Coaxial

Power Detector

ZV47-K44RMS+

50Ω, -35dBm to 0dBm, 100 to 40000 MHz

The Big Deal

- Ultra-wideband, 100 MHz to 40 GHz
- Wide dynamic range of input power, -35 to 0 dBm
- High accuracy, ±0.5 dB typ. linearity error
- Single positive supply voltage, +3.3V

CASE STYLE: AV2578-4

Product Overview

Mini-Circuits' ZV47-K44RMS+ is a high-accuracy RMS power detector that covers a wide RF input bandwidth from 100 MHz to 40 GHz. The DC output voltage of the detector provides an accurate representation of the average signal power applied to the RF input. This device provides a linear-in-dB response with 29mV/dB logarithmic slope over its 35 dB dynamic range with typically better than ±1 dB accuracy. It comes in a compact, gold over nickel plated brass alloy case (0.84 x 0.96 x 0.37") with 2.92mm RF connectors.

Key Features

Feature	Advantages
Ultra-wideband, 100 to 40000 MHz	Covers a wide range of applications including test and measurement, point-to-point microwave links and power control applications
Wide dynamic range of input power, -35 to 0 dBm	Suited for RMS measurement of wave forms with crest factor up to 12 dB as well as wave forms with variable crest factor with typically better than ±1 dB accuracy.
High accuracy, ±0.5 dB typ. linearity error	Customers can use this product in applications that require high-accuracy measurement.
Single supply voltage, +3.3V	Simplifies setup of power supply. Low power consumption with 30mA typical supply current draw.

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Generic photo used for illustration purposes only

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Connectors	Model
2.92mm Fem	ZV47-K44RMS+

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Maximum Ratings

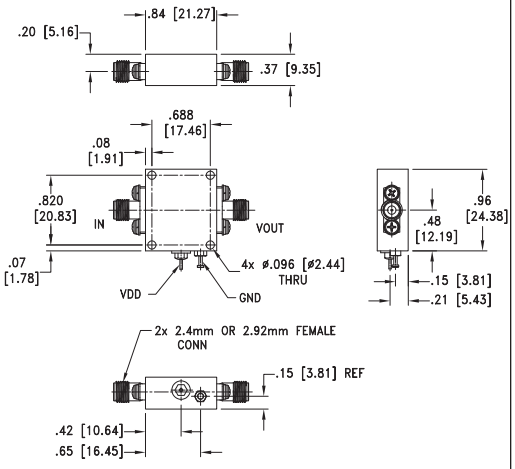
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
DC Power:	
Max. voltage	3.8V
Max. current	35mA
Input Power	+15dBm

Permanent damage may occur if any of these limits are exceeded.

Coaxial Connections

RF IN	1
DC OUT	4
Vcc (+3.3V)	2
GROUND	3

Outline Drawing

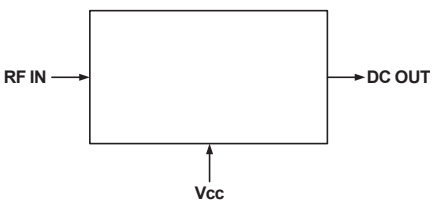


Weight: 45 grams

Dimensions are in inches (mm). Tolerances: 2 Pl.±.03; 3 Pl. ±.015

NOTE: When soldering the DC connections, caution must be used to avoid overheating the DC terminals. See Application Note AN-40-10 .

Simplified Functional Diagram



Features

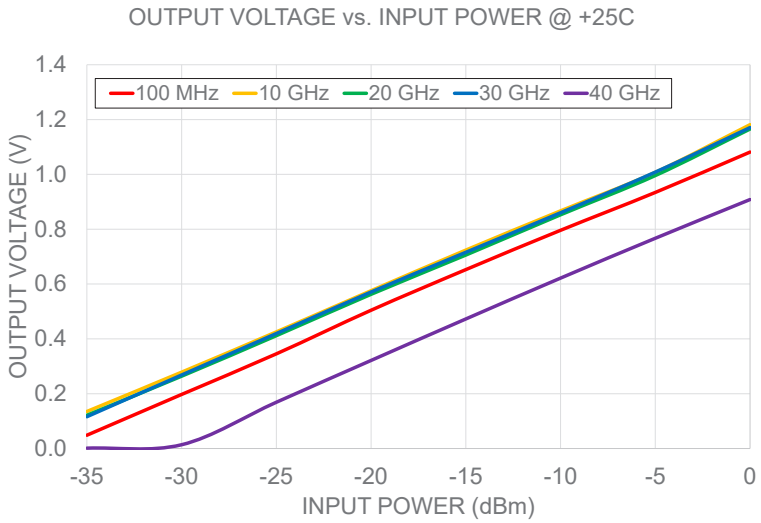
- Ultra wide matched input freq. range: 100 MHz to 40GHz
- 35dB Linear Dynamic Range (< ±1 Error)
- ±1dB Flat Response from 200MHz to 30GHz
- Accurate RMS Power Measurement of High Crest Factors (Up to 12dB) Modulated Waveforms
- Low supply current: 30mA at 3.3V typical.

