



*Celebrating Ten Years
1988 - 1998*

ISSI[®]

Integrated Silicon Solution, Inc.

Corporate Facts

Corporate Overview

Corporate Capabilities

Asynchronous SRAM

Synchronous SRAM

Dynamic RAM

Static RAM Modules

Serial Flash

Serial EEPROM

EPROM

Flash Memory

Voice IC

Microcontroller

Embedded Products

Ordering Information

Packaging Information

Quality & Reliability

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CORPORATE FACTS

This is an introduction to *ISSI*.

CORPORATE OVERVIEW

This is an overall perspective of *ISSI* in the form of a slide presentation.

CORPORATE CAPABILITIES

This is a brochure describing *ISSI*'s capabilities.

**BACK TO
CONTENTS**

COMPANY INFORMATION

ISSI's BUSINESS STRATEGY

Integrated Silicon Solution, Inc. was founded in 1988 with a new approach to supplying high-speed integrated circuits. The founders' global experience allowed them to recognize the multitude of advantages offered by the then new semiconductor foundries, and to apply this technology to very high-performance CMOS devices. The first products, fast static memories for microcomputer cache application, have since been supplemented with fast EPROMs and FLASH, EEPROM, Serial Flash and DRAM.

Being among the first to use "pure" foundries, those that do not also sell ICs, allowed *ISSI* to co-develop processes for SRAM production. This partnering approach uses *ISSI* process engineering expertise to integrate process modules developed by our partners into advanced manufacturing capability. Because of the high-production volumes and exacting technical requirements of SRAMs, they make

ideal process drivers for the foundries, and this leads to processes that then can be used to manufacture many other device types. These other uses, of course, add to the volumes produced, and helps guarantee efficient, economical wafer fabrication. Using this unique partnership manufacturing, *ISSI* and our partners have developed several generations of processes, including current generations with less than one-third the feature sizes of the original. We now work with several partners for specific processes, and included in addition to SRAM are EPROM, FLASH, Serial Flash, EEPROM, and DRAM. This assures an economical wafer manufacturing capability, constantly tested by the requirements of the foundry marketplace, while the process development partnerships themselves assure not only a most advanced process, but continued wafer availability and cooperation.

MORE

Combining this now well tested manufacturing approach with advanced circuit design techniques has enabled *ISSI* to become a leader in supplying high-speed CMOS memory devices. As microelectronics system sophistication continues to advance, and system clock rates escalate at a dramatic rate, only the most advanced support devices can keep up. Our vision at *ISSI* is to continue to supply support ICs which not only match these system improvements, but surpass them. Our advanced design and process capability now produce standard devices operating in excess of 100 MHz, and 3.3V products which exceed 125 MHz operation.

As advanced as these products are, their performance is only a part of *ISSI*'s total offering. A wholly owned subsidiary in Taiwan is dedicated to performing 100% electrical test on each device produced. While the economies of using external wafer fabrication facilities and product assembly facilities are of importance to our customers, so is assurance that each device shipped meets all specifications. We believe that the only way to truly

accomplish this is to perform all electrical tests in-house. Wafer sort, pre- and post-burn-in, and final test are performed in *ISSI*'s facility in Taiwan. We believe that this assures our customers of the best of all worlds: economies tested and proven by the open market system of wafer foundries, combined with the proven quality provided through in-house testing.

Our Quality organization, managed from our California headquarters complex, is directly responsible for the quality of all product shipped, either from the California facility or from Taiwan. An integrated quality program monitors all facets of operation from incoming material inspection, through final outgoing quality levels, and includes failure analysis by the dedicated QA Analysis Lab, evaluation of customer requirements prior to order acceptance, and complete qualification of all our suppliers. The *ISSI* headquarters in California and the subsidiary in Taiwan were recently granted registration as certified ISO 9001

MORE

facilities. Of course this simply guarantees that the controls are in place to assure that announced quality levels are met, but the effort, time and understanding put in by almost all of our employees to achieve this registration are the real accomplishments.

