

DESCRIPTION

Microsemi's InGaAs/InP PIN custom assembly configurations Photo Diode chips are ideal for high bandwidth 1310nm and 1550nm optical networking applications. This device is ideal for

The device series offers high responsivity, low dark current, and high bandwidth for high performance and low sensitivity receiver design. manufacturers of optical receivers, transponders, optical transmission modules and combination PIN photo diode – transimpedance amplifier.

The LX3055 4 Gbps coplanar waveguide photodiode is currently offered in die form allowing manufacturers the versatility of

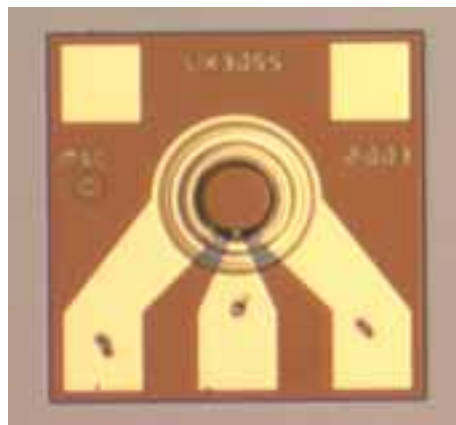
IMPORTANT: For the most current data, consult MICROSEMI's website: <http://www.microsemi.com>

KEY FEATURES

- LX3055 single die
- Coplanar Waveguide , 50Ω
- High Responsivity
- Low Dark Current
- High Bandwidth
- Anode/Cathode on Illuminated Side
- 125μm Pad pitch
- Die good for bond wire or flip chip applications

APPLICATIONS

- 4 Gigabit Fiber Channel
- 1310nm CATV Optical Applications
- SONET/SDH OC-48, ATM
- 2.5Gb/s or 3.125Gb/s Ethernet
- 1310nm VCSEL receivers
- Optical Backplane

PRODUCT HIGHLIGHT


- Coplanar Design (gnd-signal-gnd) 50Ω characteristic impedance
- 125μm standard pad pitch for ease of test
- Large 75μm x 75μm pad size for ease of packaging
- Wire bond or Flip Chip capability

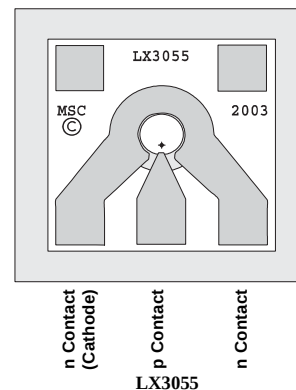
BENEFITS

- Large wire bond contact pads
- Low contact resistance
- Wire bond or flip chip applications
- Ground- Signal-Ground pad configuration for standard RF test probes

ABSOLUTE MAXIMUM RATINGS

Operating Junction Temperature.....-20 to +85 °C
 Storage Temperature Range.....-55 to +125 °C
 Maximum Soldering Temperature (10 seconds maximum)..... 260 °C

Note: Exceeding these ratings could cause damage to the device.

PACKAGE PIN OUT

ELECTRICAL CHARACTERISTICS

Test conditions: $T_A = 25^\circ\text{C}$, $V_R = 2\text{V}$

Parameter	Symbol	Test Conditions	LX3055			Units
			Min	Typ	Max	
ELECTRICAL CHARACTERISTICS						
Active Area Diameter				60		μm
Responsivity ¹	R	VR = 2V, λ =1550nm	0.85	1.0		A/W
		VR = 2V, λ =1310nm	0.80	0.90		
Dark Current	ID	VR = 5V		0.6	6	nA
Breakdown Voltage	BV _R	IR = 10μA	30	44		V
Capacitance	C	VR = 2V		0.35	0.40	pF
Bandwidth ²	BW	VR = 2V, λ = 1550nm @ - 3dB	6.5	8		GHz

Note: 1. Antireflective coating is $\frac{1}{4}$ wavelength @ 1430nm covering 1310 and 1550nm applications
 2. Bandwidth is measured @ -3dB electrical power (photocurrent drops to 71% of DC value)

