

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
	Mill-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 #	Vendor Part Number
FBGA(1.00mm)	144-ball (13mmx13mm)	SE-FG144	E-Tec: BPW144-1030-12AA01
	256-ball (17mmx17mm)	SE-FG256	E-Tec: BPW256-1030-16AB01
	484-ball (27mmx27mm)	SE-FG484	E-Tec: BPW484-1030-26AB01
BGA(1.27mm)	272-ball (27mmx27mm)	SC-BG272	Wells-CTI: 8627-272-0-00
		or SM-BG272a	Mill-Max: S587-10-272-12-005437
		SM-BG272b	Mill-Max: S587-11-272-12-005414
	313-ball (35mmx35mm)	or SE-BG272a	E-Tec: BPW272-1270-20AC11
		SM-BG272b	Mill-Max: S587-11-329-12-005414
	313-ball (35mmx35mm)	SC-BG313	Wells-CTI: 8635-313-0-00
	329-ball (31mmx31mm)	SM-BG329a	Mill-Max: S587-10-329-12-005437
SM-BG329b		Mill-Max: S587-11-329-12-005414	
or SE-BG329a		E-Tec: BPW329-1270-23AB11	
456-ball (35mmx35mm)	SM-BG329b	Mill-Max: S587-11-329-12-005414	
	SE-BG456a	E-Tec: BPW456-1270-26AB11	
CS (0.8mm)	49-ball (7mmx7mm)	SM-BG456b	Mill-Max: S582-11-456-13-005414
		SE-CS49	E-Tec: BPW049-0830-07BB01
		SE-CS128	E-Tec: BPW128-0830-12BB01
CQFP	180-ball (13mmx13mm)	SE-CS180	E-Tec: BPW180-0830-14BB01
	132-pin (24mmx24mm)	SY-CQ196	Yamaichi: IC51-1964-1952
	172-pin (30mmx30mm)	SY-CQ196	Yamaichi: IC51-1964-1952
	196-pin (34mmx34mm)	SY-CQ196	Yamaichi: IC51-1964-1952
	208-pin (29mmx29mm)		Enplas: FPQ-256(352)-0.5-01
256-pin (36mmx36mm)		Enplas: FPQ-256(352)-0.5-01	

Package	Lead Count	Actel Part #	Vendor Part Number
PQFP	100-pin (14mmx20mm)	SY-PQ100-1	Yamaichi: IC149-100-114-S5
	144-pin (28mmx28mm)	SY-PQ144-1	Yamaichi: IC149-114K-11453-1S
	160-pin (28mmx28mm)	SY-PQ160-1	Yamaichi: IC149-160-123-S5
	208-pin (28mmx28mm)	SY-PQ208-2	Yamaichi: IC149-208-161-S5
RQFP	208-pin (28mmx28mm)	SY-PQ208-2	Yamaichi: IC149-208-161-S5
PQFP	240-pin (32mmx32mm)	SY-PQ240	Yamaichi: IC149-240-167-S5
RQFP	240-pin (32mmx32mm)	SY-PQ240	Yamaichi: IC149-240-167-S5
TQFP	64-pin (10mmx10mm)	SY-TQ64	Yamaichi: IC149-064-175-S5
	100-pin (14mmx14mm)	SY-VQ100	Yamaichi: IC149-100-125-S5
	144-pin (20mmx20mm)	SY-TQ144	Yamaichi: IC149-144-145-S5
	176-pin (24mmx24mm)	SY-TQ176	Yamaichi: IC149-176-166-S5
VQFP	80-pin (10mmx10mm)	SY-VQ80	Yamaichi: IC149-080-151-S5
	100-pin (10mmx10mm)	SY-VQ100	Yamaichi: IC149-100-125-S5

