

# CATV Optical Transmitter Module

## *TDM3S701-XXX*

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### Features

- *Built-in 1310nm MQW-DFB LD*
- *RF bandwidth 40MHz~750MHz*
- *Excellent pre-distortion circuit*
- *Integrated APC, ATC and reference signal circuit*
- *Standard output power options between 4 and 22mW*

### Application

- *Analog CATV forward path*
- *1310nm broadcast and point-to-point network*
- *1310nm high power and multi-distribute application*

## Absolute Maximum Ratings

Parameter	Symbol	Unit	Min	Max
Storage Temperature Range	Ts	°C	-20	+85
Case Operating Temperature Range	Tc	°C	-10	+60
Relative Humidity	RH	%	5	95
Power Supply Voltage	Vcc	V	± 4.75	± 5.25
Lead solder temperature	-	°C	-	260
Lead solder duration	-	S	-	10
Fiber yield strength	-	kgf	-	1
Fiber bend radius	-	mm	30	-

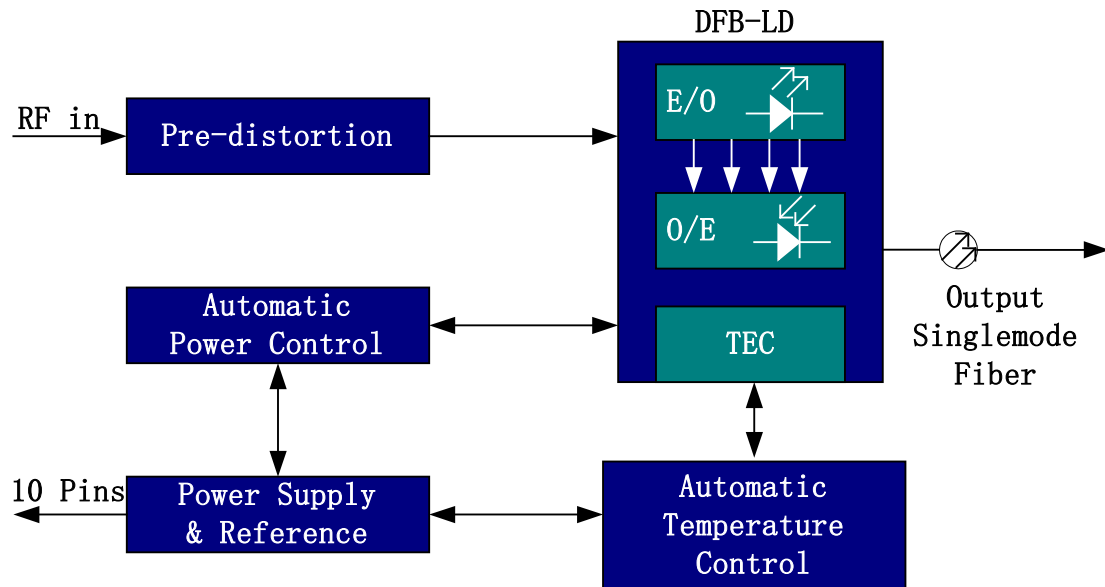
## Specifications (tested under test conditions, unless otherwise noted)

Parameter	Symbol	Unit	Min	Typ	Max	Test condition
Electrical Characteristics						
Operating Voltage	Vop	V	± 4.75	± 5	± 5.25	
Supply current	Icc	mA	-	-	90	
RF Input Level	-	dBuV	-	99	-	
Input Impedence	$R_{in}$	$\Omega$	-	75	-	
RF Input Reflection Loss	RL	dB	16	-	-	40~550MHz
			14	-	-	550~750MHz
			-	-	10	CW, $V_{RD}=5V$ , over temperature
Optical transmitter Characteristics						
Launch Optical Power	Po	mW	4	-	22	
Center Wavelength range	$\lambda_c$	nm	1290	1310	1330	CW
Spectral width	$\Delta\lambda$	nm	-	-	0.3	CW, -20dB
Side Mode Suppression Ratio	SMSR	dB	30	-	-	
Flatness in Band	-	dB	-0.75	-	+0.75	40~750MHz
Tracking Error	$\Delta P_f$	dB	-	0.5	1	CW, 0~+60oC
						$I_m = \text{const}@ P_f (I_{th} + 20\text{mA})$
Optical Connector Type	-					FC/APC, SC/APC
Analog Characteristics (59CH, 45~550MHZ, PAL)						
Composite Second Order	CSO	dBc	-	-63	-61	
Composite Triple Beat	CTB	dBc	-	-	-65	
Carrier Noise Beat	CNR	dB	50	51	-	

