

2003

RS-485 Selection Guide

interface.ti.com/rs485

Family	Part Number ¹	V _{CC}	I _{CC} max (mA)	Mbps	ESD (kV)	Temperature Options	Package	Footprint	Features						
									NoN ²	RIH (mV) ³	CSR ⁴	SD ⁵	FS ⁶	GFO ⁷	TSP ⁸
Half-Duplex Transceivers	SNxxHVD05	5	15	40	16	65, 75	8-pin SOIC, DIP	SN75176	64	35	—	✓	T ⁹	✓	✓
	SNxxHVD06	5	15	10	16	65, 75	8-pin SOIC, DIP	SN75176	256	35	✓	✓	T	✓	✓
	SNxxHVD07	5	15	1	16	65, 75	8-pin SOIC, DIP	SN75176	256	35	✓	✓	T	✓	✓
	SNxxHVD08	3-5.5	16	10	16	65, 75	8-pin SOIC, DIP	SN75176	256	35	✓	✓	T	✓	✓
	SNxxHVD10	3.3	15.5	25	16	65, 75	8-pin SOIC, DIP	SN75176	64	35	—	✓	T	✓	✓
	SNxxHVD11	3.3	15.5	10	16	65, 75	8-pin SOIC, DIP	SN75176	256	35	✓	✓	T	✓	✓
	SNxxHVD12	3.3	15.5	1	16	65, 75	8-pin SOIC, DIP	SN75176	256	35	✓	✓	T	✓	✓
	SNxxHVD20 ¹⁰	5	9	25	16	65	8-pin SOIC, DIP	SN75176	64	130	—	✓	T	✓	✓
	SNxxHVD21 ¹⁰	5	12	5	16	65	8-pin SOIC, DIP	SN75176	256	130	✓	✓	T	✓	✓
	SNxxHVD22 ¹⁰	5	9	0.5	16	65	8-pin SOIC, DIP	SN75176	256	130	✓	✓	T	✓	✓
	SNxxHVD23 ¹¹	5	11	25	16	65	8-pin SOIC, DIP	SN75176	64	130	—	✓	T	✓	✓
	SNxxHVD24 ¹¹	5	14	3	16	65	8-pin SOIC, DIP	SN75176	256	130	✓	✓	T	✓	✓
	SNxxHVD3082E ¹²	5	0.9	0.2	16	65, 75	8-pin SOIC, DIP	SN75176	256	35	✓	✓	T	✓	✓
	SNxxLBC176	5	3.9	10	2	55, 65, 75	8/20-pin SOIC, DIP, LCCC	SN75176	32	50	—	—	O ¹³	✓	✓
	SNxxLBC176A	5	15	30	12	65, 75	8-pin SOIC, DIP	SN75176	32	50	—	—	O	✓	✓
Full-Duplex Transceivers	SNxxLBC182	5	30	0.25	15	65, 75	8-pin SOIC, DIP	SN75176	128	70	✓	—	O	✓	✓
	SNxxLBC184 ¹⁴	5	25	0.25	15	65, 75	8-pin SOIC, DIP	SN75176	128	70	✓	—	O	✓	✓
	SNxxHVD1176 ¹⁵	5	6	25	4	65, 75	8-pin SOIC	SN75176	128	40	—	✓	T	✓	✓
	SNxxLBC179	5	5	10	2	65, 75	8-pin SOIC, DIP	SN75179	32	45	—	—	O	✓	✓
Quad Drivers	SNxxLBC179A	5	15	30	12	65, 75	8-pin SOIC, DIP	SN75179	32	50	—	—	O	✓	✓
	SNxxLBC180	5	5	10	2	65, 75	14-pin SOIC, DIP	SN75180	32	45	—	—	O	✓	✓
	SNxxLBC180A	5	15	30	12	65, 75	14-pin SOIC, DIP	SN75180	32	50	—	—	O	✓	✓
	SNxxLBC172	5	7	10	2	65, 75	16/20-pin DIP/SOIC	AM26LS31	N/A	N/A	—	—	N/A	—	✓
Quad Receivers	SNxxLBC172A	5	23	30	13	65, 75	16/20-pin DIP/SOIC	AM26LS31	N/A	N/A	—	—	N/A	✓	✓
	SNxxLBC174	5	7	10	2	65, 75	16/20-pin DIP/SOIC	MC3487	N/A	N/A	—	—	N/A	—	✓
	SNxxLBC174A	5	23	30	13	65, 75	16/20-pin DIP/SOIC	MC3487	N/A	N/A	—	—	N/A	✓	✓
	SNxxLBC173	5	20	10	2	65, 75	16-pin SOIC, DIP	AM26LS32	32	45	—	—	O	✓	—
Triple Transceivers	SNxxLBC173A	5	20	50	6	65, 75	16-pin SOIC, DIP	AM26LS32	32	40	—	✓	T	✓	✓
	SNxxLBC175	5	20	10	2	65, 75	16-pin SOIC, DIP	MC3487	32	45	—	—	O	✓	—
	SNxxLBC175A	5	20	50	6	65, 75	16-pin SOIC, DIP	MC3487	32	40	—	✓	T	✓	✓
	SNxxLBC170 ¹⁶	5	20	30	12	65, 75	20-pin SSOP, SOIC	SN75ALS170	32	40	—	—	O	✓	✓
	SNxxLBC171 ¹⁶	5	20	30	12	65, 75	20-pin SSOP, SOIC	SN75ALS171	32	40	—	—	O	✓	✓

