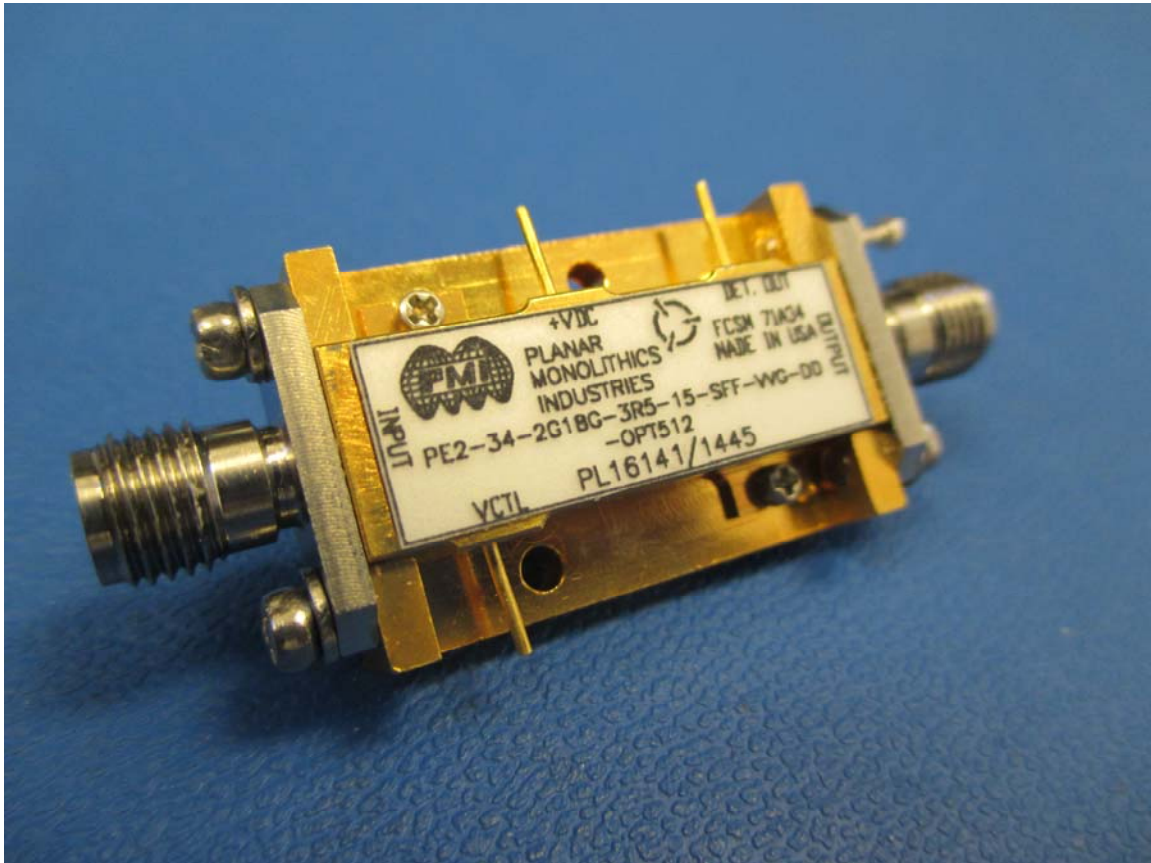




**TYPICAL CHARACTERISTICS  
ON  
PE2-34-2G18G-3R5-15-SFF-VVG-DD-  
OPT512**

PL16141/1445

**PMI model # PE2-34-2G18G-3R5-15-SFF-VVG-DD is a voltage variable gain amplifier with integrated diode detector that operates over the frequency range 2.0 to 18.0 GHz, but is optimized for 5.0 to 12.0 GHz. This amplifier is supplied in our standard PE2 housing that can be used as a SMA connectorized or a surface mount component.**



**November 25, 2014**

**Designed By: Kevin Mason**

**Tested & Reported by:  
Jerry Emperador / Harold Holvick**



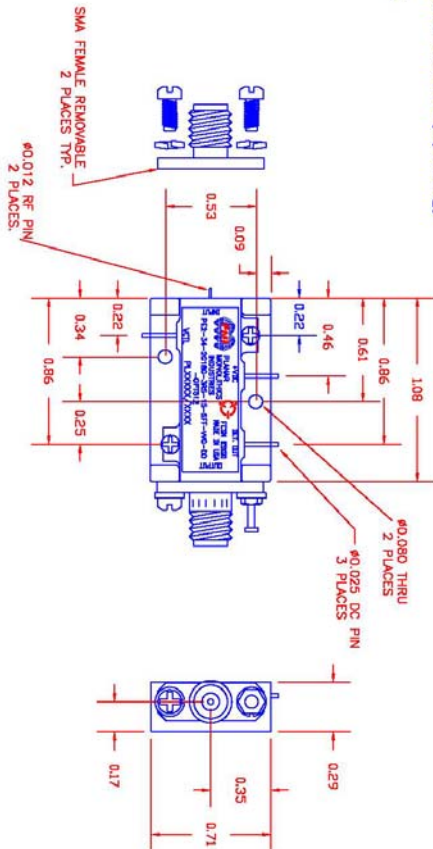
# TYPICAL CHARACTERISTICS ON PE2-34-2G18G-3R5-15-SFF-VVG-DD- OPT512

PL16141/1445

**Description:**  
PMI model # PE2-34-2G18G-3R5-15-SFF-VVG-DD-OPT512 is a voltage variable gain amplifier with integrated diode detector that operates over the frequency range 2.0 to 18.0 GHz, but is optimized over 5.0 to 12.0GHz (Option 512). This amplifier is supplied in our standard PE2 housing that can be used as a SMA connectorized or a surface mount component.

