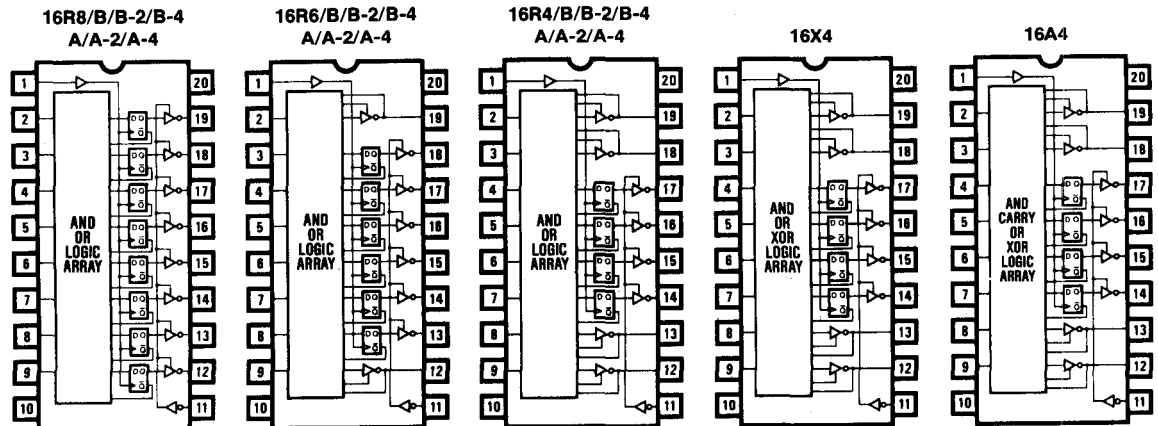
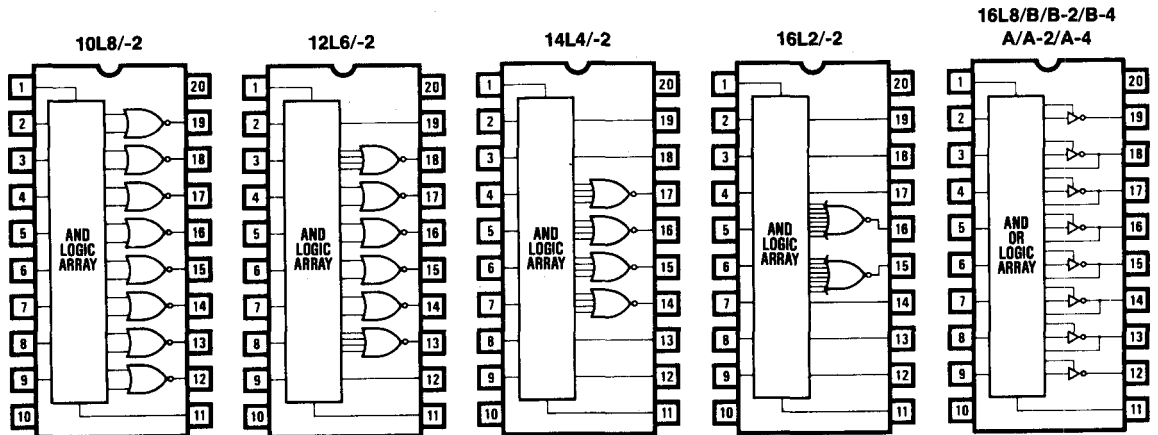
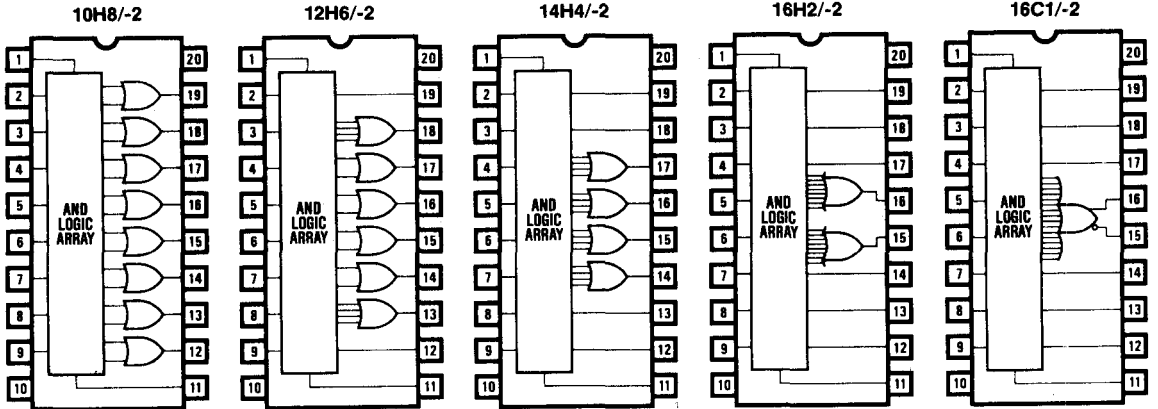


