Texas Instruments

RELIABLE. LOGIC. INNOVATION.™

LOGIC REFERENCE GUIDE

Bipolar, BiCMOS, and CMOS Logic Technology

Commitment,

Reliable Global Supply

Innovation,

Low-Voltage Logic Portfolio

Comprehensive,

Mature Logic Solutions

logic.ti.com

Functions Portfolio Inside:

- *1.8-V Logic*
- *2.5-V Logic*
- *3.3-V Logic*
- *5-V Logic*

LOGIC OVERVIEW

Welcome to the world of TI Logic! Texas Instruments (TI) offers a full spectrum of logic functions and technologies from mature Bipolar and BiCMOS families to the latest advanced CMOS families. TI's process technologies offer the logic performance and features required for logic designs, while maintaining support for the traditional logic products.

TI also offers specialized, advanced logic products that improve overall system performance and address design issues, including testability, low skew requirements, bus termination, memory drivers and low impedance drivers.

A wide variety of packaging options are a bonus for those looking to design with TI Logic. TI has made advancements in the logic industry by introducing logic in the latest packaging innovations, including the world's smallest logic package, NanoStar™, and the latest in ball grid array packaging (BGA), MicroStar Jr.™ and MicroStar BGA™.

As the world leader in logic, TI offers logic families at every price/performance node, benchmark delivery reliability, and leading service and support. Start here to find the right TI Logic for your needs.

For additional logic information including application reports, samples and datasheets, visit:

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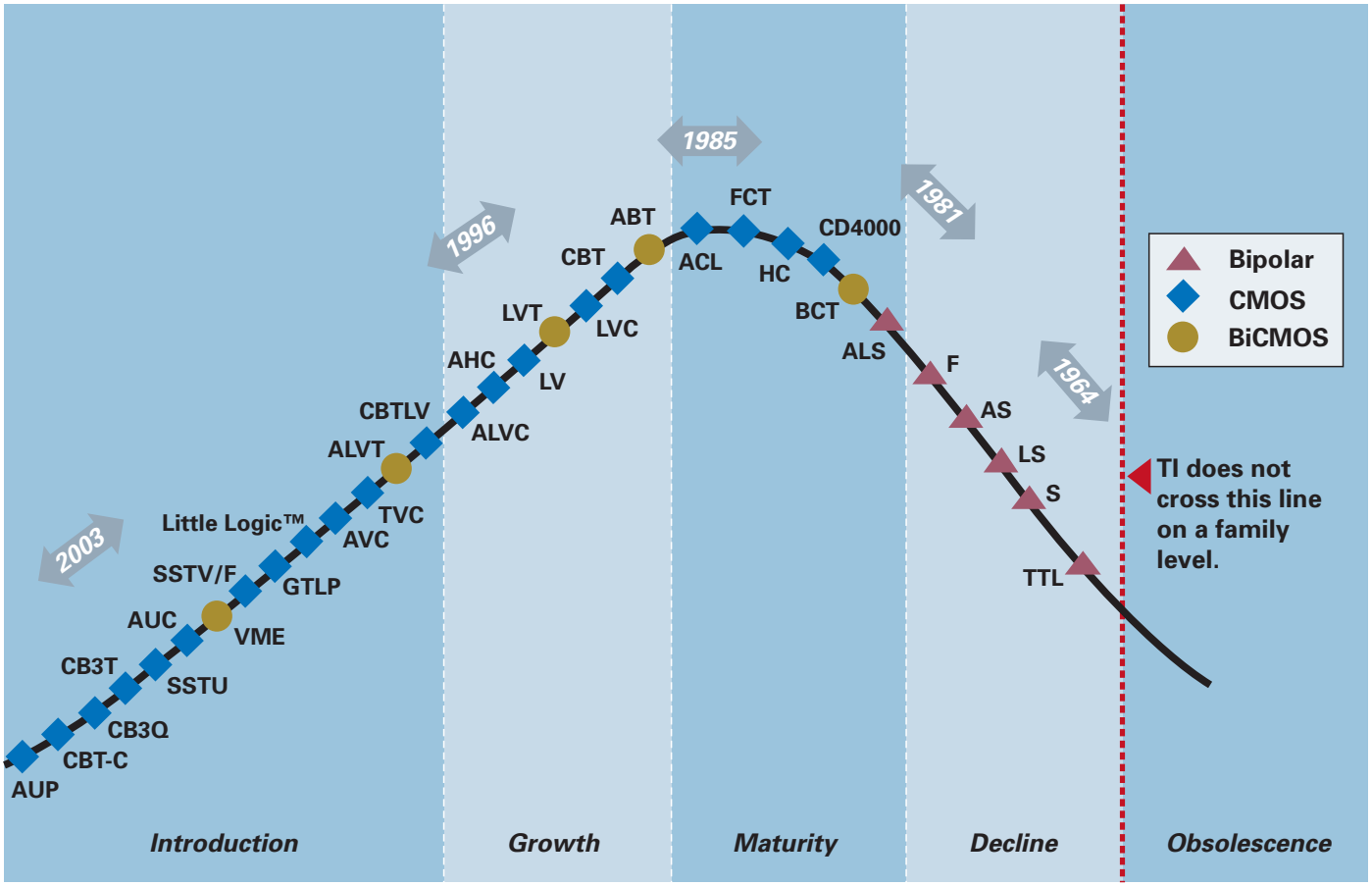
PRODUCT LIFE CYCLE



