IPAG - Innovative Processing AG
Data Sheet

Lotharstr. 55, D-47057 Duisburg, Germany - phone: +49 (203) 3792986, fax: +49 (203) 3794094 - www.ipag35.com

IPD48_C60Z: 60 GHz PIN Diode Chip

Applications

The series IPD48 PINs are applicable for building up the next generation of high bit rate opto-electronic receivers for SONET/SDH (OC-768) including FEC and Ethernet applications.

Features

- High bandwidth of 60 GHz (-3 dB)
- High optical input power (+6 dBm)
- High linear phase characteristic
- Low bias voltage (< 3 V)
- Low leakage current
- On-chip biasing: IPD48_C60B
  External biasing: IPD48_C60N
- Customized layouts possible

Optical / Electrical Parameters

Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Optical Wavelength	λ	1520		1620	nm	typ. 1550 nm
Optical Input Power	$P_{o,in}$			6	dBm	@ 1 dB compression
Polarization Dependence				$\pm$ 0.1	dB	
Responsivity	R	0.3			A/W	@ B = 60 GHz [1)]
Small Signal Bandwidth	B		60	65	GHz	f_{3dB}
Lower Frequency Limit	f_{cl}	1	2		GHz	[2)]
Group Delay Time Variations	τ_{grp}		$\pm$ 4	$\pm$ 5	ps	
Bias Voltage [4)]	V_{pin}	-2	-2.5	-3[3)]	V	
Leakage Current	I_{rev}		10	100	nA	@ V_{pin} = -2.5 V

1) and 1550 nm optical wavelength
2) external blocking capacitor enables lower frequency limits down to 100 kHz
3) this is the maximum bias voltage to achieve the desired responsivity, see also Maximum Ratings
4) on-chip IPD48_C60B biasing or external biasing IPD48_C60N

Optical / Electrical Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Remarks
Maximum Optical Input Power	$P_{o,max}$		10	dBm	
Maximum Reverse Voltage	$V_{r,max}$	7		V	
Maximum Forward Current	$I_{f,max}$		2	mA	
Storage Temperatures	t_{st}	-10	+80	°C	
Operating Temperatures	t_{op}	0	+80	°C	+150 °C short term
Peak Temperature (unbiased)	t_{pe}		+300	°C	30 sec.
Humidity		5	65	% r.h.	

last change: 07.06.2002
QS-Nr.: DS-IPD48_C60Z-0002

IPAG - Innovative Processing AG
Data Sheet

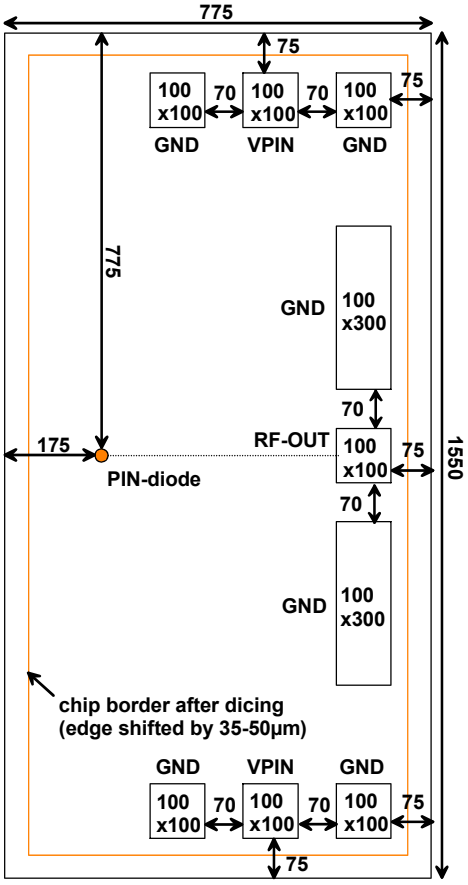
Lotharstr. 55, D-47057 Duisburg, Germany - phone: +49 (203) 3792986, fax: +49 (203) 3794094 - www.ipag35.com

IPD48_C60Z: 60 GHz PIN Diode Chip

Mechanical Parameters

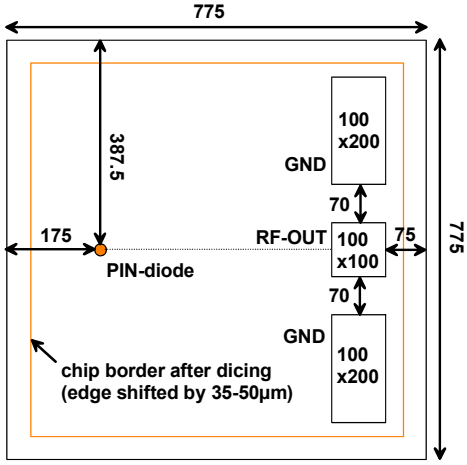
Parameter	Typ.	Unit	Remarks
Chip size: IPD48_C60B IPD48_C60N	775 x 1550 775 x 775	µm	changes after dicing [1)]
Thickness	500	µm	
Pad sizes: IPD48_C60B IPD48_C60N	100 x 100	µm	300 x 100 for RF-OUT GND 200 x 100 for RF-OUT GND
Active Optical Region Radius	6	µm	

1) absolute chip size varies within ±100 µm, rf-out pads are always as close as possible to edge of chip



IPD48_C60B

note: all coordinates are center-coordinates relative to the center of the PIN diode (all coordinates in µm)



IPD48_C60N

note: all coordinates are center-coordinates relative to the center of the PIN diode (all coordinates in µm)

Small signal models for the description of the PIN diode frequency behaviour are available on request.

For further information, contact Michael Agethen at *IPAG - Innovative Processing AG*:

phone: ++49 (0)203 / 379-4606
fax: ++49 (0)203 / 379-4094
or the following:
INTERNET: http://www.ipag35.com
E-Mail: sales@ipag35.com

IPAG - Innovative Processing AG reserves the right to make changes to the product(s) or information contained here without notice.
No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s).
© Copyright 2002 *IPAG - Innovative Processing AG.* All Rights Reserved.