

T-41-91

BT&D

T E C H N O L O G I E S

XMT5350

LOGIC INTERFACE LASER TRANSMITTER

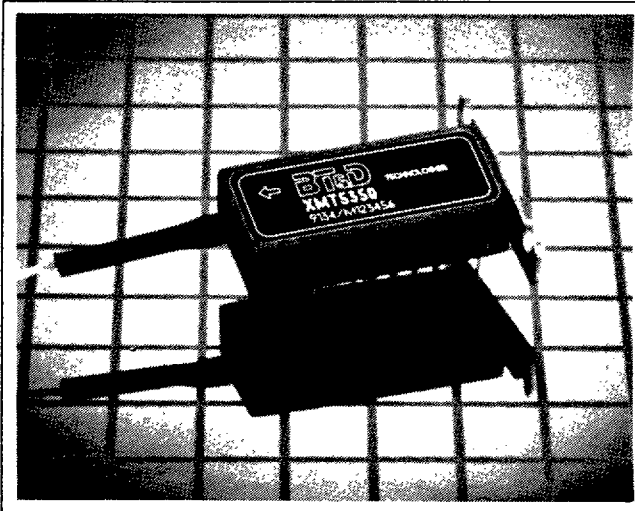
Features:

- Full compliance to STMI/OC1-3
- SONET/SDH compliant
- -40° to +85°C operation
- Compact 20 pin package
- ECL/PECL logic interface
- Multi-sourced pinout

Applications:

- SONET/SDH systems
- Fiber to the home
- Data Communications Networks

XMT5350



The BT&D XMT5350 laser transmitter is a high performance uncooled optical transmitter for CCITT SDH and ANSI SONET applications. It is designed with an ECL/PECL logic interface for 51 and 155 Mbaud transmission.

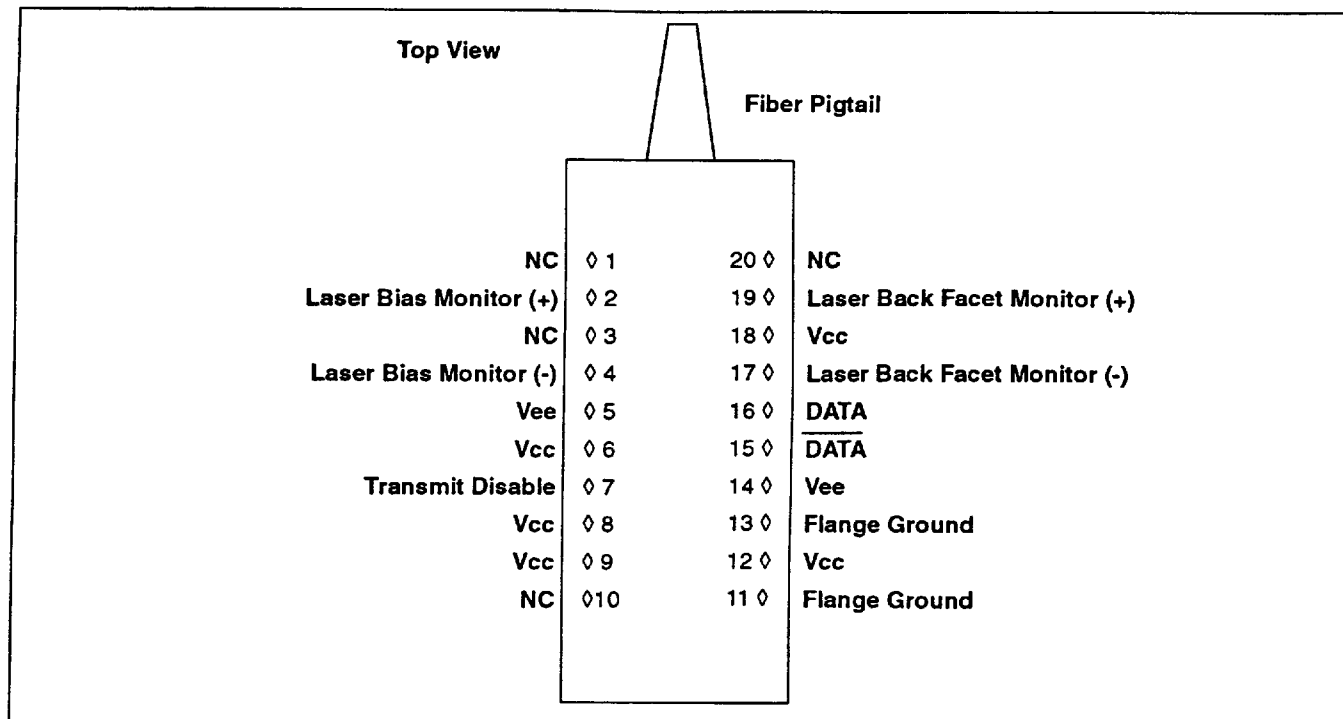
The transmitter incorporates several features which simplify system design. The XMT5350 may be operated with either +5V or -5V power supplies. Its standard 10KH ECL data interface enables direct interface with PECL or ECL logic. The compact transmitter module contains a pigtailed laser, data interface, bias and modulation control circuitry. Thus, no external components or adjustments are necessary. Finally, a laser disable input is provided to shutdown the laser for standby or test purposes.