FAMILY SPECIFICATION COMPARISON

	Technology	V_{CC} (V)	V_{CC} Range	t_{pd} max (ns)	I/O Tolerance (V)	Input Compatibility	Output Compatibility	Port	I_{OH} (max) (mA)	I_{OL} (max) (mA)	Static Current I_{CC} (µA)	Isolation Level*
5-V Logic	**Bipolar**											
	ALS	5	4.5 to 5.5	10.0	5	TTL	TTL	Both	–15	24	58 mA	0
	AS	5	4.5 to 5.5	7.5	5	TTL	TTL	Both	–15	64	143 mA	0
	74F	5	4.5 to 5.5	6.0	5	TTL	TTL	A	–3	24	120 mA	0
								B	–15	64		
	LS	5	4.75 to 5.25	12.0	5	TTL	TTL	Both	–15	24	95 mA	0
	S	5	4.75 to 5.25	9.0	5	TTL	TTL	Both	–15	64	180 mA	0
	TTL	5	4.75 to 5.25	22.0	5	TTL	TTL	Both	–0.4	16	22 mA	0
	BiCMOS											
	ABT	5	4.5 to 5	3.5	5	LVTTL/TTL	TTL	Both	–32	64	250	1
	ABTE	5	4.5 to 5.5	5.2	5	ETL	TTL	A	–60	90	48	1
								B	–12	12		
	BCT	5	4.5 to 5.5	6.6	5	LVTTL/TTL	TTL	A	–3	24	90 mA	2
								B	–15	64		
	CMOS											
	AC	5	3.0 to 5.5	6.5	V_{CC} + 0.5	CMOS	CMOS	Both	–24	24	40	0
	ACT	5	4.5 to 5.5	8.0	V_{CC}	TTL	CMOS	Both	–24	24	40	0
	AHC	5	2.0 to 5.5	7.5	5.5**	CMOS	CMOS	Both	–8	8	40	0
	AHC1G	5	2.0 to 5.5	5.0	5.5**	CMOS	CMOS	Both	–8	8	10	0
	AHCT	5	4.5 to 5.5	7.7	5.5**	TTL	CMOS	Both	–8	8	40	0
	AHCT1G	5	4.5 to 5.5	5.0	5.5**	TTL	CMOS	Both	–8	8	40	0
	CBT	5	4.0 to 5.5	0.25	5.5	TTL	TTL	Both	N/A	N/A	3	0
	CBT-C	5	4.0 to 5.5	0.25	5.5	TTL	TTL	Both	N/A	N/A	3	1
	CBT1G	5	4.0 to 5.5	0.25	5.5	TTL	TTL	Both	N/A	N/A	1	0
	CD4K	5,10,15	3.0 to 18.0	–	V_{CC}	CMOS	CMOS	Both	–0.2, –0.5, –1.4	0.52, 1.3, 3.6	5, 10, 20	0
	FB ('2040)	5	–	8.2	5	LVTTL/TTL	BTL	A	–3	24	70 mA	3
			–			BTL	LVTTL/TTL	B	N/A	100		
	FCT	5	4.75 to 5.25	5.3	5	TTL	TTL	Both	–15	64	80	0
	HC	5	2.0 to 6.0	21.0	V_{CC}	CMOS	CMOS	Both	–7.8	7.8	80	0
	HCT	5	4.5 to 5.5	30.0	V_{CC}	TTL	CMOS	Both	–6	6	80	0
	Bipolar											
	ALB	3.3	3.0 to 3.6	2.0	V_{CC} + 0.5	Custom	Custom	Both	–25	25	800	0
3.3-V Logic	**BiCMOS**											
