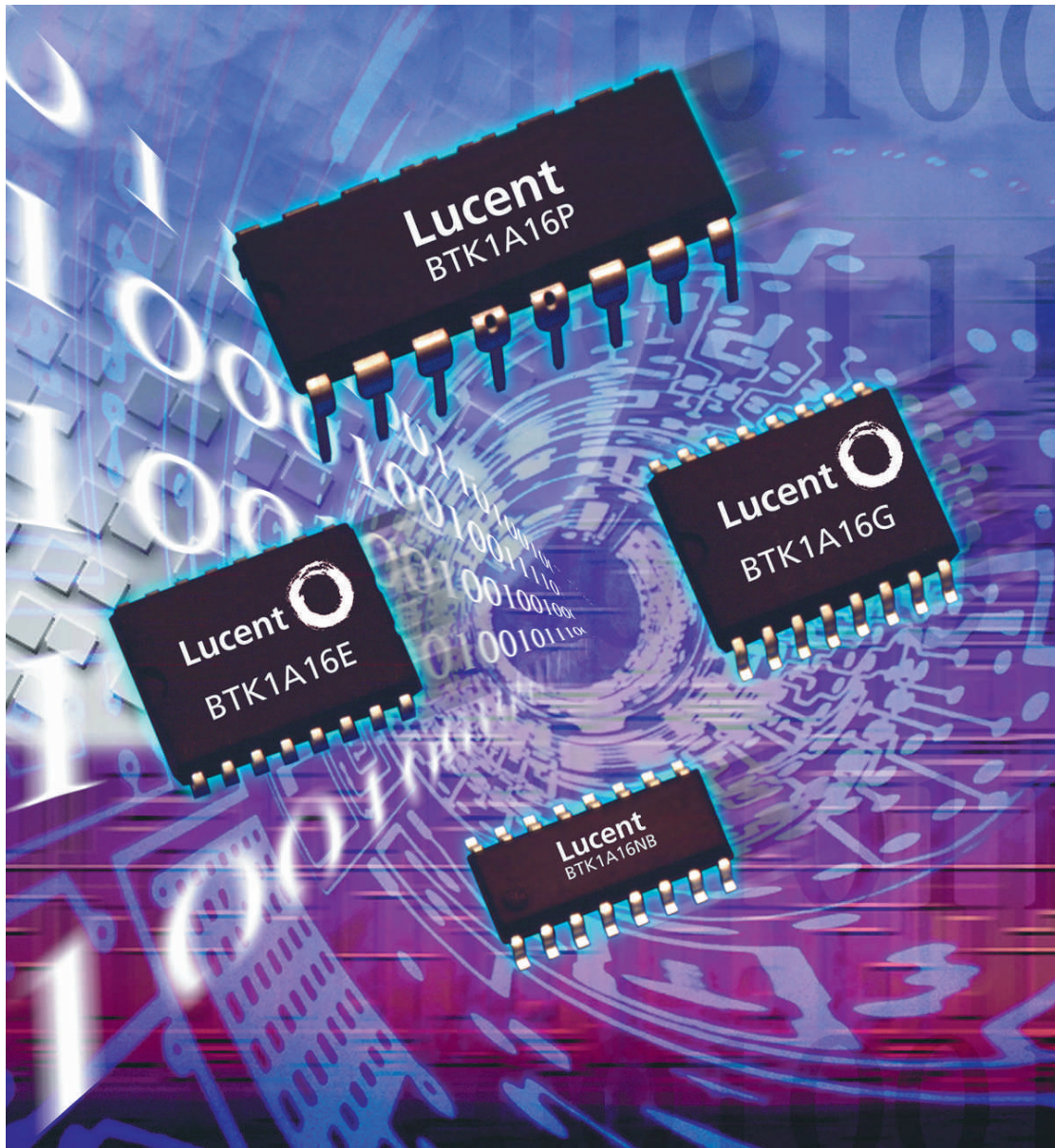




High-Speed Interface Products Data Transmission Devices



High-Speed Interface

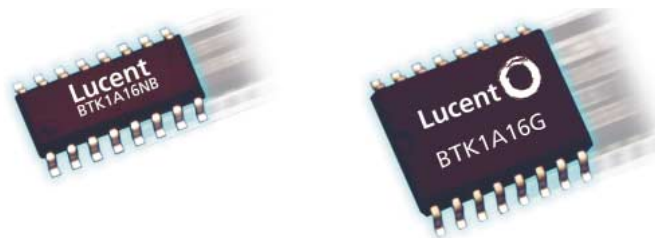
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Lucent Technologies High-Speed Interface Products Data Transmission Devices

The High-Speed Interface product family offers a comprehensive selection of line drivers, receivers, and transceivers designed using balanced pseudo-emitter-coupled logic levels for signal transmission. Applications are digital buses, digital backplane interconnection, LANs, personal computers, mainframes, computer peripherals, copiers, and instrumentation. These devices are compatible with the general-trade 26LS31, 26LS32, and DS8923 parts.

