

PowerSOP[®] 3



FEATURES

- ▶ Cu wire interconnect for low cost
- ▶ Standard JEDEC package outlines
- ▶ Multi-die production capability
- ▶ Turnkey test services
- ▶ Green materials are standard – Pb-free and RoHS compliant
- ▶ Theta JC of under 1°C/W can be achieved with optimal heatsinking
- ▶ Highly conductive copper heat-slug and leadframes
- ▶ PSOP3 package has optional soft solder die attach for enhanced power capability
- ▶ 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

PSOP3 (Power Small Outline Package) is a leadframe based, plastic encapsulated package that is well suited for applications requiring optimum performance in IC packaging. This industry standard package utilizes a thick copper heat slug to accommodate the needs of higher power devices.

Thermal Performance

Forced Convection, Single-Layer PCB

Package	Die Size (mm)	S/NS	θJA at (°C/W) by Velocity (LFPM)		
			0	200	500
20 Ld	5.1 x 5.1	S	50.8	35.7	27.8
		NS	52.4	37.6	28.8

Forced Convection, Multi-Layer PCB

Package	Die Size (mm)	S/NS	θJA at (°C/W) by Velocity (LFPM)		
			0	200	500
20 Ld	5.1 x 5.1	S	19.2	14.2	12.2
		NS	25.7	20.4	17.8

S = Slug soldered to test board

NS = Slug not soldered to test board

JEDEC standard test boards

Electrical Performance

Simulated Results @ 100 MHz

Package	Body Size (mm)	Pad Size (mm)	Lead	Inductance (nH)	Capacitance (pF)	Resistance (mΩ)
20 Ld	11 x 15.9	7.5 x 7.9	Longest	3.130	1.990	30.6
			Shortest	1.540	0.604	9.42

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, 85°C/85% RH, 168 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

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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

Shipping

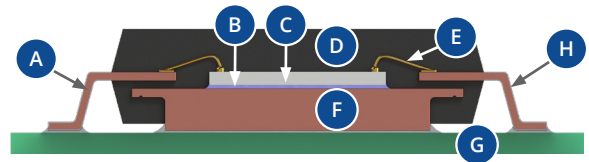
- ▶ Clear anti-static tube, 20 inch
- ▶ Tape and reel
- ▶ Dry pack
- ▶ Drop ship

Configuration Options

PowerSOP® (PSOP3) Nominal Package Dimensions (mm)

Lead Count	Body Width	Body Length	Body Thickness	Standoff	Overall Height	Lead Pitch	Tip-to-Tip	JEDEC
20	11.0 mm (.433")	15.9	3.15	0.20	3.35	1.27	14.2	MO-166
24	11.0 mm (.433")	15.9	3.15	0.20	3.35	1.00	14.2	MO-166
30	11.0 mm (.433")	15.9	3.15	0.20	3.35	0.80	14.2	MO-166
36	11.0 mm (.433")	15.9	3.15	0.20	3.35	0.65	14.2	MO-166
44	11.0 mm (.433")	15.9	3.15	0.20	3.35	0.65	14.2	MO-166

Cross Section With Bottom Slug



- A** Cu leadframe
- B** Die attach adhesive
- C** Die
- D** Mold compound
- E** Wirebond
- F** Cu heat slug
- G** PCB
- H** Plating



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