	ALVT	3.3	2.3 to 3.6	3.5	5	LVTTL/TTL	LVTTL	Both	–8	24	4.5 mA	2
	LVT	3.3	2.7 to 3.6	3.5	5	LVTTL/TTL	LVTTL	Both	–32	64	190	2
	VME	3.3	3.15 to 3.45	14.5	5	LVTTL/TTL	LVTTL/TTL	A	–24	24	30 mA	3
								B	–48	64		
	CMOS											
	ALVC	3.3	1.65 to 3.6	3.0	V_{CC}	LVTTL/TTL	LVCMOS	Both	–24	24	20	0
	ALVCF	3.3	2.3 to 3.6	3.5	V_{CC}	LVTTL/TTL	LVCMOS	Both	–12	12	40	0
	AUP1G/2G/3G	3.3	0.8 to 3.6	4.0	3.6	LVCMOS	LVCMOS	Both	–4	4	0.9	1
	CBTLV	3.3	2.3 to 3.6	0.25	3.6	LVCMOS	LVCMOS	Both	N/A	N/A	10	1
	CBTLV1G	3.3	2.3 to 3.6	0.25	3.6	LVCMOS	LVCMOS	Both	N/A	N/A	10	1
	CB3Q	3.3	2.3 to 3.6	0.2	5	LVTTL/TTL	LVTTL/TTL	Both	N/A	N/A	0.7 mA	1
	CB3T	3.3	2.3 to 3.6	0.2	5	TTL	TTL	Both	N/A	N/A	40	1
	GTL	3.3	3.15 to 3.45	6.5	5	LVTTL/TTL	GTL	A	–24	24	80 mA	1
						GTL	LVTTL/TTL	B	N/A	50		
	GTLP	3.3	3.15 to 3.45	7.7	5	LVTTL/TTL	GTLP	A	–24	24	40 mA	3
					4.6	GTLP	LVTTL/TTL	B	N/A	100		
	HSTL	3.3	3.15 to 3.45	5.0	3.3	HSTL	LVTTL	D	N/A	N/A	50 mA	0
					N/A	N/A		Q	–24	24		
	LV-A	3.3	2.0 to 5.5	14.0	5	LVCMOS	LVTTL	Both	–8	8	20	1
	LVC	3.3	1.65 to 3.6	4.0	5.5	LVTTL/TTL	LVCMOS	Both	–24	24	10	1
	LVC1G/2G/3G	3.3	1.65 to 5.5	3.5	5.5	LVTTL	LVTTL	Both	–24	24	10	1
	LVCZ	3.3	2.7 to 3.6	4.0	5.5	LVTTL/TTL	LVCMOS	Both	–24	24	60	2
	SSTL	3.3	2.3 to 3.6	3.7	3.3	SSTL_3	SSTL_3	D/A	N/A	N/A	90 mA	0
					N/A	N/A		Q/Y	–20	20		
2.5-V Logic	**CMOS**											
	AVC	2.5	1.4 to 3.6	2.0	3.6	LVCMOS	LVCMOS	Both	–8	8	20	1
	SSTV	2.5	2.3 to 2.7	2.8	3.3	SSTL_2	SSTL_2	D	N/A	N/A	56 mA	0
					N/A	N/A	Class 2	Q	–16	16		
	SSTVF	2.5	2.3 to 2.7	2.6	3.3	SSTL_2	SSTL_2	D	N/A	N/A	56 mA	0
					N/A	N/A	Class 1	Q	–16	16		
1.8-V Logic	**CMOS**											
	AUC	1.8	0.8 to 2.7	2.0	3.6	LVCMOS	LVCMOS	Both	–8	8	10	1
	AUC1G/2G/3G	1.8	0.8 to 2.7	2.0	3.6	LVCMOS	LVCMOS	Both	–8	8	10	1
	SSTU	1.8	1.7 to 1.9	2.5	2.3	SSTL_18	SSTL_18	D	N/A	N/A	50 mA	0
					N/A	N/A		Q	–8	8		