The XMT5350 includes analog outputs which are proportional to laser current and optical power. These may be used with external circuitry to detect end-of-life, or over temperature conditions.

The transmitter is packaged in a 20 pin 0.4" pitch DIP with conventional longhorn style heatsink attachment. An evaluation board is available for this product. Contact BT&D for more details.

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Publication No. DS068	Revision 2	Issue date: Sept 28, 1992	Page 1
--------------------------	---------------	------------------------------	-----------

XMT5350 CONNECTION DIAGRAM**PIN DESCRIPTIONS:****Pin 1, 3, 10, 20, NC:**

These pins should not be connected and should be left open circuit on the application PCB.

Pin 2 Laser Bias Monitor (+):

See figure 1.

Pin 4 Laser Bias Monitor (-):

See figure 1.

Pin 5, 14, Vee:

This pin is connected to ground in +5V systems and -5V in negative supply systems.

Pin 6, 8, 9, 12, 18, Vcc:

Connect to +5V for positive supply systems and ground for -5.2V systems.

Pin 7, Transmit Disable :

Pin 7 floats to Vee when open circuited, enabling the transmitter. It must be biased within 3V of Vcc to disable.

Pins 11, 13, Flange Ground :

These pins connect to the heatsink flange. They should always be connected to circuit ground.

Pin 15, 16, DATA, DATA:

These are differential ECL inputs. If open circuited they float to Vbb (Vcc -1.3V)

Pin 17, Laser Back Facet Monitor (-):

