

Tech Tips

The following Tips are intended to help guide you through your assembly of QP Technologies, formerly Quik-Pak, Open-Cavity products.

OCPP Product Storage

Packages must be kept in a dry atmosphere or wrapped in Silver Saver® paper or comparable product until ready to be bonded. This minimizes the formation of silver sulfides (tarnish) on the bonding surfaces. In controlled humidity desiccators, we recommend a nitrogen purge regulated to 4 - 8 SCFM, at a temperature of 68° Fahrenheit, less than 10% RH.

Die Attach

The QP Technologies standard die attach material is QMI 529 HT. It is a highly silver filled silver conductive adhesive to provide high thermal conductivity and excellent electrical conductivity for attachment of Integrated circuits to metallic leadframes. Caution should be exercised to insure the epoxy does not bleed out and reach wire bond surfaces. The material should be used sparingly, with little or no fillet.

QP Technologies does have experience with many other die attach materials, as well. Give us a call if you have a question on a specific material.

Wire Bonding

QP Technologies open-cavity packages will accept both thermosonic gold and ultrasonic aluminum wire bonding. Wire bonder machine settings must be adjusted to optimize wire bonding quality and reliability. Below are recommended baseline settings for QP Technologies Open-Cavity packages using 1 mil gold wire. You will have to adjust them according to your bonder and individual package/process requirements. For other wire diameters please call us.

Typical Automatic Bonder Settings

K&S Maxum Ultra Bonder

Bond Parameters Wire Profile SSB Profile

Ball Parameter:	Wire Diameter	1.00
	FAB size	2.4
	Loop FAB size	1.8
Loop Parameter:		
2nd approach	LF2 =	-20.00
Shaping:		
Page 1	Remote Angle	45
Page 3	Separation Height	0.90 mils
Page 4	Bump Height	0.80 mils
	Smooth Distance	1.0 mils
Page 5	Smooth USG	0 mAmps
MISC:		
Page 1	Remote Speed	50%
	First Speed	50%
	Loop Speed	50%
Page 2	Tail Speed	50%
	Reset Speed	50%
	Kink Height:	8.0 mils
	Reverse Motion:	8.0 mils

Bond 1 Parameter:	Loop Factor:	-5.0 mils
	USG Current:	10 mAmps
	Bondtime:	7 ms
	Force:	15 grams
	Tip:	5.00 mils
	C/V:	0.5 mils/ms
	ConstantDetect Mode:	F Mode
Bump/Sec:	Bump USG Current:	145-175
	Bump Bond Time:	45-55 ms
	Bump Force:	30-35 grams
Bond 2 Parameter:	USG Current:	120 mAmps
	USG Bond Time:	7 ms
	Force:	75 grams
	Tip:	4.00 mils
	C/V:	.30 mils ms
	Constant Threshold:	70%
SSB/Sec:	SSB Current:	30 mAmps
	SSB Time:	6 ms
	SSB Force:	12 grams

Typical Manual Bonder Settings

(K&S 4524AD baseline settings)

First (Die Bond Power)	1.3 avg. (range 1 to 2)
First Bond Time	2.0 avg. (range 1 to 5)
First Bond Force	1.60 avg (range 1 to 2)
Second (Lead) Bond Power	2.95 avg. (range 2 to 3)
Second Bond Time	3.45 avg. (range 3 to 7)
Second Bond Force	3.3 avg. (range 2 to 6)

For gold ball bonding, the package temperature should be maintained between 140° to 160° Centigrade. Be sure to adjust your temperature offset allowing for heater block and package thermal resistance to insure the package is within the bonding temperature range.

Mechanical clamping is preferred; however, vacuum clamping can be used with the correct fixturing.

Encapsulation

The standard QP Technologies encapsulation material is Loctite Hysol FP4653. QP Technologies does have experience with many other encapsulant materials, including low-K and low stress materials. Again, give us a call if you have a question on a specific material.

Drying

If your product plans include surface mounting of our packages, we recommend that you dry-bake the package at 125° +5/-0° Centigrade for 24 hours prior to PCB assembly. For more information, see IPC/JEDEC Standard J-STD-033.

We understand our package is critical to your products' success. Do not hesitate to call us at 858.674.4676 or email us at moreinfo@qptechnologies.com if you experience any problems assembling our packages.