¹For xx, choose temperature code from Temperature Options column:

55 = Military Range, -55 to 125°C

65 = Industrial Range, -40 to 85°C

75 = Commercial Range, 0 to 70°C

²NoN = Number of Nodes, Based on Unit Load Definition³RIH = Receiver Input Hysteresis, Typical Values in mV⁴CSR = Controlled Slew Rate⁵SD = Shutdown Mode⁶FS = Fail-safe⁷GFO = Glitch-free Operation, during Power-Up and Power-Down for Live Insertion⁸TSP = Thermal Shutdown Protection⁹T = True Fail-safe includes Open and Shorted¹⁰Wide Common-Mode¹¹Receiver Equalization, Wide Common-Mode¹²Cost-Effective¹³O = Open Fail-safe¹⁴Integrated Transient Voltage Suppression¹⁵PROFIBUS Transceiver¹⁶HVD SCSI Fast-20

New devices indicated in red.

REAL WORLD SIGNAL PROCESSING™


 TEXAS
INSTRUMENTS

RS-485

ESD Protection: is a major reliability issue during handling, assembly, insertion and removal, so protection structures are essential on each pin and especially on bus-pins to protect against electrostatic discharges encountered. Texas Instruments (TI) offers a minimum 2-kV HBM-ESD protection on all their parts, and higher protection on some selected parts at a very reasonable cost.

Unit Load: RS-485 specifies a hypothetical unit load and the maximum number of receivers/transmitters that can be connected to each cable with this specified load. To connect more nodes to the bus, TI offers parts with lower unit loads such as 1/2, 1/4 and 1/8.

Fail-Safe: provides a known receiver output when a valid input signal is not present. There are different kinds of fail-safe options: Open-Circuit and Shorted-Bus conditions. True fail-safe includes open and shorted.

Controlled Slew Rate: limits the speed of the driver output signals thereby reducing the high-frequency components. This improves signal fidelity for longer cables.

Integrated Transient Voltage Suppression: is built-in protection against high-energy noise transients. This provides a substantial increase in reliability over most existing devices. Integrated transient voltage suppression can decrease parts count by substituting for external protection components such as diodes.

Power-Up and Power-Down Glitch-Free Operation: provides glitch-free drivers outputting only one transition, from high impedance to a low or high state when powering up, and the reverse when powering down, removing data corruption risk due to the application of power to an unpowered device.

Thermal Shutdown Protection: is designed to protect the part from excessive heat due to faulty line conditions by turning the part off at a safe junction temperature.

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Device Nomenclature

SN	65	LBC	176	D	R					
						Optional Carrier Suffix: R = Tape and Reel				
						Package Type: P, N = DIP FK = LCCC D = SOIC DW = Wide SOIC DB = SSOP				
						Device Number				
						Process Technology:				
						No Suffix = Bipolar (Mature, up to 10 Mbps, 2-kV HBM ESD)				
						ALS = Advanced Low Power Schottky (Mature, up to 30 Mbps, 2-kV HBM ESD)				
						LBC = LinBiCMOS™ (Low power, up to 50 Mbps, up to 15-kV HBM ESD)				
						HVD = Advanced LBC (Low power, up to 40 Mbps, up to 16-kV HBM ESD)				
						Temperature Range: 75 = Commercial (0°C to +70°C) 65 = Industrial (-40°C to +85°C) 55 = Military (-55°C to +125°C)				
						Standard Prefix				

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