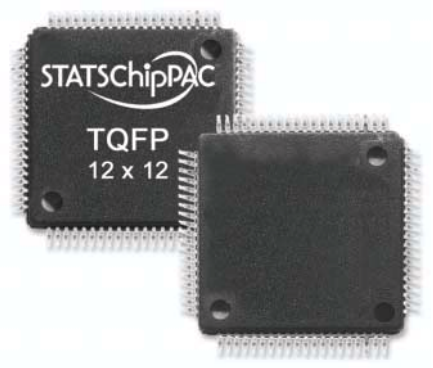
TQFP

Thin Profile Quad Flat Pack

- **7 x 7mm to 14 x 14mm**
- **32 to 128 lead count**
- **Lead pitch range from 0.80mm to 0.40mm**



FEATURES

- Body Sizes: 7 x 7mm to 14 x 14mm
- Package Height: 1.0mm
- Lead Counts: 32L to 128L
- Lead pitch: 0.80mm to 0.40mm
- Wide range of open tool leadframe and die pad sizes available
- JEDEC standard compliant
- Lead-free and Green material sets available

DESCRIPTION

The Thin Profile Quad Flat Pack (TQFP) belongs to STATS ChipPAC's QFP family. At 1.0mm body thickness, the TQFP is the thinnest package in the QFP family. This thin package is made possible by a well controlled low loop wire bonding process and package warpage control during the molding process. TQFP is suitable for mainstream cost sensitive applications where thickness and weight are premium.

APPLICATIONS

- ASIC
- DSP
- Gate Array
- Logic/Microprocessors/Controllers
- Multimedia, PC Chipsets

TQFP

Thin Profile Quad Flat Pack

SPECIFICATIONS

Die Thickness	230-280µm (9-11mils) 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, θja (°C/W)

Package	Body Size (mm)	Pad Size (mm)	Die Size (mm)	Thermal Performance, θja (°C/W)
48L	7 x 7 x 1.0	5.3 x 5.3	3.8 x 3.8	53.4
100L	14 x 14 x 1.0	9.0 x 9.0	7.8 x 7.8	38.6

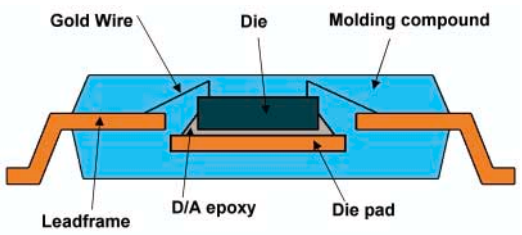
Note: Simulation data for package mounted on 4 layer PCB (per JEDEC JESD51-7) under natural convection as defined in JESD51-2.

ELECTRICAL PERFORMANCE

Electrical parasitic data is highly dependent on the package layout. 3D electrical simulation can be used on the specific package design to provide the best prediction of electrical behavior. Data below is for a frequency of 100MHz and assumes 1.0 mil gold bonding wire.

Conductor Component	Length (mm)	Resistance (mOhms)	Inductance (nH)	Inductance Mutual (nH)	Capacitance (pF)	Capacitance Mutual (pF)
Wire	2	120	1.65	0.45 - 0.85	0.10	0.01 - 0.02
Lead (7 x 7mm, 32L)	1.4 - 2.2	11.0 - 18.0	0.64 - 0.99	0.31 - 0.49	0.21 - 0.33	0.07 - 0.12
Total (7 x 7mm, 32L)		131 - 138	2.29 - 2.64	0.76 - 1.34	0.31 - 0.43	0.08 - 0.14
Wire	2	120	1.65	0.45 - 0.85	0.10	0.01 - 0.02
Lead (14 x 14mm, 128L)	3.0 - 4.5	24.0 - 36.0	1.96 - 2.92	1.08 - 1.61	0.45 - 0.67	0.20 - 0.30
Total (14 x 14mm, 128L)		144.0 - 156.0	3.61 - 4.57	1.53 - 2.46	0.55 - 0.77	0.21 - 0.32

CROSS-SECTION



PACKAGE CONFIGURATIONS

Package Size (mm)	Lead Count
7 x 7	32, 48
10 x 10	44, 52, 64
12 x 12	80, 100
14 x 14	100, 128

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