Semiconductors

General-purpose logic solutions

Commitment and innovation

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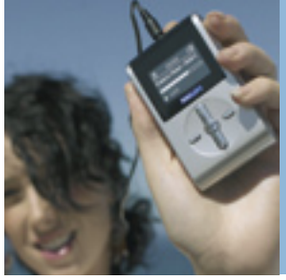


Commitment and innovation

Philips is deeply committed to the logic market and continually invests in new process technologies and packaging facilities to ensure that our portfolio remains leading-edge. We offer a very broad variety of innovative products, ranging from state-of-the-art solutions for emerging applications to specialty functions and proven, mature solutions that enhance virtually any application.

We support a wide range of speed and performance options, with a focus on reduced power consumption and smaller size. Our advanced CMOS processes deliver robust performance and have driven the expansion of our low-power 1.8- and 3.3-V logic families.

More choices and better performance in low-voltage applications

We offer several product families optimized for low-voltage applications. Our recently introduced AUT and AUP families offer higher switching speeds in low-voltage systems, while the LVT family offers lower power consumption. Our advanced ALVC, ALVT, AVC, and AUP families deliver top-level performance and are ideally suited for use in high-end workstations and telecommunications equipment. For improved performance in PCs and consumer and portable applications, we also offer the HC/T, AHC/T, LVC and AUC families.

The industry's smallest package for gates, octals and MSI functions

Our leadless DQFN package combines key functionality with package miniaturization, delivering a near-chipscale size footprint. The DQFN package offers a 74% space savings over TSSOP equivalents and is a superior choice for space-constrained and handheld equipment.

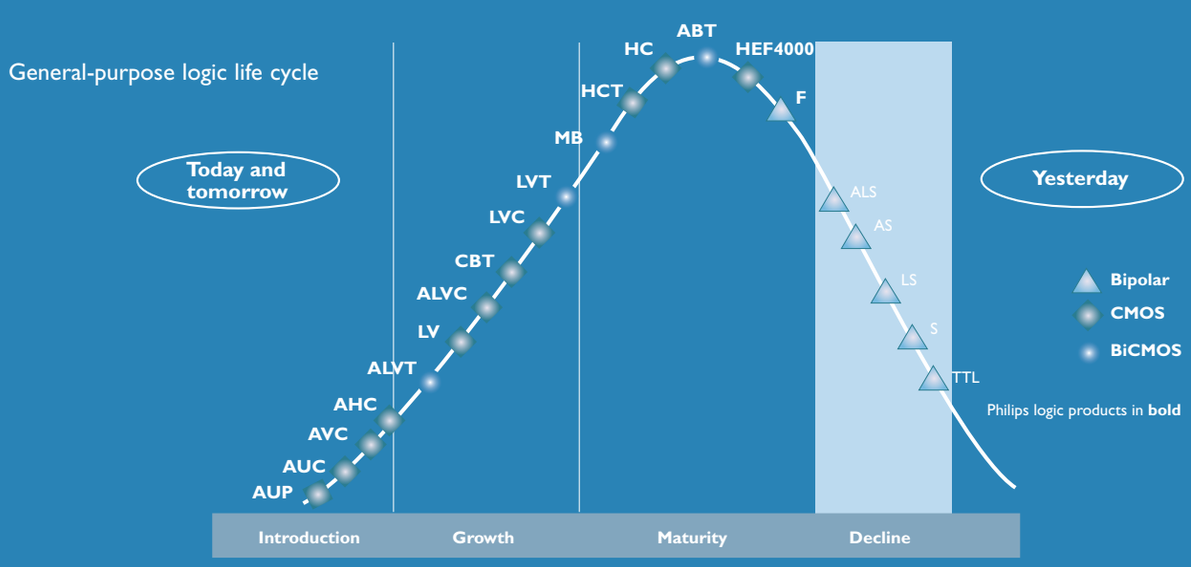
Miniature packages for space-constrained applications

Our groundbreaking PicoGate and MicroPak™packages significantly reduce board space and simplify PCB routing, so you only use what you need and it's easy to make last-minute changes. Our VFBGA and LFBGA packaging options, also available in very small footprints, save space in a host of applications, including handheld computers, wireless telephone systems, and memory modules.

Configurable logic functions

For greater design flexibility and simpler inventory management, we offer configurable logic functions that let a single device perform many different operations.

