TEST REPORT

ON

500 MHz TO 18 GHz

HIGH SPEED (≤10 NS)

HIGH POWER
(1 WATT CW, 100 WATTS PEAK, 1µS PULSED)

LOW INSERTION LOSS

HARD DIODE-LIMITER

PMI MODEL NO:
LM-0518-10-1W-SHS-1 (OPTION M)
SERIAL NO: DMF2822-012, HP5340-012

DESIGNED
BY
ASH K. GORWARA

REPORTED
BY
PETER WOOD

16 JULY 1997

PLANAR MONOLITHIC INDUSTRIES, INC.
CORPORATE & ENGINEERING OFFICES: 1112 PERKIOMENVILLE ROAD, PERKIOMENVILLE, PA 18074
SALES & MANUFACTURING OFFICES: 7311-G GROVE ROAD, FREDERICK, MD 21704
TEL. No: 301-662-4700 FAX. No: 301-662-4938
500 MHz TO 18 GHz HIGH SPEED, HIGH POWER HARD DIODE-LIMITER

- LOW VSWR
- HIGH SPEED ($\leq 10$ nS)
- LOW INSERTION LOSS
- SELF BIASED LIMITER
- INTERNAL DC BLOCKS
- ULTRA BROAD BANDWIDTHS
- SURFACE MOUNTABLE WITH REMOVABLE RF CONNECTORS
- HIGH POWER (1WATT CW, 200 WATTS PEAK, 1$\mu$S PULSE, 0.1% DUTY CYCLE, DERATED TO 20% AT 125°C)
- LIMITING THRESHOLD BELOW $+10$ dBm TYPICAL

**KEY SPECIFICATIONS (@25°C):**

<table>
<thead>
<tr>
<th>FREQUENCY</th>
<th>0.5 TO 18.0 GHz (OPTION 0518) 2.0 TO 18.0 GHz (OPTION 218) 6.0 TO 18.0 GHz (OPTION 618) 0.5 TO 2.0 GHz (OPTION 052) 0.2 TO 2.0 GHz (OPTION 022, SPEED $\leq 50$ NS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSERTION LOSS @ -20 dBm INPUT</td>
<td>2.0 dB MAX. 1.5 dB TYPICAL</td>
</tr>
<tr>
<td>VSWR @ -20 dBm INPUT</td>
<td>2.0:1 MAX., 1.5:1 TYPICAL</td>
</tr>
<tr>
<td>LEAKAGE @ 1 WATT CW INPUT</td>
<td>+14 dBm MAX. +10 dBm TYPICAL</td>
</tr>
<tr>
<td>OPERATING TEMPERATURE</td>
<td>-55°C TO +85°C</td>
</tr>
<tr>
<td>STORAGE TEMPERATURE</td>
<td>-65°C TO +125°C</td>
</tr>
<tr>
<td>INPUT CONNECTOR</td>
<td>SMA MALE (REMOVABLE FOR SURFACE MOUNTING)</td>
</tr>
<tr>
<td>OUTPUT CONNECTOR</td>
<td>SMA FEMALE (REMOVABLE FOR SURFACE MOUNTING)</td>
</tr>
<tr>
<td>MODEL NUMBER</td>
<td>LM - 0518 - 10 - 1W - SHS - 1 - OPTION M</td>
</tr>
<tr>
<td>SIZE (TWO STYLE AVAILABLE)</td>
<td>(STYLE #1) 0.5&quot; X 0.5&quot; X 0.22&quot; (STYLE #2) 1.0&quot; X 1.0&quot; X 0.4&quot;</td>
</tr>
</tbody>
</table>
| HOW TO ORDER* | 1) LIMITER 
2) FREQUENCY (500 MHz TO 18 GHz) 
3) TYPICAL LIMITING THRESHOLD IN dBm 
4) MAXIMUM RF INPUT POWER IN WATTS 
5) SUPER HIGH SPEED 
6) STYLE NUMBER, 1 OR 2 
7) OPTION "M" = MALE INPUT CONNECTOR 
OPTION "F" = FEMALE INPUT CONNECTOR |

* ASK FOR OTHER PRODUCTS MANUFACTURED BY PMI: THRESHOLD DETECTORS, BI-PHASE MODULATORS, HIGH SPEED MIC/MMIC MODULATORS, IFMS, RECEIVER FRONT ENDS, LOW NOISE AMPLIFIERS AND SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS.