**Specifications:**  
**Frequency Range:** 5.0 to 12.0 GHz (Optimized) / 2.0 to 18.0 GHz (Operating)  
**Linear Gain:** 30dB Min.  
**\*Gain Flatness:** +/- 1.0dB Goal / +/- 1.5dB Max.  
**\*Noise Figure:** 3.5dB Max.  
**\*OP1dB:** +13dBm Min.  
**VSWR Input/Output:** 2.0:1 Max.  
**Gain Control:** 15 dB Typ. / 12 dB Min.  
**Control Voltage:** 0 to 5VDC  
**Diode Detector:** Included at the output port  
**DC Voltage Supply:** +12 to +15VDC  
**DC Current Draw:** 280mA Nominal  
**Connectors In/Out:** SMA Female  
**Finish:** Gold Plated

\*At 0dB Attenuation



**Environmental Ratings:**

**Temperature:** -55 to +85 Deg. C (Operating);  
-55 to +125 Deg. C (Storage)  
**Humidity:** MIL-STD-202F, METHOD 1038 COND B.  
**Shock:** MIL-STD-202F, METHOD 2138 COND B.  
**Altitude:** MIL-STD-202F, METHOD 1095C COND B.  
**Temperature Cycle:** MIL-STD-202F, METHOD 107D COND A

Note: The above specifications are subject to change or revision.

ALL DIMENSIONS ARE IN INCHES  
TOLERANCES  
XXXX 10.000  
XXXX 10.010

REVISIONS		DATE	APPROVED
ZONE	REV	DESCRIPTION	
	1	ORIGINAL RELEASE	1/18/14

**PLANAR MONOLITHICS INDUSTRIES, INC.**  
**PMI CONFIDENTIAL AND PROPRIETARY**

7311-F GROVE ROAD  
FREDERICK, MARYLAND 21704 USA  
TEL: (301)662-5019 FAX: (301)662-1731  
WEB: [www.pmi-rf.com](http://www.pmi-rf.com)  
E-MAIL: [sales@pmi-rf.com](mailto:sales@pmi-rf.com)  
ISO 9001 CERTIFIED

**PRODUCT FEATURE**

APPROVAL	DATE	TITLE	SCALE	SHEET	OF
JAL	1/18/14	PE2-34-2G18G-3R5-15-SFF-VVG-DD-OPT512	A	1	1
DESIGNED		SIZE	FORM NO.	IMP NO.	REV.
		05X00		27023541	1
ISSUED					



**TYPICAL CHARACTERISTICS  
ON  
PE2-34-2G18G-3R5-15-SFF-VVG-DD-  
OPT512**

PL16141/1445

TEST. ITEM NO	PARAMETERS	SPECIFIED VALUE	TEST RESULTS	QA QC
1	Frequency Range:	5.0 to 12.0 GHz (Specified) 2.0 to 18.0 GHz (Operating)	<b>5.0 to 12.0 GHz (Specified) 2.0 to 18.0 GHz (Operating)</b>	
2	Linear Gain:	30dB Min.	<b>34.9 dB (See Plot)</b>	
3	*Gain Flatness:	±1.0dB Goal, ±1.5dB Max	<b>±1.43 dB (See Plot)</b>	
4	*Noise Figure:	3.5dB Max.	<b>2.8dB</b>	
5	*OP1dB:	+13dBm Min	<b>13.6dBm</b>	
6	VSWR Input/Output:	2.0:1 Max	<b>1.321:1 1.181:1 (See Plot)</b>	
7	Gain Control:	15dB Typ, 12dB Min	<b>13.3 dB (See Plot)</b>	
8	Control Voltage:	0 to 5VDC	<b>Pass</b>	
9	Power Supply:	+12 to +15VDC @ 280mA Nominal	<b>+12 to +15VDC @ 232 mA</b>	