MicroPak™ is a trademark of Fairchild Semiconductor



Product portfolio matrix

	Functions																		Special features							Process	
	Buffers/line drivers	Flip-flops	Counters	Shift registers	Encoders/multiplexers	Decoders/demultiplexers	Comparators/parity generators	Arithmetic	Gates	Schmitt triggers	Analog switches	Transceivers	FIFOs	Level shifters/translation	Phase lock loops	Bus switches	Bus hold	Series damping resistors	Live insertion	Overvoltage-tolerant I/Os	Power-off output disable	Power-up reset	Bipolar	CMOS	BiCMOS
1.8-volt logic																									
AUC	•	•							•	•							•		•					•	
AUP	•	•							•	•	•	•		•										•	
2.5-volt logic																									
AVC	•	•															•	•						•	
3.3-volt logic																									
LV	•	•	•	•	•	•			•	•	•	•								•[1]				•	
LVC	•	•	•		•	•			•	•	•	•		•			•	•		•				•	•
ALVC	•	•							•	•		•		•			•	•		•[2]	•			•	
LVT	•	•							•	•		•					•	•	•	•	•	•			•
ALVT	•	•					•					•					•	•	•	•	•	•			•
5-volt logic																									
HEF4000	•	•	•	•	•	•	•	•	•	•	•	•			•									•	
HC/HCT	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•									•	
AHC/AHCT	•	•		•	•	•			•			•								•[1]				•	
FAST	•	•	•	•	•	•	•	•	•	•	•	•						•					•		
ABT	•	•						•	•			•					•	•	•		•	•			•
MULTIBYTE	•	•										•							•		•	•			•
CBT					•	•								•		•			•					•	•

Notes:
1. Input only
2. To 4.6-volts maximum

Definitions of special features
- Bus hold supports floating inputs
- Series damping resistor eliminates the need for external termination resistors, thereby improving impedance matching and reducing over/undershoot
- Live insertion lets a board be inserted into a powered-up system without causing an interrupt
- Overvoltage-tolerant inputs and I/O can tolerate voltages greater than the supply voltage
- Power-off disable brings inputs and outputs to a high-impedance state when the supply voltage is 0 V
- Power-up reset supports floating outputs during power-up, so input control signals can be defined before voltages are forced onto the bus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Low-voltage and 5-volt logic product spectrums

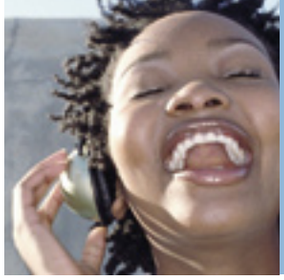
5-volt features and functions						
Family	**HEF4000**	**HC/T**	**AHC/T**	**FAST**	**ABT**	**CBT**
Performance	90 ns*	9 ns	5 ns	4 ns	3 ns	<1-ns prop delays
Drive	±3 mA*	±8 mA	±8 mA	-15/+24 mA	-32/+64 mA	5-ohm R_{ON}
Standby current	600 µA	80 µA	40 µA	90 mA	250 µA	--
Vcc	5-15 V	2-6 V	2-6 V	4.5-5.5 V	4.5-5.5 V	4.5-5.5 V
Multisourced	Yes	Yes	Yes	Yes	Yes	Yes
PicoGate packaging	--	Yes	Yes	--	--	--
Special features	• Gate, MSI, buffer functions	• Gate, MSI,buffer functions • Analog switch functions	• Gate, bus interface functions • Replaces VHC/T	• Gate, MSI, bus interface functions • Termination resistor option	• Gate, bus interface functions • Bus hold option • Termination resistor option • Live insertion	• Performs circuit isolation and switching Precharge circuit for hot plugging • Schottky or charge-pump undershoot protection • Internal diode for level shifting

