

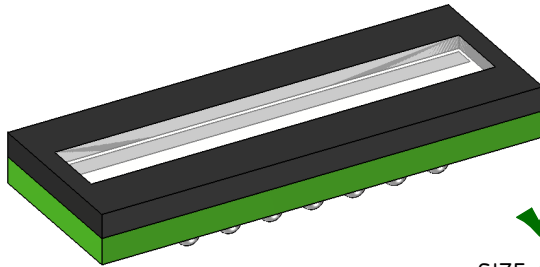
iC-LFH960 oBGA LFH3C

PACKAGE SPECIFICATION



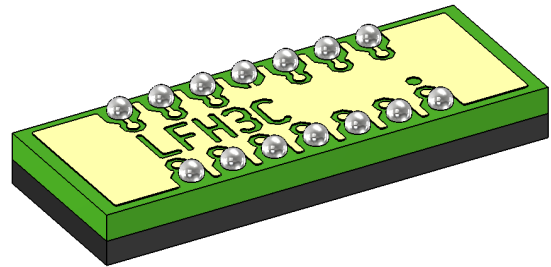
Rev A2, Page 1/6

PACKAGE VIEW



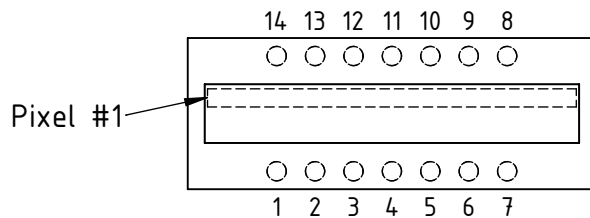
RoHS compliant

SIZE 13.5 mm x 5.0 mm



PIN CONFIGURATION

(top view)



PIN FUNCTIONS

No. Name Function

No.	Name	Function
1	RES0	Select Resolution Bit 0
2	RES1	Select Resolution Bit 1
3	VDD	Digital Supply +5 V
4	GND	Digital Ground
5	ETP	Enable Test Mode*
6	SI	Start of Integration
7	CLK	Clock
8	BNA	Select Binning/Averaging
9	ESH	Enable Shutter
10	NRES	Power-Down Reset Output (low active)
11	GNDA	Analog Ground
12	VDDA	Analog Supply +5 V
13	VAO	Pixel Output Supply Voltage
14	AO	Analog Pixel Output

*ETP must be connected to GND/GNDA

ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Parameter	Conditions	Value		
				Min	Max	Unit
G001	Ta	Operating Ambient Temperature Range	Consider self heating to stay below max. junction temperature (Tj) of iC-LFH960	-25	85	°C
G002	Ts	Storage Temperature Range		-25	110	°C
G003	Tpk	Reflow Soldering Peak Temperature	tpk < 20 s, convection reflow tpk < 20 s, vapour phase Floor life: 8h; TOL (time on label) See CUSTOMER INFORMATION #7 for details		245 230	°C °C