\*At 0dB Attenuation

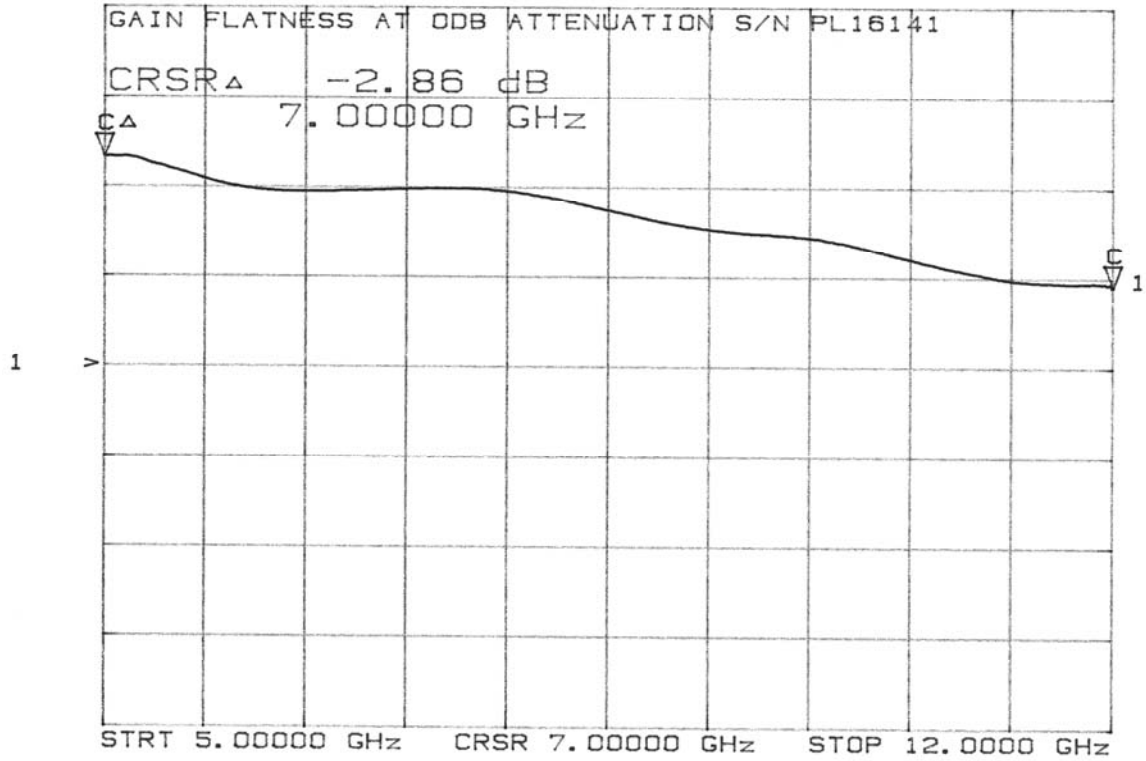


**TYPICAL CHARACTERISTICS  
ON  
PE2-34-2G18G-3R5-15-SFF-VVG-DD-  
OPT512**

PL16141/1445

**Gain Flatness  
\*At 0dB Attenuation**

CH1: A	-M	S	-2.86 dB
2.0 dB/	REF		33.00 dB

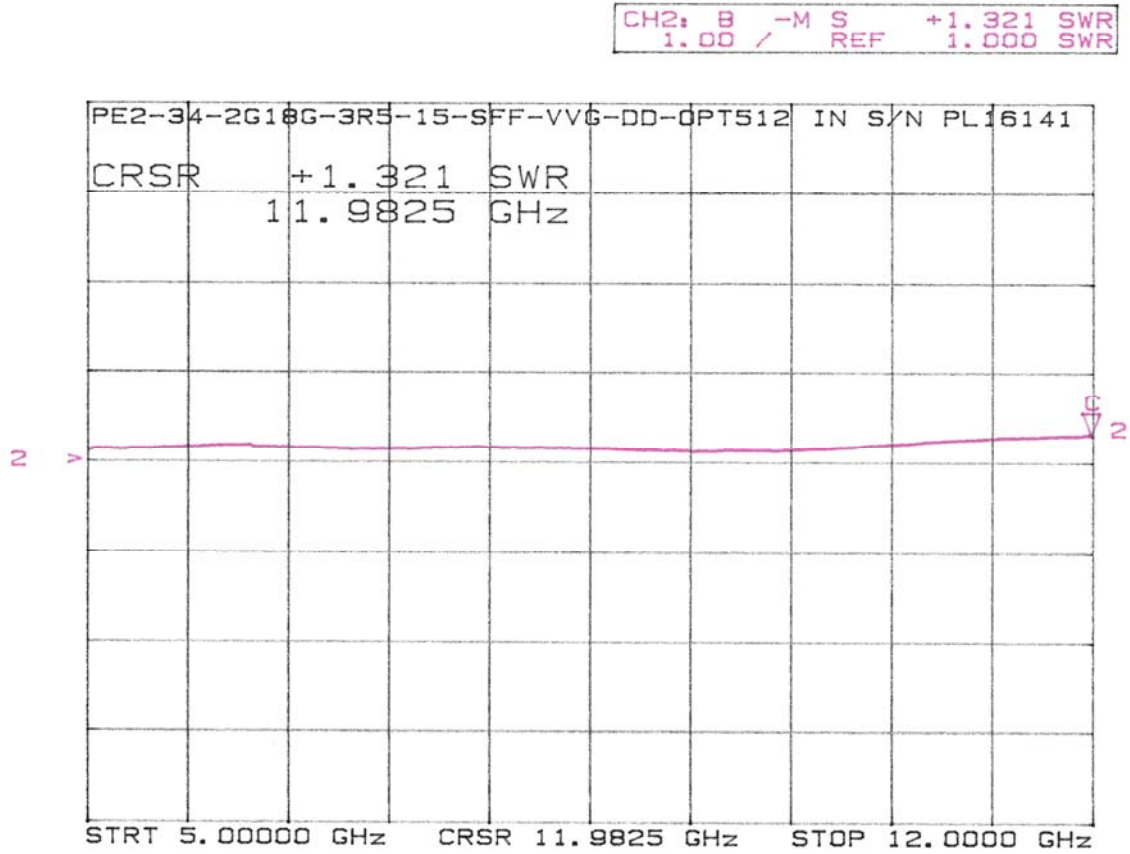




**TYPICAL CHARACTERISTICS  
ON  
PE2-34-2G18G-3R5-15-SFF-VVG-DD-  
OPT512**

PL16141/1445

**Input VSWR**  
**\*At 0dB Attenuation**

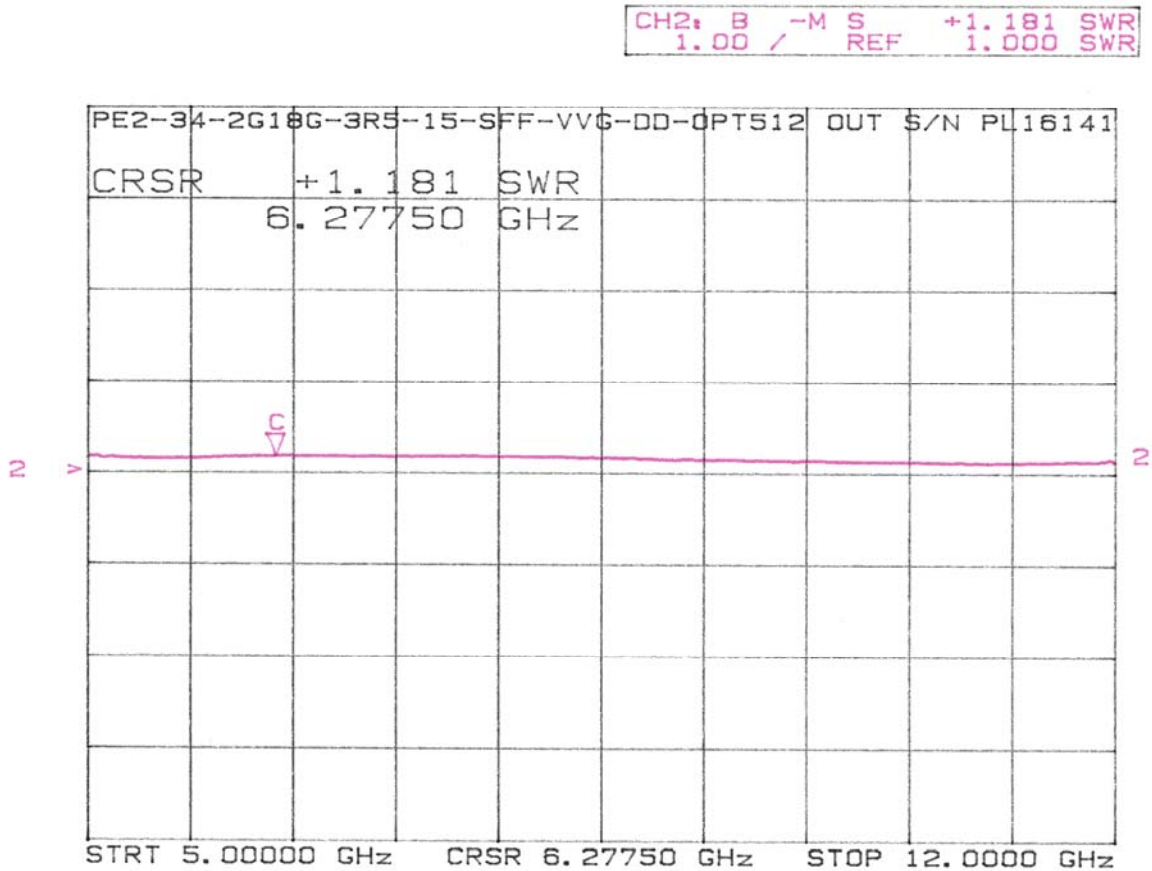




**TYPICAL CHARACTERISTICS  
ON  
PE2-34-2G18G-3R5-15-SFF-VVG-DD-  
OPT512**

PL16141/1445

**Output VSWR  
\*At 0dB Attenuation**





**TYPICAL CHARACTERISTICS  
ON  