*V_{CC} listed is optimized node. For more specification information visit **logic.ti.com**
The information provided is general product specifications. For specific device information, please consult the respective data sheet.
Level 1 = Partial power-down Level 2 = Hot insertion Level 3 = Live insertion **5.5-V tolerance at input only

FAMILY PORTFOLIO

		Functions													
	Technology	Buffers/Drivers/ Bus Transceivers	Flip Flops/Latches	Bus Termination Arrays	Counters	Registers	Encoders/Data Selectors/ Multiplexers	Decoders/Demultiplexers	Comparators/Parity Generators and Checkers	Arithmetic Circuits	Gates	Universal Bus Drivers/ Transceivers	Switches	Little Logic™	Gates
5-V Logic	**Bipolar**														
	ALS	✔	✔	–	✔	✔	✔	✔	✔	–	✔	–	–	–	✔
	AS	✔	✔	–	✔	✔	✔	✔	✔	✔	✔	–	–	–	✔
	74F	✔	✔	✔	✔	✔	✔	✔	✔	–	✔	–	–	–	✔
	LS	✔	✔	–	✔	✔	✔	✔	✔	✔	✔	–	–	–	✔
	S	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	–	–	–	✔
	TTL	✔	✔	–	✔	–	✔	✔	–	–	✔	–	–	–	✔
	BiCMOS														
	ABT	✔	✔	–	–	–	✔	✔	–	–	–	✔	–	–	–
	ABTE	✔	–	–	–	–	–	–	–	–	–	–	–	–	–
	BCT	✔	✔	–	–	–	–	✔	–	–	–	✔	–	–	–
	CMOS														
	AC	✔	✔	–	✔	✔	✔	✔	–	–	✔	–	–	–	–
	ACT	✔	✔	✔	–	–	✔	✔	✔	–	✔	–	–	–	✔
	AHC	✔	✔	–	✔	✔	✔	✔	–	–	✔	–	–	–	✔
	AHC1G	✔	–	–	–	–	–	–	–	–	✔	–	–	✔	–
	AHCT	✔	✔	–	–	✔	✔	✔	–	–	✔	–	–	–	–
	AHCT1G	✔	–	–	–	–	–	–	–	–	✔	–	–	✔	–
	CBT	–	–	–	–	–	–	–	–	–	–	–	✔	–	–
	CBT-C	–	–	–	–	–	–	–	–	–	–	–	✔	–	–
	CBT1G	–	–	–	–	–	–	–	–	–	–	–	✔	✔	–
	CD4K	✔	✔	✔	✔	✔	✔	✔	✔	–	✔	–	✔	–	–
	FB	✔	–	–	–	–	–	–	–	–	–	–	–	–	–
	FCT	✔	✔	–	✔	✔	✔	✔	✔	–	–	✔	–	–	✔
	HC	✔	✔	–	✔	✔	✔	✔	✔	–	✔	–	–	–	✔
	HCT	✔	✔	–	✔	✔	✔	✔	✔	–	✔	–	–	–	✔
3.3-V Logic	**Bipolar**														
	ALB	✔	–	–	–	–	–	–	–	–	–	–	–	–	–
	BiCMOS														
	ALVT	✔	✔	–	–	–	–	–	–	–	–	✔	–	–	–
	LVT	✔	✔	–	–	–	–	–	–	–	–	✔	–	–	–
	VME	–	–	–	–	–	–	–	–	–	–	✔	–	–	–
	CMOS														
	ALVC	✔	✔	–	–	✔	–	–	–	–	✔	✔	–	–	✔
	ALVCF	✔	–	–	–	–	–	–	–	–	–	–	–	–	–
	AUP1G/2G/3G	–	–	–	–	–	–	–	–	–	–	–	–	✔	–
	CBTLV	–	–	–	–	–	–	–	–	–	–	–	✔	–	–
	CBTLV1G	–	–	–	–	–	–	–	–	–	–	–	✔	✔	–
	CB3Q	–	–	–	–	–	–	–	–	–	–	–	✔	–	–
	CB3T	–	–	–	–	–	–	–	–	–	–	–	✔	–	–
	GTL	✔	–	–	–	–	–	–	–	–	–	✔	–	–	–
	GTLP	✔	–	–	–	–	–	–	–	–	–	✔	–	–	–
	HSTL	–	✔	–	–	–	–	–	–	–	–	–	–	–	–
	LV-A	✔	✔	–	✔	✔	✔	✔	–	–	✔	–	✔	–	✔
	LVC	✔	✔	–	–	–	✔	✔	–	–	✔	✔	✔	–	✔
	LVC1G/2G/3G	✔	–	–	–	–	✔	✔	–	–	✔	–	✔	✔	–
	LVCZ	✔	–	–	–	–	–	–	–	–	–	–	–	–	–
	SSTL	✔	–	–	–	–	–	–	–	–	–	–	–	–	–
2.5-V Logic	**CMOS**														
	AVC	✔	✔	–	–	–	–	–	–	–	–	✔	–	–	–
	SSTV	✔	–	–	–	–	–	–	–	–	–	–	–	–	–
	SSTVF	✔	–	–	–	–	–	–	–	–	–	–	–	–	–
1.8-V Logic	**CMOS**														
	AUC	✔	–	–	–	–	–	–	–	–	–	✔	–	–	–
	AUC1G/2G/3G	✔	–	–	–	–	–	–	–	–	✔	–	–	✔	–
	SSTU	✔	–	–	–	–	–	–	–	–	–	–	–	–	–

