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 (≤ 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, 1μS PULSE, 0.1% DUTY CYCLE, DERATED TO 20% AT 125°C)
- LIMITING THRESHOLD BELOW +10dBm TYPICAL

KEY SPECIFICATIONS (@25° C):

FREQUENCY : 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 ≤ 50 NS)

INSERTION LOSS @ -20 dBm INPUT : 2.0 dB MAX. 1.5 dB TYPICAL

VSWR @ -20 dBm INPUT : 2.0:1 MAX., 1.5:1 TYPICAL

LEAKAGE @ 1 WATT CW INPUT : +14 dBm MAX. +10 dBm TYPICAL

OPERATING TEMPERATURE : -55°C TO +85°C

STORAGE TEMPERATURE : -65°C TO +125°C

INPUT CONNECTOR : SMA MALE (REMOVABLE FOR SURFACE MOUNTING)

OUTPUT CONNECTOR : SMA FEMALE (REMOVABLE FOR SURFACE MOUNTING)

MODEL NUMBER : LM - 0518 - 10 - 1W - SHS - 1 - OPTION M
                 1 2 3 4 5 6 7

SIZE (TWO STYLE AVAILABLE) : (STYLE #1) 0.5" X 0.5" X 0.22"
                               (STYLE #2) 1.0" X 1.0" X 0.4"

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, IFM's, RECEIVER FRONT ENDS, LOW NOISE AMPLIFIERS AND SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS.

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PMI HARD DIODE-LIMITER
MODEL No: LM-0518-10-1W-SHS-OPTION M
PAGE 3

MECHANICAL OUTLINE

STYLE #1
(MINIATURE VERSION)

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

0.200

0.300

0.50

0.100

0.100

0.015" x 0.100" RF PIN 2 PLACES

REMOVABLE SMA (F) 2 PLACES

STYLE #2

MOUNTING SURFACE GP=GOLD PLATED P=PAINTED

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

PLANAR MONOLITHIC INDUSTRIES, INC.
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TEST DATA

ON

HARD DIODE-LIMITER

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

DESIGNED
BY
ASH K. GORWARA

16 JULY 1997
LIMITER RESPONSE WITH FREQUENCY
SERIAL No: HP5340-012
CIRCUIT OPEN
LIMITER OUTPUT @ 12 GHz
BIAS OPEN

12 GHz - BIAS OPEN

RF INPUT POWER (dBm)

OUTPUT POWER (dBm)
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

STRT + .500GHz CRSR +17.915GHz STOP +18.500GHz
INSERTION LOSS @ -10 dBm INPUT

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

START +.5000GHz  CARR +18.500GHz  STOP +18.500GHz
INSERTION LOSS @ 0 dBm INPUT

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

START +.5000GHz  CRRR (+18.500GHz)  STOP +18.500GHz
INSERTION LOSS @ +5 dBm INPUT

CH1: A - M A - 4.03 dB
5.0 dB REF + .00 dB

STR T + 0.1000 GHz
CRS R + 0.706666 GHz
STOP + 20.000 GHz
VSWR @ +5 dBm INPUT

CH1: A - M - 68.60 dB
5.0 dB/ REF + .00 dB

CH2: B - M - 13.12 dB
5.0 dB/ REF - 10.00 dB

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TEL. No: 301-862-4700    FAX No: 301-662-4938
INSERTION LOSS @ +10 dBm INPUT

CH1: A -M A - 2.66 dB
5.0 dB/ REF + 0.00 dB

START +0.001GHz  CRISE +509.74MHz  STOP +20.000GHz
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 S - 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 ++.5000GHz
CRSR +18.005GHz
STOP +18.500GHz
LIMITER RESPONSE WITH FREQUENCY
(SERIAL No: DMF2822-012-2)
INSERTION LOSS & VSWR @ -20 dBm INPUT
(SERIAL No: DMF2822-012-2)

CH1: A -M = 3.86 dB
1.0 dB/ REF = 3.00 dB
CH2: B -M = 15.87 dB
5.0 dB/ REF = 10.86 dB

STRAT +2000 GHz
CRSR +18.000 GHz
STOP +18.000 GHz