

SSOP/QSOP



Features

- ▶ Cu wire interconnect for low cost
- ▶ Standard JEDEC package outlines
- ▶ Multi-die production capability
- ▶ Turnkey test services, including strip test options
- ▶ Green materials are standard – Pb-free and RoHS compliant
- ▶ Stealth dicing (narrow saw streets)
- ▶ Larger/higher density leadframe strips
- ▶ Leadframe roughening for improved MSL capability

Process Highlights

- ▶ Au plated PCC wire is standard, Au and Ag wire available
- ▶ Wafer backgrinding services available
- ▶ Multiple die and die stacking capability
- ▶ NiPdAu (PPF) lead finish is standard, Matte Sn is optional
- ▶ Laser mark on package body

SSOP (Shrink Small Outline Package) and QSOP (Quarter-Size Small Outline Package) are leadframe based, plastic encapsulated packages that are well suited for applications requiring optimum performance in IC packaging with compressed body size and tightened lead pitch. These industry standard IC packages yield a significant reduction in size while running in high volume and provide value added, low cost solutions for a wide range of applications.

Thermal Performance

Forced Convection, Single-layer PCB

Package	Body Size (mm)	Pad Size (mm)	θ_{JA} at (°C/W) by Velocity (LFPM)		
			0	200	500
20 Ld	3.9 x 8.7	2.4 x 3.6	80.8	73.2	69.2
28 Ld	5.3 x 10.2	3.84 x 8.10	49.0	36.0	30.0

JEDEC Standard Test Boards

Electrical Performance

Simulated Results @ 100 MHz

Package	Body Size (mm)	Pad Size (mm)	Lead	Inductance (nH)	Bulk Capacitance (pF)	Self Resistance (mF)
20 Ld	5.3 x 7.2	3.9 x 5.4	Longest Shortest	2.260 0.958	0.395 0.209	19.0 9.10
28 Ld	3.9 x 9.9	2.4 x 4.8	Longest Shortest	1.590 0.757	0.376 0.198	14.1 7.53
28 Ld	5.3 x 10.2	3.9 x 5.1	Longest Shortest	2.510 0.928	0.463 0.206	21.5 9.57

Reliability Qualification

Amkor package qualification uses three independent production lots and a minimum of 77 units per test group. All testing includes JSTD-020 moisture preconditioning.

- ▶ Moisture Sensitivity Characterization: JEDEC Level 1, 85°C/85% RH, 168 hours, JEDEC Level 3, 30°C/60% RH, 192 hours
- ▶ uHAST: 130°C/85% RH, No bias, 96 hours
- ▶ Temperature Cycle: -65°C/+150°C, 500 cycles
- ▶ High Temperature Storage: 150°C, 1000 hours

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Services and Support

Amkor has a broad base of resources available to help customers bring quality products to market quickly and at the lowest possible cost.

- ▶ Full package characterization
- ▶ Thermal, mechanical stress and electrical performance modeling
- ▶ Turnkey assembly, test and drop ship
- ▶ World class reliability testing and failure analysis

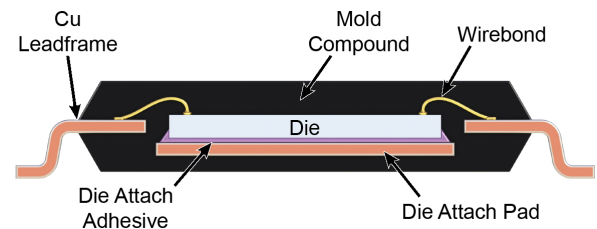
Test Services

- ▶ Program generation/conversion
- ▶ Wafer probe
- ▶ Burn-in capabilities
- ▶ -55°C to +165°C test available
- ▶ Strip test available

Shipping

- ▶ Clear anti-static tube, 20 inch
- ▶ Tape and reel
- ▶ Dry pack
- ▶ Drop ship

Cross Section SSOP/QSOP



Configuration Options

SSOP/QSOP Nominal Package Dimensions (inches — unless otherwise specified)

Package Type	Lead Count	Body Width	Body Length	Body Thickness	Standoff	Overall Height	Lead Pitch	Tip-to-Tip	JEDEC	Factory	Package Outline Drawing #
SSOP	14/16	5.3 mm (209 mil)	6.2 mm	1.73 mm	0.13 mm	1.86 mm	0.65 mm	7.80 mm	MO-150	P1	32289
	20	5.3 mm (209 mil)	7.2 mm	1.73 mm	0.13 mm	1.86 mm	0.65 mm	7.80 mm	MO-150	P1	32289
	24	5.3 mm (209 mil)	8.2 mm	1.73 mm	0.13 mm	1.86 mm	0.65 mm	7.80 mm	MO-150	P1	32289
	28	5.3 mm (209 mil)	10.2 mm	1.73 mm	0.13 mm	1.86 mm	0.65 mm	7.80 mm	MO-150	P1	32289
QSOP	16	0.150	0.194	0.058	0.006	0.064	0.0250	0.236	MO-137	P1	32864



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