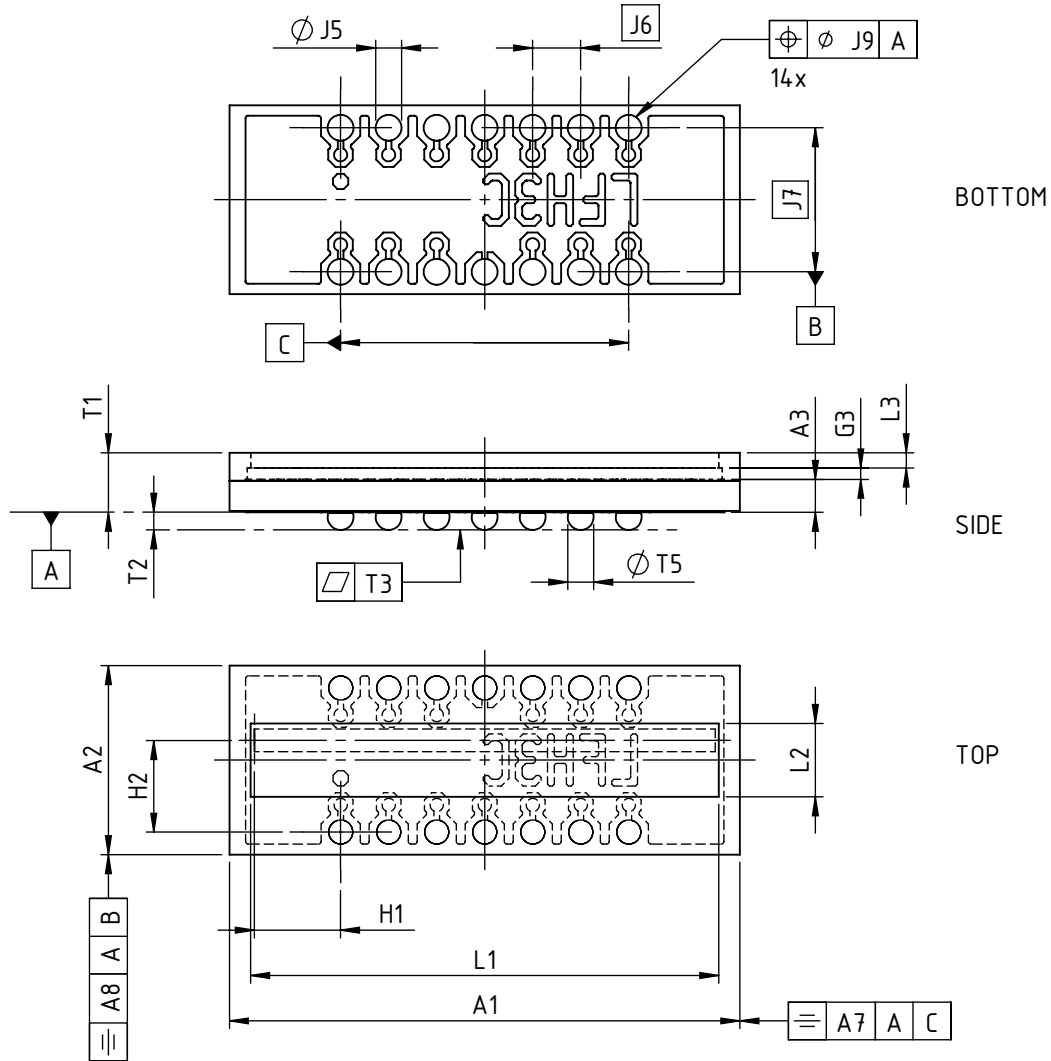
iC-LFH960 oBGA LFH3C

PACKAGE SPECIFICATION



Rev A2, Page 2/6

PHYSICAL DIMENSIONS



iC-LFH960 oBGA LFH3C

PACKAGE SPECIFICATION



Rev A2, Page 3/6

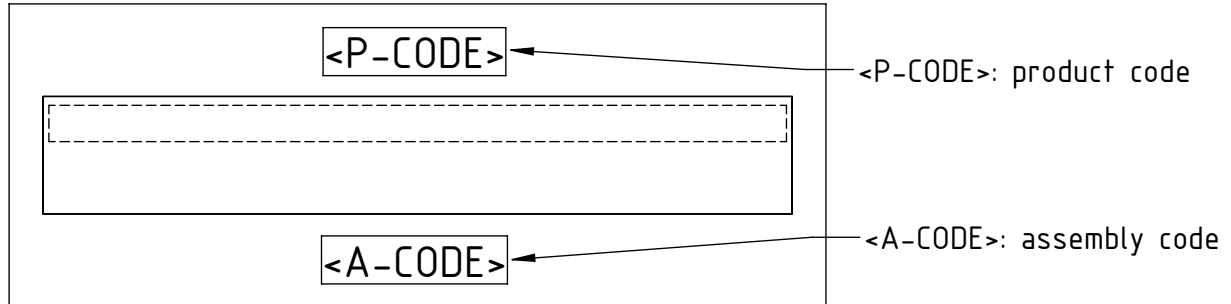
DIMENSION TABLE

Item	Parameter	Comment					Unit
			Min.	Typ.	Max.	Tol.	
Substrate							
A1	Outline X			13.5		±0.10	mm
A2	Outline Y			5.00		±0.10	mm
A3	Substrate Thickness	bottom substrate to bottom die typical value		0.90			mm
A7	Outline Symmetry X	vs. bottom metal pattern			0.20		mm
A8	Outline Symmetry Y	vs. bottom metal pattern			0.20		mm
Chip							
G3	Chip Thickness			0.30			mm
Chip Placement							
H1	Pixel Array Position vs. Bottom Metal Pattern X	bottom metal pattern vs. center of 1 st pixel		2.27965		±0.175	mm
H2	Pixel Array Position vs. Bottom Metal Pattern Y	bottom metal pattern vs. center of 1 st pixel		2.425		±0.175	mm
Bottom Metal Pattern							
J5	Lead Diameter			0.635		±0.03	mm
J6	Lead Pitch X (or Lead to Lead Distance X)			1.27			mm
J7	Lead Pitch Y (or Lead to Lead Distance Y)			3.81			mm
J9	Lead to Lead Position Tolerance				0.10		mm
Glass Cover							
L1	Glass Size X			12.46			mm
L2	Glass Size Y			1.94			mm
L3	Glass Thickness			0.40			mm
Encapsulation							
E1	Coating Excess	surface glass to surface coating			0.05		mm
Thickness Specification							
T1	Overall Thickness	bottom substrate to top of glass (nominal glass thickness of 0.4mm) ¹⁾	1.40	1.60	1.80		mm
T2	Solder Ball Height	drawing not to scale	0.40		0.54		mm
T3	Solder Ball Planarity				0.10		mm
T5	Solder Ball Diameter			0.635			mm

Notes:

1) Coating normally adjusted to top surface of glass.

MARKING



dra_lfh3c-lfh960_0_pack_4, 8:1

Appearance of Laser marking varies by tool.

GENERAL HANDLING INSTRUCTIONS

See [CUSTOMER INFORMATION #7](#) for details.

iC-LFH960 oBGA LFH3C

PACKAGE SPECIFICATION



Rev A2, Page 5/6

REVISION HISTORY

Rel.	Rel. Date*	Chapter	Modification	Page
A1	2015-11-06		Initial	

Rel.	Rel. Date*	Chapter	Modification	Page
A2	2016-10-10		Update drawing PIN CONFIGURATION; update DIMENSION TABLE items H1, H2	1, 3

Copying – even as an excerpt – is only permitted with iC-Haus' approval in writing and precise reference to source.