The Data Book Project

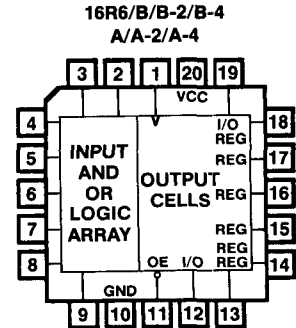
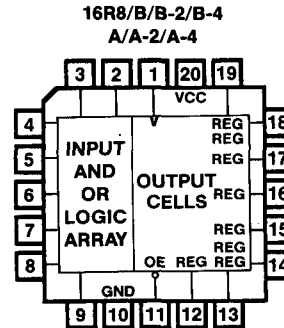
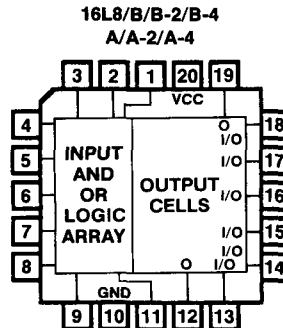
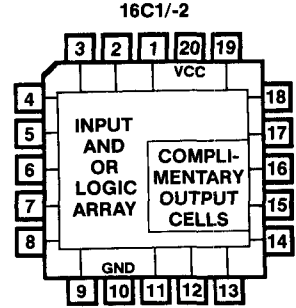
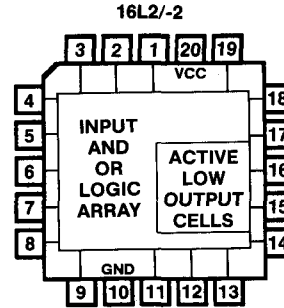
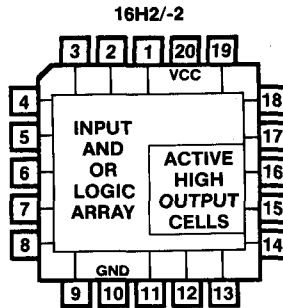
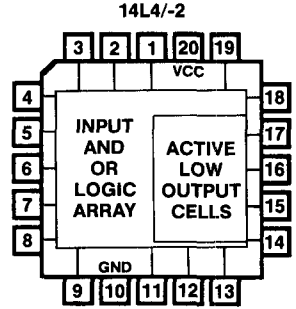
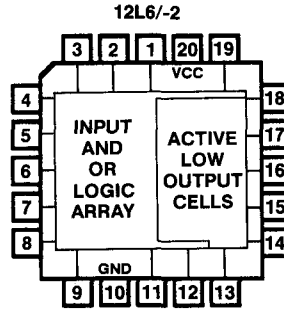
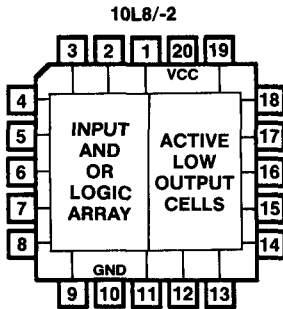
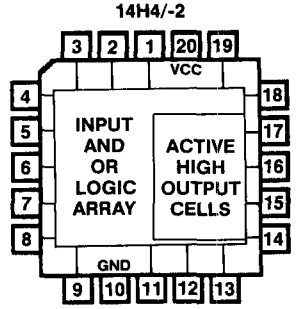
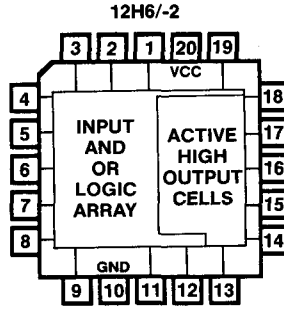
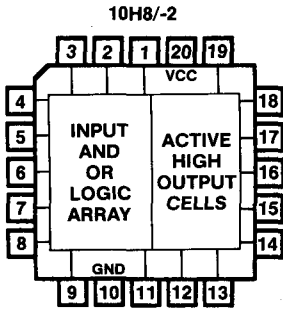
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20-Pin PAL/HAL Devices



