RIQP-64

Datasheet for generic Package RIQP-64

Datasheet

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1 Document Structure

1.1 Revision History

Rev	Date	Owner	Description
0.1	2021-08-18	MC	Initial release
0.2	2021-08-20	MC	First update
0.3	2021-09-21	TK	Second update
0.4	2021-09-27	MC	Third update
0.5	2021-10-04	MC	Fourth update

Approval	Date	Owner
Technical Verified		
QM Verified		

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1.3 List of Tables

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2 General Features

RIQP packages are low volume prototype packages intended for lab and measurement bring-up of test chips in small volume as usual for multi project wafers. Hermetic sealing is not guaranteed. The packages are not qualified for product use.

- State of the art PCB pitch of 0.5mm
- Much shorter bond wires than ceramic packages with similar pin count
- Down bond capability to use the paddle as VSS connection

3 Mechanical Description

RIQP-64 package is 9mmx9mm with 0.5mm pitch for the outside pins. The bottom center solder pad is 6mm x 6mm. The cavity for the die is 2.7mm x 2.7mm but due to a corner radius of 1mm the die size is limited to 2.2mm x 2.2mm. The package will be covered by a lid with a size of 7.6mm x 7.6mm.

- Top view

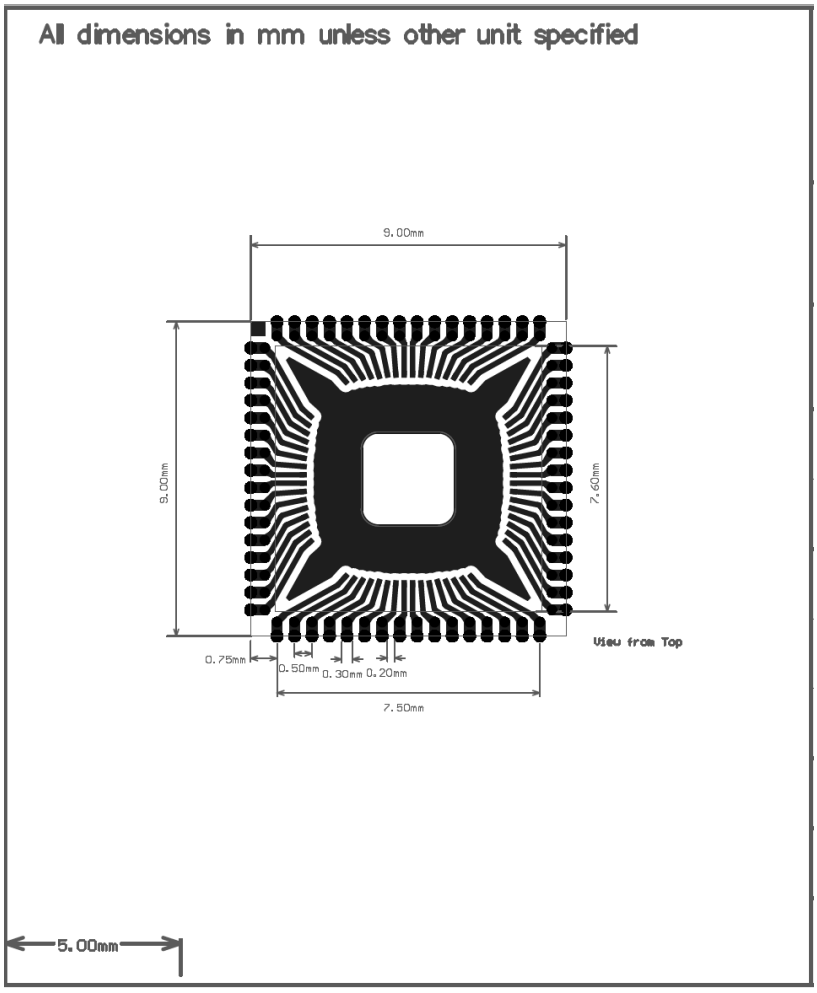

Figure 1 Dimensions top view

- Bottom view

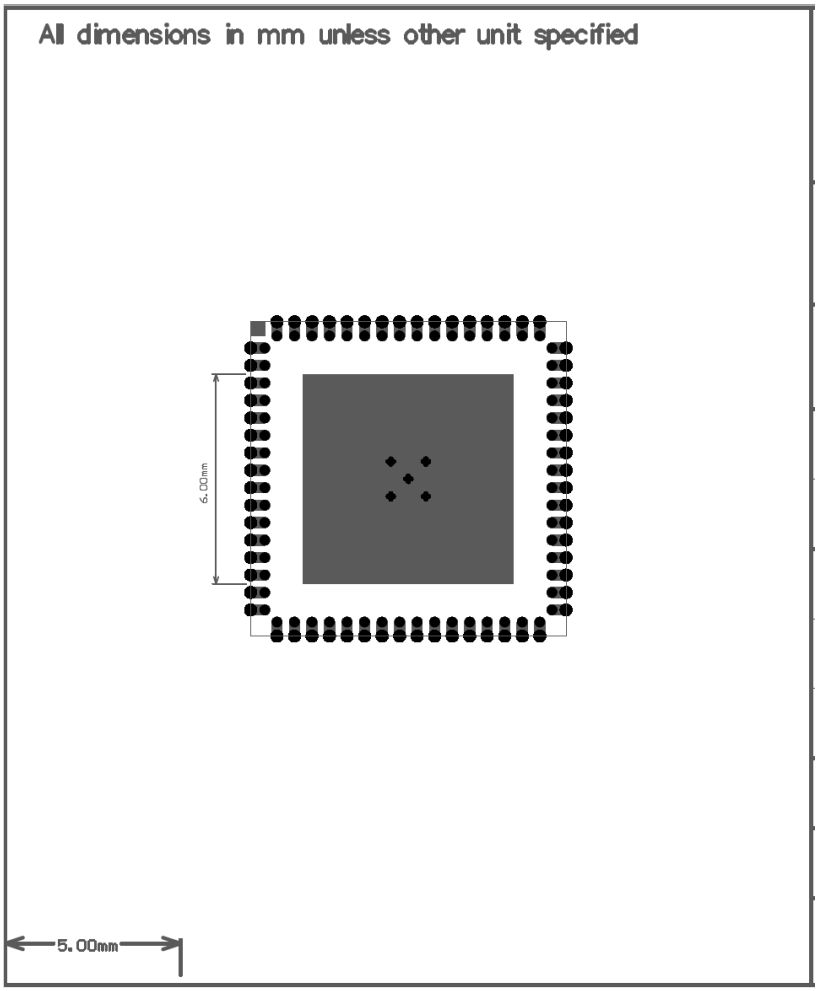

Figure 2 Dimensions bottom view

- Cross section

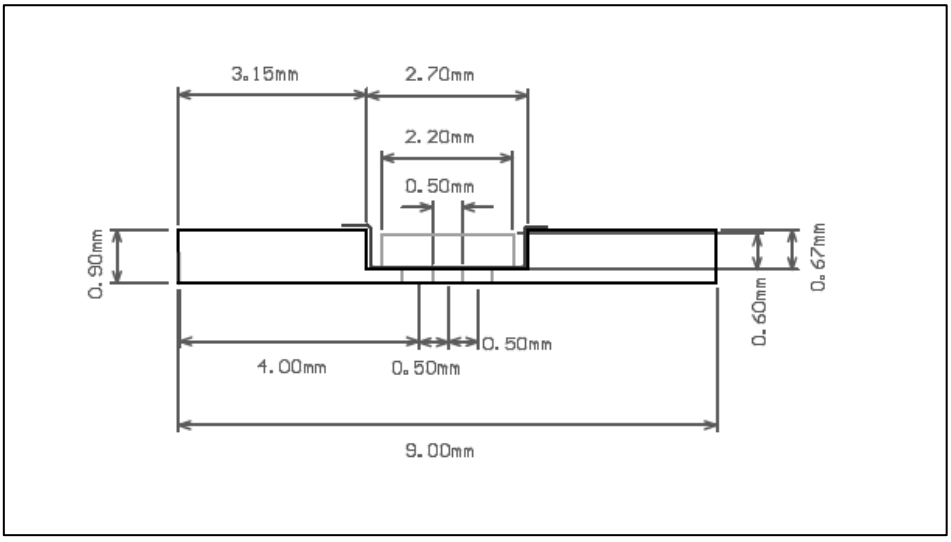

Figure 3 Dimensions cross section

4 Die Requirements

On each of the four sides of the Die there are 16 bond pads place around 10mils away from each other and tilted with a small angle for a better angle connection for the bond wires.

The Die should not be bigger than 2.2mmx2.2mm to fit in the cavity and it is possible to have down bond wired for the ground plane.

