ADVANCED INTERCONNECT TECHNOLOGIES ADDS FINE PITCH QUAD FLAT PACKAGES TO ITS GROWING LINE-UP OF ADVANCED PACKAGING SOLUTIONS

Ideal for Wireless and Portable Communications Devices, the VFQFP-N and WFQFP-N Combine Performance Benefits of Array Packaging with Cost-Efficiency of a Lead-Frame Approach

PLEASANTON, Calif., March 18, 2002 – Advanced Interconnect Technologies (AIT), a global provider of semiconductor assembly and test services, today introduced its Very Thin Fine Pitch Quad Flat Packages – No Leads (VFQFP-N) and Very Very Fine Pitch Quad Flat Packages – No Leads (WFQFP-N). The small size of these packages, coupled with excellent thermal and electrical performance, make the VFQFP-N and WFQFP-N ideal for handheld and portable communications applications including cellular phones, personal digital assistants (PDAs) and other applications where small, high performance packages are required.

"The VFQFP-N and WFQFP-N address customer needs for products that combine the performance benefits of an array package with the cost-efficiency of a lead-frame package," said Ralph Duceour, president and CEO of AIT. "AIT continues an aggressive product development roadmap to further expand our line-up of advanced packaging solutions to address established and emerging markets, such as mobile communications. Capitalizing on IC developments in this market requires small outline packages that preserve the small footprint of these architectures."

The VFQFP-N and WFQFP-N are available in wire bond and flip chip configurations. The VFQFP-N and WFQFP-N flip chip package configurations will be based on a unique pillar bumping interconnect technology that AIT licensed from Advanpack Solutions PTE, Ltd. (APS) of Singapore in November 2001.

"Based on a high-level of interest from our customers in these new packages, we project that the majority of our flip chip production volume, based on APS's pillar bumping technology, will be in the WFQFP-N package, while the VFQFP-N will be more popular in the wire bond configuration," continued Duceour.

APS's copper pillar bumping technology uses perimeter or array flip chip pads to connect an integrated circuit (IC) to a copper lead-frame or substrate. Pillar-bumped flip chip packages provide a superior electrical performance and lower profile than available with current wire bond technology. The small size and reduced weight, along with improved electrical performance, make the packages an ideal choice for portable and handheld products.

Cost-Effective, High-Performance Packaging Alternatives

AIT's VFQFP-N and WFQFP-N packages are more cost-effective than many of today's array packages because they do not use BGA substrates, and do not require expensive ball attach tooling. The electrical performance of the packages is superior to traditional leaded packages because the VFQFP-N and WFQFP-N do not have gull wing leads which can act as antennas, creating "noise" in high-frequency applications. In addition, the package also provides excellent thermal performance through the exposed lead-frame pad, which enables a direct thermal path for removing heat from the package. This thermal enhancing feature can be further taken advantage of when the package is soldered to the board. The VFQFP-N and WFQFP-N can be used as alternatives to low lead count array packages as well as leaded packages such as SOICs, MMCs and TSSOP packages.

Manufacturing Process Lowers Cost of Finished Product

AIT's new VFQFP-N and WFQFP-N packages are manufactured using four mold blocks of matrix array packages (MAP) on a fixed lead-frame outline to produce more than five times the density of traditional matrix lead frames. The use of pre-plated lead frames (PPF) will eliminate the optional solder plating, and the laser marked identity on each strip will enable the auto-line to download process instructions for device laser mark, saw streets and offload for the blinded MAP device(s). Because the packages are manufactured using the MAP mold blocks on the lead-frame, they will not require the amount of custom tooling typically needed in the production of array packaging devices, ultimately lowering the cost of the finished product.

Technical Specifications

AIT's VFQFP-N and WFQFP-N packages are offered in the following sizes and lead counts for wire bond configurations:

Body Size (mm)	Lead Count	Die Pad (mm^2)	Maximum Die Size (without ground) (mm^2)	Maximum Die Size (with ground) (mm^2)
2 x 2	8	0.8	0.55	-
3 x 3	4, 8, 12, 16	1.5	1.25	0.74
4 x 4	12, 16, 20, 24	2.5	2.25	1.74
5 x 5	20, 24, 28, 32	3.5	3.25	2.74
6 x 6	20, 28, 36, 40	4.5	4.25	3.74
7 x 7	28, 32, 44, 48	5.0	4.75	4.24
8 x 8	32, 36, 40, 44, 48, 52, 56	6.5	6.25	5.74
9 x 9	44, 48, 56, 60, 64	7.75	7.5	7.0
10 x 10	64, 68, 76, 80	8.25	8.00	7.50
12 x 12	80	10.25	10	0.5
15 x 15	TBD	-	-	-

AIT's VFQFP-N and WFQFP-N packages are offered in the following sizes and lead counts in flip chip configurations:

Body Size (mm)	Lead Count	Minimum Bump Pitch	Standard Bump Height
2x2	8	200µm	100µm
3 x 3	4, 8, 12, 16		
4 x 4	12, 16, 20, 24		
5 x 5	20, 24, 28, 32		
6 x 6	20, 28, 36, 40		
7 x 7	28, 32, 44, 48		
8 x 8	32, 36, 40, 44, 48, 52, 56		
9 x 9	44, 48, 56, 60, 64		
10 x 10	64, 68, 76, 80		
12x12	80		
15x15	TBD		

Availability

AIT is in the process of qualifying the new packages with several customers. The VFQFP-N and WFQFP-N packages will be manufactured at AIT's factory in Batam, with production scheduled to begin in Q3'02.

About Advanced Interconnect Technologies, Inc.

Advanced Interconnect Technologies is a global provider of semiconductor assembly and test services for the world's most successful electronics companies. The company's turn-key services include design, assembly, testing, failure analysis, and electrical and thermal characterization. AIT has received recognition for its field service and product yields from several of the industry's leading semiconductor device manufacturers. The company is also ISO 9001:2000, ISO 9002 and ISO 14001 certified. With approximately 4,800 employees worldwide, AIT has factory locations in Hong Kong; Batam, Indonesia; Austin, Texas; Sunnyvale, Calif. and Manteca, Calif. The company is headquartered in Pleasanton, Calif. For more information about the company, its products and services please visit their website at www.aitsales.com.

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