Bit Width			
Octals	Widebus	Widebus+	Features
✔	–	–	140 bipolar logic functions.
✔	–	–	High-speed, high-drive TTL logic family.
✔	–	–	General-purpose family of high-speed advanced bipolar logic.
✔	–	–	Classic line of logic devices. TI stands to be the last major supplier.
✔	–	–	Continues to offer replacement alternatives for mature systems. TI stands to be the last major supplier.
✔	–	–	Well-known mature logic family. TI stands to be the last major supplier.
✔	✔	✔	High drive, low power consumption, and reduced transmission-line effects. Includes I_{OFF} and power-up 3-state.
–	✔	–	ABTE has wider noise margins and is backward compatible with existing TTL logic.
✔	–	–	TTL I/O with high speeds, 64-mA output drive, very low power in the disabled mode.
✔	–	–	AC types feature 1.5-V to 5.5-V operation and balanced noise immunity at 30% of the supply voltage.
✔	✔	–	Reliable, low-power logic family with 24-mA output current at 5-V V_{CC}.
✔	✔	–	AHC migration path for high-speed CMOS (HC) users by providing enhanced performance, low noise and broad product selection.
–	–	–	Single-gate version of AHC. Operating range of 2.0-V to 5.5-V V_{CC}; optimized at 5.0 V.
✔	✔	–	TTL compatible inputs simplify interfacing TTL outputs to high-speed CMOS outputs.
–	–	–	Single-gate version of AHCT. Operating range of 4.5-V to 5.5-V V_{CC}; optimized at 5.0 V.
✔	✔	–	TI's original bus switch family. Offers a broad line of 5-V bus switches in a variety of packages.
✔	✔	–	Improved version of CBT family including: –2-V undershoot protection, faster enable/disable times, I_{OFF} and improved ESD protection.
–	–	–	Single-gate version of TI's 5-V CBT bus switches.
–	–	–	Wide operating voltage range allows use of CD4K devices in varied applications. Maximum dc supply-voltage rating of 20 V.
–	–	–	Supports live insertion with I_{off}, power-up 3-state and bias V_{CC}.
✔	–	–	Designed for high-current-drive bus interface applications. Optimized at 5 V.
✔	–	–	Reliable family designed for low-power, medium- to low-speed applications. Over 250 functions.
✔	–	–	Reliable family designed for low-power, medium- to low-speed applications. Over 250 functions.
–	✔	–	3.3-V family with maximum propagation delays of 2.2 ns.
–	✔	–	3.3-V or 2.5-V operation with 5-V tolerant I/O capability for use in a mixed voltage environment.
✔	✔	✔	Delivers 3.5-ns propagation delays at 3.3 V and current drive of 64 mA. Ideal for workstation, networking, and telecom applications.
–	–	–	High-speed backplane operation is a direct result of the improved OEC™ circuitry and high drive that has been designed and tested into the VME64x backplane model.
✔	✔	–	High-performance 3.3-V family with typical propagation delays of less than 3 ns.
–	–	–	High-speed memory interface for PC133.
–	–	–	Lowest power logic solution on the market; 91% less static power consumption than industry standard 3.3-V technology.
✔	✔	–	3.3-V bus switch family to complement the CBT family.
–	–	–	Single-gate version of TI's 3.3-V CBTLV bus switches.
✔	✔	–	2.5-V/3.3-V low-voltage, high-bandwidth bus-switch family offers very low and flat on-state resistance.
✔	✔	–	2.5-V/3.3-V bidirectional voltage-translator bus switch family fully supports mixed-mode signal operation on all data ports.
–	–	–	High-speed point-to-point bus family.
–	–	–	High-performance multipoint backplane family.
–	–	–	HSTL-to-LVTTL memory address latches.
✔	–	–	Expanded voltage operation range while maintaining low power consumption (2-V to 5.5-V V_{CC}). Includes I_{OFF} for partial-power-down.
✔	✔	✔	Reliable, high-performance logic family optimized at 3.3 V. 5-V tolerance.
–	–	–	Wide operating voltage range of 1.65 to 5.5 V. Available in NanoStar™/NanoFree™ packages.
–	–	–	Supports hot insertion with the addition of power-up 3-state circuitry.
–	–	–	High-speed memory interface for PC133.
–	✔	–	Optimized at 2.5 V with propagation delays under 2 ns. Includes TI's DOC™ circuitry.
–	✔	–	High-speed memory interface for PC1600/2100 (DDR 200/266).
–	✔	–	High-speed memory interface for PC2700/3200 (DDR 333/400).
–	✔	✔	First logic family optimized at 1.8 V with operation to sub-1-V levels.
–	–	–	1.8-V high-speed, low-power family with maximum propagation delays of 2.0 ns. Available in NanoStar/NanoFree packages.
–	–	✔	High-speed memory interface for PC2-3200/4300 (DDR2 400/533).