The products now being produced by *ISSI* are most often purchased by major manufacturers, who typically are truly multinational corporations. In order to effectively serve this global market, *ISSI* has an international marketing and sales organization in place. With headquarters in both Taiwan and California, *ISSI* sales and marketing personnel are available world-wide to meet customer needs. Supported by area sales offices, and a network of manufacturer's reps and distributors, the customer who has design in one

location, pre-production in another, production in a third, and purchasing centralized in a fourth location, can be completely served by *ISSI*.

In addition, marketing and application organizations provide inputs for new products which reflect requirements from all parts of the globe. By analyzing and acting on this data, we fully expect to constantly have available products which truly reflect global needs.

As we continue to develop new customers, and expand our product design and manufacturing base, our vision of becoming "a global supplier of high-performance memory based solutions that satisfy our customer's needs" becomes more and more a reality.



ASYNCHRONOUS STATIC RAM

Org.	Part No.	Speeds (ns)	Pins	Pkgs. Available
8K x 8	IS61C64AH	12, 15, 20 25	28	J, N, U
	IS61C64B	10, 12, 15	28	J, N, T (Type I)
	IS62C64	45, 70, 100	28	U, W
32K x 8	IS61C256AH	10, 12, 15, 20, 25	28	J, N, T (Type I)
	IS61LV256 ⁽¹⁾	12, 15, 20, 25	28	J, N, T (Type I)
	IS62C256	45, 70, 100	28	T (Type I), U, W
	IS62LV256 ⁽¹⁾	45, 70, 100	28	J, N, T (Type I), U
	IS62LV256L ⁽¹⁾	15, 20, 25	28	J, N, T (Type I)
32K x 16	IS61C3216	10, 12, 15, 20	44	K, T (Type II)
	IS61LV3216 ⁽¹⁾	10, 12, 15, 20	44	K, T (Type II)
	IS61LV3216L ⁽¹⁾	12, 15, 17	44	K, T (Type II)
64K x 8	IS61C512	15, 20	32	J, N, T (Type I)
64K x 16	IS61C6416	10, 12, 15, 20	44	K, T (Type II)
	IS61LV6416 ⁽¹⁾	10, 12, 15, 20	44	B, K, T (Type II)
	IS62LV6416LL ⁽¹⁾	15, 20, 35, 45	44	K, T (Type II)
128K x 8	IS61C1024	12, 15, 20, 25	32	J, K, M, N, T (Type I)
	IS61C1024L	12, 15, 20, 25	32	J, K, M, N, T (Type I)
	IS62C1024	35, 45, 55, 70	32	Q, T (Type I), W
	IS62C1024L	35, 45, 55, 70	32	Q, T (Type I), W
	IS62LV1024L ⁽¹⁾	35, 45, 55, 70	32	H, Q, T (Type I), Z (Type II)
	IS62LV1024LL ⁽¹⁾	45, 55, 70, 100	32	H, Q, T (Type I), Z (Type II)
	IS63LV1024 ⁽¹⁾	10, 12, 15	32	J, K, T (Type II)

MORE

ASYNCHRONOUS STATIC RAM

New and Upcoming Asynchronous Static RAMs

Org.	Part Number	Fastest Speed	Pins	Pkgs. Available	Comments
64K x 16	IS62U6416LL	200 ns	44	SOJ, TSOP (II)	1.8V Operation, 25 mA I _{cc} , 5 mA I _{SB2}
64K x 24	IS61LV6424	10 ns	100	PQFP, TQFP	Designed for Motorola x24 DSP, 3.3V Operation
128K x 16	IS62LV12816L	70 ns	44	TSOP(I)	0.25μ Design for Telecom, Networking, 2.5V-3.2V
128K x 24	IS61LV12824	10 ns	119/100	PBGA, TQFP	119-pin Plastic Ball Grid Array
256K x 16	IS61LV25616	12 ns	44	SOJ, TSOP(II)	For Networking, Telecom



