

# NMOP-10120XX-T

## 850nm 10Gbps VCSEL LC-TOSA

### Anwendungen / Application

#### Features

- Multi-mode 850nm VCSEL
- Data rates up to 10Gbps
- High reliability VCSEL
- Optional flex or lead type
- Differential, Cathode, Anode Driven available
- Complete isolation /VCSEL, m-PD, Case
- No Attenuation Coating
- LC/SC type housing available

#### Applications

- High speed Data Communications
- 10G Gigabit Ethernet
- Fiber Channel



#### Absolute Maximum Ratings

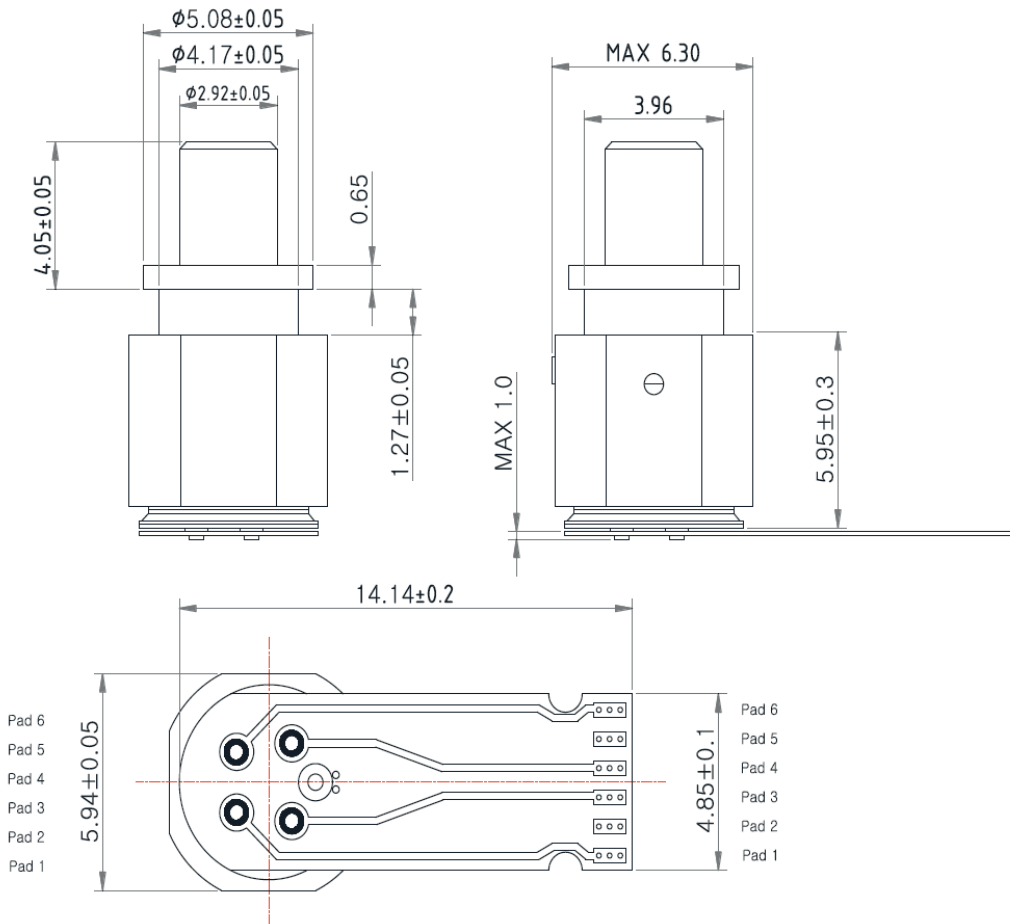
Parameter	Rating
Storage Temperature	-40 to 100° C
Operating Temperature	-40 to 85° C
Lead Solder Temperature	260° C , 10 sec
Flex Attach Temperature	370° C , 10 sec
Continuous Forward Current	10mA
Continuous Reverse Voltage	5V (@10µA)

NOTICE: Conditions exceeding those listed may cause permanent damage to the device. Devices subjected to conditions beyond the limits

Part Number	Description
NMOP-10120FA-T	850nm 10Gbps Plastic LC type TOSA, Differential drive, with flex, normal type
NMOP-10120FK-T	850nm 10Gbps Plastic LC type TOSA, Differential drive, with flex, Inverted type
NMOP-10120LA-T	850nm 10Gbps Plastic LC type TOSA, Differential drive, without flex, normal type
NMOP-10120LK-T	850nm 10Gbps Plastic LC type TOSA, Differential drive, without flex, Inverted type

