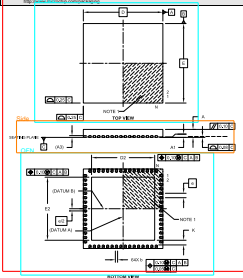


## 30.2 Package Details

64-Lead Plastic Quad Flat, No Lead Package (MR) – 6x9x8.9 mm Body (QFN)  
With 7.15 x 7.15 Exposed Pad (QFN)

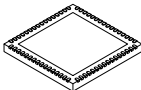
**Note:** For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packaging>.



Microchip Technology Drawing 004-460 Sheet 1 of 2

# 64-Lead Plastic Quad Flat, No Lead Package (MR) – 8x9x0.9 mm Body (QFN) With 7.15 x 7.15 Exposed Pad (QFN)

**Note:** For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packaging>



## Dimensions

Dimension	Symbol	Metric		
		Min	Typ	Max
Number of Pins	N	64		
Pitch	P	0.80		0.80 BSC
Overall Width	A	0.80	0.98	1.00
Standoff	A1	0.00	0.03	0.05
Contact Thickness	A3		0.20 REF	
Overall Width	B		0.98 BSC	
Exposed Pad Width	S2	1.20	0.15	1.20
Overall Length	D		0.98 BSC	
Exposed Pad Length	S2	1.20	0.15	1.20
Contact Width	b	0.20	0.28	0.30
Contact Length	L	0.20	0.48	0.50
Contact-to-Exposed Pad	e	0.40	-	-

## Notes:

- Pin 1 location features may vary, but must be located within the hatched area.
- Package is non-regulated.
- Dimensioning and tolerancing per ASME Y14.5M.

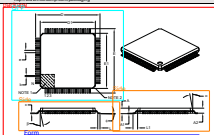
BSC: Basic Dimension, Theoretical exact value without tolerance.

REF: Reference Dimension, exact without tolerance, for information purposes only.

Microchip Technology Drawing 004-460 Sheet 2 of 2

## 88-Lead Plastic Thin Quad Flatpack (PT) – 12x12x1 mm Body, 2.00 mm (TQFP)

**Note:** For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packages>



Form

Dimension Limits	Units	MILLIMETERS		
		MIN	NOM	MAX
Number of Leads	N	88		
Lead Width	e	0.50 BSC		
Lead Height	A	—	—	1.20
Molded Package Thickness	A2	0.98	1.00	1.02
Standoff	A3	0.08	—	0.18
Foot Length	L	0.45	0.60	0.75
Footprint	L1	1.00 REF		
Foot Angle	φ	0°	3.0°	0°
Overall Width	B	14.00 BSC		
Overall Length	D	14.00 BSC		
Molded Package Width	B1	12.00 BSC		
Molded Package Length	D1	12.00 BSC		
Lead Thickness	e	0.08	—	0.20
Lead Width	e	0.17	0.33	0.37
Mold Draft Angle Top	α	11°	13°	13°
Mold Draft Angle Bottom	β	11°	13°	13°

**Notes:**

- Pin 1 visual index feature may vary, but must be located within the hatched area.
- Chamfers at corners are optional; radii may vary.
- Dimensions D1 and D2 do not include mold flash or protrusions. Mold flash or protrusions shall not exceed 0.25 mm per side.
- Dimensioning and tolerancing per ASME Y14.5M.

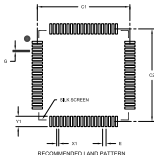
BSC: Basic Dimension. Theoretically exact value shown without tolerances.

REF: Reference Dimension, usually without tolerance, for information purposes only.