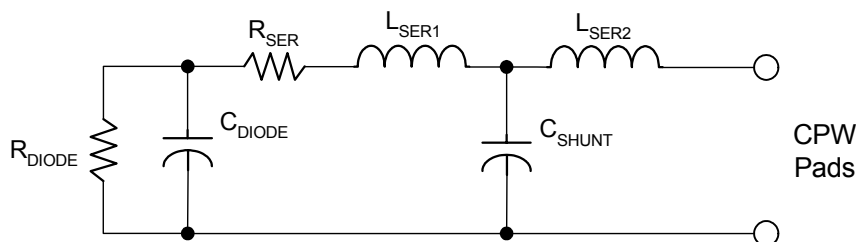
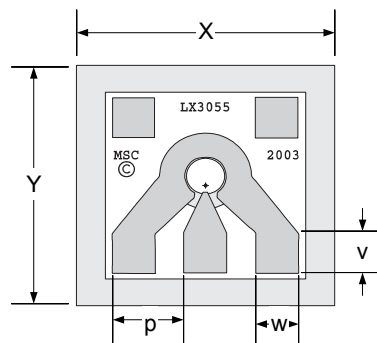
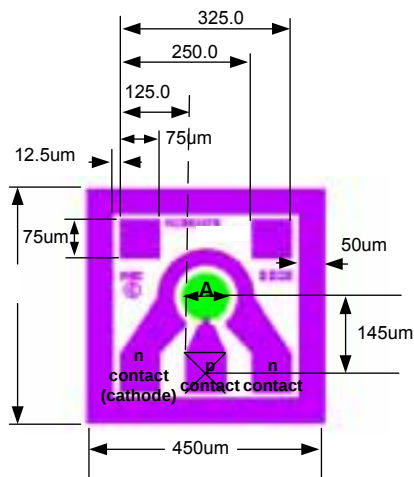
APPLICATION CIRCUITS


Figure x – Typical VRM Application

Results	RSET (Ohm)	LSER1 (pH)	LSER2 (pH)	CSHUNT (fF)	CDIODE (fF)	RDIODE (M Ohm)
LX3055	20.1	1.6	1.5	7.1	311	730

SPARE TABLE


Active Area, μm (A)	Die Dimension, μm		Pad Dimension, μm		Pad Pitch, μm (p)	Die thickness, μm
	Y	X	w	v		
60	450	450	75	75	125	152

NOTES
PRECAUTIONS FOR USE

ESD protection is important. Standard ESD protection procedures should be employed whenever handling InGaAs PIN photo diode.

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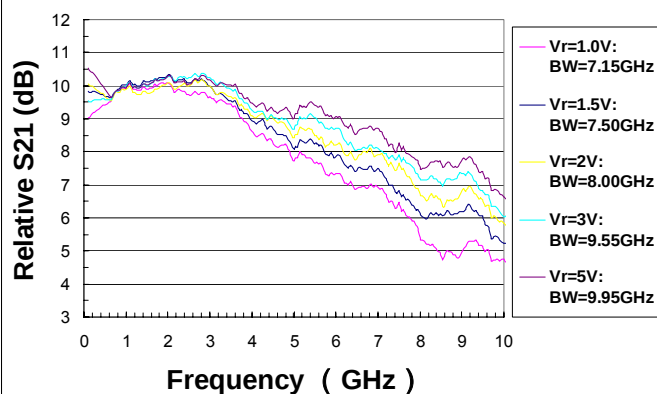
Microsemi[®]

LX3055

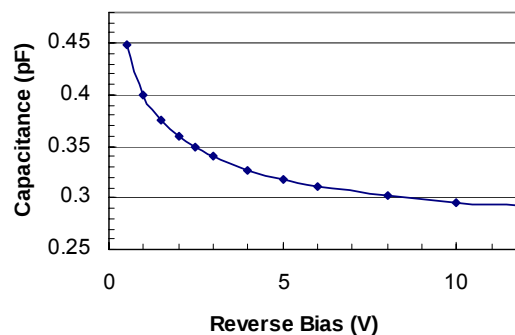
Coplanar InGaAs/InP PIN Photo Diode

PRODUCTION DATA SHEET

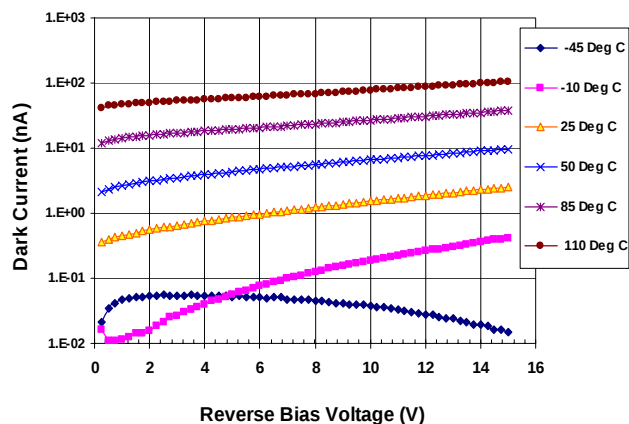
LX3055 Bandwidth ($V_r = 1.0V \sim 5.0V$, at 1550 nm)



C-V of LX3055



Dark Current vs Voltage over Temperature



Breakdown Voltage vs. Temperature

