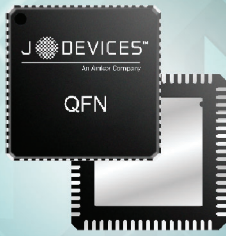
QFN

J-Devices' QFN (Quad Flat No-Lead) package is suitable for devices requiring a thinner and smaller form factor. The exposed pad provides superior grounding and thermal dissipation for better electrical and thermal performance. Package enhancements are available for increased board level reliability performance.



Features

- Small size (reduce package footprint by 50% or more and improved RF performance) & weight when compared to other similar pin count leadframe products
- Standard leadframe process flow and equipment
- Excellent thermal and electrical performance
- 0.50-1.45 mm maximum height
- 16 to 84 lead counts
- 2.7-10 mm body size
- Thin profile and superior die to body size ratio
- Pb-free/green packaging
- Flexible designs with high yields
- Saw and punch versions available

QFN Offerings

- Single row (Up to 84 I/O)
- Multi-chip package
- Plating: PPF (Ni/Pd/Au), Sn, Sn/Bi
- Punch & Saw singulation
- Small package (less than 2.7 x 2.7 body size)
- Stacked die
- Thin microleadframe
- Automotive grade package reliability
- Wettable flank-plated QFN

J DEVICES™
An Amkor Company

Thermal Performance

Modeled data @ 0 air flow/JEDEC Multi-layer PCB

Package	Body Size (mm)	Exposed Pad (mm)	Die (mm)	θJA (°C/W)
16 ld	3 x 3	1.25	2.0	61.4
20 ld	4 x 4	2.3	2.0	51.9
40 ld	5 x 5	3.7	3.4	43.7
36 ld	6 x 6	3.6	3.3	36.8
48 ld	7 x 7	5.6	5.3	31.2
56 ld	8 x 8	6.6	6.3	26.9
64 ld	9 x 9	5.0	4.7	24.0

Electrical Performance

Simulated results @ 2 GHz. Values dependent on specific die and wire configurations.

Package	Body Size (mm)	I/O	(nH)	(pF)	(mOhm)
16 ld	3 x 3	Shortest	1.5	0.071	38
24 ld	3 x 3	Shortest	1.5	0.071	37
48 ld	7 x 7	Shortest	2.1	0.124	48
64 ld	9 x 9	Shortest	2.5	0.229	82

Reliability Qualification

J-Devices' QFN package reliability is assured through optimized designs, materials and processes, and verified using industry standard testing.

Moisture Sensitivity Characterization	JEDEC Level 3 30°C/60%, 192 hours
THB	85°C/85% RH, 1000 hours
Unbiased HAST	110°C, 85% RH, 264 hours
High Temp Storage	150°C, 2000 hours
Temp Cycle	-55/+150°C, 2000 cycles

QFN

Applications

- Handheld, mobile, camera, wearable, automotive and audio applications
- Applications where low profile, minimum space, lightweight, low cost and high heat dissipation are required

Process Highlights

- Die thickness: 0.12-0.3 mm nominal (thinner for special applications)
- Plating: Matte Sn, Sn/Bi, Ni/Pd/Au (Pb-free)
- Marking: Laser mark

Standard Materials

- Leadframe: Cu alloy
- Die attach: Ag epoxy
- Mold compound: Epoxy mold compound
- Wire type: Au, Cu

Test Services

- Program conversion
- Product engineering
- Burn-in capabilities

Configuration Options

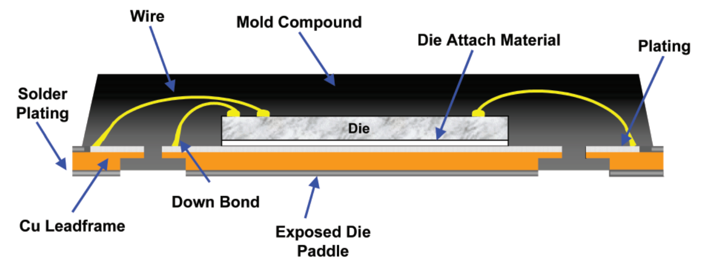
Body Sizes (mm)	QFN Saw Lead Counts 1.0, 0.8, 0.65, 0.5, 0.4 mm Pitch	Punch Lead Counts
3 x 3	16	–
4 x 4	20/24/28/32	–
5 x 5	28/32/36/40	–
6 x 6	20/36/40/48	48
7 x 7	48/52	48/52
8 x 8	52/56/64	52/56/64
9 x 9	64/76	64
10 x 10	68/84	84

Shipping

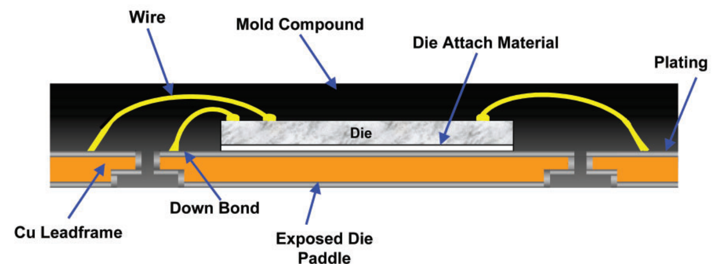
- JEDEC outline trays
- Tape & reel

Cross-section

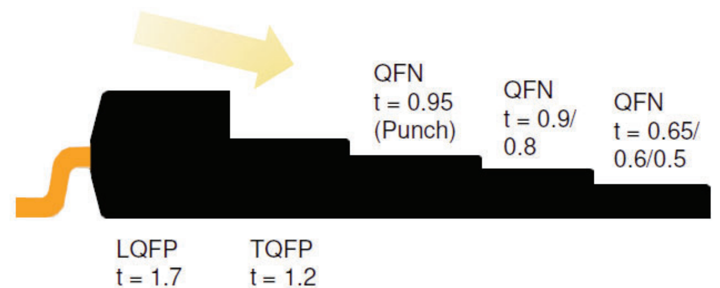
MAP Design “Punch”



Individual Unit Design “Saw“



QFN Package Height Comparison



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