* At Vcc = 15 V

Low-voltage features and functions								
Family	**LV**	**LVC**	**ALVC**	**LVT**	**ALVT**	**AVC**	**AUC**	**AUP**
Performance	9 ns	4 ns	2 ns	2 ns	1.5 ns	1.3 ns	1.4 ns	2.9 ns
Drive	±8 mA	±24 mA	±24 mA	-32/+64 mA	-32/+64 mA	±8-mA static drive	±8-mA static drive for single-point loads	2-mA static drive for point-to-point loads
Standby current	20 µA	20 µA	40 µA	120-190 µA	90 µA	20 µA	--	0.9 µA
Vcc	1.0-3.6 V*	1.2-3.6 V	1.2-3.6 V	2.7-3.6 V	2.3-3.6 V	1.2-3.3 V	0.8-2.7 V	0.8-3.6 V
Multisourced	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
I/O voltage tolerance	--	5 V	5 V (inputs)**	5 V	5 V	3.6 V	3.3 V	3.6 V
Bus hold	--	Optional	Optional	Built-in	Built-in	Optional	Optional	--
Termination resistor	--	Optional	Optional	Optional	Optional	Optional	Optional	--
Live insertion	--	Yes	--	Yes	Yes	--	--	--
DQFN, BGA package	--	Yes	Yes	Yes	--	--	--	--
Special features	• Gate, MSI, buffer functions	• Gate, MSI, 8/16/32-bit bus interface functions • PicoGate logic and MicroPak • Replaces LCX	• Gate, 8/16/32-bit bus interface functions • Replaces VCX	• Gates, 8/16/32-bit bus interface, PicoGate logic functions	• Bus interface functions	• High dynamic drive • Optimized for 2.5 V • Bus interface functions	• ±18-mA high drive option for multi-droploads • Optimized for 1.8 V • PicoGate Logic and bus interface functions	• Optimized for 1.8 V • PicoGate and MicroPak

* LV: some functions can operate at up to 5.5 V

**Only on part types without bus hold



Surface-mount packaging

	Width (mil)	Pitch mm (mil)	JEDEC Code	EIAJ Type	5	6	8	14	16	20	24	28	48	52	56	96/114	Suffix	Low-volt products	5.0-V products
SOIC	150 300	1.27 (50)	ms-012 ms-013	I III													D	LV, LVC LVT ALVC	F, AHC ABT HEF, HC
SSOP	212	0.65 (25)	mo-150	II													DB	LV, LVC LVT	F ABT
	299	0.635 (25)	mo-118	III													DL	LVC16 ALVC16 (A)LVT16 AUC	HC
TSSOP	177	0.65 (25.6)	mo-153	I													PW	LV, LVC LVT, ALVC	HC, AHC ABT
	244	0.5 (19.7)	mo-153	II													DGG	LVC16 ALVC16 (A)LVT16	ABT
DQFN	2.5 3.5	0.5 (19.7)	mo-241														BQ	LVC LVT	HC AHC
PQFP	394 x 394	0.65 (25.6)	mo-108														BB		MB
TVSOP	173	0.40 (15.7)	mo-194														DG-V	ALVC	CBT
LFBGA	217	0.8 (31.5)	mo-205														EC	LVC16 ALVC16 (A)LVT16	
VFBGA	177	0.65 (25.6)	mo-225														EV	LVC16 ALVC16 (A)LVT16	
PicoGate	2.0	0.65															GW	HC/T	
	2.8																GV	AHC/T	
	3.1	0.5															DC	LVC	
	4.0	0.65															DP	AJUC AUP	
MicroPak	1.0	0.5															GM	HC/T	
	1.5	0.5															GM	AHC/T	
	1.0	0.5															GT	LVC	
	1.0	0.35															GF	AJUC AUP	

Package suffix	GW	GW	DC	GV	GV	DP	GM	GT	GM	GF
	5-Pin	6-Pin	8-Pin	5-Pin	6-Pin	8-Pin	6-Pin	8-Pin	8-Pin	6-Pin
Single gate	SOT353	SOT363	SOT765	SOT753	SOT457	SOT505-2	SOT886	SOT833	SOT902	SOT891
Dual gate	SOT363	SOT765		SOT457	SOT505-2	MicroPak	SOT886	SOT833	SOT902	SOT891
Triple gate			SOT765			SOT505-2		SOT833	SOT902	

3mm

	5-Pin	6-Pin	8-Pin	5-Pin	6-Pin	8-Pin	6-Pin	8-Pin	8-Pin	6-Pin
	SOT353	SOT363	SOT765	SOT753	SOT457	SOT505-2	MicroPak	MicroPak	MicroPak	MicroPak
Width (mm)	2.1	2.1	3.1	2.8	2.8	4	1.45	1.00	1.60	1.00
Length (mm)	2.0	2.0	2.0	2.9	2.9	3.0	1.00	1.95	1.60	1.00
Pitch (mm)	0.65	0.65	0.5	0.95	0.95	0.65	0.50	0.50	0.50	0.35

