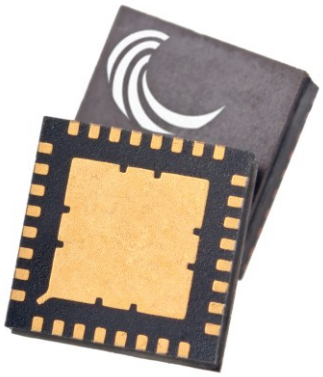
LW14-700121

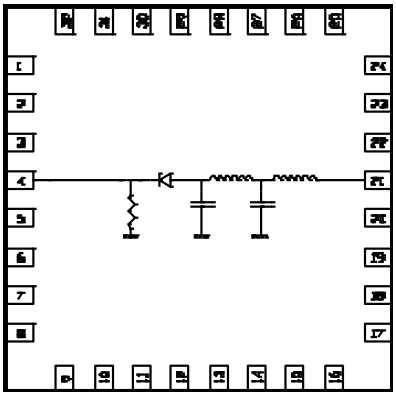
QFN Zero Bias Si Schottky Diode Detector



Typical Applications

- A wide variety of detector applications

Functional Diagram



PIN DESIGNATIONS	
Pin No.	FUNCTION
Pin 4	RF IN
Pin 21	DET
Pins 1–3, 5–20	GROUND
Pins 22–32	GROUND

Features

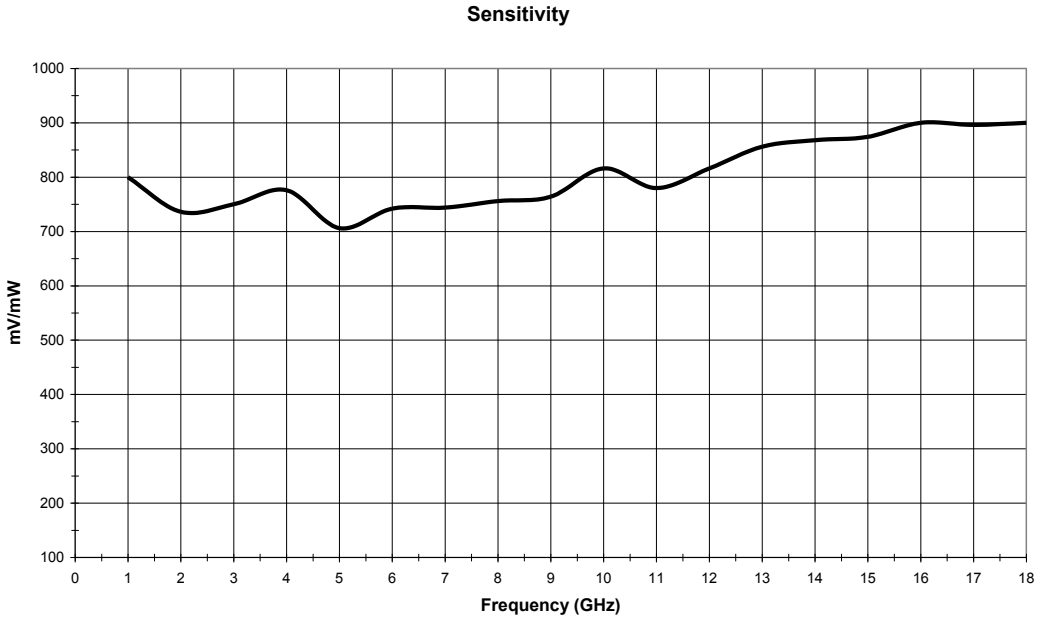
- Wideband matched detector 1GHz to 18GHz
- Greater voltage sensitivity than GaAs
- Typical Return Loss >10dB
- Normal SMT assembly process
- Low junction capacitance, typ. 0.06pF
- QFN dimensions 5.0 x 5.0 x 1.25 mm, 32 lead (also available in 3x3x16 lead QFN: LW14-700122)

