



Coaxial-Pigtailed DFB-LD Module for Analog Application

LDM3S509-301

Features

- *Operating wavelength: 1310nm*
- *High-stability MQW-DFB laser chip*
- *Built-in InGaAsP monitor photodiode*
- *4-pin coaxial-pigtailed package, single mode coupling, FC/APC connector*
- *Built-in optical isolator*

Application

- *Mobile communication systems*
- *CATV transmission systems*
- *Other analog transmission applications*

Absolute Maximum Ratings

Parameter	Symbol	Unit	Min	Max
Optical output power from fiber end	Pf	mW	-	10
Optical isolation	ISO	dB	40	-
Fiber yield strength	-	kgf	-	1
Fiber bend radius	-	mm	30	-

Storage Temperature Range	T_s	°C	-40	85
Relative Humidity	RH	%	-	85
Laser Diode Reverse Voltage	V_{RL}	V	-	2
Laser Diode Forward Current	I_{FL}	mA	-	150
Monitor PD Reverse Voltage	V_{RPD}	V	-	15
Monitor PD Reverse Current	I_{RPD}	mA	-	2
Lead Solder Temperature	-	°C	-	260
Lead Soldering Time	-	s	-	10

Recommended Operating Conditions

Parameter	Symbol	Unit	Min	Typ	Max
Case Operating Temperature Range	T_c	°C	-20		85
Power Supply Voltage	V_{cc}		-	1.1	1.5

Specifications ($T_c=25$ °C, unless otherwise noted)

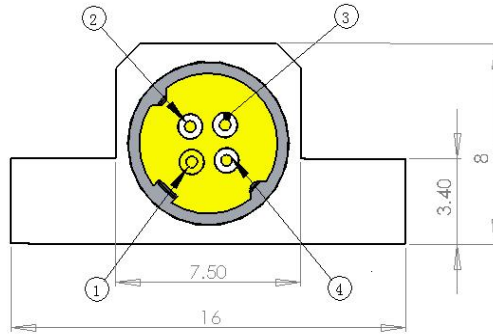
Parameter	Symbol	Unit	Min	Typ	Max	Condition
Electrical Characteristics						
Threshold Current	I_{th}	mA	-	8	15	CW
			-	-	50	CW, over temperature
Operating Current	I_{op}	mA	-	-	50	$T_c=25$ °C
			-	-	100	$T_c=85$ °C
Monitor PD Current	I_m	uA	50	-	1000	CW, $V_{rPD}=5V$
Monitor PD Dark Current	I_d	nA	-	-	10	CW, $V_{rPD}=5V$
			-	-	100	CW, $V_{rPD}=5V$ over temperature
Photodiode Capacitance	C	pF	-	-	10	$f=1MHz$, $V_{rPD}=5V$
Analog bandwidth	BW	MHz	2300			-3dB
Second order distortion	IMD2	dBc			-46	OMI=20%, Note1
Third order distortion	IMD3	dBc			-54	OMI=20%, Note1
Third order distortion	IMD3	dBc			-60	OMI=20%, Note2
Relative intensity noise	RIN	dB/Hz		-150		CW
Optical Characteristics						
Optical Output Power	P_o	mW	1.8	-		
Slope Efficiency	η	W/A	0.09	-	-	CW
Optical Wavelength	λ_c	nm	1290	1310	1330	CW
Wavelength/Temperature Coefficient	$d\lambda/dT$	nm/C	-	-	0.1	Over temperature range
Side Mode Suppression Ratio	SMSR	dB	35	-	-	CW
Spectral Width	$\Delta\lambda$	nm	-	-	1	CW, -20dB

Optical isolation	ISO	dB	40	-	-	
Tracking Error	TE	dB	-1	-	+1	CW, P ₀ =2mW

Note1: For CATV Return-path Application .2tone (13MHz, 19MHz)

Note2: for Optical Microwave Transmission Zero link loss, 2tone (1770MHz, 1772.5MHz)

Pin Description



Pin	Description (A Version)
1	LD anode (case)
2	LD cathode
3	PD cathode
4	PD anode

Package Outline

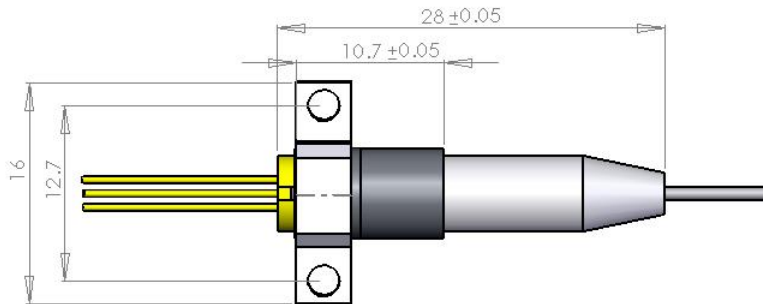


Figure 1: Tabs with 0.9mm pigtail jacket

NOTE: All dimension are in mm.

Ordering Information

Part.No.	Specifications				
	Package	Tx	Pout	Top	PIN Description
LDM3S509-301	Coaxial -pigtailed	1310nm DFB	2mW	-20~85°C	A Version

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