Applications

- Point-to-Point Microwave Links
- Instrumentation and Measurement Equipment
- Military Radios
- LTE, WiFi, WiMAX Wireless Networks
- RMS Power Measurement
- Receive and Transmit Gain Control
- RF PA Transmit Power Control

Electrical Specifications at 25°C

Parameter		Frequency (MHz)	Min.	Typ.	Max.	Units
Frequency Range			100		40000	MHz
Dynamic Range at ±1dB Error		100 - 40000		-35 to 0		dBm
Output Voltage Range		100 - 40000		0 - 1.2		V
Slope		100 - 40000		+29		mV/dB
VSWR		100 - 40000		1.6		(:1)
Pulse Responsive Time	Rise	100 - 40000		2.9		µsec
	Fall	100 - 40000		8.1		
DC Operating Power	Vcc	100 - 40000	2.7	3.3	3.6	V
	Current	100 - 40000		30		mA



Notes

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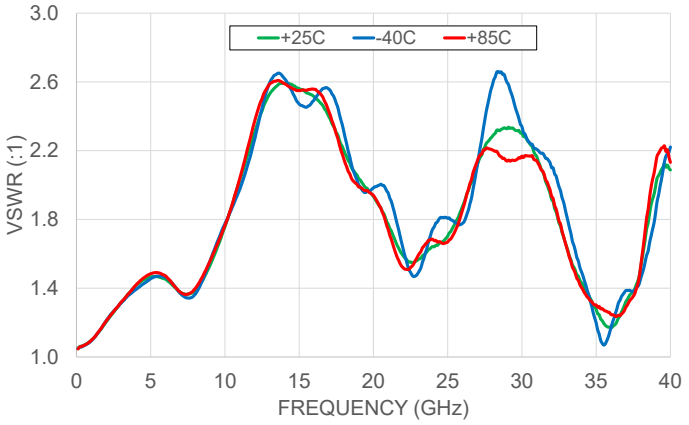
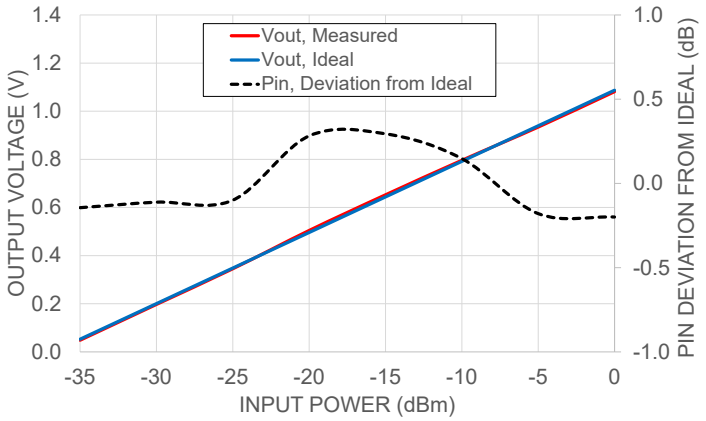
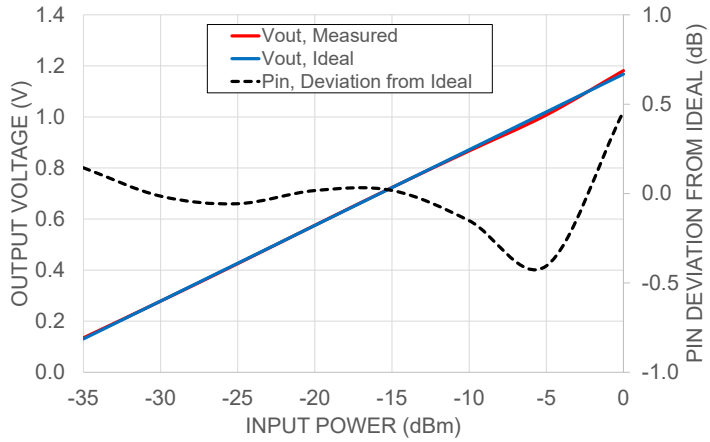
VSWR vs. FREQUENCY OVER TEMPERATURE RANGE