**Dimensions**

Unit: mm



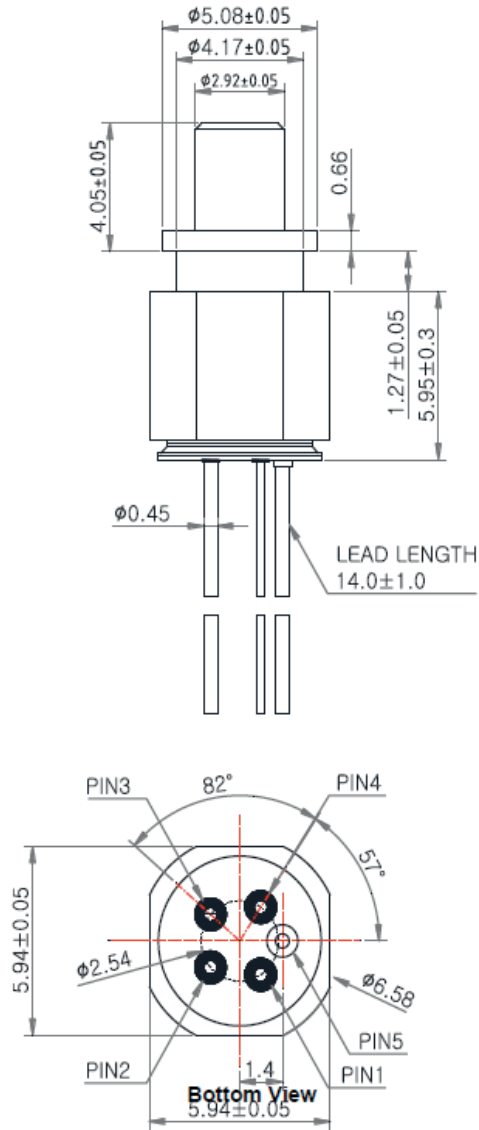
**PIN OUT**

NMOP-10120FA-T		NMOP-10120FK-T	
Number	Function	Number	Function
1	$K_{m-PD}$	1	$K_{m-PD}$
2	Case	2	Case
3	$A_{VCSEL}$	3	$K_{VCSEL}$
4	$K_{VCSEL}$	4	$A_{VCSEL}$
5	Case	5	Case
6	$A_{m-PD}$	6	$A_{m-PD}$

# NMOP-10120XX-T

## Dimensions

Unit: mm



### PIN OUT

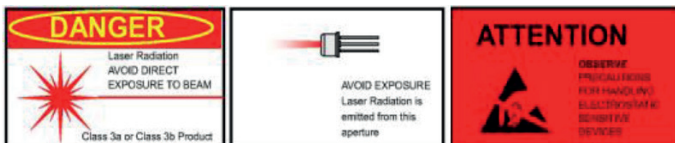
NMOP-10120LA-T		NMOP-10120LK-T	
Number	Function	Number	Function
1	$A_{VCSEL}$	1	$K_{VCSEL}$
2	$K_{m-PD}$	2	$K_{m-PD}$
3	$A_{m-PD}$	3	$A_{m-PD}$
4	$K_{VCSEL}$	4	$A_{VCSEL}$
5	GND	5	GND

**Electro-Optics Characteristics ( $T_a = 25^\circ\text{C}$  unless otherwise stated)**

Parameters	Symbol	Specified			Unit	Test Conditions
		Min.	Typ.	Max.		
Peak Fiber Coupled Optical Output Power	$P_{oc}$		500		$\mu\text{W}$	$I_f = 6\text{ mA}$ , 50/125 $\mu\text{m}$ fiber NA=0.20
Threshold Current	$I_{th}$		1.0	2.0	mA	CW
$I_{th}$ Temperature Variation	$\Delta I_{th}$		1.0		mA	$T_a = -40$ to $85^\circ\text{C}$
Slope Efficiency	$\eta$	0.04		0.16	W/A	$I_f = 6\text{ mA}$
$\eta$ Temperature Variation	$\Delta\eta / \Delta T$		-4000		PPM/ $^\circ\text{C}$	$T_a = -40$ to $85^\circ\text{C}$ at 6 mA
Coupling efficiency	$E_{FCE}$		75		%	$I_f = 6\text{ mA}$
Peak Wavelength	$\lambda_p$	840	850	860	nm	$I_f = 6\text{ mA}$
$\lambda_p$ Temperature Coefficient	$\Delta\lambda / \Delta T$		0.06		nm/ $^\circ\text{C}$	$T_a = -40$ to $85^\circ\text{C}$ at 6 mA
Spectral Bandwidth (RMS)	$\Delta\lambda$			0.45	nm	$I_f = 6\text{ mA}$
Forward Voltage	$V_f$		2.2	2.5	V	$I_f = 6\text{ mA}$
Breakdown Voltage	$V_b$		-10		V	$I_r = 10\ \mu\text{A}$
Small Signal Bandwidth	GHz	8				$I_f = 6\text{ mA}$
Rise and Fall Times	$t_R$		40		ps	Prebias Above Threshold, 20%~80%
	$t_F$		50			
Relative Intensity Noise	RIN			-130	db/Hz	10GHz BW, $I_f = 6\text{ mA}$
Series Resistance	$R_s$		80		Ohm	$I_f = 6\text{ mA}$
$R_s$ Temperature Coefficient	$dR_s / Dt$		-2000		PPM/ $^\circ\text{C}$	
Monitor Current	$I_{PD}$	0.2		0.7	mA	$P_{oc} = 0.5\text{ mW}$
Dark current	$I_D$			10	nA	$P_0 = 0\text{ mW}$ , $V_R = 3\text{ V}$
PD Reverse Voltage	$BVR_{PD}$	40			V	$P_0 = 0\text{ mW}$ , $I_R = 100\ \mu\text{A}$
PD Capacitance	C			50	pF	$V_R = 0\text{ V}$ , Freq=1MHz
				20		$V_R = 3\text{ V}$ , Freq=1MHz

**Notes**

\* These specifications are subject to change without notice



<b>NOTICE</b>	The inherent design of this component causes it to be sensitive to electrostatic discharge(ESD). To prevent ESD-induced damage and/or degradation to equipment, take normal ESD precautions when handling this product
<b>DANGER</b>	The VCSEL is a class IIIb laser and should be treated as a potential eye hazard. Due to the size of the component, the applicable warning logotype, aperture label, and certification / identification label cannot be placed on the component itself.