General Description

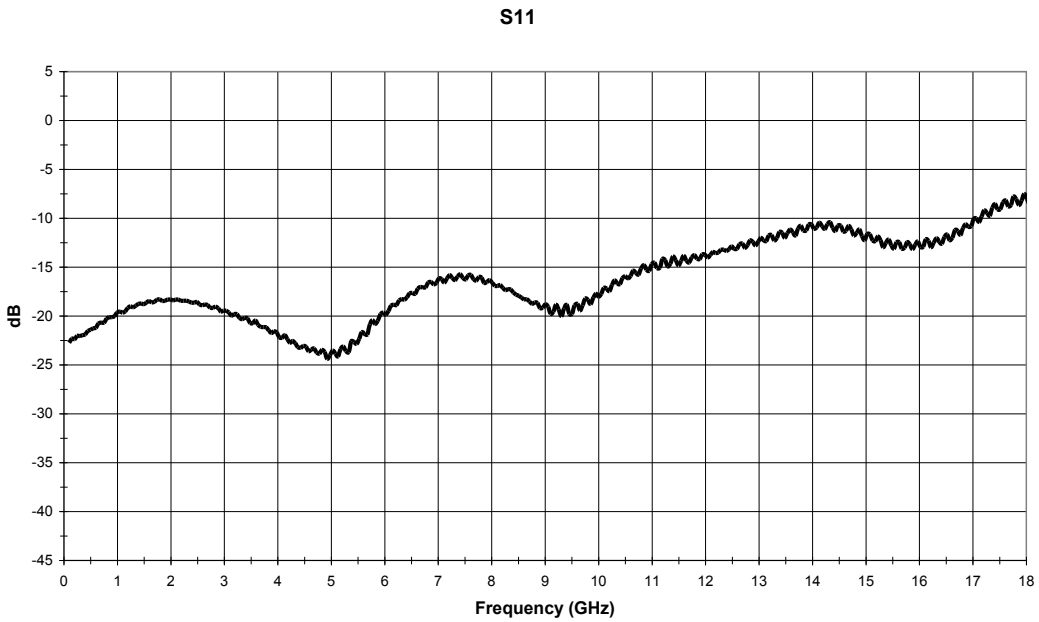
The LW14-700121 is a wideband zero-bias Si Schottky detector packaged in a leadless 5x5 mm surface mount package which operates between 1GHz and 18 GHz. The LW14-700121 detector input is internally matched to 50 Ohms.

For price, delivery and to place orders:
Linwave Technology Ltd, Digitek House, Whisby Way, Lincoln, LN6 3LQ
Company Reg No 4478971 (England)
Phone:+44 (0) 1522 681811 Fax:+44 (0) 1522 681911
Website www.linwave.co.uk

Detector Characteristics



Return Loss



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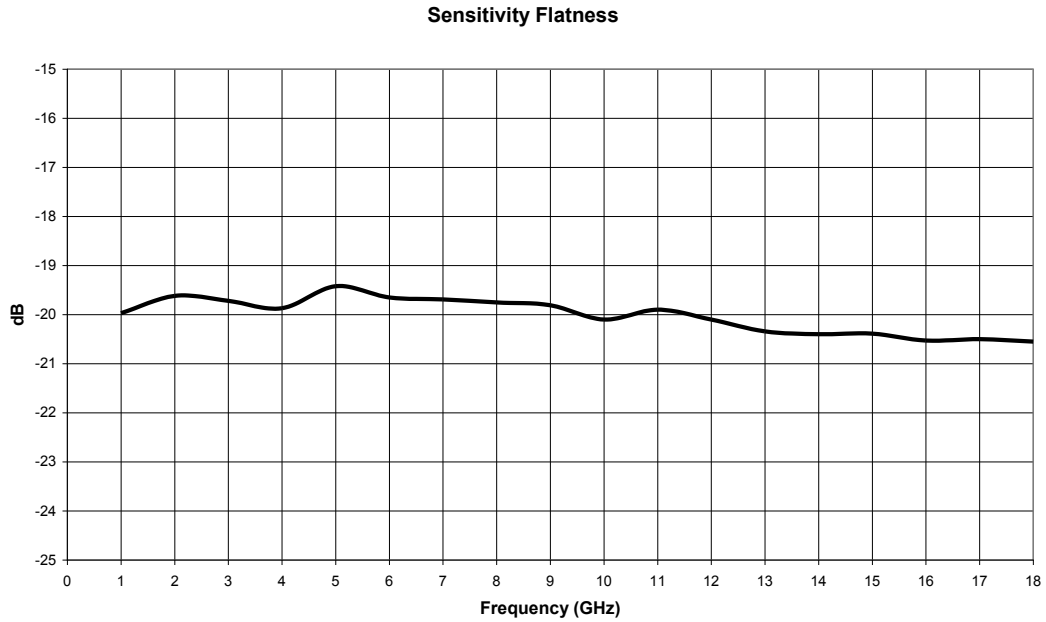

TABLE I
ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value
P_{IN}	Input CW Power	+20dBm
T_M	Mounting Temperature (30 secs)	260°C
T_{STG}	Storage Temperature	-55 to +125°C
T_{OP}	Operating Temperature	-40 to +85°C

TABLE II
RF CHARACTERISTICS
(T_A = 25°C)

Symbol	Parameter	Test Condition	Limit			Units
			Min	Typ	Max	
γ	Voltage Sensitivity	F = 1-18GHz Pin -20dBm		800		mV/mW
IRL	Input Return Loss	F = 1-18GHz		10		dB
Rv	Video Impedance	F = 1-18GHz		TBA		Ohms
	Flatness	F = 1-18GHz		±1		dB
Tss	Tangential Sensitivity	F = 1-18GHz		-48		dBm