PE2-34-2G18G-3R5-15-SFF-VVG-DD-  
OPT512**

PL16141/1445

**Gain control at 2.5V.**

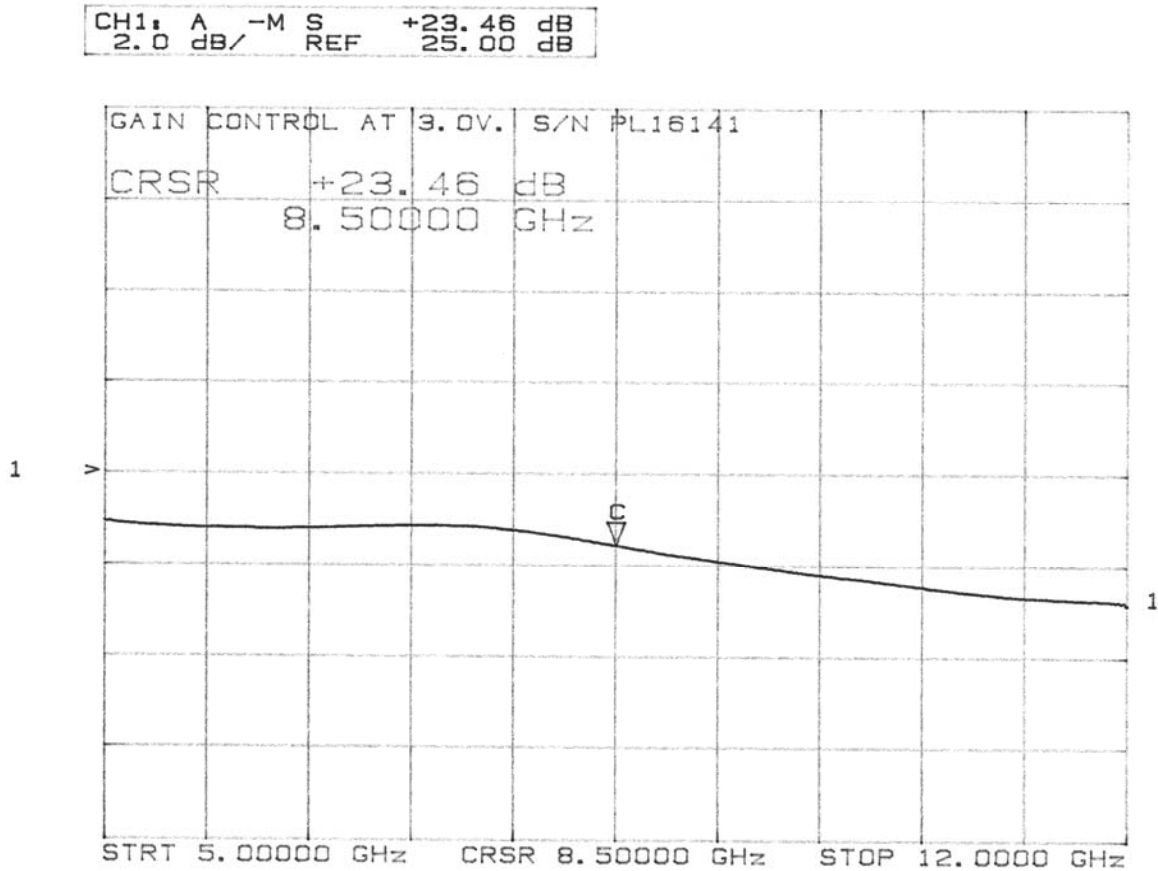




**TYPICAL CHARACTERISTICS  
ON  
PE2-34-2G18G-3R5-15-SFF-VVG-DD-  
OPT512**

PL16141/1445

**Gain control at 3.0V.**



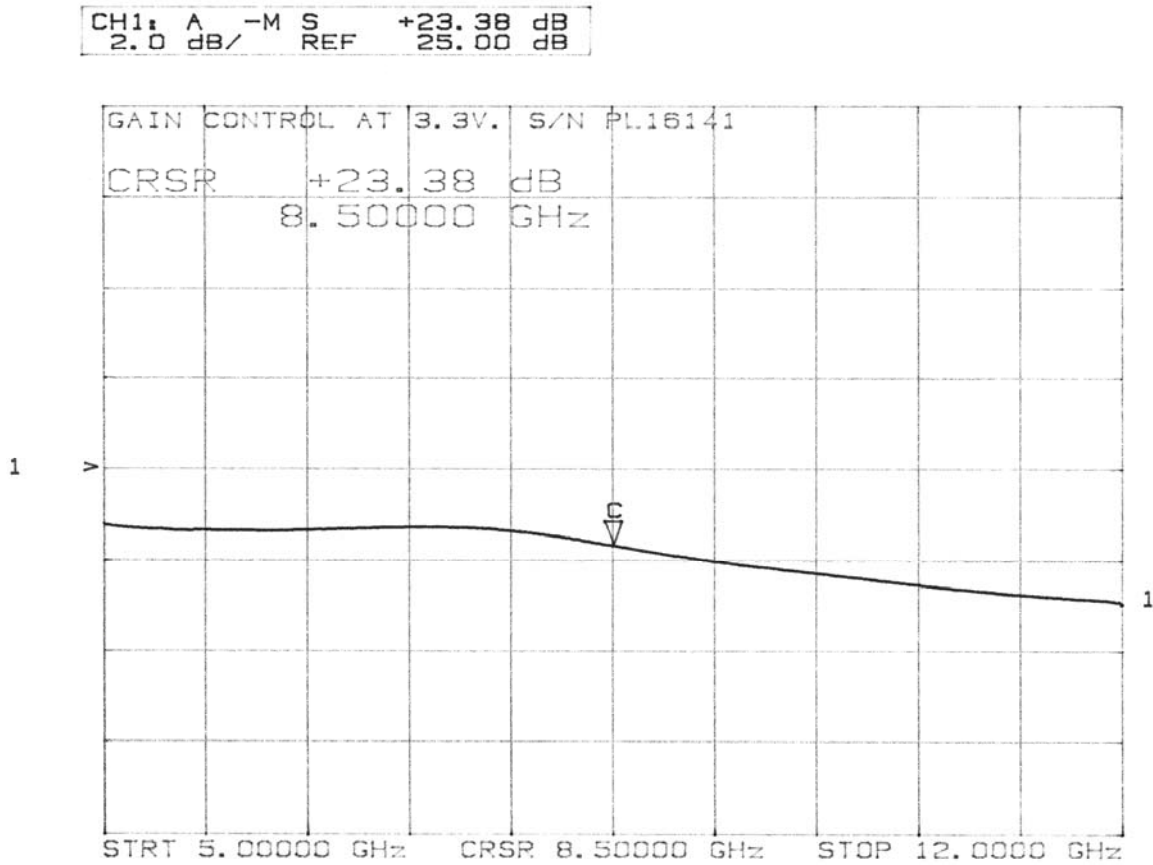




**TYPICAL CHARACTERISTICS  
ON  
PE2-34-2G18G-3R5-15-SFF-VVG-DD-  
OPT512**

PL16141/1445

**Gain control at 3.3V.**

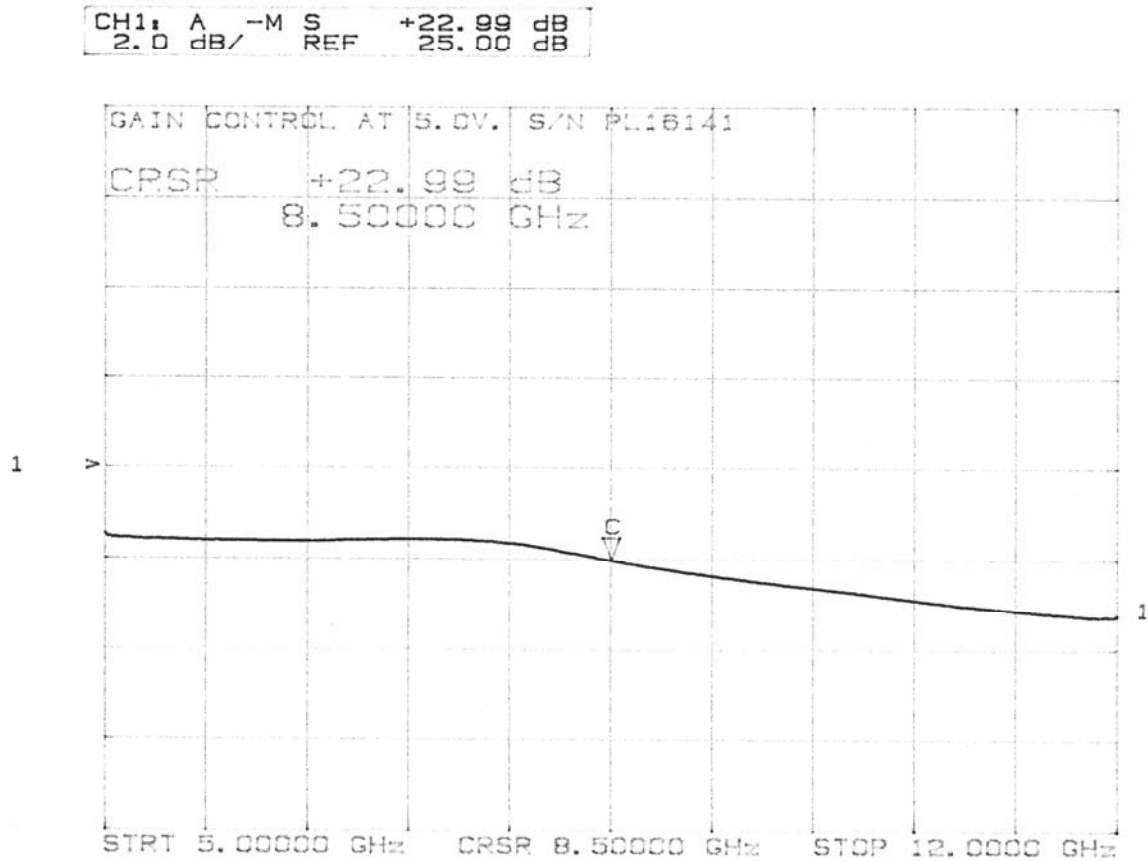




**TYPICAL CHARACTERISTICS  
ON  
PE2-34-2G18G-3R5-15-SFF-VVG-DD-  
OPT512**

PL16141/1445

**Gain control at 5.0V.**





**TYPICAL CHARACTERISTICS  
ON  