SYNCHRONOUS STATIC RAM

Org.	Part No.	Speeds (ns)	Pins	Pkgs. Available	Comments
32K x 32	IS61C632A⁽¹⁾	4, 5, 6, 7, 8	100	PQ, TQ	Pipeline Mode
	IS61LV632A	5, 6, 7	100	PQ, TQ	Pipeline Mode, 2.5V I/O
64K x 32	IS61S6432⁽¹⁾	4.5, 4.8, 5, 6, 7, 8	100	PQ, TQ	Pipeline Mode
	IS61SF6432⁽¹⁾	9, 10	100	PQ, TQ	Flow-through Mode
	IS61LV6432	5, 6, 7, 8	100	PQ, TQ	Pipeline Mode, 2.5V I/O
64K x 36	IS61SP6436⁽¹⁾	4.5, 4.8, 5, 6, 7, 8	100	PQ, TQ	Pipeline Mode
	IS61SF6436⁽¹⁾	8.5, 9, 10	100	PQ, TQ	Flow-through Mode
64K x 64	IS61SP6464⁽¹⁾	5, 6, 7, 8	128	PQ, TQ	Pipeline Mode

New and Upcoming Synchronous Static RAMs

Org.	Part Number	Fastest Speed	Pins	Pkgs. Available	Comments
64K x 32	IS61ZB6432	5 ns	100	TQFP, PQFP	'Zero Bus Turnaround™' for Networking
64K x 64	IS61LV6464	5 ns	100	TQFP, PQFP	PC Cache in Laptops and Desktops
128K x 32	IS61SP12832	166 MHz	100/119	TQFP, PBGA	Pipeline Mode
128K x 36	IS61SP12836	166 MHz	100/119	TQFP, PBGA	Pipeline Mode
128K x 36	IS61ZB12836	133 MHz	100/119	TQFP, PBGA	For Networking
256K x 18	IS61SP25618	166 MHz	100/119	TQFP, PBGA	Pipeline Mode

BACK TO
CONTENTS

DYNAMIC RAM

Org.	Part No.	Speeds (ns)	Pins	Pkgs. Available	Comments
128K x 16	IS41C16128	35, 40, 45, 50, 60	40	K, T (Type II)	2-MBit with EDO Page Mode
256K x 16	IS41C16256	35, 40, 45, 50, 60	40	K, T (Type II)	4-MBit with EDO Page Mode
	IS41C16257	35, 40, 45, 50, 60	40	K, T (Type II)	4-MBit with Fast Page Mode

New and Upcoming Dynamic RAMs

Org.	Part Number	Fastest Speed	Pins	Pkgs. Available	Comments
256K x 32	IS41LV32256	30 ns	100	PQFP	8Mb EDO DRAM, replaces 8Mb SGRAM sockets
128K x 16 x 2	IS42S16128	10 ns	50	TSOP (II)	ISSI's first 4Mb Synch. DRAM with speed of 10 ns at 3.3V operation.
256K x 32 x 2	IS42G32256	10 ns	100	TQFP	ISSI's first 16 Mb Synch. Graphics RAM with 100 MHz operating frequency at 3.3V Vcc.

STATIC RAM COAST CACHE MODULES

Org.	Part No.	Speed	Pins	Pkgs. Available	Comments
256KB	IS6MC256K	66 MHz	160	Burndy CELP 2X80SC	Pipelined, 32K x 32 Synch. SRAM
512KB	IS6MC512L	66 MHz	160	Burndy CELP 2X80SC	Pipelined, 64K x 32 Synch. SRAM



SERIAL FLASH MEMORY

Serial Flash Product Overview (in .pdf format)

