



Shrink Small Outline, Quarter-Size Small-Outline Packages (SSOP/QSOP)

SSOP and QSOP 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. A green BOM is standard, allowing devices to meet applicable Pb-free and RoHS standards.

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

New Developments

- Stealth dicing (narrow saw streets)
- Larger/higher density leadframe strips
- Leadframe roughening for improved MSL capability

Services and Support

Amkor has a broad base of resources available to help customers bring quality new 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

Visit Amkor Technology online for locations and to view the most current product information.

SSOP/QSOP

Thermal Performance

Forced Convection, Single-layer PCB

Pkg	Body Size (mm)	Pad Size (mm)	ΘJA (°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

Pkg	Body Size (mm)	Pad Size (mm)	Lead	Self 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

Simulated Results @ 100 MHz

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 hrs
JEDEC Level 3, 30°C/60% RH, 192 hrs
- uHAST 130°C/85% RH, No Bias, 96 hrs
- Temp Cycle -65°C/+150°C, 500 cycles
- High Temp Storage 150°C, 1000 hours

Process Highlights

- Pcc wire bonding standard, Ag wire available
- Wafer backgrinding services available
- Multiple die and die stacking capability
- NiPdAu (PPF) or Matte Sn lead finish options
- Laser mark on package body



SSOP/QSOP

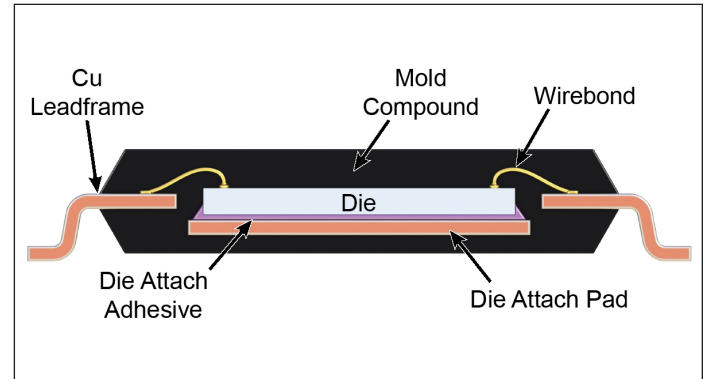
Test Services

- 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
	20	0.150	0.342	0.058	0.006	0.064	0.0250	0.236	MO-137	P1	32864
	24	0.150	0.342	0.058	0.006	0.064	0.0250	0.236	MO-137	P1	32864
	28	0.150	0.391	0.058	0.006	0.064	0.0250	0.236	MO-137	P1	32864

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