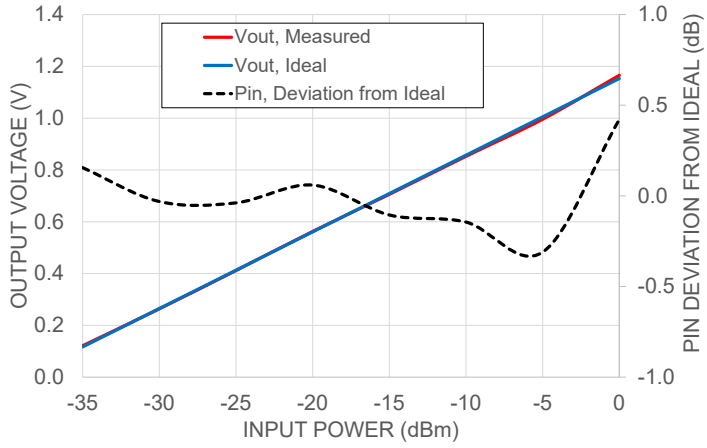
INPUT POWER DEVIATION FROM IDEAL vs. INPUT POWER @ FREQUENCY 100 MHz



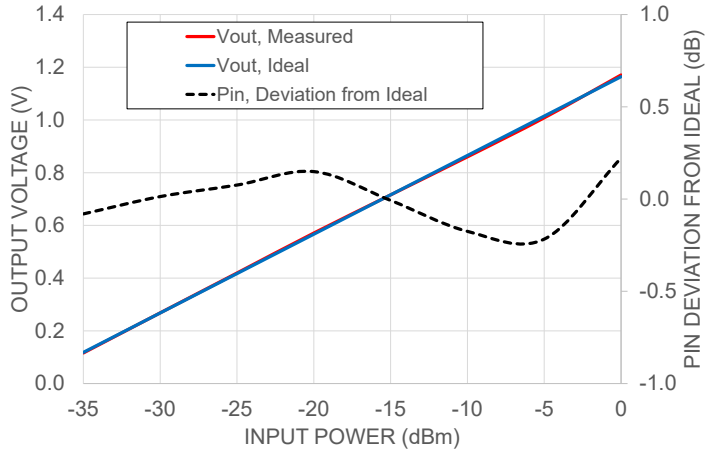
INPUT POWER DEVIATION FROM IDEAL vs INPUT POWER @ FREQUENCY 10 GHz



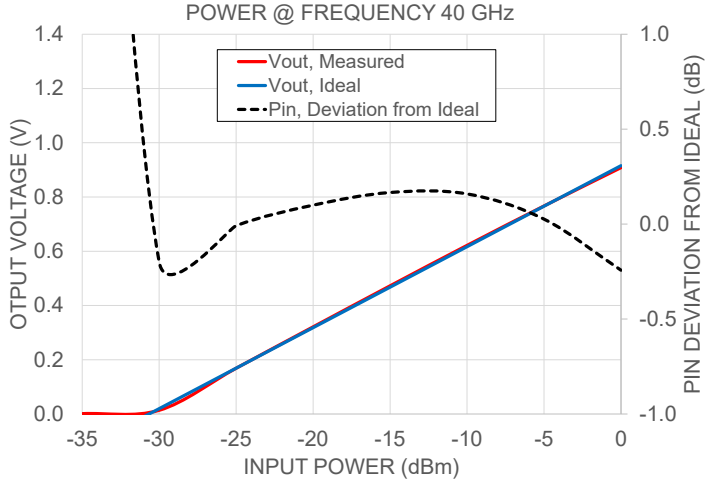
INPUT POWER DEVIATION FROM IDEAL vs INPUT POWER @ FREQUENCY 20 GHz



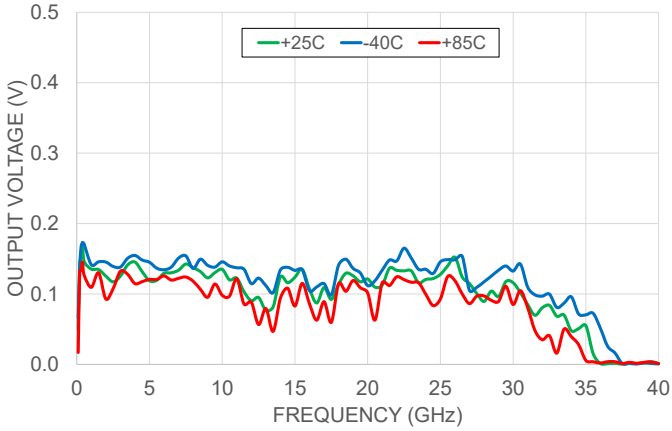
INPUT POWER DEVIATION FROM IDEAL vs INPUT POWER @ FREQUENCY 30 GHz



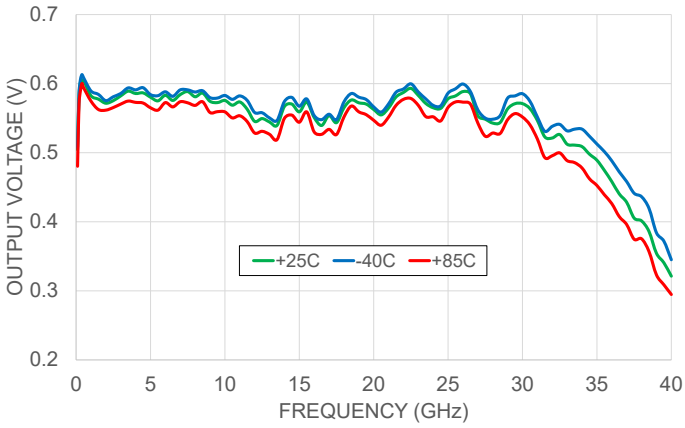
