LX3044 / 45 / 46

10.3 Gbps Coplanar GaAs PIN Photo Diode

PRODUCTION DATA SHEET

DESCRIPTION

Microsemi's GaAs Coplanar PIN Photo Diode chips are ideal for high bandwidth 850nm optical networking applications.

The device family offers superior noise performance and sensitivity in single die, 1x4 array die or 1x12 array die.

The LX304X family of photo diodes are currently offered in die form allowing manufacturers the versatility of custom assembly using either bond wire or flip chip configurations.

This device is ideal for manufacturers of optical receivers, transponders, optical transmission modules and combination PIN photo diode – transimpedance amplifier.

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

KEY FEATURES

- LX3044 Single Die
- LX3045, 1x4 Array Die
- LX3046, 1x12 Array Die
- Coplanar Waveguide , 50ohm
- High Responsivity
- Low Dark Current
- High Bandwidth
- Anode/Cathode on Illuminated Side
- 125mm Pad pitch
- Die Good for Bond Wire or Flip Chip Applications

APPLICATIONS

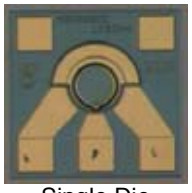
- Short Reach Optical Networks
- 10Gigabit Ethernet, Fibre Channel
- VCSEL Array Receiver

BENEFITS

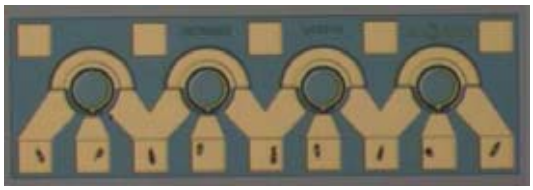
- Large Wirebond Contact Pads
- Low Contact Resistance

PRODUCT HIGHLIGHT

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



Single Die



1x4 Die

1x12 Die

PACKAGE ORDER INFO

T_J (°C)	Die	Active Area, A (µm)	Die Dimension[1] (µm)		Pad Dimension[1] (µm)		Pad Pitch, p[1] (µm)	Die Thickness[1] (µm)
			Y	X	w	v		
0 to 70	LX3044	75	450	450	75	75	125	152
	LX3045		450	1200	75	75	125	203
	LX3046		450	3200	75	75	125	203

1. See Package Dimensions (page 4)

Note: Available in Tape & Reel. Append the letter "T" to the part number. (i.e. LX3044T)

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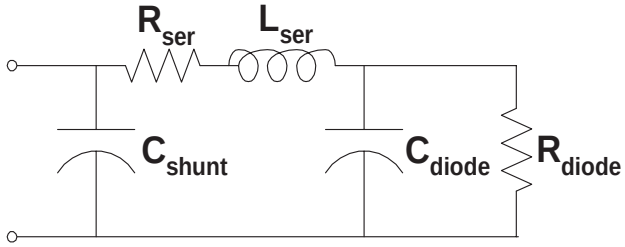
ELECTRICAL CHARACTERISTICS

Unless otherwise specified, the following specifications apply over the following test conditions: T_A = 25oC, V_R = 5 Volts

Parameter	Symbol	Test Conditions	LX304x			Units
			Min	Typ	Max	
MAXIMUM RATINGS						
Operating Junction Temperature Range	T_J		-20		+100	°C
Storage Temperature Range	T_{STG}		-55		+125	°C
Maximum Soldering Temperature		10 seconds maximum at temperature			260	°C
ELECTRICAL CHARACTERISTICS						
Active Area Diameter				75		µm
Responsivity	*R*	V_R = 5V, λ= 850nm	0.55	0.6		A/W
Dark Current	I_D	V_R = 5V		0.1	0.5	nA
Breakdown Voltage	BV_R	I_R = 2µA	30	47		Volts
Capacitance	C	V_R = 5V		0.3	0.33	pF
Bandwidth (1)	BW	V_R = 5V, λ= 850nm @ -3dB	7.8	8.1		GHz
RF Cross-Talk	S_{21}	1x4 and 1x12array only @ 10GHz			-40	dB

Note: 1. Bandwidth is measured at –3dB electrical power (photocurrent drops to 71% of DC value) into a 50Ω load.