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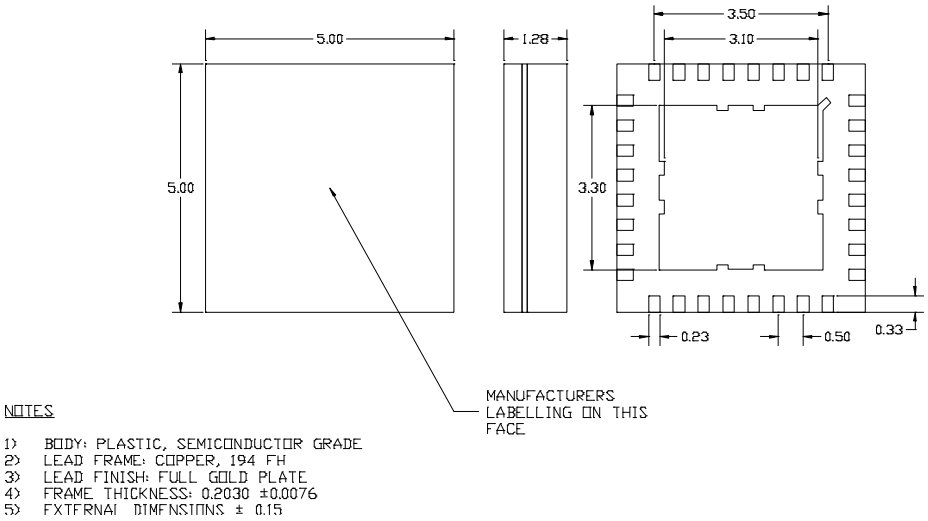
Outline Drawing



Refer to Linwave application note for suggested PC Board Land Pattern.

ELECTROSTATIC SENSITIVE DEVICE OBSERVE HANDLING PRECAUTIONS

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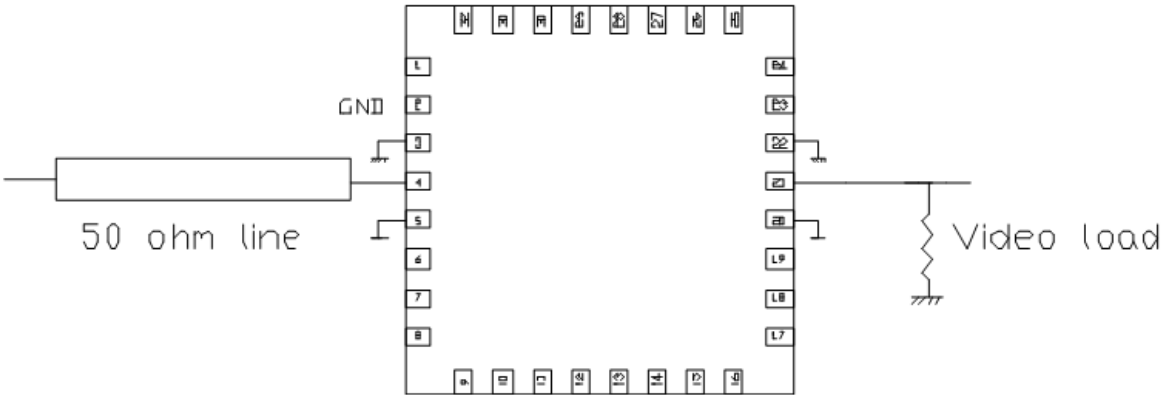
Pin Descriptions

Pin Number	Function	Description
4	RF IN	This pad is matched to 50 ohms
21	DET OUT	Detected output voltage lead
1,2, 6-19, 23-32	N/C	The pins are not connected internally; however, all data shown was measured with these pins connected to RF/DC ground externally.
3,5	GROUND	Must be connected to RF/DC ground
Ground paddle	GROUND	Must be connected to RF/DC ground

Application Circuit



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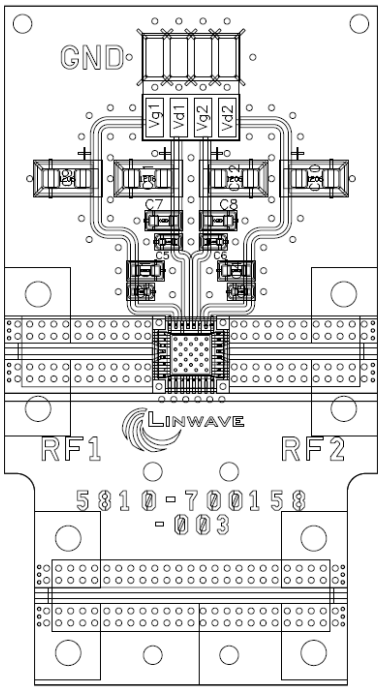
Evaluation PCB



List of Materials for Evaluation PCB
LW14-700121EVB[1]

Item	Description
J1-J2	Southwest Microwave 292-06A-5
U1	LW14-700121 Detector
PCB[2]	5810-700158-003 Evaluation PCB

[1] Reference this number when ordering complete evaluation PCB
[2] Circuit board material: Rogers 4350B on FR4 backing

The circuit board used in the application should use RF circuit design techniques. The input signal line should have 50 ohms impedance and the package ground leads and package bottom should be connected directly to the ground plane similar to that shown. A sufficient number of via holes should be used to connect the top and bottom ground planes. The evaluation circuit board shown is available from Linwave upon request.

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