INPUT POWER DEVIATION FROM IDEAL vs INPUT POWER @ FREQUENCY 40 GHz



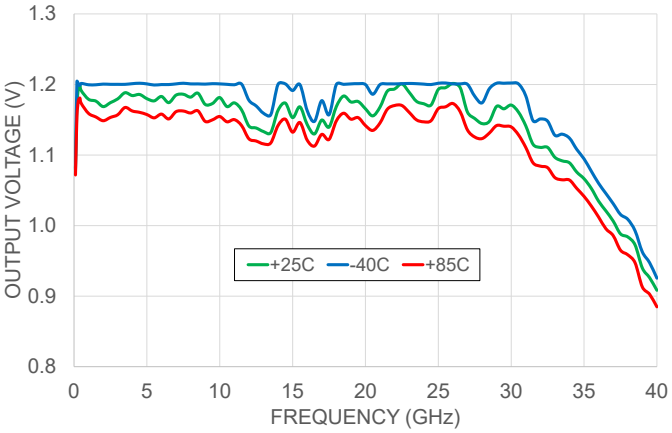
OUTPUT VOLTAGE vs. FREQUENCY OVER TEMPERATURE RANGE @ INPUT POWER -35dBm



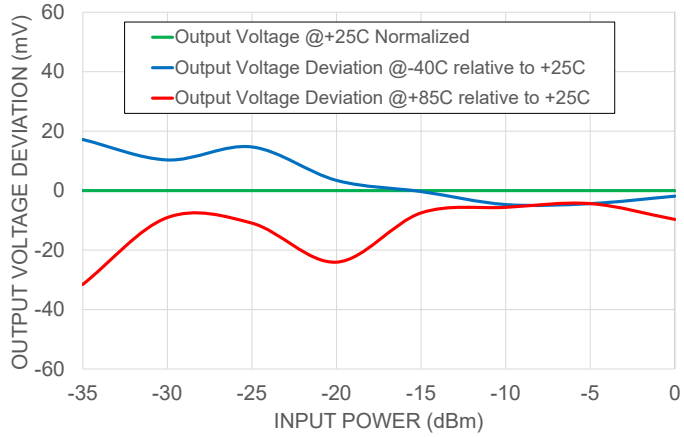
OUTPUT VOLTAGE vs. FREQUENCY OVER TEMPERATURE RANGE @ INPUT POWER -20dBm



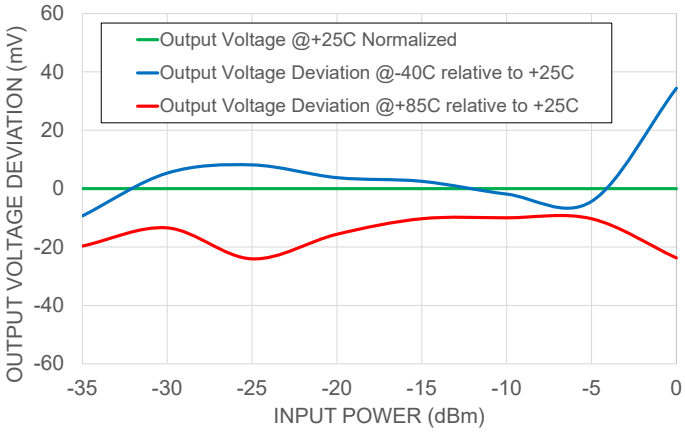
OUTPUT VOLTAGE vs. FREQUENCY OVER TEMPERATURE RANGE @ INPUT POWER 0dBm



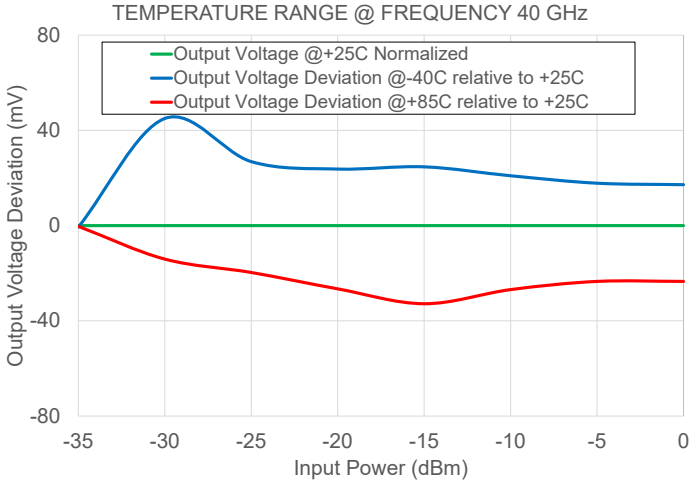
