ExposedPad TSSOP/ MSOP/SOIC/SSOP

ExposedPad (ePad) TSSOP, MSOP, SOIC and SSOP are leadframe based, plastic encapsulated packages that are well suited for applications requiring optimum thermal performance, compressed body size and tightened lead pitch. These industry standard IC packages offer a substantial increase in heat dissipation, yield a significant reduction in size 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
- ExposedPad configuration for increased thermal efficiency
- Up to 60% improvement in Theta JA (compared to standard TSSOP or SOIC)
- 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

- PCC wire is standard, Au and 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

Thermal Performance

Forced Convection, Single-Layer PCB

Package	Body Size (mm)	Pad Size (mm)	θJA at (°C/W) by Velocity (LFPM)		
			0	200	500
TSSOP 16 Ld*	4.4 x 5.0	3.0 x 3.0	37.6	32.3	30.2
TSSOP 20 Ld*	4.4 x 6.5	3.0 x 4.2	37.6	32.3	29.9
TSSOP 28 Ld*	4.4 x 9.7	3.0 x 5.5	37.6	32.0	29.0
MSOP 10 Ld*	3.0 x 3.0	1.73 x 2.39	38.0	33.0	31.0
SOIC 8 Ld	3.9 x 4.9	2.3 x 2.3	58.6	52.1	49.4

*Estimated
JEDEC standard test boards

Electrical Performance

Simulated Results @ 100 MHz

Package	Body Size (mm)	Pad Size (mm)	Center Inductance (nH)	Corner Resistance (mF)
TSSOP 16 Ld*	4.4 x 5.0	3.0 x 3.0	1.58	2.28
TSSOP 16 Ld*	4.4 x 6.5	3.0 x 4.2	1.68	2.45
TSSOP 16 Ld*	4.4 x 9.7	3.0 x 5.5	1.70	2.65
TSSOP 16 Ld*	6.1 x 14	4.7 x 5.5	1.90	2.85
MSOP 8 Ld*	3.0 x 3.0	1.73 x 2.39	1.50	2.20

*Estimated

Amkor Technology®

ePad TSSOP/MSOP/SOIC/SSOP

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 3, 30°C/60% RH, 192 hours
- uHAST: 130°C/85% RH, no bias, 96 hours
- Temp cycle: -65°C/+150°C, 500 cycles
- High temp storage: 150°C, 1000 hours

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

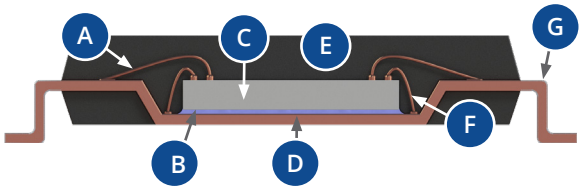
Test Services

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

Shipping

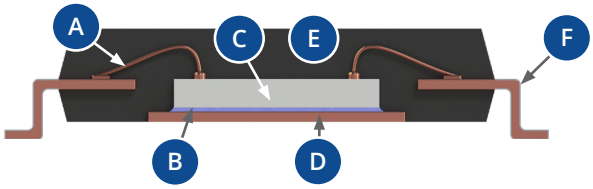
- Clear anti-static tube, 20 inch
- Tape and reel
- Dry pack
- Drop ship

Cross Section ePad TSSOP



- A Wirebond
- B Die attach adhesive
- C Die
- D Exposed pad
- E Mold compound
- F Ground bond
- G Cu leadframe

Cross Section ePad SOIC



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ePad TSSOP/MSOP/SOIC/SSOP

Configuration Options

ePad TSSOP, ePad MSOP, ePad SOIC and ePad SSOP Nominal Package Dimensions (mm)

Package Type	Lead Count	Body Width	Body Length	Body Thickness	Standoff	Overall Height	Lead Pitch	Tip-to-Tip	JEDEC
ExposedPad TSSOP	8	4.4	3.0	0.90	0.10	1.00	0.65	6.4	MO-153
	14	4.4	5.0	0.90	0.10	1.00	0.65	6.4	MO-153
	16	4.4	5.0	0.90	0.10	1.00	0.65	6.4	MO-153
	20	4.4	6.5	0.90	0.10	1.00	0.65	6.4	MO-153
	28	4.4	9.7	0.90	0.10	1.00	0.65	6.4	MO-153
	38	4.4	9.7	0.90	0.10	1.00	0.50	6.4	MO-153
ExposedPad MSOP	8	3.0	3.0	0.85	0.10	0.95	0.65	5.0	MO-187
	10	3.0	3.0	0.85	0.10	0.95	0.50	5.0	MO-187
ExposedPad SOIC	8	3.9	4.9	1.47	0.05	1.52	1.27	6.00	MO-012
	16	3.9	9.9	1.47	0.05	1.52	1.27	6.0	MO-012
ExposedPad SSOP	36	7.6	10.3	2.28	0.05	2.45	0.50	10.40	MO-271

Visit amkor.com or email sales@amkor.com for more information.