CIRCUIT MODEL



Part #	Rser (Ω)	Lser (nH)	Cshunt (fF)	Cdiode (fF)	Rdiode (MΩ)
LX304x	12.3	0.12	118.5	172	187

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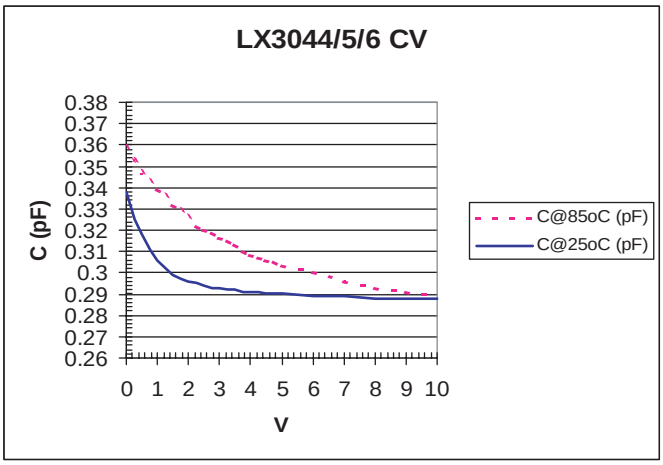
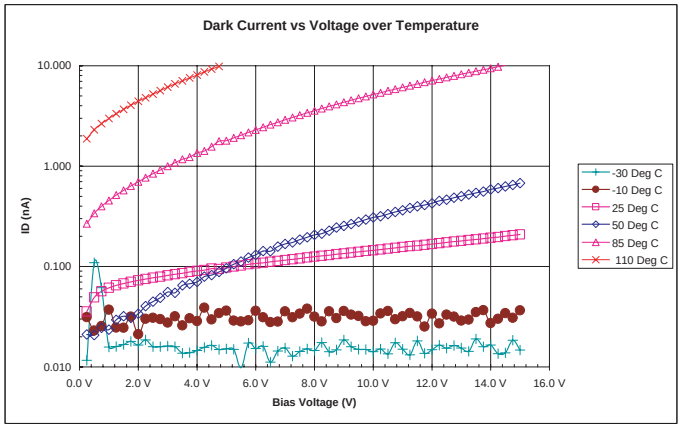
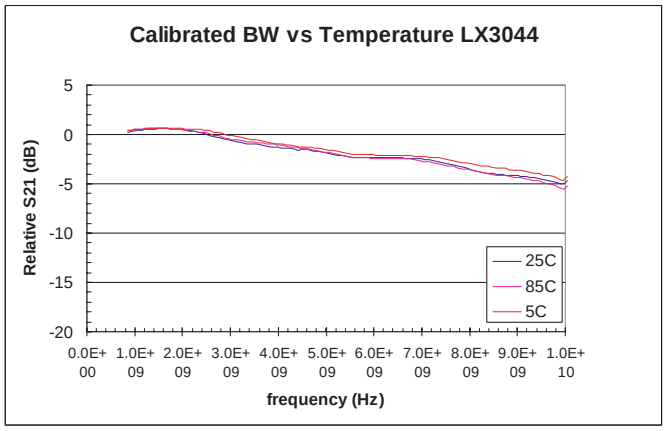
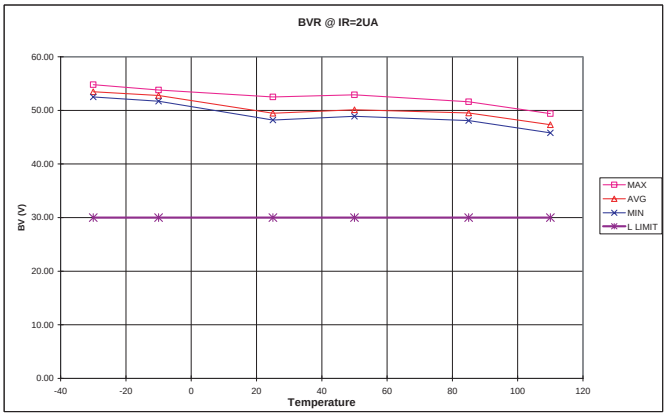
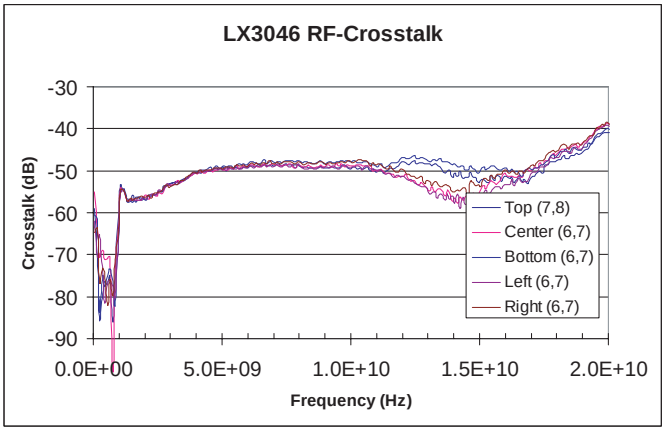
CHARACTERISTIC CURVES











