

Re: square law RF detector – choice of diodes in commercial design

Source: <http://sci.tech-archive.net/Archive/sci.electronics.design/2005-11/msg00666.html>

- *From:* snovotill@xxxxxxxxxxxx
 - *Date:* Sun, 06 Nov 2005 18:31:39 GMT
-

> The ubiquitous 1N2x diodes were specifically designed to be square law
> detectors: <http://www.fairradio.com/1n21.htm>
>
> At least one of the Radiation Lab books discusses them.

LOL the 1N21 is older than I am! But I think it's interesting and
useful. I wonder if 1N21 derivative is what's in here:
<http://members.shaw.ca/novotill/ChopperRadarDetector/index.htm>
too bad it won't fit into the RF probe since I have a few.

And below is partial datasheet for the 1N21:

1N21... Point Contact Mixer Diodes.
from an ALPHA datasheet

Maximum Ratings:
Power Dissipation = 100mW
Derating above 25 grdC. : 8 mW/grdC.
Top = Tstg = -55 to 150 grdC.

Characteristics:
Frequency Range: 2 GHz to 4 GHz, S- Band
Test Frequency : 3.1 GHz
L.O.Power : 0.5 mW
Z if :
1N21C : min 300 Ohm, max 500 Ohm
1N21D : min 325 Ohm, max 425 Ohm
1N21E : min 350 Ohm, max 450 Ohm
1N21F : min 350 Ohm, max 450 Ohm
1N21G : min 350 Ohm, max 450 Ohm
VSWR :
1N21D : max 1.5
1N21E,F,G : max 1.3
Proof Burnout : 5 Ergs
Noise Figure at N?= 1.5 dB:
1N21C : max 8.3 dB
1N21D : max 7.3 dB
1N21E : max 7 dB

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1N21F : max 6 dB
1N21G : max 5.5 dB

Suffix: R = Reverse, M = Matched Pair, W = Reversible

Without guaranty! Mistakes are possible. Please ask via email if you find a strange value!

1N23... Point Contact Mixer Diodes.
from an ALPHA datasheet

Maximum Ratings:
Power Dissipation = 100mW
Derating above 25 grdC. : 8 mW/grdC.
Top = Tstg = -55 to 150 grdC.

Characteristics:
Frequency Range: 8 GHz to 12 GHz, X- Band
Test Frequency : 9.4 GHz
L.O.Power : 1 mW

Z if :

1N23D : min 350 Ohm, max 450 Ohm
1N23E : min 335 Ohm, max 475 Ohm
1N23F : min 335 Ohm, max 465 Ohm
1N23G : min 335 Ohm, max 465 Ohm
1N23H : min 335 Ohm, max 465 Ohm

VSWR : max 1.3

Proof Burnout : 2 Ergs

Noise Figure at N?= 1.5 dB (Index leider nicht lesbar):

1N23D : max 7.8 dB
1N23E : max 7.5 dB
1N23F : max 7 dB
1N23G : max 6.5 dB
1N23H : max 6 dB

Suffix: R = Reverse, M = Matched Pair, W = Reversible

Without guaranty! Mistakes are possible. Please ask via email if you find a strange value!

• **References:**

- ◆ **square law RF detector – choice of diodes in commercial design**

Re: square law RF detector – choice of diodes in commercial design

◇ *From:* snovotill

◆ ***Re: square law RF detector – choice of diodes in commercial design***

◇ *From:* Joerg

◆ ***Re: square law RF detector – choice of diodes in commercial design***

◇ *From:* snovotill

◆ ***Re: square law RF detector – choice of diodes in commercial design***

◇ *From:* The Phantom

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