ISSI's Serial Flash products provide "media-storage" (data, voice, image) solutions for resource-limited systems. They are ideal for systems that are constrained by power, available pins, space, performance, or hardware and firmware resources. ISSI's Serial Flash products are suitable for a variety of applications including portable/mobile products and microcontroller-based systems. ISSI's Serial Flash storage products include:

- Serial Flash Memories
- Serial Flash Modules
- Serial Flash Development Tools

Org.	Part No.	Speed	Pins	Pkgs.	Voltage	Icc/Stby.	Comments
8MB	IS25F080A-3T-R	8 MHz	8 of 28	T (Type II)	2.7-3.3V	5 mA/1 µA	Serial interface Flash 536B sectors, fast erase/write on-chip SRAM, write product elec. ID, 10/100K cycles, SFK Development Kit
4-pin SPI	IS25F080A-5T-R	16 MHz	8 of 28	T (Type II)	5V	10 mA/1 µA	
8MB	IS26F080A-3T-R	8 MHz	8 of 28	T (Type II)	2.7-3.3V	5 mA/1 µA	write product elec. ID, 10/100K cycles, SFK Development Kit
2-pin NXS	IS26F080A-5T-R	16 MHz	8 of 28	T (Type II)	5V	10 mA/1 µA	

New and Upcoming Serial Flash Memory

Org.	Part No.	Speed	Pins	Pkgs.	Voltage	Icc/Stby.	
1-Mbit	IS25F011A-3V-R	8 MHz	8 of 28	TSOP(I)	2.7-3V	5 mA	1µA
4-pin SPI	IS25F011A-5V-R	16 MHz	8 of 28	TSOP(I)	5V	10 mA	1µA
2-Mbit	IS25F021A-3V-R	8 MHz	8 of 28	TSOP(I)	2.7-3V	5 mA	1µA
4-pin SPI	IS25F021A-5V-R	16 MHz	8 of 28	TSOP(I)	5V	10 mA	1µA
4-Mbit	IS25F041A-3V-R	8 MHz	8 of 28	TSOP(I)	2.7-3V	5 mA	1µA
4-pin SPI	IS25F041A-5V-R	16 MHz	8 of 28	TSOP(I)	5V	10 mA	1µA
16-Mbit	IS26F160-3T-R	8 MHz	8 of 28	TSOP(II)	2.7-3V	15 mA	1µA
2-pin NXS	IS26F160-5T-R	16 MHz	8 of 28	TSOP(II)	5V	20 mA	1µA

MORE

SERIAL FLASH MODULES

Org.	Part No.	Speed	Contacts	Pkgs.	Voltage	Icc/Standby	Comments
1MB	IS25M080A-3T-R	8 MHz	8	T (Type II)	2.7-3.3V	5 mA/1 μ A	Removable Flash storage for data, voice and images.
4-pin SPI	IS25M080A-5T-R	16 MHz	8	T (Type II)	5V	10 mA /1 μ A	
1MB	IS26M080A-3T-R	8 MHz	8	T (Type II)	2.7-3.3V	5 mA/1 μ A	15 x 45mm (0.56" x 1.8") Flat smart card-like contacts
2-pin NXS	IS26M080A-5T-R	16 MHz	8	T (Type II)	5V	10 mA/1 μ A	
2MB	IS25M080A-3T2-R	8 MHz	8	T (Type II)	2.7-3.3V	5 mA/1 μ A	low-cost connector, SFK Development Kit.
4-pin SPI	IS25M080A-5T2-R	16 MHz	8	T (Type II)	5V	10 mA/1 μ A	
2MB	IS26M080A-3T2-R	8 MHz	8	T (Type II)	2.7-3.3V	5 mA/1 μ A	
2-pin NXS	IS26M080A-5T2-R	16 MHz	8	T (Type II)	5V	10 mA/1 μ A	