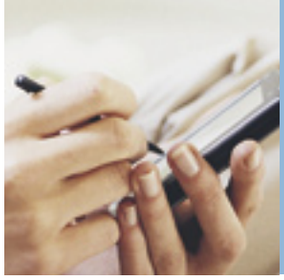
Competitive cross reference: logic products

Family	Package	Philips	Texas Instruments	Fairchild Semiconductor	ON Semiconductor	Toshiba	ST Microelectronics
CMOS							
HEF4000B	DIP SOIC SSOP I SSOP II TSSOP	HEF4xxxBPN HEF4xxxBTD HEF4xxxDB	CD4xxxBE CD4xxxBM	CD4xxxBN CD4xxxBM/WM CD4xxxMTC	MC14xxxBP MC14xxxBD MC14xxxDT	TC4xxxBP TC4xxxBFN TC4xxxFS	HCF4xxxBEY HCF4xxxBM1/M013TR
HC(T) T=TTL	DIP SOIC SSOP II TSSOP DQFN	74HC(T)xxxN 74HC(T)xxxD 74HC(T)xxxDB 74HC(T)xxxPW 74HC(T)xxxBQ	SN74HC(T)xxxN SN74HC(T)xxxD/DW SN74HC(T)xxxDB SN74HC(T)xxxPW	MM74HC(T)xxxN MM74HC(T)xxxM/WM MM74HC(T)xxxMTC 74HC(T)xxxBQ	MC74HC(T)xxxN MC74HC(T)xxxD MC74HC(T)xxxDT	TC74HC(T)xxxAP TC74HC(T)xxxAFW	M74HCxxxB1R M74HCxxxM1R/RM13TR M74HCxxxTTR
AHC(T) T=TTL	SOIC TSSOP DQFN	74AHC(T)xxxD 74AHC(T)xxxPW 74AHC(T)xxxBQ	SN74AHC(T)xxxD/DW SN74AHC(T)xxxPW	MM74VHC(T)xxxM/WM MM74VHC(T)xxxMTC MM74VHC(T)xxxBQ	MC74VHC(T)xxxD MC74VHC(T)xxxDT	TC74VHC(T)xxxAFN/FW TC74VHC(T)xxxAFT	74VHCxxxTTR/ATTR 74VHCTxxxTTR/ATTR
Low-voltage CMOS							
LVC(H) H=bushold Feature	SOIC SSOP II TSSOP I DQFN SSOP III TSSOP II LFGBA VFBGA	74LVC(H)xxxAD 74LVC(H)xxxADB 74LVC(H)xxxAPW 74LVC(H)xxxBQ 74LVC(H)16xxxADL 74LVC(H)16xxxADGG 74LVC(H)32xxxAEC 74LVC(H)32xxxAEV	SN74LVC(H)xxxAD/DW SN74LVC(H)xxxADB SN74LVC(H)xxxAPW SN74LVC(H)16xxxADL SN74LVC(H)16xxxADGG SN74LVC(H)32xxxAGKE SN74LVC(H)32xxxAGQL	74LCXxxxM/WM 74LCXxxxMSA 74LCXxxxMTC 74LCXxxxBQ 74LCX16xxxMEA 74LCX16xxxMTD	MC74LCXxxxD MC74LCXxxxSD MC74LCXxxxDT MC74LCX16xxxDT	TC74LCXxxxFN/FW TC74LCXxxxFT TC74LCX16xxxFT	74LCXxxxM/MTR 74LCXxxxTTR 74LCX(H)16xxxM/MTR
ALVC(H)	SO TSSOP DQFN SSOP III TSSOP II LFBGA	74ALVCxxxD 74ALVCxxxPW 74ALVCxxxBQ 74ALVC(H)16xxxDL 74ALVC(H)16xxxDGG 74ALVC(H)32xxxEC	SN74ALVCxxxD/DW SN74ALVCxxxPW SN74ALVC(H)16xxxDL SN74ALVC(H)16xxxDGG SN74ALVC(H)32xxxGKE	74VCXxxxM 74VCXxxxMTC 74VCXxxxBQ 74VCX16xxxMEA 74VCX16xxxMTD		 TC74VCX16xxxFT	 74VCX(H)16xxxTTR
LV	SOIC SSOP II TSSOP I	74LVxxxD 74LVxxxDB 74LVxxxPW	SN74LVxxxD/DW SN74LVxxxDB SN74LVxxxPW	74LVXxxxM/WM 74LVXxxxMSA 74LVXxxxMTC	MC74LVXxxxD MC74LVXxxxDT	TC74LVXxxxFN/FW TC74LVXxxxFS TC74LVXxxxFT	
5-volt BiCMOS							
ABT(H) H=bushold Feature	DIP SOIC SSOP II TSSOP SSOP III TSSOP II	74ABTxxxN 74ABTxxxD 74ABTxxxDB 74ABTxxxPW 74ABT(H)16xxxDL 74ABT(H)16xxxDGG	SN74ABTxxxN SN74ABTxxxD/DW SN74ABTxxxDB SN74ABTxxxPW SN74ABT(H)16xxxDL SN74ABT(H)16xxxDGG	74ABTxxxPC 74ABTxxxSC 74ABTxxxMSA 74ABTxxxMTC 74ABT16xxxSSC 74ABT16xxxMTD			
Low-voltage BiCMOS							
LVT Philips – Bushold is built in	SOIC SSOP II TSSOP DQFN SSOP III TSSOP II VFBGA LFBGA	74LVTxxxD 74LVTxxxDB 74LVTxxxPW 74LVTxxxBQ 74LVT16xxxDL 74LVT16xxxDGG 74LVT16xxxEV 74LVT32xxxEC	SN74LVTHxxxD/DW SN74LVTHxxxDB SN74LVTHxxxPW SN74LVTH16xxxDL SN74LVTH16xxxDGG SN74LVTH16xxxGQL SN74LVTH16xxxGKE	74LVTHxxxM/WM 74LVTHxxxMSA 74LVTHxxxMTC 74LVTH16xxxMEA 74LVTH16xxxMTD			
ALVT (Bushold is Built in)	SSOP III TSSOP II	74ALVT16xxxDL 74ALVT16xxxDGG	SN74ALVT16xxxDL SN74ALVT16xxxDGG				
Bipolar							
FAST	DIP SOIC SSOP II	N74FxxxN N74FxxxD N74FxxxDB	SN74FxxxN SN74FxxxD/DW SN74FxxxDB	74FxxxPC/SPC 74FxxxSC 74FxxxMSA			