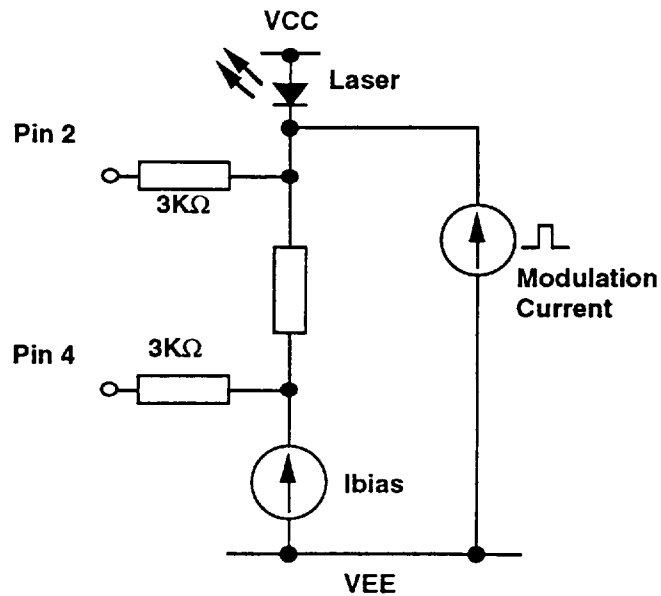
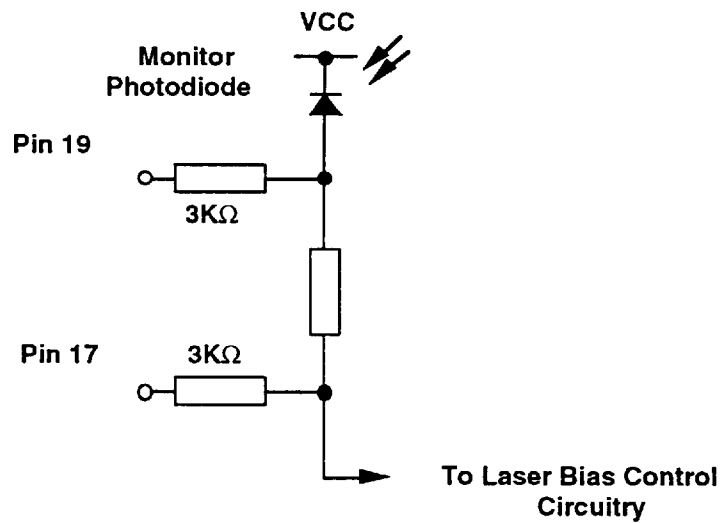
See figure 2.

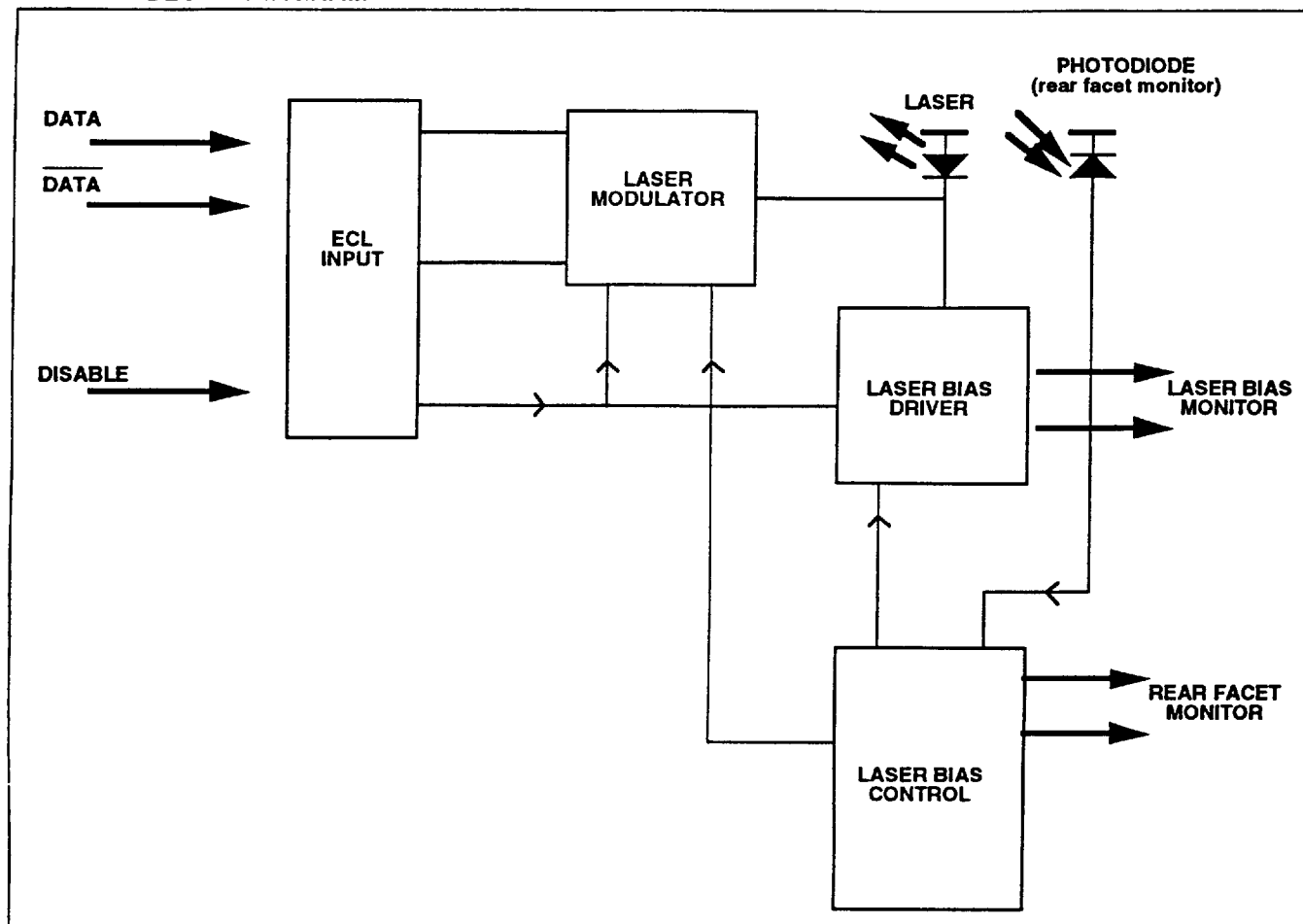
Pin 19, Laser Back Facet Monitor (+):