LOGIC INDUSTRY CROSS-REFERENCE

	TI	Fairchild	Hitachi	IDT	ON	Pericom	Philips	Toshiba	ST
5-V Logic	**Bipolar**								
	ALS	ALS	–	–	–	–	ALS	–	–
	AS	AS	–	–	–	–	–	–	–
	74F	F	–	–	F	–	F	–	–
	LS	LS	–	–	LS	–	–	–	–
	S	S	–	–	–	–	–	–	–
	TTL	TTL	–	–	–	–	–	–	–
	BiCMOS								
	ABT	ABT	ABT	–	–	–	ABT	ABT	–
	ABTE	ETL	–	–	–	–	–	–	–
	BCT	BCT	–	–	BC	–	–	BC	–
	CMOS								
	AC	AC	AC	–	AC	–	–	AC	AC
	ACT	ACT	ACT	–	ACT	–	–	ACT	ACT
	AHC	VHC	–	–	VHC	–	AHC	VHC	VHC
	AHC1G	NC7S	–	–	MC74VHC	–	–	TC7S	74V1G
	AHCT	VHCT	–	–	–	–	AHCT	VHCT	VHCT
	AHCT1G	NC7ST	–	–	MC74VHC1GT	–	–	TC7SHET	74V1T
	CBT	FST	–	FST/QS	–	PI5C	–	–	–
	CBT-C	FSTU	–	–	–	PI5C-C	–	–	–
	CBT1G	NC7SB	–	–	–	–	–	TC7SB	–
	CD4K	CD4K	–	–	MC1400	–	–	TC4	HCF4
	FB	DS	–	–	–	–	FB	–	–
	FCT	–	–	FCT	–	FCT	–	–	–
	HC	HC	HC	–	HC	–	HC	HC	HC
	HCT	HCT	HCT	–	HCT	–	HCT	HCT	HCT
3.3-V Logic	**Bipolar**								
	ALB	–	–	–	–	–	–	–	–
	BiCMOS								
	ALVT	–	–	–	–	ALVT	ALVT	–	–
	LVT	LVT	LVT	–	–	–	LVT	–	–
	VME	–	–	–	–	–	–	–	–
	CMOS								
	ALVC	VCX	ALVC	ALVC	VCX	ALVC	ALVC	VCX	VCX
	ALVCF	–	–	–	–	–	–	–	–
	AUP1G/2G/3G	NC7SP	–	–	–	–	–	–	–
	CBTLV	–	–	CBTLV	–	PI3B	–	–	–
	CBTLV1G	–	–	–	–	–	–	TC7SBL	–
	CB3Q	–	–	IDTQS3VH	–	–	–	–	–
	CB3T	–	–	–	–	–	–	–	–
	GTL	–	–	–	–	–	GTL	–	GTL
	GTLP	GTLP	–	GTLP	–	–	GTLP	–	–
	HSTL	–	–	–	–	–	–	–	–
	LV-A	LVQ/LVX	LV	–	LVQ/LVX	–	LV	LVQ/LVX	–
	LVC	LCX	LVC	LVC/LCX	LCX	LCX/LPT	LVC	LCX	LCX
	LVC1G/2G/3G	NC7SZ	–	IDT74LVC1G	NL17SZ	PI74STX1G	74LVC1G	TC7SZ	74LX1G
	LVCZ	–	–	–	–	–	–	–	–
	SSTL	–	–	–	–	–	SSTL	–	–
2.5-V Logic	**CMOS**								
	AVC	–	–	–	–	AVC	AVC	–	–
	SSTV	SSTV	SSTV	SSTV	–	SSTV	SSTV	–	–
	SSTVF	–	–	SSTVF	–	SSTVF	–	–	–
1.8-V Logic	**CMOS**								
	AUC	ULP	–	AUC	–	–	AUC	–	–
	AUC1G/2G/3G	NV7SP	–	–	–	–	74AUC1G	–	–
	SSTU	–	–	SSTU	–	SSTU	SSTU	–	–