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	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	IC149-144K11453-1S
	160	Yamaichi	IC149-160-123-S5
	208	Yamaichi	IC149-208-161-S5
	240	Yamaichi	IC149-240-167-S5
RQFP	208	Yamaichi	IC149-208-161-S5
	240	Yamaichi	IC149-240-167-S5
VQFP	80	Yamaichi	IC149-080-151-S5
	100	Yamaichi	IC149-100-125-S5
TQFP	64	Yamaichi	IC149-064-175-S5
	100	Yamaichi	IC149-100-125-S5
	144	Yamaichi	IC149-144-145-S5
	176	Yamaichi	IC149-176-166-S5
CS (0.8mm)	49 (7mm x 7mm)	E-Tec	BPW049-0830-07BB01
	128 (11mm x 11mm)	E-Tec	BPW128-0830-12BB01
	180 (13mm x 13mm)	E-Tec	BPW180-0830-14BB01
FBGA (1.00mm)	144 (13mm x 13mm)	E-Tec	BPW144-1030-12AA01
	256 (17mm x 17mm)	E-Tec	BPW256-1030-16AB01
	484 (27mm x 27mm)	E-Tec	BPW484-1030-26AB01
BGA	272 (27mm x 27mm)	Wells-CTI	8627-272-0-00
		Mill-Max	S587-10-272-10-005437
		Mill-Max	S582-11-272-10-005414
	313 (35mm x 35mm)	E-Tec	BPW272-1270-20AC11
		Mill-Max	S587-11-329-12-005414
		CTI	8635-313-0-00
	329 (31mm x 31mm)	Mill-Max	S587-10-329-12-005437
		Mill-Max	S582-11-329-12-005414
		E-Tec	BPW329-1270-23AB11
	456 (35mm x 35mm)	Mill-Max	S587-11-329-12-005415
		E-Tec	BPW456-1270-26AB11
		Mill-Max	S582-11-456-13-005414

Through Hole Sockets

Package	Lead Count	Prototype/Production		Zero Insertion	
		Source	Part Number	Source	Part Number
PLCC	44			Yamaichi	IC51-044-400
	68			Yamaichi	IC51-0684-390-1
	84			Yamaichi	IC51-0844-401-1
PQFP	100			Yamaichi	IC51-1004-814-2
	144			Yamaichi	IC51-1444-1014-3
	160			Yamaichi	IC51-1604-845-2
	160			Yamaichi	IC51-1604-845-4
	208			Yamaichi	IC51-1052KS-12518
	240			Yamaichi	IC51-2404-1655-2
RQFP	208			Yamaichi	IC51-1052KS-12518
	240			Yamaichi	IC51-2404-1655-2
VQFP	80			Yamaichi	IC51-0804-7950
	100			Yamaichi	IC51-1004-809
TQFP	64			Yamaichi	IC51-0644-807
	100			Yamaichi	IC51-1004-809
	144			Yamaichi	IC51-1444-1354-7
	176			Yamaichi	IC51-1764-1505-5
CS	272	Loranger	LIC#070SQ 049U6618A		
	313	Loranger	LIC#110SQ 128U6617		
	320	Loranger	LIC#130SQ 180U6617		
FBGA	144	Loranger	LIC#130SQ 144B6618A		
	256	Loranger	LIC#170SQ 256B6618A		
	420	Loranger	LIC#230SQ 420B6617		
	484	Loranger	LIC#270SQ 484B6617		
BGA	272	Enplas Tesco	BGA-272(441)-1.27-68		
	313	Enplas Tesco	BGA-313(841)-1.27-02		
	329	Loranger	LIC#310SQ 329B6618A		
	456	Loranger	LIC#350SQ 456B6617		
CPGA	84			3M	2-0084-06512-190-019-005
	100			3M	2-100-06511-190-1905
	132			3M	2-132-06707-190-1905
	133			3M	2-0133-06686-190-019-002
	175			3M	2-0176-06764-190-019-002
	176			3M	2-0176-07664-190-019-002
	207			3M	2-0207-076620190-019-002
	257			3M	2-0257-08211-190-019-002

CQFP	84	Wells-CTI	619-1000811-001
	132	Yamaichi	IC51-1964-1952
	172	Yamaichi	IC51-1964-1952
	196	Yamaichi	IC51-1964-1952
	208	Enplas Tesco	FPQ-256(353)-0.5-01
	256	Enplas Tesco	FPQ-256(352)-0.5-01

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