

High Speed Serial Transceiver Line Interface Module



in Small package with up to 1.250 GBs Data Rate.
Ruggedized

- R** High Performance, low cost alternative to fiber system.
- R** Transmitter includes transformer coupled output for 15 meter 100/150Ω Quad cable.
- R** Receiver includes transformers coupled input, adaptive cable equalizer and amplifier with CML data outputs.
- R** Low transmit/receive jitter
- R** Low Power dissipation; 363 mW maximum (245 mW typical)
- R** Operating Temperature -55°C to +125°C, Storage Temperature -55°C to +125°C
- R** Absolute maximum supply voltage Vcc+6.0VDC
- R** Absolute maximum current output of Pin 1 (Do), Pin 2 (Do/)...25 mA
- R** Θjc: 66°C/Watt
- R** Supply Current 95mA maximum (75 mA typical)
- R** ESD will withstand a transient pulse of +/- 500V, per Mil-Std- 883 Method 3015.7
- R** Leadframe material Alloy 42, Final Finish Hot Solder Dipped in Sn63/Pb37
- R** Moisture Sensitivity Level: 3
- R** IC grade transfer-molded package withstands a Max 225 degree C peak temperature profile.

TM1250HSB5 Characteristics

Transmitter

Vcc = 3.15V to 3.45V

Parameter	SYM	MIN	Typical	MAX	UNIT
Input Data Voltage (Single Ended)	V _{IN}	Vcc-0.6		Vcc+0.2	V
Input Voltage - Differential	V _{in} p-p	400	800	1100	mV
Input Impedance (Single Ended)	Z _{in}	45	55	65	Ω
Input Common Mode Voltage	V _{ihcmr}	2.70	3.10	3.30	V
Differential signal level (p-p)	V _{OUT}	400	800	1000	mV
Data Rate (NRZ)	D _R	800	1250	1485	Mb/s
Total P-P transmit jitter (Dj=Rj)	T _{PK-PK}	-	125	224	ps
Output rise-fall time (20%-80%)	-	-	200	300	ps
Return loss	S ₁₁	-12	-	-	dB

Receiver

Vcc = 3.15V to 3.45V

Parameter	SYM	CONDITION	MIN	TYP	MAX	UNIT
Output Voltage (differential)	VDO	50Ω to Vcc	500		1000	mVp-p
Output commonmode voltage				Vcc-0.20		
Input Sensitivity	Vin p-p		50		700	mVp-p
Rise Time		-	-	-	100	pSec.
Data Rate	D _R		800	1250	1485	Mb/s
Total Peak-Peak Jitter	Tp-p	1250 MBs **		200	300	pSec.
Input Impedance (Differential)	Zo		100	110	150	Ω

