DFB + 10G EML 1550 nm TOSA-LC

Description

A 1550 nm DFB laser packaged with a 10G electro-absorption modulator (EAM) to form an externally modulated laser (EML). This device includes a built-in power-monitoring InGaAs photodiode and a thermoelectric cooler (TEC). The device is housed in an 8-pin TO-can package with an LC receptacle. It also features a built-in optical isolator. An optional LC flange can be added to enable easy connector attachment.

Features

- 3 mW optical power
- Built-in monitor photodiode
- Available wavelengths
  - 1550 nm
- 8 GHz cutoff frequency
- High power efficiency (up to 90%)
- Built-in TEC
- Built-in Isolator
- Up to 80 KM transmission

Applications

- Telecommunications
- RF over Fiber (RFoF)

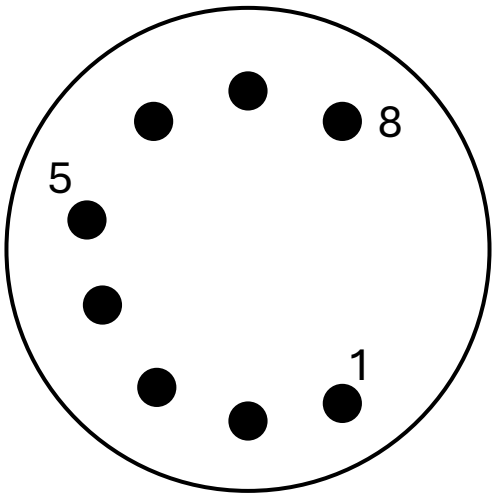
Electro-Optical Characteristics (T = 25°C)

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Forward Voltage (LD)	V_f	Laser	-	1.2	2.0	V
Threshold Current (LD)	I_{th}	Laser	-	10	-	mA
Spectral Width	Δλ	Laser	-	1	-	nm
Constant Optical Power	P_{cw}	Laser	-	3	-	mW
Center Wavelength	λ_c	T = 25°C	1540	-	1550	nm
Side-Mode Suppression	SMSR	CW, 90 mA	30	-	-	dB
Monitor Current	Im	-	50	-	2000	μA
Bandwidth	BW	-	-	8	-	GHz
Optical Isolation	ISO	-	30	-	-	dB
Thermistor	R_{th}	25°C	-	10	-	kΩ
Relative Intensity Noise	RIN	25°C	-	-	-130	dB/Hz
TEC	Qmax	-	-	-	0.6	W
	Imax	-	-	-	0.9	A
	Vmax	-	-1.2	-	1.2	V
	ΔT	-	-	40	-	K
	B Const	β	-	3930	-	K
Laser Series Resistance	R	25°C	-	8	-	Ω
Modulator Voltage	Vmod	25°C	-4	-	1	V

Absolute Maximum Rating (T = 25°C)

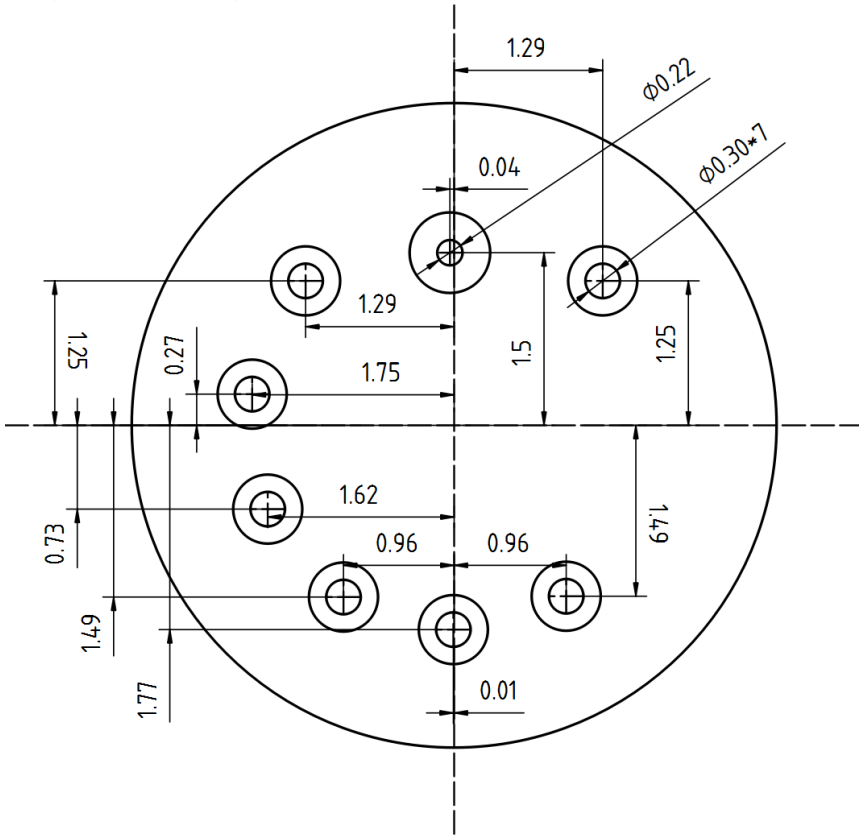
Parameter	Symbol	Condition	Min.	Max.	Unit
Reverse Voltage	V_r	Laser Photodiode	-	2 10	V
Forward Current	I_F	Laser	-	140	mA
Reverse Current	I_R	Photodiode	-	2	mA
TEC Current	I_{TEC}	-	-	1.2	A
Storage Temperature	T_{stg}	-	-25	90	°C
Storage Humidity	H_{stg}	-	-	85	% r.H.
Operating Temperature	T_{op}	-	-25	80	°C
Soldering Temperature	T_{st}	60 sec	-	200	°C
ESD Susceptibility		HBM	100	-	V