PE2-34-2G18G-3R5-15-SFF-VVG-DD-  
OPT512**

PL16141/1445

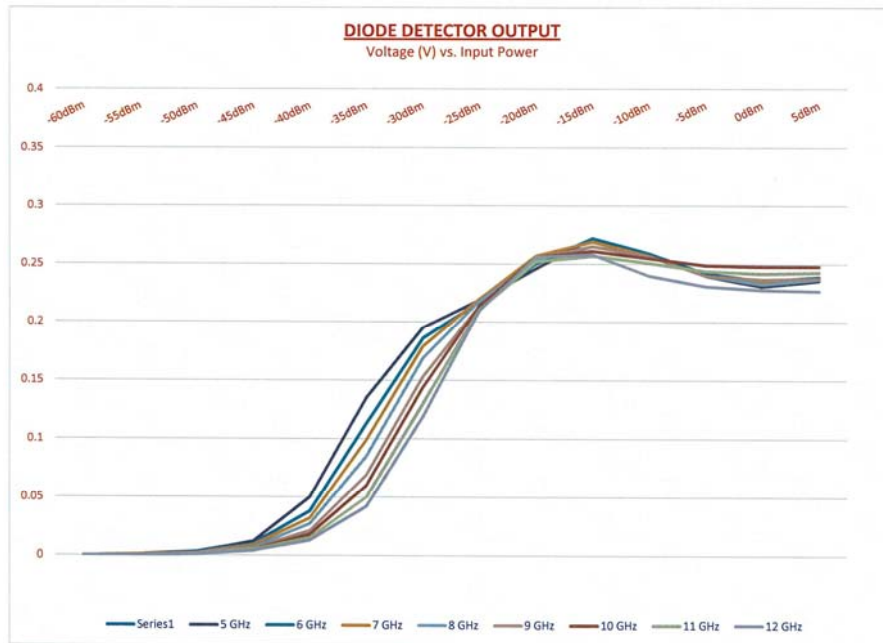
**Diode Detector Graph**

TESTED BY: J Emperador  
DATE: 11/19/14  
MODEL: PE2-34-2G18G-3R5-15-SFF-VVG-DD-OPT512  
SERIAL NO: PL16141  
Test Temp: +25C



PLANAR MONOLITHICS INDUSTRIES  
4921 Robert J. Mathews Pkwy Suite 1  
TEL: (916)542-1401 FAX: (301)662-1731  
EMAIL: SALES@PMI-RF.COM  
ISO 9001:2000 CERTIFIED

	5 GHz	6 GHz	7 GHz	8 GHz	9 GHz	10 GHz	11 GHz	12 GHz
-60dBm	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-55dBm	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000
-50dBm	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001
-45dBm	0.012	0.010	0.009	0.007	0.006	0.005	0.005	0.004
-40dBm	0.050	0.038	0.032	0.027	0.021	0.018	0.015	0.013
-35dBm	0.135	0.113	0.099	0.085	0.069	0.060	0.050	0.042
-30dBm	0.195	0.186	0.179	0.169	0.153	0.144	0.130	0.119
-25dBm	0.219	0.217	0.220	0.218	0.214	0.214	0.211	0.210
-20dBm	0.246	0.250	0.257	0.254	0.255	0.256	0.252	0.256
-15dBm	0.272	0.272	0.269	0.265	0.265	0.261	0.257	0.258
-10dBm	0.258	0.259	0.257	0.257	0.257	0.255	0.251	0.240
-5dBm	0.240	0.242	0.240	0.240	0.240	0.249	0.244	0.231
0dBm	0.231	0.236	0.235	0.233	0.237	0.248	0.242	0.228
5dBm	0.236	0.239	0.238	0.237	0.238	0.248	0.243	0.227