** Tjp-p for 30 meter of 110 Ω Quad differential cable.

Note: Not available in RoHS version

Add suffix "T" to indicate Tape and Reel Packaging

Test specifications met over -55°C to +125°C

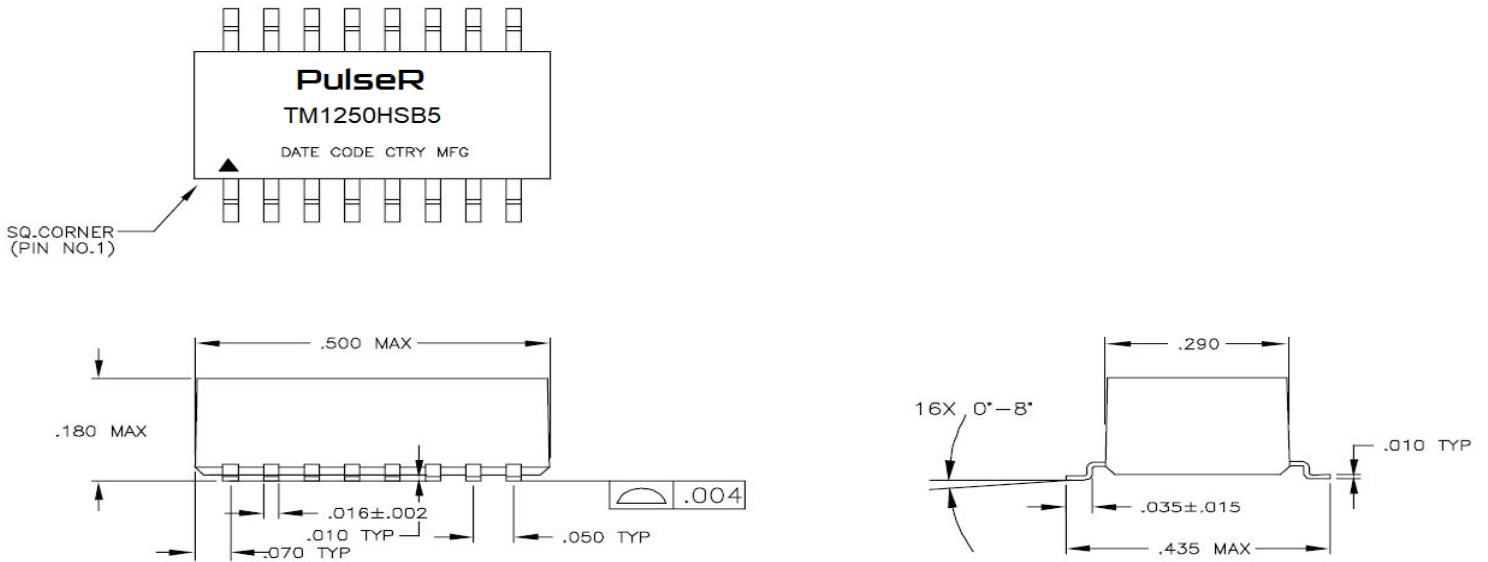
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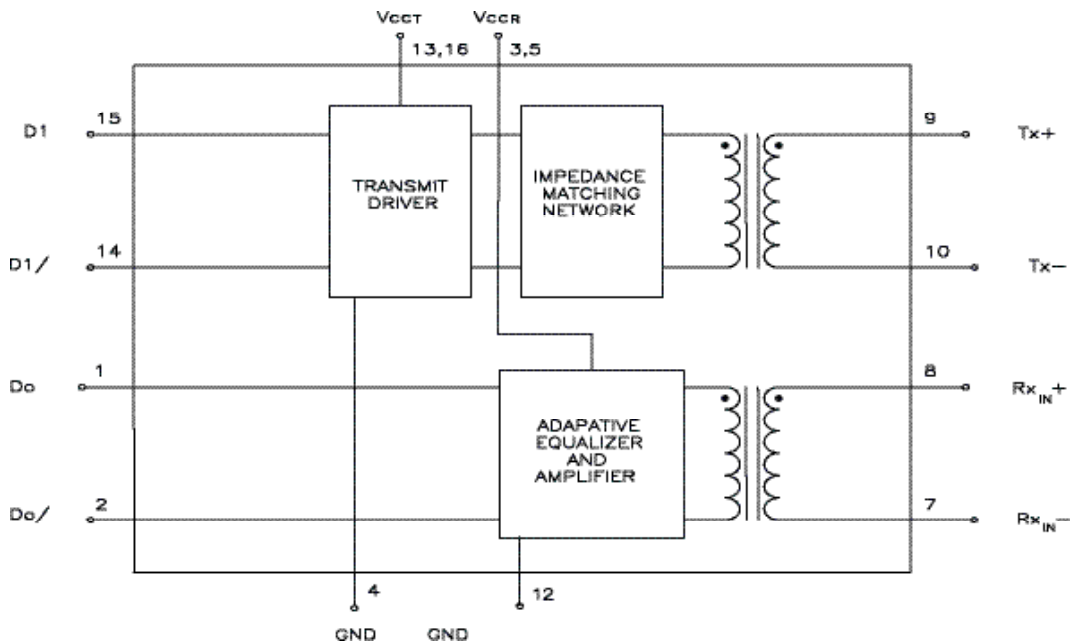
Mechanical

TM1250HSB5



Schematic

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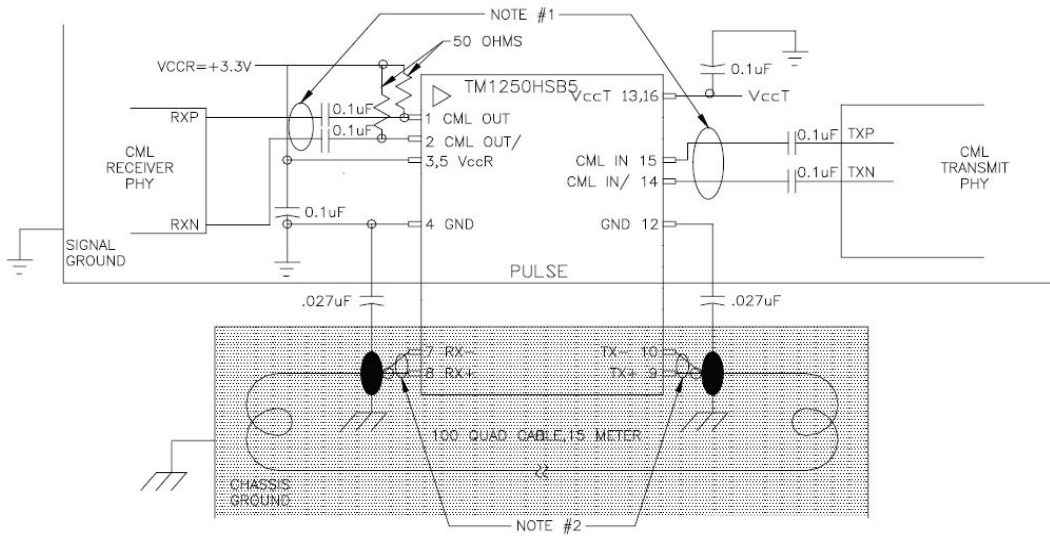
ApplicationNote:

TM1250HSB5

150 Ω Differential Cable

TM1250HSB5—APPLICATION NOTE FOR CML PHY

NOTE 1: 100 OHMS CONTROLLED IMPEDANCE DIFFERENTIAL TRACES
NOTE 2: 150 OHMS CONTROLLED IMPEDANCE DIFFERENTIAL TRACES
NOTE 3: ALL CHIP CAPACITOR HI-FREQUENCY, 0.027 μF CHIP CAPACITOR HI-VOLTAGE FOR SYSTEM ISOLATION FROM CHASSIS TO SIGNAL GROUND.