Device Pin Configuration

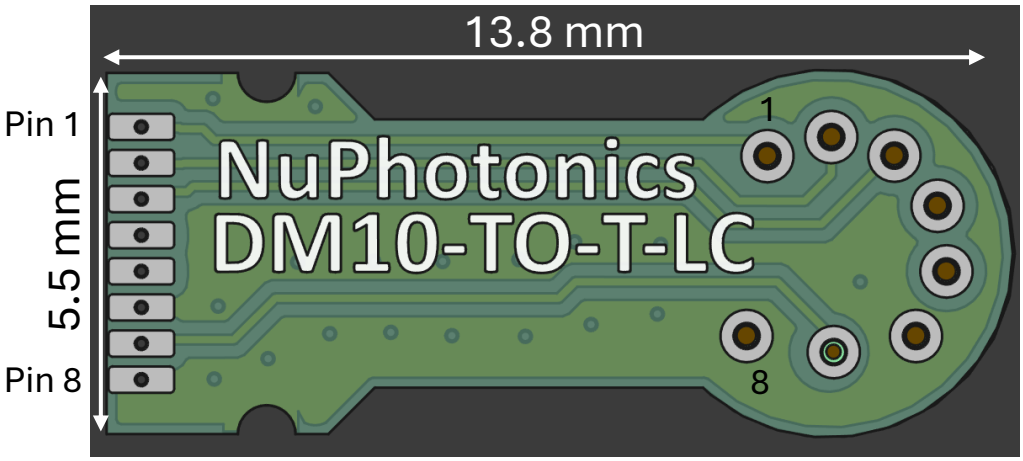


Pin #	Description:
1	Thermistor
2	Laser Anode (+)
3	Photodiode Anode (+)
4	TEC (-)
5	TEC (+)
6	Ground (GND)
7	Modulator Bias + RFin
8	Ground (GND)

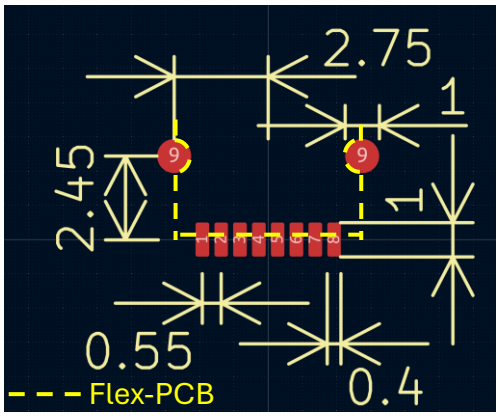
Footprint Dimensions (all units in mm)



Flexible PCB (optional for mounting device horizontally)



Recommended Footprint



Footprint note:
Pin 9 should be tied to RF/DC ground. These pins offer mechanical support to the flexible PCB.