Microchip Technology Drawing C04-082B

80-Lead Plastic Thin Quad Flatpack (PT) - 12x12x1mm Body, 2.00 mm Footprint (TQFP)

**Note:** For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packaging>



### Form

	Units	MILS (0.0254mm)		
	Dimension (mm)	M1	M2	M3
Contact Pitch	P		0.01650	
Contact Pad Spacing	G1		0.40	
Contact Pad Spacing	G2		0.40	
Contact Pad Width (GSG)	X1			0.30
Contact Pad Length (GSG)	Y1			1.00
Distance Between Pads	G	0.30		

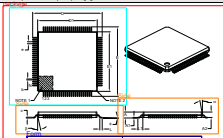
### Notes:

1. Dimensioning and tolerancing per ASME Y14.5M
2. G2: Body Dimension. Theoretically exact value shown without tolerances.

Microchip Technology Drawing No. 094-0862B

## 108-Lead Plastic Thin Quad Flatpack (PT) – 12x12x1 mm Body, 2.60 mm [TQFP]

**Note:** For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packaging>



DIMENSIONS		MILLIMETER (INCHES)		
Dimension/Leads		MIN	NOM	MAX
Number of Leads	10	100		
Lead Pitch	e	0.40 BSC		
Overall Height	H	—	—	1.20
Molded Package Thickness	A2	0.80	1.00	1.00
Standoff	A1	0.20	—	0.10
Foot Length	L	0.60	0.80	0.70
Footprint	L1	1.00 REF		
Foot Angle	α	0°	3.0°	1°
Overall Width	B	12.00 BSC		
Overall Length	D	12.00 BSC		
Molded Package Width	B1	12.00 BSC		
Molded Package Length	D1	12.00 BSC		
Lead Thickness	a	0.09	—	0.20
Lead Width	b	0.13	0.18	0.23
Mold Draft Angle Top	α	11°	13°	13°
Mold Draft Angle Bottom	β	11°	13°	13°

**Notes:**

- Pin 1 visual index feature may vary, but must be located within the hatched area.
- Chamfers at corners are optional, size may vary.
- Dimensions D1 and B1 do not include mold flash or protrusions. Mold flash or protrusions shall not exceed 0.20 mm per side.
- Dimensioning and tolerancing per ASME Y14.5M.

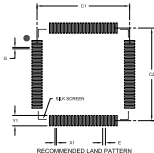
BSC: Basic Dimension. Theoretically exact value shown without tolerance.

REF: Reference Dimension, usually without tolerance, for information purposes only.

Microchip Technology Drawing C08-1008

100-Lead Plastic Thin Quad Flatpack (PT)- 12x12x1mm Body, 2.00 mm Footprint (TOP)

**Note:** For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packaging>



### Form

Dimension	Units	MILLIMETERS		
		MIN	TYP	MAX
Contact Pitch	mm		0.50 BSC	
Contact Pad Spacing	mm		1.20	
Contact Pad Spacing	mm		1.20	
Contact Pad Width (G100)	mm		0.30	
Contact Pad Length (G100)	mm		1.50	
Distance Between Pads	mm	0.20		

#### Notes:

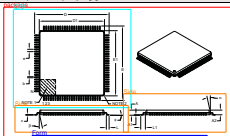
1. Dimensioning and tolerancing per ASME Y14.5M

BSC: Basic Dimension. Theoretically exact values shown without tolerances.

Microchip Technology Drawing No. 004-21808

## 100-Lead Plastic Thin Quad Flatpack (PQ) – 14x14x1 mm Body, 2.00 mm (TQFP)

**Note:** For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packaging>

[illegible]

**Keywords:** child sexual abuse; disclosure; self-blame

1. Flat 1 visual index feature may vary, but must be located within the finished area.
2. Chambers at corners are optional; size may vary.
3. Dimensions C1 and C2 do not include mold flash or protrusions. Mold flash or protrusions shall not exceed 0.25 mm per side.
4. Dimensions and tolerances are ASME Y14.1M.

**NOTE:** Data Sources: Theoretical model, value chain, related information

**FIGURE 1** | Performance of the model, usually defined as the ratio of the predicted to the observed values, for the different models.

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