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瑞萨电子公司网址：http://www.renesas.com

2010年4月1日
瑞萨电子公司

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接口IC

概要

1. 接口IC的概要

接口IC有线路驱动器和线路接收器。

使用线路驱动器和线路接收器时的规格不仅受器件电特性的影响，而且受系统要求特性的影响更大。

在设计数据传输电路时，必须考虑外部噪声和抗扰性、信号量和线路长度、数据的串行或者并行结构、以及成本与性能的相互关系。

驱动器和接收器一览表、特点和各种规格的概要如下所示。

1.1 驱动器IC和接收器IC的产品阵容

表1 驱动器和接收器一览表

规格	驱动器	接收器	备注
EIA RS-422A	HD26C31 HD26LS31	HD26C32A HD26LS32 HD26LS32A HD29413 HD75173*	• 用于平衡差动式传输 • 最大传输速度 10Mb/s • 最大电缆长 1200m • 接收器也能对应RS-423A • *表示也能对应RS485 • HD29413的一部分为规格外 （参照表4） • HD29050、 HD29051为驱动器/接收器的混合型
	HD29050	HD29051	
IEEE-488 1978	HD75160A HD75161A		• 最大传输速度 1Mb/s • 最大电缆长 20m • 最多可连接的设备台数为15台 • 总线收发器
IBM-360	HD29468		• HD29468为驱动器/接收器的混合型
其他	HD29026A HD29027 HD29029		• CCD/功率MOS驱动器
	HD151005		• ASSP • 高耐压 • 大电流驱动器
	HD151245		• ASSP • 和LS245同等的产品 （CMOS产品）
	HD151015		• 9位电平移位器
	HD151011 HD151012		• 可编程的8位BCD计数器 • 可编程的8位二进制计数器

表2 各种驱动器的特点

器件名	特点					电源电压	电路个数			规格		
	工作模式		输出形式		功能							
	单端	差动	图腾柱	射极跟随器	输出控制	+5V	2个电路	3个电路	4个电路	EIA RS-422A	EIA RS-485	IBM 360
HD26C31		○	○		○	○			○	○		
HD26LS31		○	○		○	○			○	○		
HD29050		○	○		○	○	○			○		
HD29051		○	○		○	○	○			○		
HD29468	○			○		○		○				○

表3 各种接收器的特点

器件名	特点					电源电压	输入灵敏度		电路个数			规格		
	工作模式		输出形式		功能									
	单端	差动	图腾柱	滞后	输出控制	+5V	±200 mV	±300 mV	2个电路	3个电路	4个电路	EIA RS-422A/423A	EIA RS-485	IBM 360
HD26C32A		○	○	○	○	○	○				○	○		
HD26LS32		○	○	○	○	○	○				○	○		
HD26LS32A		○	○	○	○	○	○				○	○		
HD29050		○	○	○	○	○	○		○			○	○	
HD29051		○	○	○		○	○		○			○	○	
HD29413		○	○	○	○	○		○			○	注		
HD29468	○		○			○				○				○

【注】 在规格中，只有输入灵敏度 （在V_{IC} = ±7V时为±300mV）不同。

1.2 各种规格的概要

各种规格的概要如下所示：

表4 各种规格的概要

项目		RS-232C	RS-423A	RS-422A	RS-485
工作模式		单端	单端	差动	差动
可连接的台数		1台驱动器 1台接收器	1台驱动器 10台接收器	1台驱动器 10台接收器	32台驱动器 32台接收器
传输距离和传输速度的关系		15m：20kb/s	9m：100kb/s 91m：10kb/s 1200m：1kb/s	12m：10Mb/s 120m：1Mb/s 1200m：100kb/s	12m：10Mb/s 120m：1Mb/s 1200m：100kb/s
最大同相电压		±25V	±6V	±6V –0.25V	±12V –7V
驱动器输出电压		±5Vmin ±15Vmax.	±3.6Vmin ±6.0Vmax	±2Vmin	±1.5Vmin
驱动器负载		3kΩ～7kΩ	450Ωmin	100Ω	54Ω
驱动器的压摆率		• 可变 30V/μs max	• 可变 取决于电缆长和数据的速度。	不能进行外部调整	不能进行外部调整
驱动器的输出电阻	上电	—	—	—	×100μAmax $-7V \leqslant V_{CM} \leqslant 12V$
	断电	300Ω	±100μAmax ±6V	±100μAmax $-0.25V \leqslant V_{CM} \leqslant 6V$	±100μAmax $-7V \leqslant V_{CM} \leqslant 12V$
接收器的输入电阻		3kΩ～7kΩ	＞4kΩ	＞4kΩ	＞12kΩ
接收器的灵敏度		±3V	±200mV	±200mV $-7V \leqslant V_{CM} \leqslant 7V$	±200mV $-12V \leqslant V_{CM} \leqslant 12V$

IEEE 488-1978的概要如下所示：

表5 IEEE 488-1978的概要

工作模式	单端
最大传输距离	20m
最大传输速度	1Mb/s
最多可连接的台数	15台
数据	8bit并行

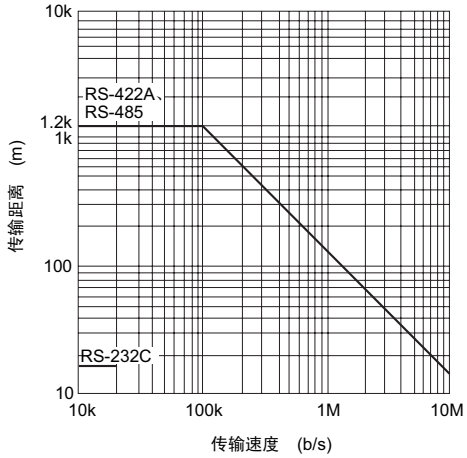

图1 传输距离和传输速度的关系

修订记录

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

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