

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	--	Original Release	09/14/07	

REV STATUS	REV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SHEETS	SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

REV STATUS	REV																
SHEETS	SHEET	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

SCD No.: 561R902 Rev. A			<p align="center">Planar Monolithics Industries, Inc. 7311-G Grove Road, Frederick, MD 21704</p>														
		DATE															
DRAWN	E. Elder	09/14/07	<p align="center">ACCEPTANCE TEST PROCEDURE MODEL: TD-30T-914-DX-HERM HIGH SPEED THRESHOLD DETECTOR, HERMETICALLY SEALED</p>														
CHECK	E. Elder	09/14/07															
APPD.	R. Afable	09/14/07															
ENGR.	S. Kuhn	09/14/07															
QC.	D. Bruder	09/14/07															
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			REV: -	SCALE: N/A	SHEET <u>1</u> OF <u>8</u>												



PLANAR MONOLITHICS INDUSTRIES, INC.
7311-G GROVE RD., FREDERICK MD.21704
TEL: 301-631-1579 FAX: 301-662-2029
URL: WWW.PLANARMONOLITHICS.COM
E-MAIL: SALES@PLANARMONOLITHICS.COM
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ACCEPTANCE

TEST PROCEDURE
(ATP)

FOR

PMI MODEL NUMBER: TD-30T-914-DX-HERM

HERMETICALLY SEALED
HIGH SPEED THRESHOLD DETECTOR



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1.0 SCOPE

The purpose of this document is to provide an electrical testing procedure for PMI Model TD-30T-914-DX-HERM, the Hermetically Sealed High Speed Threshold Detector. This procedure is only to be performed by a test technician experienced in the testing of RF and microwave devices.

2.0 EQUIPMENT LIST

The following equipment, or equivalent, are to be used in conjunction with this Acceptance Test Procedure (ATP) provided that all said equipments have displayed a valid calibration notice that can be traced to the National Institute of Standards and Technologies (NIST).

TABLE OF APPROVED TEST EQUIPMENT
 TABLE I

Item Number	ITEM	MANUFACTURER	MODEL NUMBER
1	Signal Generator	Agilent	E8257D
2	Multi-meter	HP	34401A
3	Power Supply	Agilent	3631A
4	Vector Network Analyzer	Agilent	N5230A
5	Oscilloscope	Tektronix	TDS3054/TDS3014B

3.0 GENERAL TESTING GUIDELINES

All tests to be done @ -20°C, 25°C, and +85°C. All test procedure SCD references specify Northrop Grumman Drawing Number 561R902 Rev. A. The TD-30T-914-DX-HERM shall hereafter be referred to as the "Device Under Test" or DUT.

3.1 SCREENING

All parts will be screened in accordance with 561R902 Table II prior to acceptance testing. The screening results will be available for inspection.

3.2 DC VOLTAGE

The DC Voltage shall be +5V and the unit shall be properly grounded.

4.0 ELECTRICAL TEST PROCEDURE

4.1 FREQUENCY RANGE (REFERENCE SCD PARAGRAPH 3.3.1)

The frequency range shall be 9 GHz to 14 GHz minimum.

4.2 DYNAMIC RANGE (REFERENCE SCD PARAGRAPH 3.3.2)

The detection threshold shall be adjustable over a range of at least -18 dBm to 5 dBm.

4.2.1 DETECTION THRESHOLDS (REFERENCE SCD PARAGRAPH 3.3.2.1)

To determine detection thresholds, connect DUT as shown in Figure I. Set the signal generator to a frequency of 9 GHz. Adjust the potentiometer resistance value such that the threshold level is less than or equal to -18 dBm. Record the resistance value in Table I on the data sheet (see section 6.0).



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Record the TTL high transition level in Table I on the data sheet (see section 6.0).

Record the TTL low transition level in Table I on the data sheet (see section 6.0).

Verify that the mid-point detection threshold is within specification (-18 dBm).