See figure 2.

BT&D

Publication No.	Revision	Issue date:	Page
DS068	2	Sept 28, 1992	2

Figure 1 - Laser Bias Bias Monitor Circuitry**Figure 2 - Back Facet Monitor Circuitry****BT&D**Publication No.
DS068Revision
2Issue date:
Sept 28, 1992Page
3

XMT5350 BLOCK DIAGRAM**FUNCTIONAL DESCRIPTION - XMT5350**

The ECL input allows operation from many logic families and both single-ended or differential signals. For single-ended operation both $\overline{\text{DATA}}$ and DATA are internally tied to a V_{bb} . The unused input then requires no connection or biasing.

The disable function disables the laser bias and modulator. The switching threshold is $V_{cc} - 3.2V$. If this input is not connected the module is enabled. This input may be connected to a CMOS HI or tied to V_{cc} to disable.

The module provides the necessary bias and modulation control to maintain the extinction ratio at better than 10:1 and the duty cycle distortion at less than 600ps over the operating temperature range and power supply range.

The laser bias control loop compensates for temperature induced variations in laser performance. The bias current monitor indicates the amount of DC current supplied to the laser. (This is approximately the laser threshold current).

The rear facet monitor is a signal proportional to the laser output power. This can be used as part of a HI/LO light alarm.

In the absence of data the laser will emit a mean optical power within the specified limits. The extinction ratio and duty cycle distortion are specified assuring a 50% duty cycle at the correct data rate.

BT&D

Publication No. DS068	Revision 2	Issue date: Sept 28, 1992	Page 4
--------------------------	---------------	------------------------------	-----------

PERFORMANCE SPECIFICATIONS - XMT5350**ABSOLUTE MAXIMUM RATINGS**

Parameter	Minimum	Nominal	Maximum	Units
Supply Voltage	—	—	7	V
Operating Flange Temp.		—		
A model	- 40	—	+85	°C
B model	0	—	+65	°C
Storage Flange Temp	- 40	—	+85	°C
Fiber Tensile Strength [7]	10	—	—	N/10s
Fiber Bend Radius	32	—	—	mm
Lead Soldering (Temp./Time)	—		250/10	°C/Sec

CHARACTERISTICS

Parameter	Minimum	Nominal	Maximum	Units
Center Wavelength [1]	1273	—	1355	nm
Spectral Width (RMS)[1]	—	—	4	nm
Average Output Power [2]	-15	-10	-8	dBm
Rise Time (10% - 90%)	—	—	2	ns
Fall Time (10% - 90%)	—	—	2	ns
Duty Cycle Distortion	—	—	0.6	ns
Extinction Ratio	10	—	—	dB
Bias Monitor [3]	—	0.1	—	mA/mV
Rear Facet Monitor Output [4]	5	—	50	mV
Supply Voltage [5]	4.75	5.0	5.5	V
Supply Current [6]	—	70	130	mA
Tx Disable	Vcc -3.2	—	Vcc	V