Competitive cross reference: PicoGate and MicroPak

Family	Package	Philips	Texas Instruments	Fairchild Semiconductor	ON Semiconductor	Toshiba	ST Microelectronics
PicoGate logic							
HC series	SOT353 SOT753 SOT505-2 SOT505-2 SOT765 SOT765 SOT363 SOT457	74HC1GxxxGW 74HC1GxxxGV 74HC2GxxxDP 74HC3GxxxDP 74HC2GxxxDC 74HC3GxxxDC 74HC2GxxxGW 74HC2GxxxGV		NC7SxxxP5 NC7SxxxM5	MC74HC1GxxxDFT MC74HC1GxxxDTT	TC7SxxxFU TC7SxxxF TC7WxxxFU TC7WxxxFU TC7WxxxFK TC7WxxxFK TC7WxxxFU TC7WxxxF	74H1GxxxCTR/CTR2 74H1GxxxSTR/STR2
HCT series	SOT353 SOT753 SOT505-2 SOT505-2 SOT765 SOT765 SOT363 SOT457	74HCT1GxxxGW 74HCT1GxxxGV 74HCT2GxxxDP 74HCT3GxxxDP 74HCT2GxxxDC 74HCT3GxxxDC 74HCT2GxxxGW 74HCT2GxxxGV		NC7STxxxP5 NC7STxxxM5		TC7STxxxFU TC7STxxxF TC7WTxxxFU TC7WTxxxFU TC7WTxxxFK TC7WTxxxFK TC7WTxxxFU TC7WTxxxF	
AHC series	SOT353 SOT753 SOT505-2 SOT505-2 SOT765 SOT765 SOT363 SOT457	74AHC1GxxxGW 74AHC1GxxxGV 74AHC2GxxxDP 74AHC3GxxxDP 74AHC2GxxxDC 74AHC3GxxxDC 74AHC3GxxxGW 74AHC3GxxxGV	SN74AHC1GxxxDCK SN74AHC1GxxxDBV		MC74VHC1GxxxDFT MC74VHC1GxxxDTT	TC7SHxxxFU TC7SHxxxF TC7WHxxxFU TC7WHxxxFU TC7WHxxxFK TC7WHxxxFK TC7WHxxxFU TC7WHxxxF	74V1GxxxCTR/CTR2 74V1GxxxSTR/STR2 74V2GxxxSTR/STR2 74V2GxxxSTR/STR2
AHCT series	SOT353 SOT753 SOT505-2 SOT505-2 SOT765 SOT765 SOT363 SOT457	74AHCT1GxxxGW 74AHCT1GxxxGV 74AHCT2GxxxDP 74AHCT3GxxxDP 74AHCT2GxxxDC 74AHCT3GxxxDC 74AHCT2GxxxGW 74AHCT2GxxxGV	SN74AHCT1GxxxDCK SN74AHCT1GxxxDBV		MC74VHC1GTxxxDFT MC74VHC1GTxxxDFT	TC7SETxxxFU TC7SETxxxF	74V1TxxxCTR/CTR2 74V1TxxxSTR/STR2 74V2TxxxSTR/STR2 74V2TxxxSTR/STR2
