



# Socket Recommendation for Actel FPGA Packages

## Sockets for Prototyping with Actel FPGAs

Actel offers a range of surface-mount sockets to make it easier for designers to prototype designs using Actel one-time-programmable FPGAs.

These sockets have been manufactured for Actel by some of the world's leading suppliers of prototyping and production sockets. By using these sockets when prototyping designs, designers can avoid having to desolder FPGAs from PCBs, which is time consuming and can potentially damage costly prototype PCBs.

These sockets are available in small quantities from Actel. Contact your local Actel representative or distributor for pricing and availability information. If you need quantities of 25 pieces or more, contact your local manufacturer's

representative or distributor. See the table below for a list of manufacturers.

Mechanical drawings for these sockets are available on the Actel Web site at <http://www.actel.com>.

### CONTACTS: AMP(800) 522-6752

Enplas	(415) 572-1683
Methode	(408) 749-8124
Mil-Max	(516) 922-6000
McKenze	(510) 651-2700
Nepenthe	(415) 496-6666
Wells CTI	(602) 581-5330
Yamaichi	(408) 456-0797

Package	Lead Count	Actel Part Number	Original Manufacturer
CQFP	132-pin 172-pin 196-pin	SY-CQ196	IC51-1964-1952
PQFP	100-pin	SY-PQ100	IC149-100-014-S5
PQFP	144-pin	SY-PQ144	IC149-144K11453-0
PQFP	160-pin	SY-PQ160	IC149-160-023-S5
PQFP RQFP	208-pin	SY-PQ208-1	IC149-208-001-S5
PQFP RQFP	240-pin	SY-PQ240	IC149-240-167-S5
TQFP	144-pin	SY-TQ144	IC149-144-145-S5
TQFP	176-pin	SY-TQ176	IC149-176-166-S5
VQFP	80-pin	SY-VQ80-1	IC149-080-051-S5
VQFP/TQFP	100-pin	SY-VQ100	IC149-100-025-S5
BGA (1.27mm)	272-ball 27mm x 27mm	SC-BG272 SM-BG272-A SM-BG272-B	CTI#: 8627-272-0-00 Mil-Max #: S587-10-272-10-005437 Mil-Max #: S582-11-272-10-005414
BGA (1.27mm)	329-ball 31mm x 31mm	SM-BG329-A SM-BG329-B	Mil-Max #: S587-10-329-12-005437 Mil-Max #: S582-11-329-12-005414
BGA (1.27mm)	313-ball 35mm x 35mm	SC-BG313	CTI#: 8635-313-0-00

## Socket Sources for Actel FPGA Packages

The following tables list known suppliers of surface mount and through hole sockets for Actel FPGA packages. This is not a recommended list of suppliers and Actel has not tested the packages for reliability.

### Surface Mount Sockets

Package	Lead Count	Prototype/Production	
		Source	Part Number
PLCC	44	Methode	213-044-602
	68	Methode	213-068-602
	84	Methode	213-084-602
PQFP	100	Yamaichi	IC149-100-014-S5
	144	Yamaichi	IC149-144K11453-0
	160	Yamaichi	IC149-160-023-S5
	208	Yamaichi	IC149-208-001-S5
RQFP	208	Yamaichi	IC149-208-001-S5
VQFP	80	Yamaichi	IC149-208-001-S5
	100	Yamaichi	IC149-100-025-S5
TQFP	144	Yamaichi	IC149-144-145-S5
	176	Yamaichi	IC149-176-166-S5
BGA	272 27mm x 27mm	Mil-Max	S587-10-272-10-005437 S582-11-272-10-005414
		CTI	8627-272-0-00
BGA	329 31mm x 31mm	Mil-Max	S587-10-329-12-005437 S582-11-329-12-005414
BGA	313 35mm x 35mm	CTI	8635-313-0-00

## Through Hole Sockets

Package	Lead Count	Prototype/Production		Zero Insertion	
		Source	Part Number	Source	Part Number
PLCC	44	Amp	821575-3	Nepenthe	PC1-044050-016
		Methode	213-044-401	Yamaichi	IC51-0444-400
	68	Amp	821574-3	Nepenthe	PC1-068050-001
		Methode	213-068-401	Yamaichi	IC51-0684-390-1
	84	Amp	821573-3	Nepenthe	PC1-084050-003
		Methode	213-084-401	Yamaichi	IC51-0844-401-1
PQFP	100			Yamaichi	IC51-1004-814-2
	144	Amp	822114-3 and 822115-3	Yamaichi	IC51-1014-KS10418
	160	Amp	822114-4 and 822115-4	Yamaichi	IC51-1604-845-1
	208			Yamaichi	IC51-1052-KS12897
RQFP	208			Yamaichi	IC51-1052-KS12897
TQFP	176			Yamaichi	IC51-1764-1505
VQFP	80			Yamaichi	IC51-0804-795
BGA	225			Enplas	BGA-225-1.5-01
	313			Enplas	BGA-313-841-1.27-01
CQFP	84 w/o tie bar			Wells	619-1000311-001
	84 w/ tie bar			Wells	619-1001611-001
	132			Yamaichi	IC51-1964-1952
	172			Yamaichi	IC51-1964-1952
	196			Yamaichi	IC51-1964-1952
	256			TBD	TBD
PGA	85	Mil-Max	510-91-085-11-041	Yamaichi	NP35-11207-KS8108
		McKenze	PGA-85H-012B-1-1107		
	100/101	McKenze	PGA-101M-012B-1-11B5	Yamaichi	NP89-12110-KS11922
	132/133	McKenze	PGA-133H-003B-1-13GOR		
	175/176	Mil-Max	510-91-176-15-061	Yamaichi	NP89-22508-KS11957
		McKenze	PGA-177M-003B-1-1552		
	207			Amp	916227-6
	257			Amp	916229-6

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<http://www.actel.com>

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