr>
<td>10</td>
<td>6.30</td>
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<tr>
<td>15</td>
<td>7.90</td>
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<tr>
<td>20</td>
<td>9.80</td>
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<tr>
<td>25</td>
<td>11.10</td>
</tr>
<tr>
<td>26</td>
<td>11.45</td>
</tr>
<tr>
<td>27</td>
<td>11.85</td>
</tr>
<tr>
<td>28</td>
<td>12.20</td>
</tr>
<tr>
<td>29</td>
<td>12.78</td>
</tr>
<tr>
<td>30</td>
<td>13.30</td>
</tr>
</tbody>
</table>
Typical Characteristics
On
LM-618-10-1W-SHS-1-M

Recovery
Typical Characteristics
On
LM-618-10-1W-SHS-1-M

Peak Leakage

\[
A - (1) = 136.0 \text{ ps} \\
B - (1) = 10,000 \text{ ns} \\
A = 9.8640 \text{ ns} \\
1/AX = 101.379 \text{ MHz}
\]
Typical Characteristics
On
LM-618-10-1W-SHS-1-M

Full Pulse Response