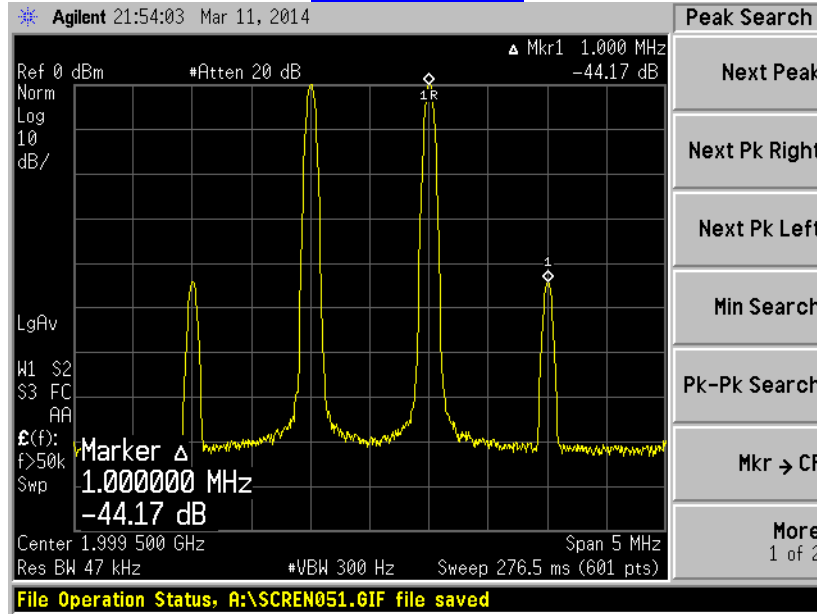




**TYPICAL CHARACTERISTICS  
ON  
PE2-34-2G18G-3R5-15-SFF-VVG-DD-  
OPT512**

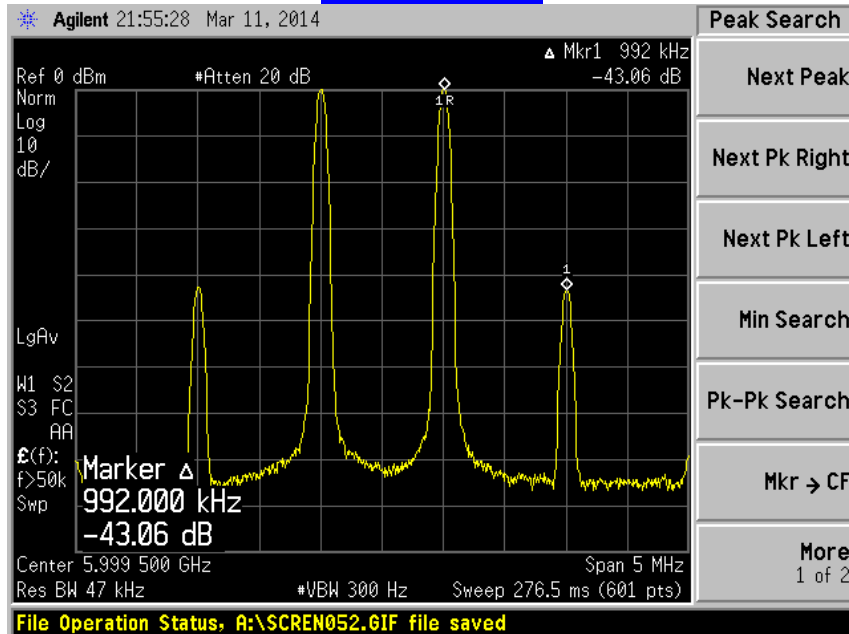
PL16141/1445

**OIP3 @ 2 GHz**



$$\begin{aligned} \text{OIP3} &= \text{Pout} + \text{dBc}/2 \\ +22.08\text{dBm} &= 0 + (44.17/2) \end{aligned}$$

**OIP3 @ 6 GHz**



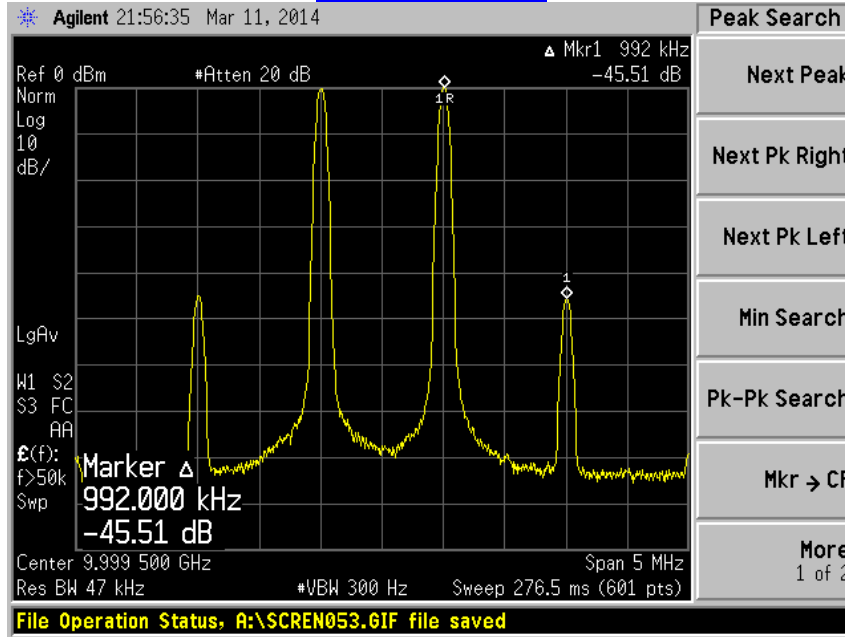
$$\begin{aligned} \text{OIP3} &= \text{Pout} + \text{dBc}/2 \\ +21.53\text{dBm} &= 0 + (43.06/2) \end{aligned}$$