20-Pin PAL/HAL Devices-PLCC



Fast PAL/HAL Devices Series 20A
16L8A, 16R8A, 16R6A, 16R4A

Operating Conditions

SYMBOL	PARAMETER		MILITARY			COMMERCIAL			UNIT	
			MIN	TYP	MAX	MIN	TYP	MAX		
V _{CC}	Supply voltage		4.5	5	5.5	4.75	5	5.25	V	
t _w	Width of clock	Low	20	10		15	10		ns	
		High	20	10		15	10			
t _{su}	Set up time from input or feedback to clock	16R8A, 16R6A, 16R4A	30	15		25	15		ns	
t _h	Hold time		0	-10		0	-10		ns	
T _A	Operating free-air temperature		-55			0			75	°C
T _C	Operating case temperature					125				°C

Electrical Characteristics Over Operating Conditions

SYMBOL	PARAMETER	TEST CONDITIONS		MIN	TYP	MAX	UNIT	
V _{IL} *	Low-level input voltage					0.8	V	
V _{IH} *	High-level input voltage			2			V	
V _{IC}	Input clamp voltage	V _{CC} = MIN	I _I = -18mA		-0.8	-1.5	V	
I _{IL}	Low-level input current †	V _{CC} = MAX	V _I = 0.4V		-0.02	-0.25	mA	
I _{IH}	High-level input current †	V _{CC} = MAX	V _I = 2.4V			25	μA	
I _I	Maximum input current	V _{CC} = MAX	V _I = 5.5V			1	mA	
V _{OL}	Low-level output voltage	V _{CC} = MIN	Mil	I _{OL} = 12mA	0.3	0.5	V	
			Com	I _{OL} = 24mA				
V _{OH}	High-level output voltage	V _{CC} = MIN	Mil	I _{OH} = -2mA	2.4	2.8	V	
			Com	I _{OH} = -3.2mA				
I _{OZL}	Off-state output current †	V _{CC} = MAX		V _O = 0.4V		-100	μA	
I _{OZH}				V _O = 2.4V		100	μA	
I _{OS}	Output short-circuit current **	V _{CC} = 5V		V _O = 0V	-30	-70	-130	mA
I _{CC}	Supply current	V _{CC} = MAX			120	180	mA	

Switching Characteristics Over Operating Conditions

SYMBOL	PARAMETER		TEST CONDITIONS	MILITARY			COMMERCIAL			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
t _{PD}	Input or feedback to output	16R6A, 16R4A, 16L8A	R ₁ = 200 Ω R ₂ = 390 Ω	15	30		15	25		ns
t _{CLK}	Clock to output or feedback			10	20		10	15		ns
t _{PZX}	Pin 11 to output enable except 16L8A			10	25		10	20		ns
t _{PXZ}	Pin 11 to output disable except 16L8A			11	25		11	20		ns
t _{PZX}	Input to output enable	16R6A, 16R4A, 16L8A		10	30		10	25		ns
t _{PXZ}	Input to output disable	16R6A, 16R4A, 16L8A		13	30		13	25		ns
f _{MAX}	Maximum frequency	16R8A, 16R6A, 16R4A		20	40		28.5	40		MHz

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