New and Upcoming Serial Flash Modules

Org.	Part No.	Speed	Contacts	Pkgs.	Voltage	Icc	Stby.
128KB	IS25M011A-3V-R	8 MHz	8	TSOP(I)	2.7-3V	5 mA	1 μ A
4-pin SPI	IS25M011A-5V-R	16 MHz	8	TSOP(I)	5V	10 mA	1 μ A
256KB	IS25M021A-3V-R	8 MHz	8	TSOP(I)	2.7-3V	5 mA	1 μ A
4-pin SPI	IS25M021A-5V-R	16 MHz	8	TSOP(I)	5V	10 mA	1 μ A
512KB	IS25M041A-3V-R	8 MHz	8	TSOP(I)	2.7-3V	5 mA	1 μ A
4-pin SPI	IS25M041A-5V-R	16 MHz	8	TSOP(I)	5V	10 mA	1 μ A
2MB	IS25M160-3T-R	8 MHz	8	TSOP(II)	2.7-3V	15 mA	1 μ A
2-pin NXS	IS25M160-5T-R	16 MHz	8	TSOP(II)	5V	20 mA	1 μ A
4MB	IS26M160-3T2-R	8 MHz	8	2x TSOP(II)	2.7-3V	15 mA	1 μ A
2-pin NXS	IS25M160-5T2-R	16 MHz	8	2x TSOP(II)	5V	20 mA	1 μ A

MORE

SERIAL FLASH DEVELOPMENT KITS

Kit Type	Part No.	Comments
4-pin SPI	IS-SFK-SPI	Serial Flash Development Kit for SPI IS25xxx series devices
2-pin NXS	IS-SFK-NXS	Serial Flash Development Kit for NXS IS26xxx series devices



FLASH MEMORY

Org.	Part No.	Speed (ns)	Pins	Pkgs. Available	Comments
128K x 8	IS28F010	45, 70, 90, 120	32	PL, T (Type I), W	
256K x 8	IS28F020	50, 55, 70, 90, 120	32	PL, T (Type I), W	

New and Upcoming Flash Memories

Org.	Part Number	Description	Fastest Speed	Pins	Pkgs. Available	Comments
256K x 8	IS28F002	2Mb Boot Block	60 ns	40	TSOP	2.7V/3V/5V Read, 5V/12V Program
128K x 16 / 256K x 8	IS28F200	2Mb Boot Block	60 ns	40	TSOP	2.7V/3V/5V Read, 5V/12V Program
512K x 8	IS28F004	4Mb Boot Block	60 ns	40	TSOP	2.7V/3V/5V Read, 5V/12V Program
256K x 16 / 512K x 8	IS28F400	4Mb Boot Block	60 ns	40	TSOP	2.7V/3V/5V Read, 5V/12V Program



OTP EPROM

Org.	Part No.	Speeds (ns)	Pins	Pkgs. Available	Comments
32K x 8	IS27HC256	45, 55, 70	28/32	PL, W, T (Type I)	High Speed
	IS27C256	90, 120	28/32	PL, W, T (Type I)	
64K x 8	IS27HC512	45, 55, 70	28/32	PL, W, T (Type I)	High Speed
	IS27C512	90, 120	28/32	PL, W, T (Type I)	
	IS27LV512	90, 120	28/32	PL, W, T (Type I)	Low Voltage
128K x 8	IS27HC010	25, 30, 45, 70	32	PL, W, T (Type I)	High Speed
	IS27C010	90, 120	32	PL, W, T (Type I)	
	IS27LV010	90, 120	32	PL, W, T (Type I)	Low Voltage
256K x 8	IS27HC020	45, 55, 70	32	PL, W, T (Type I)	High Speed
	IS27C020	90, 120	32	PL, W, T (Type I)	
	IS27LV020	90, 120	32	PL, W, T (Type I)	Low Voltage