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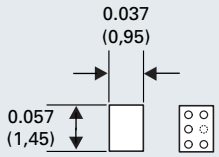
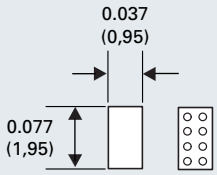
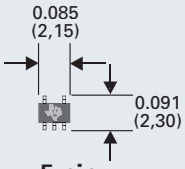
PACKAGING



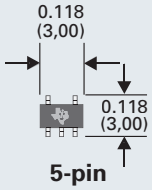
5-ball/6-ball
NanoStar™ (YEP)
NanoFree™ (YZP)
Ball pitch = 0.020 (0,50)
Height = 0.020 (0,50)
Area = 0.002 (1,26)



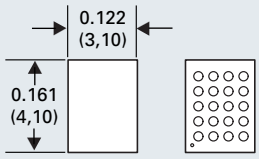
8-ball
NanoStar™ (YEP)
NanoFree™ (YZP)
Ball pitch = 0.020 (0,50)
Height = 0.020 (0,50)
Area = 0.003 (1,85)



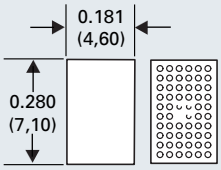
5-pin
SC-70 (DCK)
Lead pitch = 0.026 (0,65)
Height = 0.037 (0,95)
Area = 0.008 (4.95)



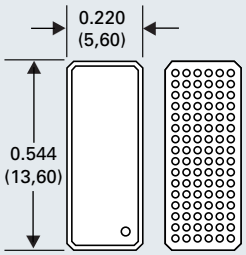
5-pin
SOT-23 (DBV)
Lead pitch = 0.037 (0,95)
Height = 0.047 (1,20)
Area = 0.014 (9)



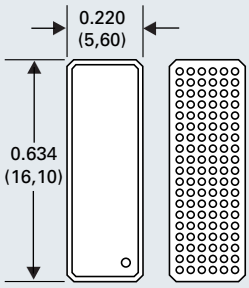
20-ball
MicroStar Jr.™ BGA
(GQN/ZQN)
Ball pitch = 0.026 (0,65)
Height = 0.039 (1,00)
Area = 0.020 (12,7)



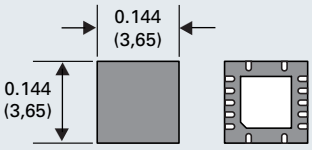
56/48-ball
MicroStar Jr.™ BGA
(GQL/ZQL)
Ball pitch = 0.026 (0,65)
Height = 0.039 (1,00)
Area = 0.051 (32,7)