The devices in the Data Transmission Devices line are categorized by their type and termination configuration. The drivers, receivers, and transceivers operate at 400 Mbits/s using a technology known as Bipolar Enhanced Self-aligned Technology (BEST). Lucent offers quad drivers, quad receivers, and dual transceivers with either unterminated configurations to allow the user to match line conditions with external resistors or with on-chip, 100 Ω equivalent, terminated configurations to save board space. They are available in multiple package types including a 16-pin DIP, J-lead SOJ, and 16-pin gull-wing SOIC, and SOIC narrow body.

All Data Transmission Devices products use balanced pseudo-ECL levels for signal transmission. Pseudo-ECL levels are ECL levels shifted by 5 V to run on a single +5 V power supply. The drivers are designed so the falling edge characteristics are the complement of the rising edge characteristic when driving a 100 Ω line. As a result, they emit low levels of electromagnetic radiation (EMR) enabling systems to comply with new global EMR standards, which can facilitate system designs. These devices are excellent for use where the minimization of electromagnetic interference (EMI) is required.



Drivers

The Lucent Quad Differential Line Driver integrated circuits transmit digital data over balanced transmission lines. They translate input TTL levels to differential, pseudo-emitter-coupled logic (pseudo-ECL) output levels. These devices are pin-equivalent to the general-trade 26LS31 device. They offer, however, increased speed, decreased power consumption, and significantly lower levels of electromagnetic interference (EMI) over the 26LS31 parts. All devices in this family have four drivers with a common enable function. These line drivers are compatible with many receivers, including the Lucent 41-Series receivers and transceivers as well as the general-trade 26LS32 devices.

Part Number	Prop Delay tP1, tP2 Max. (ns)	ttLH, ttHL Max. (ns)	Output Voltage		Icc Enable Max. (mA)	Icc Disable Max. (mA)	ESD (HBM) Min. (V)	Transient Protection	Termination Resistors	Comments- Features
			V _{OH} Typ. (V)	V _{OL} Typ. (V)						
BDG1A*	2.0	2.0	4	3	40	65	>2500			
BDP1A†	2.0	2.0	4	3	200	160	>2500			BDG1A with termination resistors
BDGLA*	2.0	2.0	3	2	16	45	>2500			Similar to BDG1A with low power, symmetric V _{OL} , lower 3-state voltage
BPNGA*	2.0	2.0	4	3	40	65	>3000	Y		BDG1A with transient protection
BPNPA†	2.0	2.0	4	3	200	160	>3000	Y	Y	BDG1A with transient protection and termination resistors

* Part numbers available in DIP (P), SOJ (E), SOIC (G), and narrow-body SOIC (NB).

† Not available in narrow-body SOIC (NB).

Receivers

The Lucent Quad Differential Line Receiver integrated circuits receive digital data over balanced transmission lines. They translate differential input logic levels to TTL output logic levels. These devices are pin-equivalent to the general-trade 26LS32 device; however, they offer increased speed and decreased power consumption. All devices in this family have four receivers with a common enable function. These receivers are compatible with the Lucent 41-Series drivers and transceivers as well as the general-trade 26LS3X devices.

Part Number*	Rise/Fall Prop Delay tPLH, tPHL	Vin Offset ttLH, ttHL Max. (ns)	Icc Voltage Max. (V)	Icc Enable Max. (mA)	ESD Disable Max. (mA)	(HBM) Min. (V)	3-State Outputs	Termination Resistors	Comments-Features
BRF1A	4.0	3.0	0.03	32	45	>800	Y	N	
BRR1A	4.0	3.0	0.03	32	45	>800	Y	Y	BRF1A with differential input termination resistors
BRT1A	4.0	3.0	0.03	32	45	>800	Y	Y	BRF1A with input termination resistors
BRF2A	4.0	3.0	0.03	32	45	>2000	Y	N	Similar to BRF1A with improved ESD protection
BRS2A	4.0	3.0	0.15	32	45	>2000	Y	N	Similar to BRF2A with additional input offset

* Part numbers available in DIP, J-lead SOIC, gull-wing SOIC, and narrow-body SOIC.

Transceivers

The Lucent Dual Differential Line Transceiver integrated circuits transmit and receive digital data over balanced transmission lines and are compatible with Lucent 41-Series drivers and receivers. The dual drivers translate input TTL logic levels to differential, pseudo-ECL output levels. The dual receivers convert differential input logic levels to TTL output levels. Each driver pair and receiver pair have a common enable control. This feature allows serial data and a control clock to be transmitted and received on a single integrated circuit.