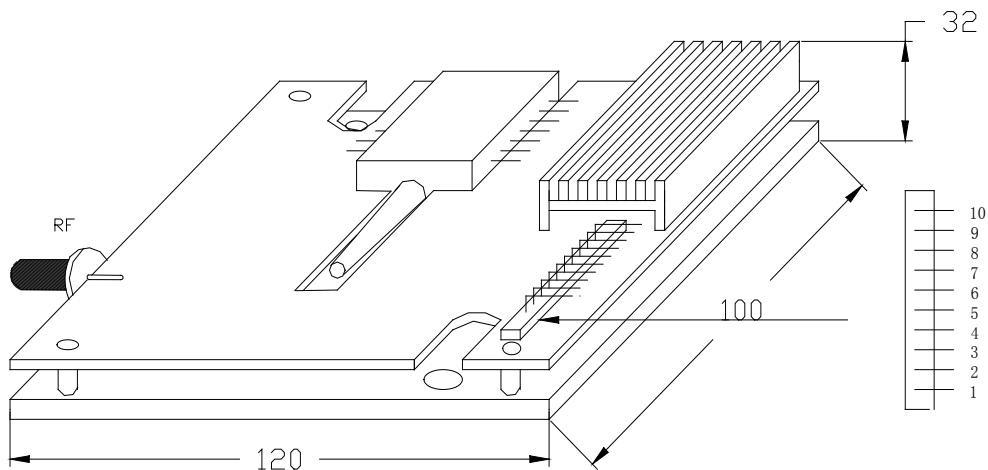
Frequency Range	-	MHz	40	-	750
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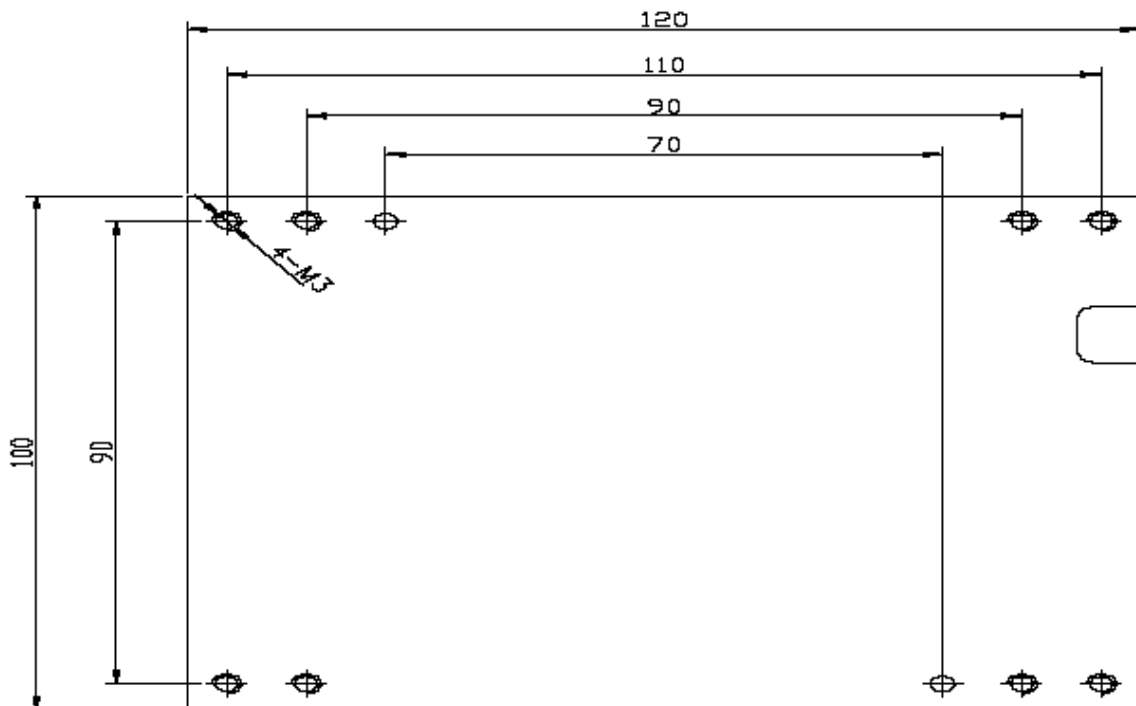
**Test conditions:** TDM3S701-XXX+(10km optical fiber) + (optical attenuator) + (optical receiver), -1 dBm receive power, T=25°C

## Block Diagram



## Package Outline *(Unit: mm)*





## Pin Description

PIN	NAME	COMMENT
1	Optical power output reference	<a href="#">1V@5mW</a> 0.2V/1mW
2	Laser current reference	<a href="#">1V@50mA</a> 0.2V/10mA
3	Laser temperature reference	2V@25°C 0.2V/1°C
4	TE cooler current reference	<a href="#">2V@0A</a> <a href="#">1V@1A(heating)</a> <a href="#">3V@1A(cooling)</a>
5	Fault indication	Normal ~ Positive, Fault ~ Negative power
6	GND	
7	Positive power	5V ± 0.25V 2A Max $V_{rpp} < 50mV$
8	GND	
9	Negative power	-5V ± 0.25V 2A Max $V_{rpp} < 50mV$
10	GND	

## Ordering Information

TDM3S701-xxx

- 100 : output optical power <4mW
- 101 : output optical power 4~6mW
- 102 : output optical power 6~8mW
- 103 : output optical power 8~10mW
- 104 : output optical power 10~12mW
- 105 : output optical power 12~14mW
- 106 : output optical power 14~16mW
- 107 : output optical power 16~18mW
- 108 : output optical power 18~20mW
- 201 : output optical power 4~6mW
- 202 : output optical power 6~8mW
- 203 : output optical power 8~10mW
- 204 : output optical power 10~12mW
- 205 : output optical power 12~14mW
- 206 : output optical power 14~16mW
- 207 : output optical power 16~18mW
- 208 : output optical power 18~20mW
- 209 : output optical power 20~22mW

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