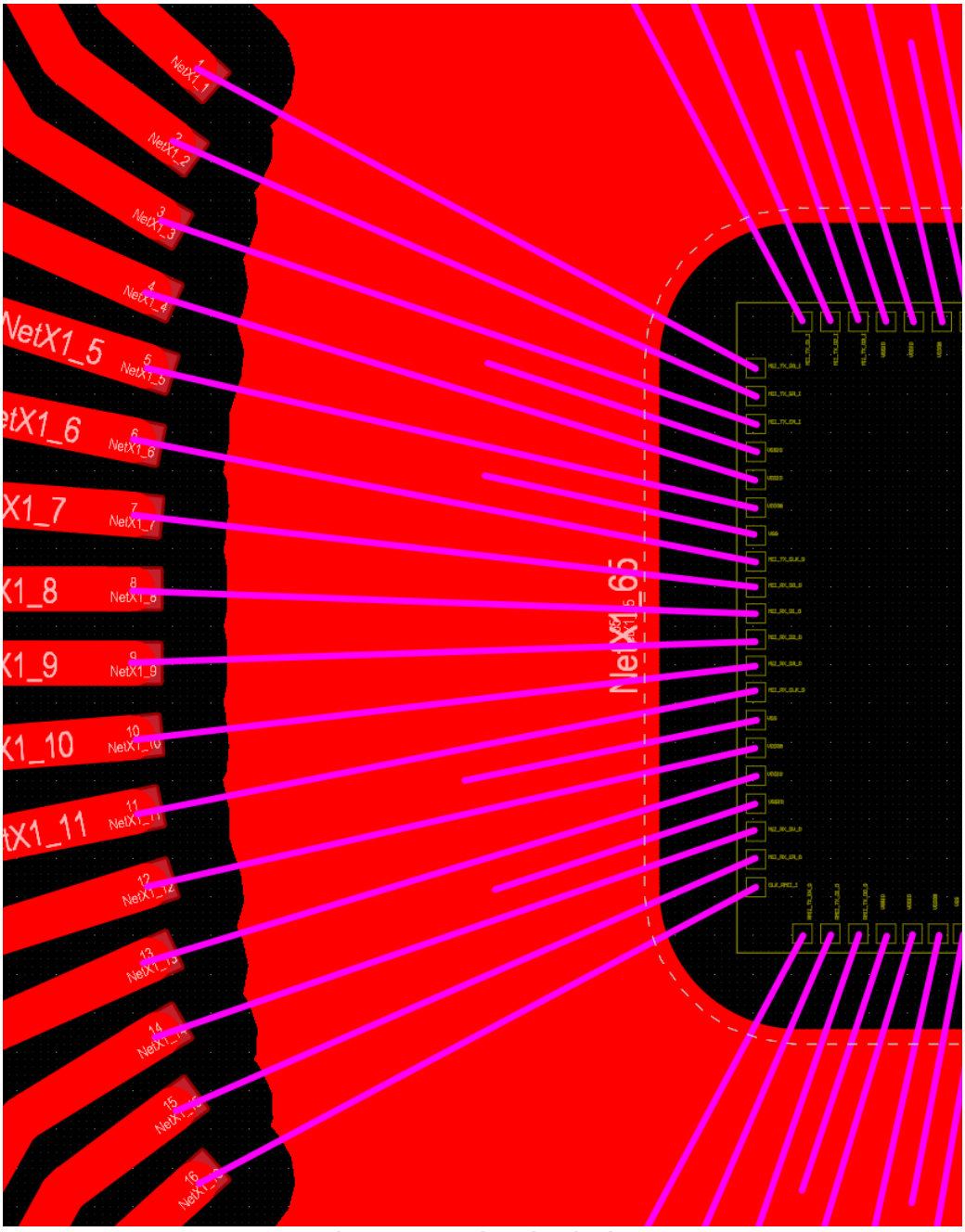

Figure 4 Bond pads placing

As shown in Figure 4, it is possible to use down bond wires for VSS to the ground/cavity plane. Increasing the number of pads has to be done considering the pad pitch rules as stated in Table 1.

Table 1 Design requirements

Parameter	Value	Notes
Pad Size	64um x 64um	Passivation opening 62um x 62um Minimum polyimid passivation opening 58um Polyimid passivation is desired to increase bond yield
Pad Pitch	min. 80um	For bond wire angles up to 10°
	85um	For bond wire angles from 10° to 25°
	90um	For bond wire angles from 25° to 45°
Seal Ring Gap	min. 20um	Distance in between pad and seal ring / crack stop
Bond Wires	25um	Aluminium (preferred) wedge-wedge bonding, 2nd bond connection typically on chip
Bond wire angle	max. 45°	Zero degree is perpendicular to the die edge.

