

# MQFP-d

## Heat Spreader Metric Quad Flat Pack

- 14 x 14mm to 32 x 32mm
- 64 to 240 lead count
- Lead pitch range from 0.80mm to 0.50mm



### FEATURES

- Body Sizes: 14 x 14mm to 32 x 32mm
- Package Height: 2.0mm to 3.4mm (same as QFP)
- Lead Counts: 64L to 240L
- Lead Pitch: 0.80mm to 0.50mm
- Moisture Sensitivity: JEDEC Level 3
- Wide range of open tool leadframe and die pad sizes available
- JEDEC standard compliant
- Lead-free and Green material sets available

### APPLICATIONS

- ASIC
- DSP
- FPGA
- PLD
- High speed logic, high power microprocessors / controllers
- 3D graphics, telecom, wireless, audio, CPU / GUI

### DESCRIPTION

STATS ChipPAC's Heat Spreader Metric Quad Flat Pack (MQFP-d) is a thermally enhanced version of the QFP package. Thermal enhancement is achieved by an embedded anodized aluminum heat spreader which is dropped in during the mold process. This process allows the use of standard leadframe while offering an added margin of thermal performance for high power applications. The QFP-d package offers 30% improvement (typical) in thermal performance over standard MQFP packages.

# MQFP-d

## Heat Spreader Metric Quad Flat Pack

### SPECIFICATIONS

Die Thickness	380-560µm (15-22mils) range preferred
Gold Wire	25/30µm (1.0/1.2mils) diameter, 99.999% Au
Lead Finish	85/15 Sn/Pb or Matte Tin
Marking	Laser / ink
Packing Options	JEDEC tray / tape and reel

### RELIABILITY

Moisture Sensitivity Level	JEDEC Level 3
Temperature Cycling	-65°C/150°C, 1000 cycles
High Temperature Storage	150°C, 500 hrs
Pressure Cooker Test	121°C 100% RH, 2 atm, 168 hrs
Liquid Thermal Shock (opt)	-55°C/125°C, 1000 cycles

### THERMAL PERFORMANCE, $\theta_{ja}$ (°C/W)

Package	Body Size (mm)	Pad Size (mm)	Die Size (mm)	Thermal Performance, $\theta_{ja}$ (°C/W)
100L	14 x 20 x 2.7	9.0 x 9.0	7.8 x 7.8	26.6
208L	28 x 28 x 3.4	14.0 x 14.0	10.2 x 10.2	18.4

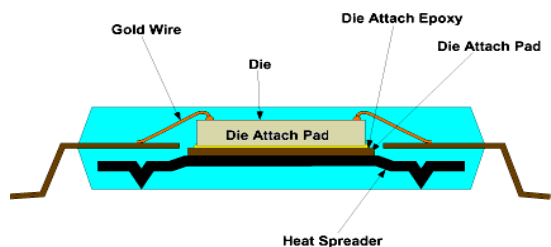
Note: Simulation data for package mounted on 4 layer PCB (per JEDEC JESD51-7) under natural convection as defined in JESD51-2.

### ELECTRICAL PERFORMANCE

Package	Body Size (mm)	Pad Size (mm)	Frequency	Self Inductance (nH)	Self Capacitance(pF)
100L	14 x 20 x 2.7	9.0 x 9.0	100MHz	6.3~8.7	0.56~1.11
208L	28 x 28 x 3.4	10.5 x 10.5	100MHz	11.6~14.7	1.43~1.56

Notes: \*Results are simulated. Data is available through 2.5GHz.

### CROSS-SECTION



### PACKAGE CONFIGURATIONS

Package Size (mm)	Lead Count
14 x 14 x 2.0	64, 80
14 x 14 x 2.7	64, 80
14 x 20 x 2.7	80, 100, 128
28 x 28 x 3.4	120, 128, 144, 160, 208
32 x 32 x 3.4	240

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