

# Product Specification

## GBIC RJ45 1000

### 1000BASE-T Copper GBIC Transceiver



#### 1. Product Features

- Up to 1.25 Gb/s bi-directional data links
- Compliant with IEEE 802.3z, IEEE 802.3ab compliant
- Compliant with GBIC Specification Revision 5.5
- SCA-2 Host connector
- Hot Pluggable
- Support 1000BASE-T full duplex default operating mode
- RJ-45 connector
- Auto-sense MDI/MDIX
- Power supply 3.3V/5V
- RoHS Compliance
- Operating temperature range: 0°C to 70°C. GBIC footprint

#### 2. Applications

1.25 GBd Gigabit Ethernet

#### 3. Product Description

GBIC RJ45 1000 Copper GBIC transceivers are based on Gigabit Ethernet IEEE 802.3 standard and 1000BASE-T standard and provide a quick and reliable interface for the Gigabit Ethernet application. The 1000BASE-T physical layer PHY can be accessed via I<sup>2</sup>C, allowing access to all PHY setting and features. In addition, they comply with the GBIC Specification Revision 5.5.

#### 4. General Specification

Parameter	Symbol	Min.	Typical	Max.	Unit
Data Rate	DR			1000	Mb/sec <sup>[1]</sup>
Cable Length	CL			100	M <sup>[2]</sup>
Bit Error Rate	BER			10-12	
Operating Temperature	TOP	0		70	V <sup>[3]</sup>
Storage Temperature	TSTO	-40		85	°C <sup>[4]</sup>
Supply Current	IS		310	375	mA <sup>[5]</sup>
Input Voltage	VCC	3.14	5	5.5	V <sup>[6]</sup>
Maximum Voltage	VMAX			6	V <sup>[7]</sup>
Surge Current	Isurge			30	mA <sup>[8]</sup>

**Notes:**

- [1] EEE 802.3
- [2] Category 5 UTP
- [3] Case temperature
- [4] Ambient temperature
- [5] For electrical power interface
- [6] Referenced to GND. For electrical power interface
- [7] For electrical power interface
- [8] Hot Plug above steady state current. For electrical power interface

#### 5. High Speed Electrical Interface Host-GBIC

Parameter	Symbol	Min.	Typical	Max.	Unit
Differential Input Voltage	VINDIFF	500		2000	mV <sup>[1]</sup>
Differential Output Voltage	VOUIDIFF	370		2000	mV <sup>[1]</sup>
Rise/Fall Time (20% -80%)	TR-F		250		psec
Tx Input impedance	ZIN		75		ohm <sup>[2]</sup>
Rx Output impedance	ZOUT		75		ohm <sup>[2]</sup>

**Notes:**

- [1] Differential peak-peak
- [2] Single ended

#### 6. High Speed Electrical Interface Transmission Line-GBIC

Parameter	Symbol	Min.	Typical	Max.	Unit
Line Frequency	FL		125		MHz <sup>[1]</sup>
Tx Output Impedance Differential	ZOUT_T		100		Ohm
Rx Input Impedance Differential	ZIN_RX		100		Ohm

**Notes:**

- [1] 5-level encoding

## 7. Low Speed Electrical Signal

Parameter	Symbol	Min.	Max.	Unit
GBIC Output Low	VOL	0	0.5	V <sup>[1]</sup>
GBIC Output High	VOH	Host_VCC - 0.5	Host_VCC + 0.5	V <sup>[1]</sup>
GBIC Input Low	VIL	0	0.8	V <sup>[1]</sup>
GBIC Input High	VIH	2	VCC + 0.3	V <sup>[1]</sup>

**Notes:**

[1] External 4.7k - 10k ohm pull-up to Host\_VCC.

## 8. Pin Descriptions

Pin	Symbol	I/O Type	Functional Description
1	RX_LOS	Output	Receiver Loss of Signal, Logic high, Open collector compatible 4.7K to 10K Ohm pulls up to VDDT on host.
2	RGND		Receiver Ground
3	RGND		Receiver Ground
4	MOD_DEF(0)	Output	Module Definition 0 TTL Low
5	MOD_DEF(1)	Input	Module Definition 1 Two wire serial ID interface SCL, 4.7K to 10K Ohm pull up to VDDT on host
6	MOD_DEF(2)	I/O	Module Definition 2 Two wire serial ID interface SDA, 4.7K to 10K Ohm pull up to VDDT on host
7	TX_DISABLE	Input	Transmitter Disable - Module disable on high or open ( <b>No Used</b> )
8	TGND		Transmitter Ground
9	TGND		Transmitter Ground
10	TX_FAULT	Output	Transmitter Fault Indication, Logic high, open collector Compatible , 4.7K to 10K Ohm pull up to VDDT on host
11	RGND		Receiver Ground
12	-RX_DAT	Output	Inverse Received Data Out, Differential PECL, at AC couple
13	+RX_DAT	Output	Received Data Out, Differential PECL, at AC couple
14	RGND		Receiver Ground
15	VDDR	Input	Receiver Power
16	VDDT	Input	Transmitter Power
17	TGND		Transmitter Ground
18	+TX_DAT	Input	Transmitter Data In, Differential PECL, AC couple
19	-TX_DAT	Input	Inverse Transmitter Data In, Differential PECL, AC couple
20	TGND		Transmitter Ground

## 9 Mechanical Specifications

(Unit:mm)