LVC series	MicroPak SOT353 SOT753 SOT505-2 SOT505-2 SOT765 SOT765 SOT363 SOT457 SOT883 SOT886 SOT902 SOT891	74LVC1GxxxGM 74LVC1GxxxGW 74LVC1GxxxGV 74LVC2GxxxDP 74LVC3GxxxDP 74LVC2GxxxDC 74LVC3GxxxDC 74LVC2GxxxGW 74LVC2GxxxGV 74LVC1GxxxGM 74LVC2GxxxGT 74LVC2GxxxGM 74LV1C2GxxxGF	SN74LVC1GxxxDCK SN74LVC1GxxxDBV SN74LVC2GxxxDCT SN74LVC3GxxxDCT SN74LVC2GxxxDCU SN74LVC3GxxxDCU SN74LVC2GxxxDCK SN74LVC2GxxxDBV 74LVC1GxxYZP 74LVC2GxxYZP	NC7SZxxxL6/L6 NC7SZxxxP5 NC7SZxxxM5 NC7WB / WZxxxK8 NC7NB / NZxxxK8 NC7WB / WZxxxP6 NC7SZxxxLS NC7WZxxxL8	NL17SZxxxDFT NL27WZxxUS NL37WZxxUS NL27WZxxDFT NL27WZxxDTT	TC7SZxxxFU TC7SZxxxF TC7WZxxxFU TC7WZxxxFU TC7WZxxxFK TC7WZxxxFK TC7WZxxxFU TC7WZxxxF	74LX1GxxxCTR/CTR2 74LX1GxxxSTR/STR2
AUC series	SOT353 SOT765 SOT833 SOT886 SOT902 SOT891	74AUC1GxxxGW 74AUC2GxxxDC 74AUC1GxxxGM 74AUC2GxxxGT 74AUC2GxxxGM 74AUC1GxxxGF	74AUC2GxxxDBV 74UC2GxxxDCU 74AUC1GxxxYZP 74AUC2GxxxYZP				
AUP series	SOT353 SOT363 SOT886 SOT902 SOT833 SOT891 SOT353 SOT765 SOT833 SOT886 SOT902 SOT891	74AUP1GxxxGW 74AUP1GxxxGW 74AUP1GxxxGM 74AUP2GxxxGM 74AUP2GxxxGT 74AUP1GXXXGF 74AUP1GxxxGW 74AUP2GxxxDC 74AUP1GxxxGM 74AUP2GxxxGT 74AUP2GxxxGM 74AUP1GxxxGF	SN74AUP1GxxxDCK SN74AUP1GxxxDCK SN74AUP1GxxxYZP SN74AUP2GxxxYZP 74AUP2GxxxDVB 74AUP2GxxxDCU 74AUO1GxxxYZP 74AUP2GxxxYZP	NC7SV/PxxP5 NC7WV/PxxP6 NC7NV/PxxL6 NC7SWPxxL8 NC7SPxxP6 NC7WPxxxL6 NC7NV/PxxL6 NC7WPxxxL8		TC7SLxxxFU TC7SLxxxFU	

NOTE: Texas Instruments changes package suffix from D to DW when part is 20-28 pins



Detailed reference

Temperature range

N	Commercial temperature range (FAST product family)
I	Industrial temperature range (FAST product family)
P	Philips (HC/T products)
74	Device is either commercial or industrial grade

Note: no designator is used with HEF4000 devices

Family

For a complete list of available Philips Logic product families, please visit our product information page at www.semiconductors.philips.com/logic/products

TTL voltage level

T	TTL switching levels on HC and AHC devices. When no designator is present on HC or AHC devices, this indicates CMOS switching levels.