Adjust the potentiometer resistance value such that the threshold level is greater than or equal to +5 dBm. Record the resistance value in Table I on the data sheet (see section 6.0).

Record the TTL high and low transition levels in Table I on the data sheet (see section 6.0).

Set the signal generator to a frequency of 11.5 GHz. Repeat the detection threshold tests at -18 dBm and +5 dBm, recording the resistances and transition levels, as above.

Set the signal generator to a frequency of 14 GHz. Repeat the detection threshold tests at -18 dBm and +5 dBm, recording the resistances and transition levels, as above.

4.2.2 HYSTERESIS REGION (REFERENCE SCD PARAGRAPH 3.3.2.2)

The hysteresis region is defined as the region between the high and low detection levels. From the data taken in 4.2.1, verify that the hysteresis region is 4 dB maximum.

4.3 INPUT FLATNESS (REFERENCE SCD PARAGRAPH 3.3.3)

The nominal detection threshold shall be constant to within ± 2 dB maximum across the specified frequency range of 4.1. From the data taken in 4.2.1, verify that the input flatness is within ± 2 dB maximum.

4.4 VOLTAGE STANDING WAVE RATIO – VSWR (REFERENCE SCD PARAGRAPH 3.3.4)

The VSWR specified shall be with respect to nominal impedance for 50 Ω .

4.4.1 INPUT VSWR (REFERENCE SCD PARAGRAPH 3.3.4.1)

Calibrate VNA. Connect DUT as shown in Figure II. Measure input VSWR on S11 from VNA. Record as test item #1 on data sheet.

4.5 RESPONSE TIME (REFERENCE SCD PARAGRAPH 3.3.5)

Connect DUT as shown in Figure III. Set the signal generator to pulse RF output at least 3 dB above the positive detection level. The off-to-on response time is measured when the RF signal power crosses the 50% point to the 90% point of the TTL threshold output. On the oscilloscope, measure the leading edge of the threshold output. Record the off-to-on response time as test item #2 on data sheet.

The on-to-off response time is measured when the RF signal power crosses the 50 % point to the 10 % point of the TTL threshold output. On the oscilloscope, measure the trailing edge of the threshold output. Record the on-to-off response time as test item #3 on data sheet.

4.6 DC POWER REQUIREMENTS (REFERENCE SCD PARAGRAPH 3.3.6)

Record current draw on data sheet. Verify that current draw is less than 100 mA.



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5.0 SAMPLE DATA SHEET

FORM: M-F-4006-1
026-TD-DTA



PLANAR MONOLITHICS INDUSTRIES
 7311-G GROVE ROAD, FREDERICK, MD 21704
 TEL: 301-631-1579 FAX: 301-662-2029
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 EMAIL: SALES@PLANARMONOLITHICS.COM
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BROADBAND THRESHOLD DETECTOR

<p>CUSTOMER: _____</p> <p>JOB NO: _____</p> <p>MODEL NO: TD-30T-914-DX-HERM</p> <p>SERIAL NO: _____</p> <p>POWER SUPPLY: +5V @ mA</p>	<p>DATE: _____</p> <p>TECHNICIAN: _____</p> <p>SPECIFICATION: _____</p> <p>OPTION NO: _____</p> <p>FREQUENCY RANGE: 9 – 14 GHz</p>
--	---

TABLE I

DETECTION THRESHOLD VS. INPUT POWER

POWER IN	FREQUENCY					
	9 GHz		11.5 GHz		14 GHz	
-18 dBm	RESISTANCE VALUE _____ Ω		RESISTANCE VALUE _____ Ω		RESISTANCE VALUE _____ Ω	
	HIGH THRESHOLD	LOW THRESHOLD	HIGH THRESHOLD	LOW THRESHOLD	HIGH THRESHOLD	LOW THRESHOLD
	dBm	dBm	dBm	dBm	dBm	dBm
+5 dBm	RESISTANCE VALUE _____ Ω		RESISTANCE VALUE _____ Ω		RESISTANCE VALUE _____ Ω	
	HIGH THRESHOLD	LOW THRESHOLD	HIGH THRESHOLD	LOW THRESHOLD	HIGH THRESHOLD	LOW THRESHOLD
	dBm	dBm	dBm	dBm	dBm	dBm