Pin number(s)	Description
3, 5	Vcc RX: + 3.30 Vdc supply for the receive side of line interface module.
1, 2	Do, Do/: CML compatible Differential outputs to PHY receiver section input.
4, 12	Gnd (V EE): The negative side of + 3.30 VDC supply for the line interface module. Connect to Signal Gnd.
7, 8	Rx in -, Rx in + : Transformer coupled differential inputs to receiver section from fare end of cable.
9, 10	TX +, TX - : Transformer coupled differential outputs to cable input.
13, 16	Vcc TX: + 3.30 Vdc supply for the transmitter side of line interface module.
14, 15	DI/, DI : CML compatible Differential data inputs to the transmit side of the module from PHY transmitter.
6, 11,	These pins are "no connect," do not apply Gnd, VCC, or signal lines to these pins.

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Application Note: (con't)

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PART IS QUALIFIED BY SIMILARITY TO PULSE PART NUMBER TM1062TXHUA (QUALIFICATION TESTING AS DEFINED TP-XXXX REQUIREMENTS)

MTBF = 574636 HOURS, PER MIL-HDBK-217F ENVIRONMENT=AIF, TEMPERATURE FACTOR = 125°C

PARTS PACKAGED IN EXTRUDED ANTISTATIC TUBES, PARTS BAKED AND DRY PACKED IAW IPC/JEDEC-J-STD-033B

MOISTURE SENSITIVITY LEVEL =3
(CLASSIFICATION TESTING IAW IPC/JEDEC-J-STD-020)

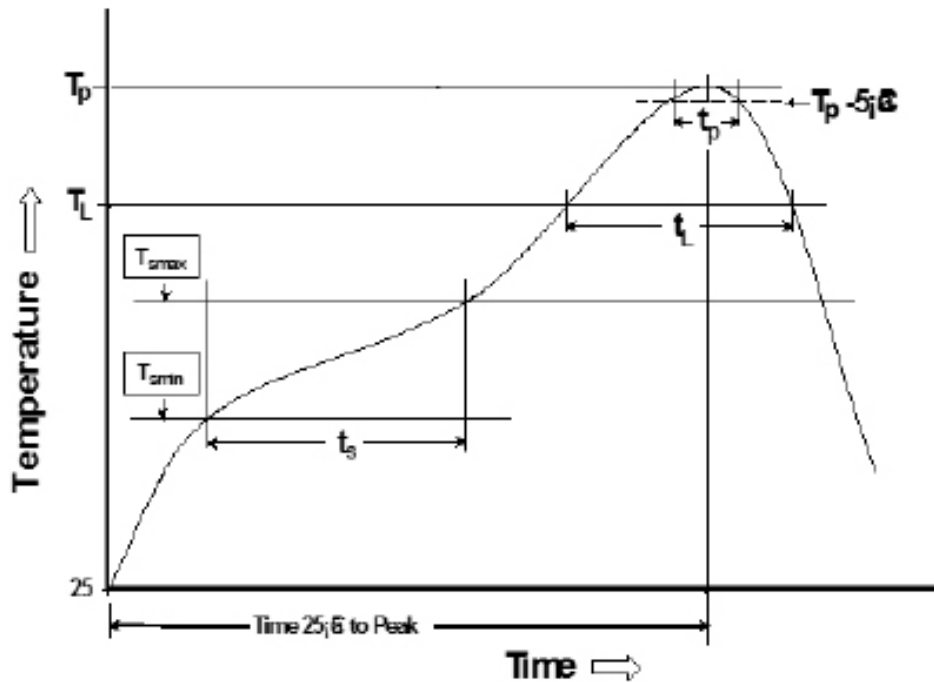
PARTS CAN BE ORDERED PACKAGED ON TAPE AND REEL CARRIER TAPE IAW EIA STD 481, REQUEST AT TIME PART IS ORDERED. ADD "T" TO INDICATE TAPE AND REEL

SPECIAL SCREENING TESTS, AND QUALIFICATION TESTING CAN BE PERFORMED. SUBMIT REQUEST FOR QUOTATION TO SALES

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Tin/Lead Recommended Reflow Profile (Based on J-STD-020D)



T_{SMIN} (°C)	T_{SMAX} (°C)	T_L (°C)	T_P (°C MAX)	t_s (s)	t_l (s)	t_p (s MAX)	Ramp-up rate (T_L to T_P)	Ramp-down rate (T_P to T_L)	Time 25°C to peak temperature (s MAX)
100	150	183	235	60-120	60-150	20	3°C/s MAX	6°C/s MAX	360

Notes:

1. All temperatures measured on the package leads.
2. Maximum times of reflow cycle: 2.

For More Information

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