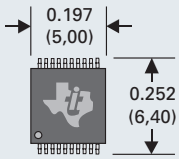
96-ball
MicroStar BGA™
(GKE/ZKE)
Ball pitch = 0.031 (0,80)
Height = 0.055 (1,40)
Area = 0.139 (90,2)



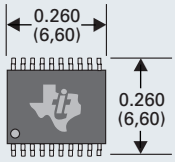
114-ball
MicroStar BGA™
(GKF/ZKF)
Ball pitch = 0.031 (0,80)
Height = 0.055 (1,40)
Area = 0.139 (90,2)



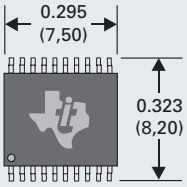
14-pin
QFN (RGY)
Lead pitch = 0.020 (0,50)
Height = 0.039 (1,00)
Area = 0.021 (13,3)



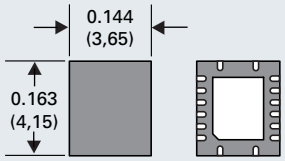
20-pin
TVSOP (DGV)
Lead pitch = 0.016 (0,40)
Height = 0.047 (1,20)
Area = 0.050 (32)



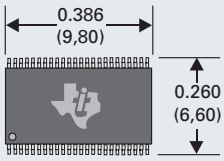
20-pin
TSSOP (PW)
Lead pitch = 0.026 (0,65)
Height = 0.047 (1,20)
Area = 0.068 (44)



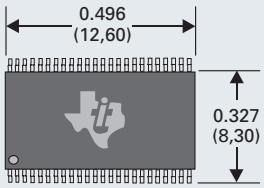
20-pin
SSOP (DB)
Lead pitch = 0.026 (0,65)
Height = 0.079 (2,0)
Area = 0.095 (62)



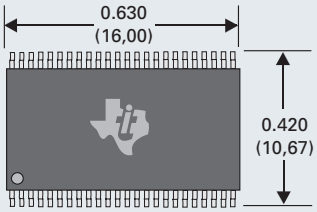
16-pin
QFN (RGY)
Lead pitch = 0.020 (0,50)
Height = 0.039 (1,00)
Area = 0.023 (15,1)



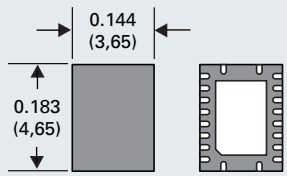
48-pin Widebus™
TVSOP (DGV)
Lead pitch = 0.016 (0,40)
Height = 0.047 (1,20)
Area = 0.100 (63)



48-pin Widebus™
TSSOP (DGG)
Lead pitch = 0.020 (0,50)
Height = 0.047 (1,20)
Area = 0.162 (105)



48-pin Widebus™
SSOP (DL)
Lead pitch = 0.025 (0,635)
Height = 0.110 (2,79)
Area = 0.265 (171)



20-pin
QFN (RGY)
Lead pitch = 0.020 (0,50)
Height = 0.039 (1,00)
Area = 0.026 (17,0)

For more TI Logic packaging offerings, visit:
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Dimensions are in inches (millimeters)

Pb-FREE

PART NUMBER DEFINITION

SN	74	LVC	H	16	2	244	A	DGG	R or T
									Tape & Reel (T = Small Reel)
								Packaging	
							Device Revision		
						Function			
					Options				
				Bit Width					
			Features						
		Family							
	Temperature Range								
Standard Prefix									

LITERATURE

Selection Guides	Lit. Number
Bus Switch Selection Guide	SCDB006
Logic Selection Guide	SDYU001
Little Logic Selection Guide	SCYT129
Master Logic Cross Reference	SCYB017A
Data Books	
Logic Pocket Data Book	SCYD013A
GTL/GTLP Data Book	SCED004A
Little Logic Data Book	SCED010
Signal Switch Data Book	SCDD003A
AUC Data Book	SCED011
AVC Data Book	SCED008B
ALVC Data Book	SCED006A
AHC/AHCT Data Book	SCLD003B

Brochures/Product Bulletins	Lit. Number
Logic Package Migration Card	SCYB006A
Translation Overview Brochure	SCYB018
Product/Application Clips	
AUP Product Clip	SCYB023
1G97/98 Product Clip	SCYB010
NanoStar Product Clip	SCYB011
SN74VMEH22501 Application Clip	SCYB009
SN74CBT34X245 Application Clip	SCYB015
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