5 Sealing Options

5.1 Ceramic lid

Standard Sealing is a ceramic lid as shown in Figure 5.

(All dimensions in mm)

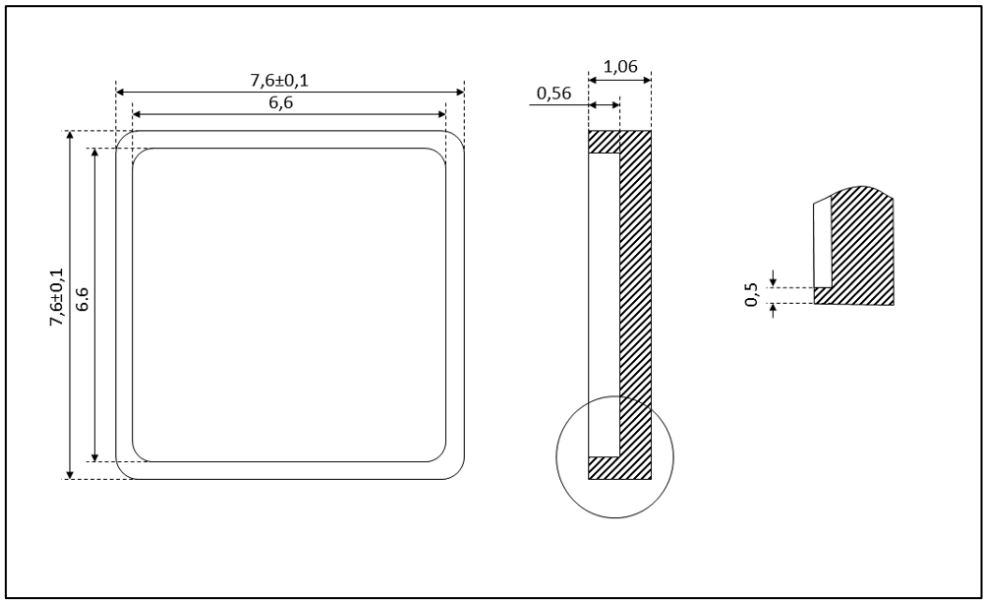

Figure 5 Lid dimensions

5.2 Globe Top Epoxy Sealing

It is possible to seal the chip with a clear epoxy globe top if the chip shall be kept visible. This sealing option leads to limited robustness in temperature. The package can not be exposed to

a normal lead free reflow solder process. Low temperature soldering eg. with InSn-50/50 at 120°C is required for this option.

5.3 Open package

For some applications it is desired to keep the package open, eg. for mm-wave probing. This is possible on request, but higher costs for packing and shipping have to be considered.

6 Recommended PCB Footprint

All dimensions in mm.

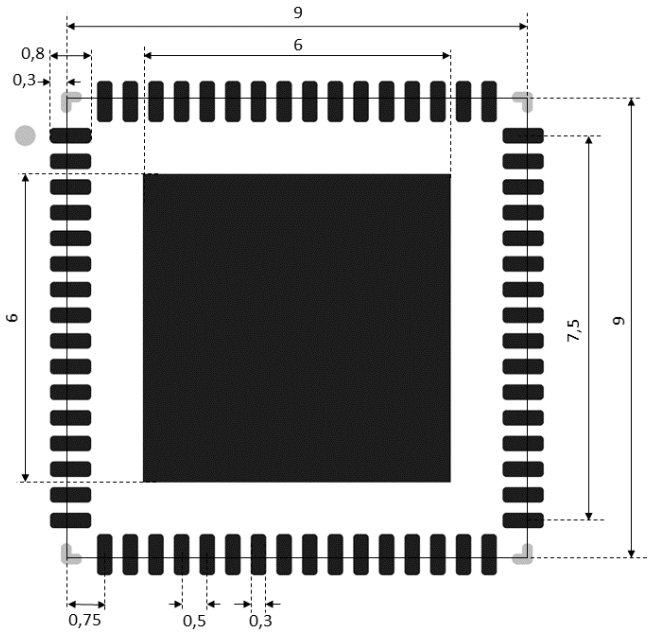

Figure 6 PCB footprint