Note: For ABT, ALVC, ALVT, FAST, LV, LVC, LVT, and MB families, TTL switching levels are standard. Consequently, no TTL designator is used with these families.

Bus hold

H	Optional bus hold feature is present. Available in ABT(16), AVC, ALVC, and LVC(16) devices.

Note: Bus hold is standard on LVT and ALVT bus interface devices. Consequently, no bus hold designator is used with these families

Bit width

1G	Single-gate device.
2G	Dual-gate device.
3G	Triple-gate device.
Blank	Device falls within the 8-bit range (which includes 1-, 2-, 3-, 4-, 6-, 8-, 9-, and 10-bit devices). 16-bit devices are offered in the ABT, ALVC, AVC, LVC, and LVT families.
16	Device falls within the 16-bit range (which includes 16-, 18-, and 20-bit devices). 16-bit devices are offered in the ABT, ALVC, AVC, LVC, and LVT families.
32	Device falls within the 32-bit range (which includes 32- and 36-bit devices). 32-bit devices are offered in the ALVC and LVC families.

Output termination

2	Optional output series termination feature is present. Available in the ABT, ALVC, LVC, and LVT families.

Function

For a complete list of the available functions please visit our products page at www.semiconductors.philips.com/logic/products

Device version

A, B, C, etc.	Designator meanings vary. Please refer to datasheet.

Termination resistors

-1	Termination resistors are present (FAST family)

Package

For a complete list of the available Philips Logic packages and designators please refer to: www.semiconductors.philips.com/logic/packaging/

Additional designators

In North America, the following additional designators may appear at the end of the product name.

-T	Standard tape-and-reel packing method
-G	Smaller tape-and-reel packing method
-S	Single-tray packing method

Operating voltages and typical characteristics

Product families	Operating voltage (Volt)																Speed (tPD)	IOH/IOL	-40°C to +85°C	-40°C to +125°C
	0.8	1.0	1.2	1.5	1.8	2.0	2.3	2.5	2.7	3.0	3.3	3.6	4.5	5.0	5.5	6.0	15	ns	mA	
CMOS families																				
AHC/T						←								●	→			5.2	-8 / +8	•	•
						←					●				→			5.2	-4 / +4		
ALVC			←								●	→	- - -	- - -	→			2.0	-24 / +24	•	
AUC	←				●	→												2.0	-8 / +8	•	
AUP	←										●	→	- - -	- - -	→				-4 / +4	•	
AVC/M			←								●	→						2.0	-24 / +24	•	
CBT/V							←	●	→	←	●	→	←	●	→					•	
HC						←								●	→			9.0	-7.8 / +7.8	•	•
HCT						←								●	→			9.0	-7.8 / +7.8	•	•
HEF4000										←				●	→				-0.4 / +0.4	•	E
LV		←												●	→			4.0	-12 / +16	•	•
		←								●					→			9.0	-6 / +8		
LVC/16			←							●	→	- - -	- - -	- - -	→			4.0	-24 / +24	•	•
BiCMOS families																				
ABT/16													←	●	→			3.0	-32 / +64	•	
ALVT							←				●	→	- - -	- - -	- - -	- - -	→	1.5	-32 / +64	•	
LVT/16									←		●	→	- - -	- - -	- - -	- - -	→	2.0	-32 / +64	•	
MB													←	●	→			2.9	-32 / +64	•	
Bipolar family																				
FAST													←	●	→			3.0		•	

E = Extended temperature (-55°C to 125°C)

→ Solid arrows indicate specified operating voltage range

- - - → Dashed arrows indicate I/O voltage tolerance

Philips PicoGate and MicroPak

74 XXX XG XXX — XX

XG: 1G Single, 2G Dual, 3G Triple

XXX (Function):

HC	High-speed
HCT	High-speed TTL-compatible
AHC	Advanced high-speed
AHCT	Advanced high-speed TTL-compatible
LVC	Low-voltage CMOS
AUC	Advanced ultra-low-voltage CMOS

XX:

GW	SOT353	5-lead
GW	SOT363	6-lead
GV	SOT753	5-lead
GV	SOT457	6-lead
DC	SOT765	8-lead
DP	SOT505-2	8-lead
GM	SOT886	6-lead
GM	SOT----	8-lead
GT	SOT833	8-lead
GF	SOT891	6-lead

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