OUTPUT VOLTAGE DEVIATION Vs INPUT POWER OVER TEMPERATURE RANGE @ FREQUENCY 100MHz



OUTPUT VOLTAGE DEVIATION Vs INPUT POWER OVER TEMPERATURE RANGE @ FREQUENCY 20 GHz



OUTPUT VOLTAGE DEVIATION Vs INPUT POWER OVER TEMPERATURE RANGE @ FREQUENCY 40 GHz



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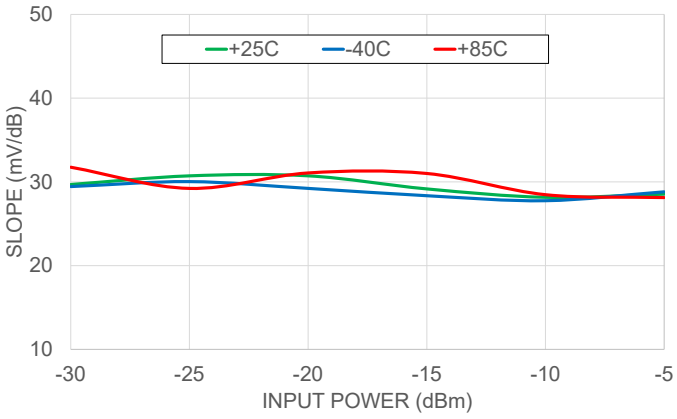
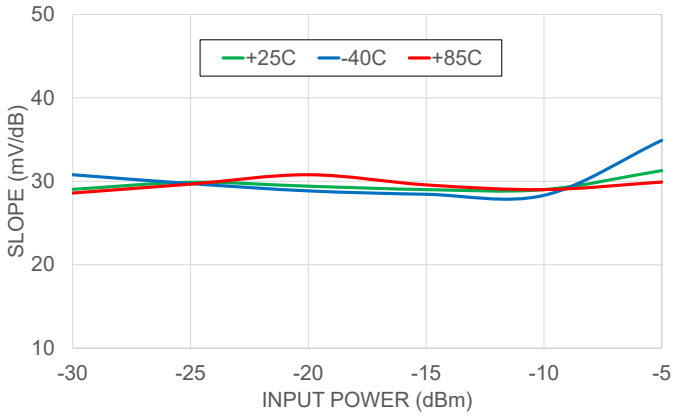
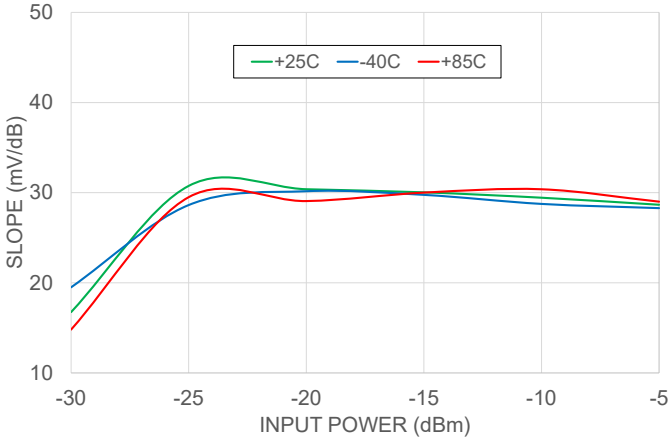
SLOPE Vs INPUT POWER OVER TEMPERATURE RANGE
@ FREQUENCY 100 MHz