New and Upcoming EPROMs

Org.	Part Number	Description	Fastest Speed	Pins	Package	Comments
32K x 8	IS27LV256	256K EPROM	90 ns/120 ns	32/28	PL, W, T (Type I)	Low Voltage
32K x 8	IS27DV256	256K EPROM	90 ns/120 ns	32/38	PL, W, T (Type I)	Dual Voltage
128K x 16	IS27HC2048	2 Mb EPROM	45 ns/70 ns	40/44	PL, W, T (Type I)	High Speed
128K x 16	IS27C2048	2 Mb EPROM	90 ns/120 ns	40/44	PL, W, T (Type I)	
128K x 16	IS27LV2048	2 Mb EPROM	90 ns/120 ns	40/44	PL, W, T (Type I)	Low Voltage



SERIAL EEPROM

Org.	Part No.	Speed	Pins	Pkgs. Available	Comments
1K Microwire	IS93C46-3	1 MHz	8	G, GR, P	Low Voltage: 2.7V to 6V
2K Microwire	IS93C56-3	1 MHz	8	G, GR, P	Low Voltage: 2.7V to 6V
4K Microwire	IS93C66-3	1 MHz	8	G, GR, P	Low Voltage: 2.7V to 6V
2K 2-Wire	IS24C02	400 KHz	8	G, P	
	IS24C02-3	100 KHz	8	G, P	Low Voltage: 2.7V to 5.5V
4K 2-Wire	IS24C04	400 KHz	8	G, P	
	IS24C04-3	100 KHz	8	G, P	Low Voltage: 2.7V to 5.5V
16K (2K x 8) 2-Wire	IS24C16	400 KHz	8	G, P	5.5V, Atmel compatible
	IS24C16-3	100KHz	8	G, P	2.7V-5.5V, Atmel compatible
64K (8K x 8) 2-Wire	IS24C64	400 KHz	8	G, P	5.5V, Atmel compatible

New and Upcoming Serial EEPROMs

Org.	Part No.	Speed	Pins	Pkgs. Available	Comments
64K (8K x 8) 2-Wire	IS24C64-3	100 KHz	8	PDIP, SOIC	Low Voltage: 2.7V-5.5V



8-BIT MICROCONTROLLER

Org.	Part No.	Speed	Pins	Pkgs. Available	Comments
4K ROM	IS80C51	40 MHz	40/44	PL, PQ, W	128 Bytes RAM, (2)16-bit Counters
External ROM	IS80C31	40 MHz	40/44	PL, PQ, W	128 Bytes RAM, (2)16-bit Counters
8K ROM	IS80C52	40 MHz	40/44	PL, PQ, W	256 Bytes RAM, (2)16-bit Counters
External ROM	IS80C32	40 MHz	40/44	PL, PQ, W	256 Bytes RAM, (2)16-bit Counters

New and Upcoming 8-Bit Microcontrollers

Org.	Part No.	Speed	Pins	Pkgs. Available	Comments
8K Flash	IS89C52	40 MHz	40/44	PDIP, PLCC, PQFP	256 Bytes RAM, (3)16-bit timer/counters, with 8K Flash



VOICE IC

Org.	Part No.	Capacity	Pins	Pkgs. Available	Comments
OTP	IS22C011	10 sec	16	N, S, X	Sound Synthesis
OTP	IS22C020	20 sec	16	N, S, X	Sound Synthesis
Mask ROM	IS22C111	10 sec	16	N, S, X	Fully Compatible with IS22C011