Device Nomenclature

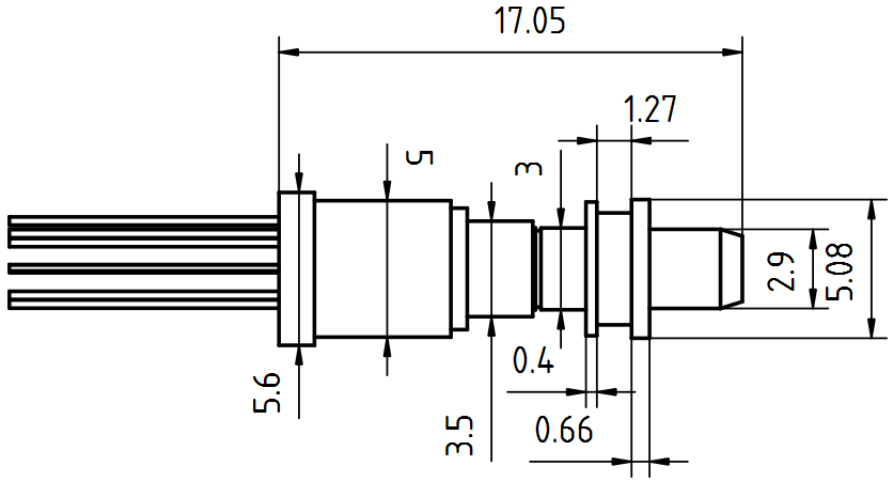
DM10-TO-T-15-LC-X

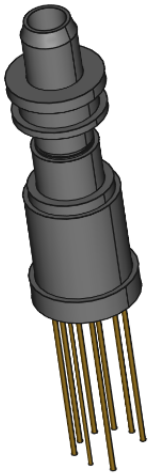
Product Line – DFB Laser + 10G Modulator
Device body style – TO-CAN
TEC
Wavelength
15 – 1550 nm
Flange
A – No Flange
B - LC Flange
Receptacle
LC – LC Receptacle

Example – DM10-TO-T-15-LC-B

1550 nm DFB + 10G modulator, TO-can package with TEC, LC receptacle, and LC flange.

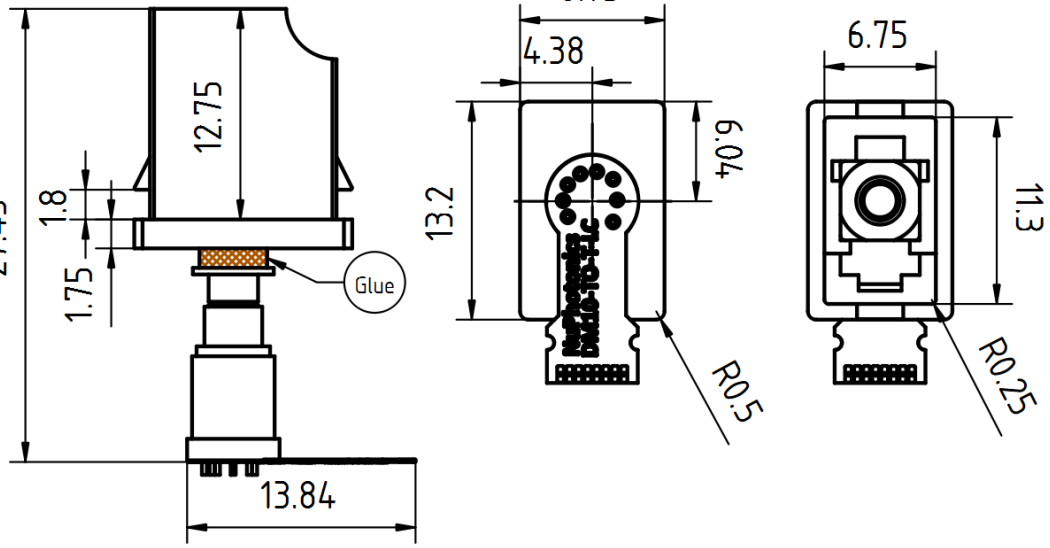
Mechanical Drawing

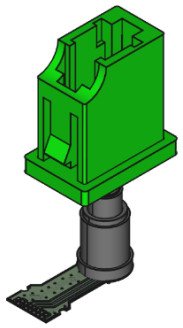




DESIGNED BY: Vinny Gjokaj DATE: Dec. 26 2025		DM10-TO-T-LC-XX 8 Pin Body- Rev 1.0 - No Flange	
SIZE A4		[All Units in mm] [Tolerances are +/- 0.1 mm unless specified]	
SCALE 5:1	WEIGHT (kg) Weight	DRAWING NUMBER Revision 1.0	SHEET A4-Paper

Mechanical Drawing (With Flange)





Notes:
[1] Shown with Flex PCB
[2] Flange mounted inline with Flex PCB.
Orthogonal mounting also available.

DESIGNED BY: Vinny Gjokaj DATE: Jan 6 2026		DM10-TO-T-15-LC-B LC Flange	
SIZE A4		[All Units in mm] [Tolerances are +/- 0.1 mm unless specified]	
SCALE 3:1	WEIGHT (kg) Weight	DRAWING NUMBER Revision 1.0	SHEET A4-Paper

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Revision History

1.1 – March 2026 – Grammatical Corrections and minor changes.

1.0 – December 2025 – Initial Release