**TYPICAL CHARACTERISTICS  
ON  
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OPT512**

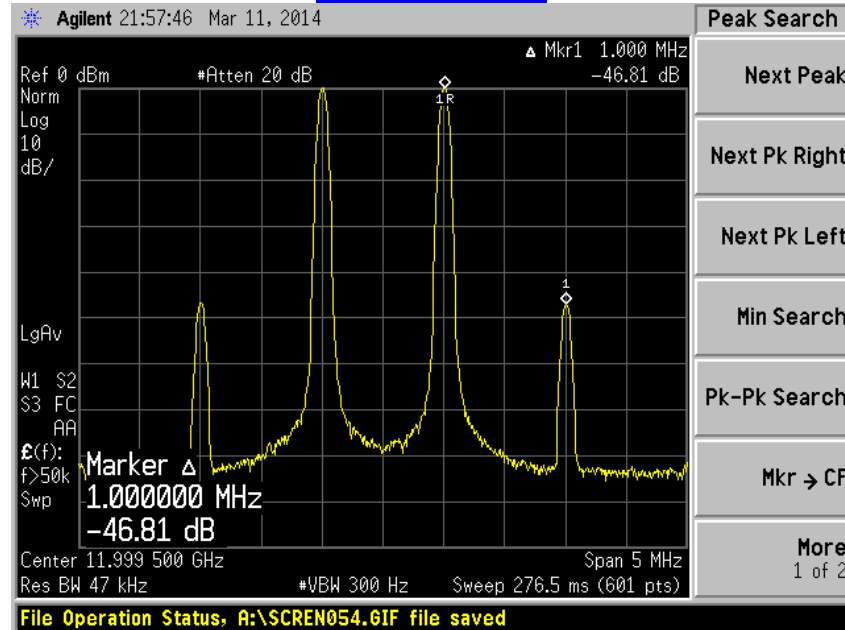
PL16141/1445

**OIP3 @ 10 GHz**



$$\begin{aligned} \text{OIP3} &= \text{Pout} + \text{dBc}/2 \\ +22.75\text{dBm} &= 0 + (45.51/2) \end{aligned}$$

**OIP3 @ 12 GHz**



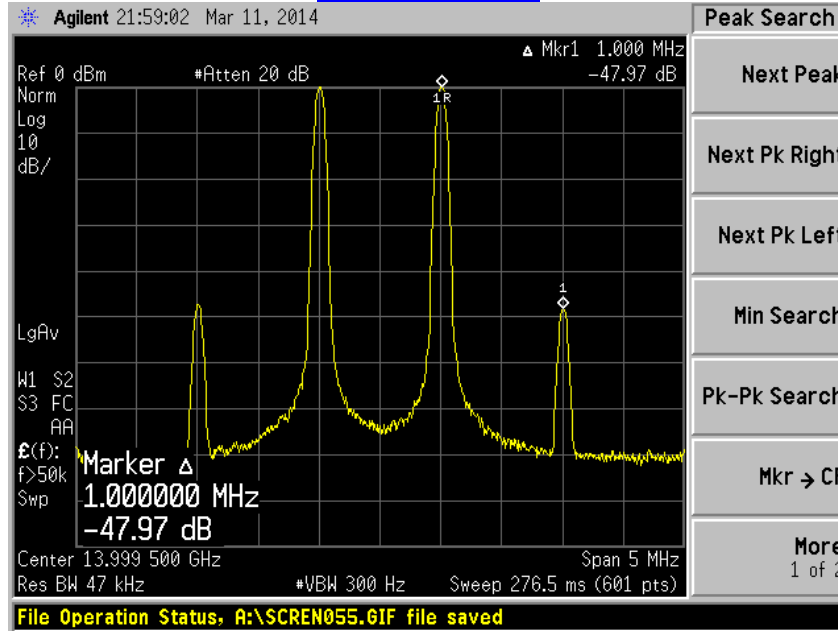
$$\begin{aligned} \text{OIP3} &= \text{Pout} + \text{dBc}/2 \\ +23.40\text{dBm} &= 0 + (46.81/2) \end{aligned}$$



**TYPICAL CHARACTERISTICS  
ON  
PE2-34-2G18G-3R5-15-SFF-VVG-DD-  
OPT512**

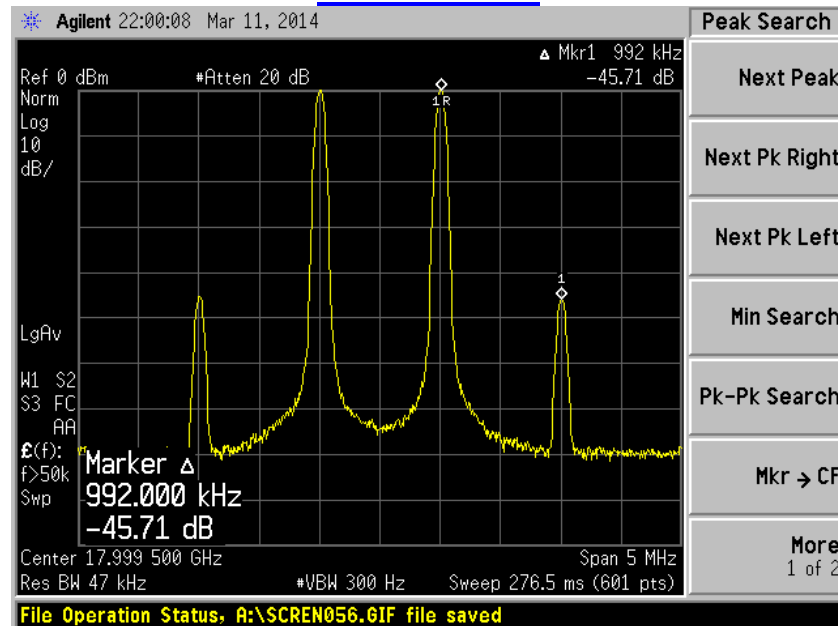
PL16141/1445

**OIP3 @ 14 GHz**



$$\begin{aligned} \text{OIP3} &= \text{Pout} + \text{dBc}/2 \\ &+ 23.98\text{dBm} = 0 + (47.97/2) \end{aligned}$$

**OIP3 @ 18 GHz**



$$\begin{aligned} \text{OIP3} &= \text{Pout} + \text{dBc}/2 \\ &+ 22.85\text{dBm} = 0 + (45.71/2) \end{aligned}$$