Notes:

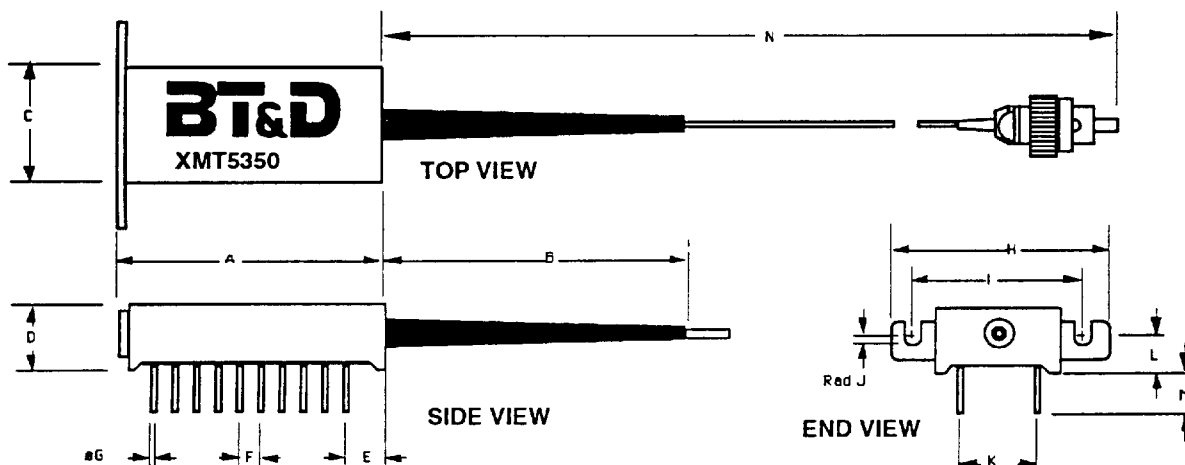
1. Over operating temperature range. A narrower operating temperature range will result in a smaller centre wavelength spread. Contact BT&D for details.
2. Other output power options are available. Contact BT&D for details
3. Common mode signal 3.5V nominal
4. Common mode signal 4.0V nominal
5. With Vee connected to - 5V, Vcc must be at 0V. With Vcc at +5V, Vee must be at 0V.
6. End of life at Tmax.
7. In a coaxial direction with fiber feed through.
8. Proven reliability is subject to on-going life testing. Contact BT&D for latest information.

BT&DPublication No.
DS068Revision
2Issue date:
Sept 28, 1992Page
5

XMT5350 DRAWING DIMENSIONS

DIM	MIN	NOM	MAX
A	33.963	_____	34.217
B	_____	_____	40.750
C	16.003	_____	16.257
D	9.016	_____	9.370
E	3.733	_____	3.987
F	_____	2.54	_____
ØG	_____	0.46	0.587
H	28.703	_____	28.957
I	22.353	_____	22.607
J	1.463	_____	1.717
K	10.033	_____	10.287
L	6.023	_____	6.277
M	6.223	_____	6.7
N	400.00	_____	1220.00

All dimensions in mm

**BT&D**Publication No.
DS068Revision
2Issue date:
Sept 28, 1992Page
6

ORDERING INFORMATIONPlease order part number - XMT5350X-XXX-XX**Allowable Part Numbers:**

XMT5350A-155

XMT5350B-155

Connector:
FP = FC/PC Polish
ST = ST™Data Rate Option:
155 = 155 MB/sTemperature Option:
A = -40°C to +85°C
B = 0-65°C**HANDLING PRECAUTIONS**Model Name:
XMT5350

1. Normal handling precautions for electrostatic devices should be taken.
2. Semiconductor lasers can be damaged by overloading or by current surges. Appropriate transient protection precautions should be taken.

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Publication No.
DS068

Revision
2

Issue date:
Sept 28, 1992

Page
7