NOTE: Any additional test data on back

ITEM NO:	PARAMETERS:	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	VSWR IN	2.50:1 MAXIMUM		
2	OFF-TO-ON RESPONSE TIME	200 nS		
3	ON-TO-OFF RESPONSE TIME	200 nS		

QA/QC APPROVAL: _____ DATED: _____



FIGURE I

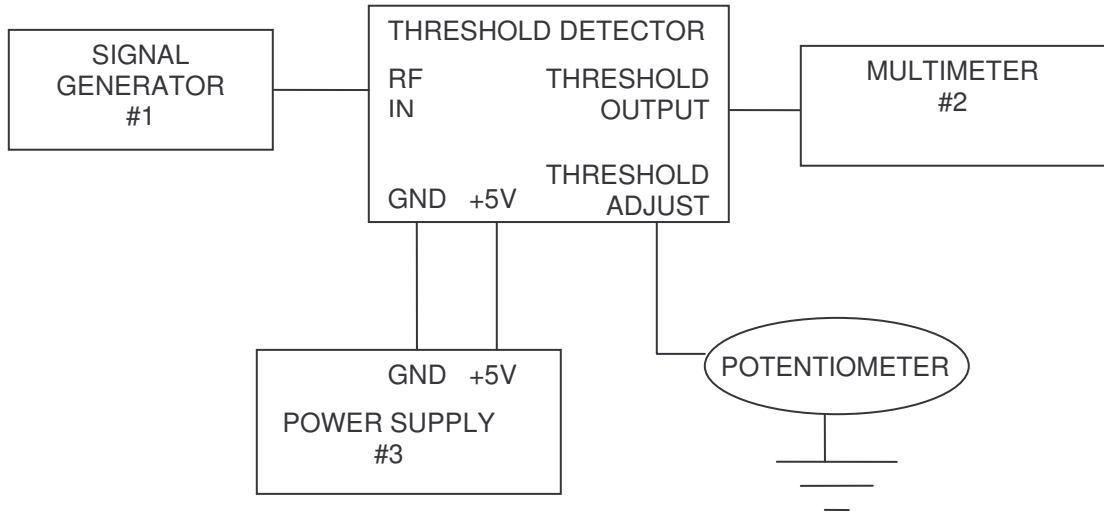
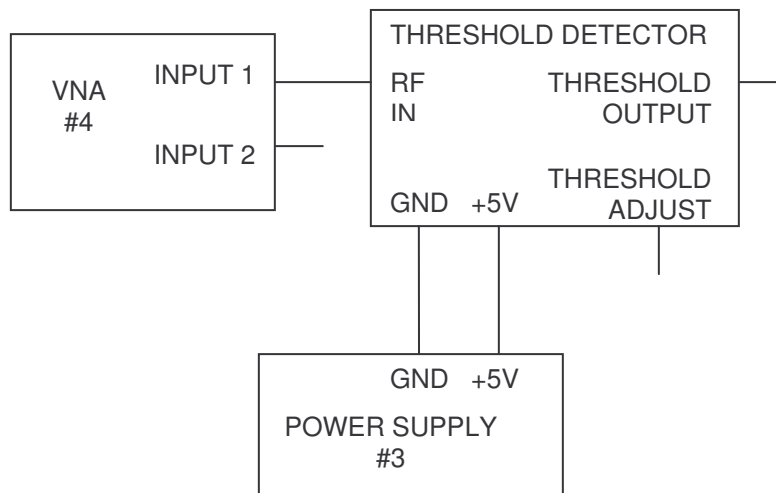


FIGURE II





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7311-G GROVE RD., FREDERICK MD.21704
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FIGURE III