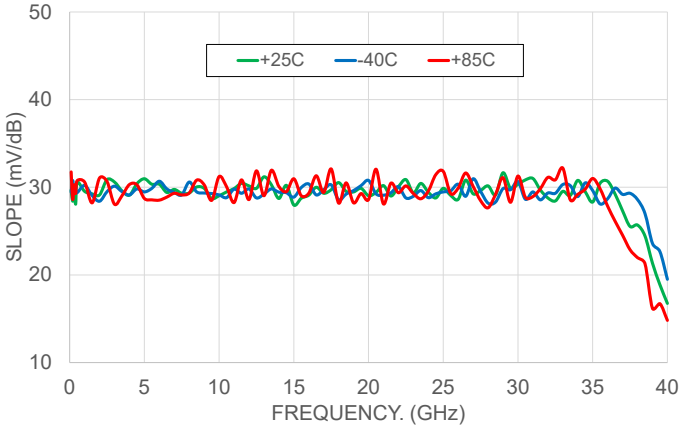
SLOPE Vs INPUT POWER OVER TEMPERATURE RANGE
@ FREQUENCY 20 GHz



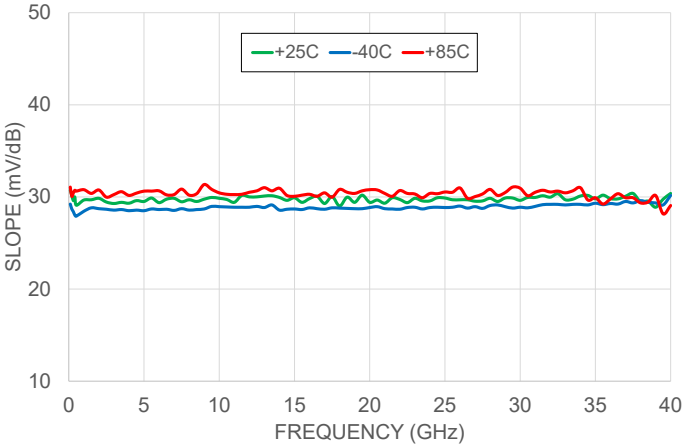
SLOPE Vs INPUT POWER OVER TEMPERATURE RANGE
@ FREQUENCY 40 GHz



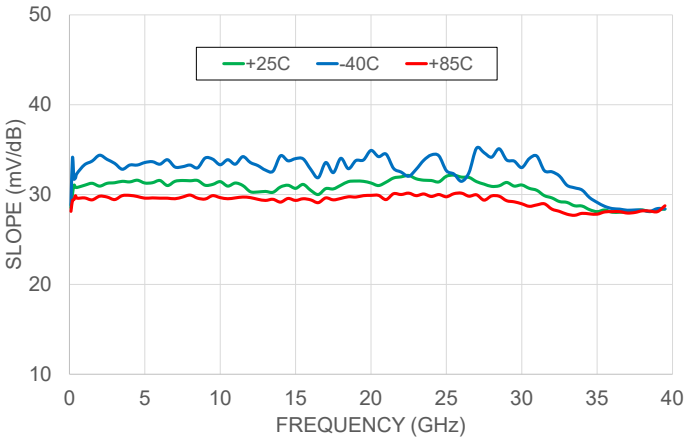
SLOPE Vs FREQUENCY OVER TEMPERATURE RANGE
@ INPUT POWER -30dBm



SLOPE Vs FREQUENCY OVER TEMPERATURE RANGE
@ INPUT POWER -20dBm



SLOPE Vs FREQUENCY OVER TEMPERATURE RANGE
@ INPUT POWER -5dBm



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