Part Number*	Driver		Receiver		Icc Enable Max. (mA)	Icc Disable Max. (mA)	ESD (HBM) Groups (V)	Enable/Disable	Termination Resistors		Comments-Features
	Prop Delay tPLH, tPHL Max. (ns)	Rise/Fall ttLH, ttHL Max. (ns)	Prop Delay tPLH, tPHL Max. (ns)	Rise/Fall ttLH, ttHL Max. (ns)					Drvr.	Rcvr.	
BTK1A	2.0	2.0	4.0	3.0	35	65	>800	(2 Drivers) (2 Receivers)			
BTL1A	2.0	2.0	4.0	3.0	115	115	>800	(2 Drivers) (2 Receivers)	Y		BTK1A with driver termination resistors
BTM1A	2.0	2.0	4.0	3.0	115	115	>800	(2 Drivers) (2 Receivers)	Y	Y	BTK1A with driver and receiver termination resistors

*Part numbers available in DIP (P), SOJ (E), SOIC (G), and narrow-body SOIC (NB).

Applications	Equipment	Uses
Computers	Workstations Mainframe Computers Super Computers	Backplane Communications HPPI Interface
Peripherals	ESDI Disk Drives & Controllers Graphics Boards	Serial Communications Between Disk Drive & Controller Board Also, as High-Speed Comparators Translators - PECL to TTL & Vice Versa
LANs	AUI Hub Controller Board	AUI Controller to Node Twisted-Pair Transceivers
Telecom	Switching Systems DACs Systems	Backplane Communications Also, as High-Speed Comparators
Medical	Scanning Tunneling Microscope Ultrasound Equipment EKG Equipment X-Ray Equipment	Backplane & Peripheral Communications
Industrial	Industrial Controls	Backplane & Peripheral Communications
Consumer	Copiers Photographic Systems	Backplane & Peripheral Communications
Instrumentation	Radar Systems ATE Systems	Backplane & Peripheral Communications

Why Are We Better?

- ✓ Low propagation delay—as much as 1/10th industry-standard devices
- ✓ Reduced EMI emissions—as much as 20 dB—30 dB below industry-standard devices
- ✓ Low skew between driver outputs—as little as 1/10th industry-standard devices
- ✓ Supports data rates to 400 Mbits/s—as much as 10 times industry-standard devices
- ✓ Pin equivalent to industry-standard devices—allows for easy migration to the Data Transmission Devices
- ✓ Integrated driver pull-down resistors and receiver impedance matching resistors available on-chip
- ✓ Multiple package types available—DIP (300 mils), SOJ (300 mils), SOIC (300 mils), and SOIC/NB (150 mils)



For additional information, contact your Microelectronics Group Account Manager or the following:

- Internet
<http://www.lucent.com/micro>
- e-mail
docmaster@micro.lucent.com

- Microelectronics Group
Lucent Technologies Inc.
555 Union Boulevard
Room 30L-15P-BA
Allentown, PA 18103
1-800-372-2447
FAX 610-712-4106

In Canada, call:
1-800-553-2448
FAX 610-712-4106

- Microelectronics Group Asia/Pacific
Lucent Technologies Singapore Pte. Ltd.
77 Science Park Drive
#03-18 Cintech III
Singapore 118256
Tel. (65) 778 8833
FAX (65) 777 7495

- Microelectronics Group
Lucent Technologies (China) Co., Ltd.
A-F2, 23/F, Zao Fong Universe Building
1800 Zhong Shan Xi Road
Shanghai 200233
P. R. China
Tel. (86) 21 6440 0468, ext. 316
FAX (86) 21 6440 0652

- Microelectronics Group
Lucent Technologies Japan Ltd.
7-18, Higashi-Gotanda 2-chome
Shinagawa-ku, Tokyo 141
Japan
Tel. (81) 3 5421 1600
FAX (81) 3 5421 1700

For data requests in Europe:

- Microelectronics Group Dataline
Tel. (44) 1189 324 299
FAX (44) 1189 328 148

For technical inquiries in Europe:

- Germany: **(49) 89 95086 0** (Munich)
- United Kingdom: **(44) 1344 865 900** (Ascot)
- France: **(33) 1 40 83 68 00** (Paris)
- Sweden: **(46) 8 600 7070** (Stockholm)
- Finland: **(358) 9 4354 2800** (Helsinki)
- Italy: **(39) 02 6608131** (Milan)
- Spain: **(34) 1 807 1441** (Madrid)

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