The data specified is intended solely for the purpose of product description and shall represent the usual quality of the product. In case the specifications contain obvious mistakes e.g. in writing or calculation, iC-Haus reserves the right to correct the specification and no liability arises insofar that the specification was from a third party view obviously not reliable. There shall be no claims based on defects as to quality in cases of insignificant deviations from the specifications or in case of only minor impairment of usability.

No representations or warranties, either expressed or implied, of merchantability, fitness for a particular purpose or of any other nature are made hereunder with respect to information/specification or the products to which information refers and no guarantee with respect to compliance to the intended use is given. In particular, this also applies to the stated possible applications or areas of applications of the product.

iC-Haus products are not designed for and must not be used in connection with any applications where the failure of such products would reasonably be expected to result in significant personal injury or death (*Safety-Critical Applications*) without iC-Haus' specific written consent. Safety-Critical Applications include, without limitation, life support devices and systems. iC-Haus products are not designed nor intended for use in military or aerospace applications or environments or in automotive applications unless specifically designated for such use by iC-Haus.

iC-Haus conveys no patent, copyright, mask work right or other trade mark right to this product. iC-Haus assumes no liability for any patent and/or other trade mark rights of a third party resulting from processing or handling of the product and/or any other use of the product.

* Release Date format: YYYY-MM-DD

iC-LFH960 oBGA LFH3C

PACKAGE SPECIFICATION



Rev A2, Page 6/6

ORDERING INFORMATION

Type	Package	Options	Order Designation
iC-LFH960	optoBGA™ LFH3C	none	iC-LFH960 oBGA LFH3C

Please send your purchase orders to our order handling team:

Fax: +49 (0) 61 35 - 92 92 - 692
E-Mail: dispo@ichaus.com

For technical support, information about prices and terms of delivery please contact:

iC-Haus GmbH
Am Kuemmerling 18
D-55294 Bodenheim
GERMANY

Tel.: +49 (0) 61 35 - 92 92 - 0
Fax: +49 (0) 61 35 - 92 92 - 192
Web: <http://www.ichaus.com>
E-Mail: dispo@ichaus.com