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低电压CMOS逻辑 HD74ALVC系列 规格的定义

1. HD74ALVC系列的规格定义

1.1 功耗的计算方法

通过式(1)求出低电压CMOS标准逻辑的功耗 P_T 。即，功耗取决于负载电容、内部等效电容、工作频率和电源电压。

$$P_T = (C_{pd} + C_L) \times f \times V_{CC}^2 \quad (1)$$

在此，

C_L : 负载电容、 C_{pd} : 内部等效电容

f : 工作频率、 V_{CC} : 电源电压

1.2 内部等效电容

能通过下式计算内部等效容量 C_{pd} :

$$P_T = (C_{pd} + C_L) \times f \times V_{CC}^2 = I_{CC} \times V_{CC} \quad (2)$$

从式(2)中得到

$$C_{pd} = \frac{I_{CC}}{f \times V_{CC}} - C_L \quad (3)$$

在此，

I_{CC} : 电源电流

(测量条件)

$T_a = 25^\circ\text{C}$ 、 $V_{CC} = 3.3\text{V}$ 、 $f = 10\text{MHz}$

$\text{duty} = 50\%$ 、 $t_r = t_f = 2.5\text{ns}$ 、 $C_L = 50\text{pF}$

1.3 HD74ALVC 系列的等效内部电容 (Cpd)

$V_{CC} = 3.3V$ 、 $T_a = 25^{\circ}C$ 、 $C_L = 50pF$ 、其他输入 = V_{CC} or GND

P1: $f = 10MHz$ 、 $duty = 50\%$ 、P2: $f = 5MHz$ 、 $duty = 50\%$

产品型号	测量条件		enable	disable	单位
	输入	输出	Typ	Typ	
HD74ALVCH16244	1A1: P1	1Y1	12.5	3.0	pF
HD74ALVCH16245	1A1: P1	1B1	16.0	3.0	
HD74ALVCH16269	CK: P1、A1: P2	1B1、2B1	64.0	34.0	
HD74ALVCH16374	1CK: P1、1D: P2	1Q1	15.0	10.0	
HD74ALVCH16501	A1: P1	B1	29.0	7.5	
HD74ALVCH16721	CK: P1、D1: P2	Q1	27.0	18.0	
HD74ALVCH16820	CK: P1、D1: P2	1Q1、1Q2	28.0	10.0	
HD74ALVCH16827	1A1: P1	1Y1	20.0	3.0	
HD74ALVCH16831	CK: P1、A1: P2	1Y1 to 4Y1	29.5	7.0	
HD74ALVCH16832	CK: P1、A1: P2	1Y1 to 4Y1	56.5	13.0	
HD74ALVCH162244	1A1: P1	1Y1	24.0	4.0	
HD74ALVCH162270	CK: P1、A1: P2	1B1、2B1	64.0	36.0	
HD74ALVCH162501	A1: P1	B1	30.5	7.5	
HD74ALVCH162721	CK: P1、D1: P2	Q1	27.0	18.0	
HD74ALVCH162827	1A1: P1	1Y1	20.0	3.0	
HD74ALVCH162830	A1: P1	1Y1、2Y1	35.0	7.0	
HD74ALVCH162831	CK: P1、A1: P2	1Y1 to 4Y1	65.0	17.0	
HD74ALVC16835	A1: P1	Y1	24.5	6.0	
HD74ALVC162835	A1: P1	Y1	24.5	6.0	
HD74ALVC162835A	A1: P1	Y1	26.5	7.0	

修订记录

Rev.	发行日	修订内容	
		页	修订处
1.00	2008.03.25	一	初版发行

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