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MECHANICAL OUTLINE

STYLE #1
(MINIATURE VERSION)

4-40-UNC-2B THREAD THRU 2 PLACES

Ø0.015" x 0.100" RF PIN 2 PLACES

REMOVABLE SMA (F) 2 PLACES

STYLE #2

MOUNTING SURFACE GP= GOLD PLATED P=PAINTED

Ø0.015 x 0.100" RF PIN, 2 PLACES

20.089 THRU W4-40 THREAD 0.250 DEEP ON MOUNTING SURFACE 2 PLACES

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ENVIRONMENTAL SPECIFICATIONS

ENVIRONMENTAL RATINGS

- TEMPERATURE: -54°C TO +85°C (OPERATING)
  -65°C TO +100°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

FUNCTIONAL DIAGRAM

FUNCTIONAL DIAGRAM
LIMITER

J1 INPUT  O  MATCHING NETWORK  MATCHING NETWORK  MATCHING NETWORK  J2 OUTPUT
TEST DATA

ON

HARD DIODE-LIMITER

PMI MODEL No:
LM-0518-10-1W-SHS-1 OPTION M
(SERIAL No: HP5340-012)

DESIGNED
BY
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16 JULY 1997
LIMITER RESPONSE WITH FREQUENCY

SERIAL No: HP5340-012
CIRCUIT OPEN

PLANAR MONOLITHIC INDUSTRIES, INC.
SALES & MANUFACTURING OFFICES : 7311-G GROVE ROAD, FREDERICK, MD 21704
TEL. No: 301-662-4700    FAX No: 301-662-4938
LIMITER OUTPUT @ 12 GHz
BIAS OPEN
INSERTION LOSS & VSWR @ -20 dBm INPUT

CH1: A - M = 1.51 dB
1.5 dB/ REF + .00 dB

CH2: B - M = 20.87 dB
5.0 dB/ REF - .00 dB

STR  + .5000GHz
CRS +17.915GHz
STOP +18.500GHz
INSERTION LOSS @ -10 dBm INPUT

CH1: A -M - 1.03 dB
    2.0 dB REF - .00 dB

START + .5000GHz  CSWR +18.500GHz  STOP +18.500GHz
PMI HARD DIODE-LIMITER
MODEL No: LM-0518-10-1W-SHS-1 OPTION M
PAGE 10

INSERTION LOSS @ 0 dBm INPUT

CH1: A -M - 2.33 dB
2.0 dB/ REF - .00 dB

STR T + .500GHz 
CRSR (+18.500GHz) 
STOP +18.500GHz

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TEL: No: 301-662-4700  FAX No: 301-662-4938
INSERTION LOSS @ +5 dBm INPUT

CH1: A -M A - 4.03 dB
S.0 dB/ REF + .00 dB

STRT + .0100GHz CRSR +6.7066GHz STOP +20.0000GHz
VSWR @ +5 dBm INPUT
INSERTION LOSS @ +10 dBm INPUT

CH1: A -M a - 2.65 dB
5.0 dB/ REF + .00 dB

START +.0100 GHz  CENTER +509.74 MHz  STOP +20.0000 GHz
TEST DATA

ON

HARD DIODE-LIMITER

PMI MODEL No:
LM-0518-10-1W-SHS-1 OPTION M
(SERIAL No: DMF2822-012-1 AND DMF2822-012-2)

DESIGNED
BY
ASH K. GORWARA

16 JULY 1997
LIMITER RESPONSE WITH FREQUENCY

(SERIAL No: DMF2822-012-1)
INSERTION LOSS & VSWR @ -20 dBm

(SERIAL No: DMF2822-012-1)

CH1: A -M 5 - 1.30 dB
1.0 dB/ REF + .00 dB

CH2: E -M - 26.37 dB
5.0 dB/ REF - .00 dB

PLEASE CLEAN UP IF YOU MESS UP.

START + .50000GHz  CRSR +10.000GHz  STOP +10.500GHz
LIMITER RESPONSE WITH FREQUENCY

(SERIAL No: DMF2822-012-2)
INSERTION LOSS & VSWR @ -20 dBm INPUT

(SERIAL No: DMF2822-012-2)