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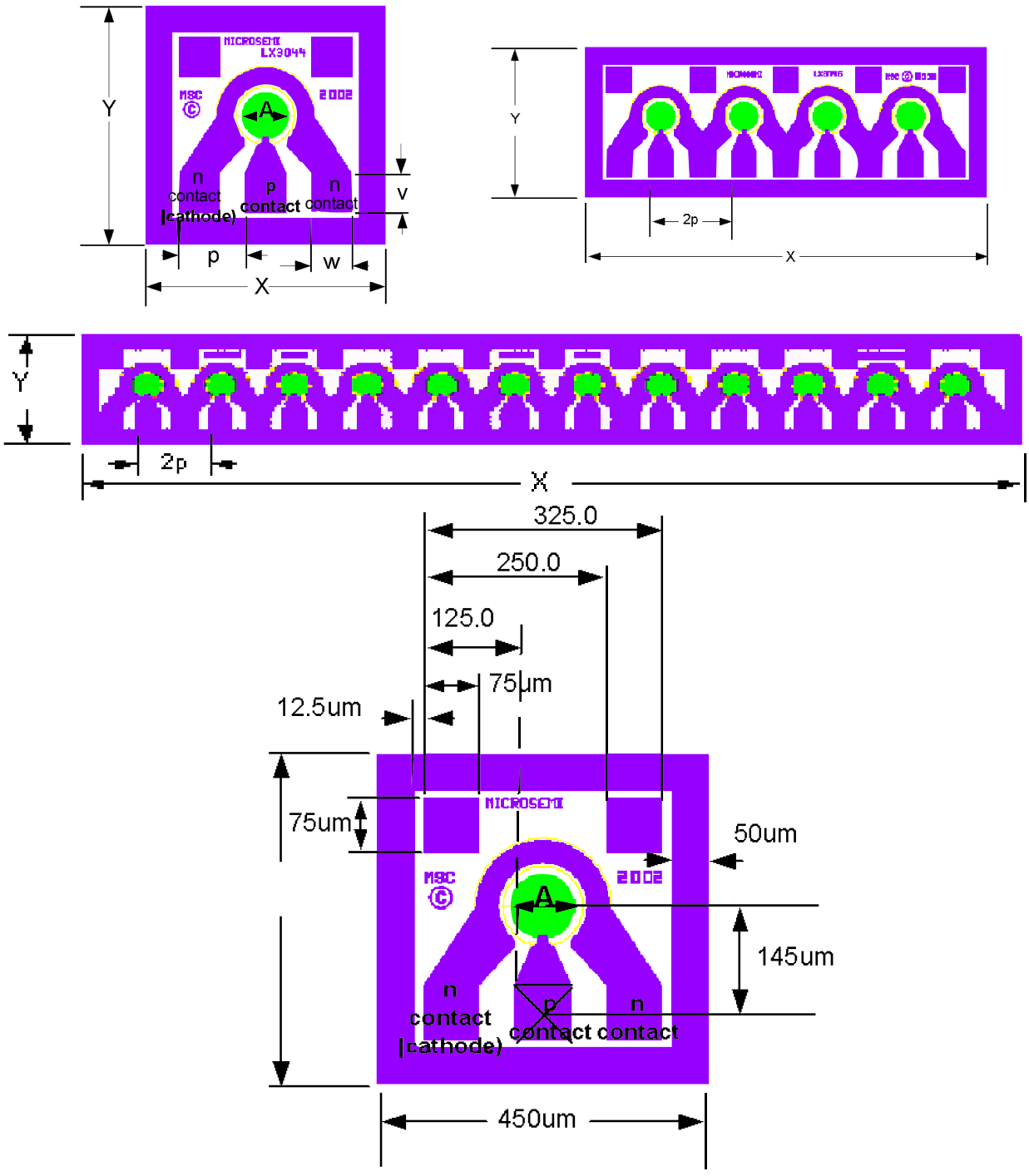
PACKAGE DIMENSIONS

Die LX304x



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NOTES