Application Note: An Introduction to ISSIs's Voice Products

New and Upcoming Voice Products

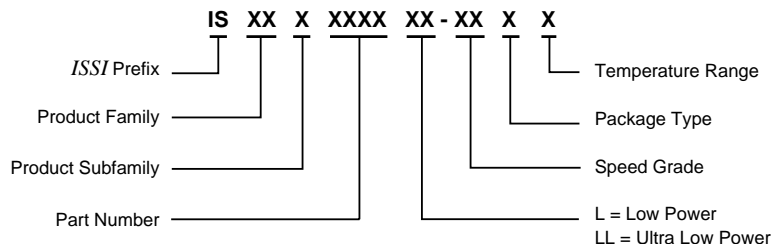
Org.	Part No.	Capacity	Pins	Pkgs. Available	Comments
Voice ROM	IS22C120	20 sec		DIE, PDIP, SOP	Low Cost Mask Programmable ROM Fully Compatible with IS22C020
OTP	IS22C040	40 sec		DIE	Sound Synthesis
OTP	IS22C041	40 sec		PDIP	Sound Synthesis, 16-pin, 8 sections
OTP	IS22C042	40 sec		PDIP	Sound Synthesis, 20-pin, 32 sections

EMBEDDED MEMORY PRODUCTS

Org.	Part No.	Fastest Speed	Pins	Package	Comments
64K x 16	IS82C600	100 MHz/133 MHz (7 ns)	119	PBGA	For DSP and Embedded Microprocessors



ORDERING INFORMATION



Product Family

- 22 = Voice ROM
- 24 = Serial EEPROM
- 25 = Serial Flash
- 26 = Serial Flash
- 27 = EPROM
- 28 = Flash
- 4X = DRAM
- 6X = SRAM
- 80,81 = Microcontroller
- 82 = Embedded Memory
- 93 = Serial EEPROM

Temperature Range

- Blank = Commercial (0°C to +70°C)
- I = Industrial (-40°C to +85°C)

Package Type

- B = PBGA
- G = JEDEC SOIC (EE)
- GR = JEDEC SOIC (Rotated)
- H = STSOP
- J = 300-mil Plastic SOJ
- K = 400-mil Plastic SOJ
- LQ = LQFP
- M = 400-mil Plastic DIP
- N = 300-mil Plastic DIP
- P = 300-mil Plastic DIP (8-pin)

- PL = PLCC
- PQ = PQFP
- Q = 450-mil SOP
- S = 300-mil SOP
- T = TSOP
- TQ = TQFP
- U = 330-mil Plastic SOP
- W = 600-mil Plastic DIP
- X = Unpackaged Dice
- Z = TSSOP Type II



PACKAGING INFORMATION

Pkg. Code	Pins	Description	Pkg. Code	Pins	Description
B	119	Plastic Ball Grid Array	Q	32	450-mil Plastic SOP
G	8	150-mil Plastic SOP	S	16	300-mil Plastic SOP
GR	8	150-mil Plastic SOP	T	28	Plastic TSOP (Type I)
H	32	STSOP	T	32	Plastic TSOP (Type I)
J	28	300-mil Plastic SOJ	T	32	Plastic TSOP (Type II)
J	32	300-mil Plastic SOJ	T	40	Plastic TSOP (Type I)
K	32	400-mil Plastic SOJ	T	40	Plastic TSOP (Type II)
K	40	400-mil Plastic SOJ	T	44	Plastic TSOP (Type II)
K	44	400-mil Plastic SOJ	T	44	Plastic TSOP (Type II)
LQ	100	LQFP	T	48	Plastic TSOP (Type I)
LQ	128	LQFP	T	50	Plastic TSOP (Type II)
M	32	400-mil Plastic DIP	TQ	100	Thin Quad Flat Pack (TQFP)
N	16	300-mil Plastic DIP	TQ	100/128	Thin Quad Flat Pack (1.4mm)
N	28	300-mil Plastic DIP	U	28	330-mil Plastic SOP
N	32	300-mil Plastic DIP	W	28	600-mil Plastic DIP
P	8	300-mil Plastic DIP	W	32	600-mil Plastic DIP
PL	32	Plastic Leaded Chip Carrier (PLCC)	W	40	600-mil Plastic DIP
PQ	100	Plastic Quad Flat Pack (PQFP)	X		Unpackaged Dice
PQ	128	Plastic Quad Flat Pack (PQFP)	Z	32	TSSOP Type II