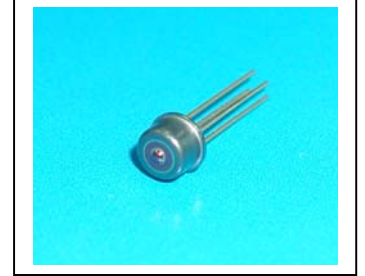


TMC-5A41-147/-247

High speed VCSEL TO-46 metal can with monitor PD

FEATURES:

- Industry TO-46 package of cap lens for multi-mode fiber communication.
- Packaged with attenuating coating and monitoring PD.
- High coupling efficiency for multi-mode fibers.
- High performance of noise and jitter characteristics.
- Design for 1.25/2.5Gbps data rate operation.
- Wide operation temperature range -40°C~85°C
- Common cathode (-147) or common anode (-247).



ELECTRO-OPTICAL CHARACTERISTICS:

PARAMETERS	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS ⁽¹⁾
Threshold Current	I_{th}		2	2.75	mA	
Slope Efficiency	η	0.08	0.12	0.16	mW/mA	$I_F=6$ mA
Wavelength	λ_P	830	850	860	nm	$I_F=6$ mA ⁽²⁾
Forward Voltage	V_F	1.6	1.8	2.1	V	$I_F=6$ mA
Rise Time(20%~80%)	T_r		0.10	0.15	ns	$I_{bias}=6$ mA
Fall Time(20%~80%)	T_f		0.13	0.15	ns	$I_{bias}=6$ mA
Series Resistance	R_S	30	45	60	Ω	$I_F=6$ mA
Spectral width (RMS)	$\Delta\lambda$			0.85	nm	$I_F=6$ mA
Relative Intensity Noise	RIN		-130	-122	dB/Hz	$I_F=6$ mA, $f=1$ GHz
Monitor Current	I_M	200		800	μ A	$P_o=500$ μ W
PD Capacitance	C_{PD}		6	10	pF	$V_R=3$ V @1MHz

Notes:

1. All parameters except mentioned are measured at $I_F=6$ mA, 25°C, CW.
2. Minimum and Maximum values are valid over the entire ambient temperature range.

THERMAL CHARACTERISTICS:

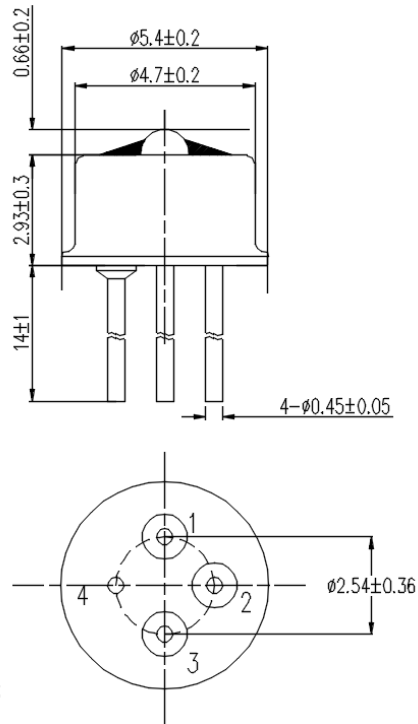
PARAMETERS	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
I_{th} Temperature Variation	ΔI_{th}			2.0	mA	$T_A=0\sim 70^\circ\text{C}$
	ΔI_{th}		0.6		mA	$T_A=-40\sim 25^\circ\text{C}$
	ΔI_{th}			1.5	mA	$T_A=25\sim 85^\circ\text{C}$
V_F Temperature Coefficient	$\Delta V_F/\Delta T$		-2.5		mV/ $^\circ\text{C}$	$T_A=0\sim 70^\circ\text{C}$, $I_F=6$ mA
η Temperature Coefficient	$\Delta \eta/\Delta T$	-0.6			%/ $^\circ\text{C}$	$T_A=0\sim 70^\circ\text{C}$, $I_F=6$ mA
λ_P Temperature Coefficient	$\Delta \lambda_P/\Delta T$		0.06		nm/ $^\circ\text{C}$	$T_A=0\sim 70^\circ\text{C}$, $I_F=6$ mA

ABSOLUTE MAXIMUM RATINGS:

PARAMETERS	MIN	MAX	UNIT	CONDITIONS
Storage Temperature	-40	125	$^\circ\text{C}$	
Operating Temperature	-40	85	$^\circ\text{C}$	
Lead Solder Temperature		260	$^\circ\text{C}$	10 seconds
Continuous Forward Current		12	mA	
Continuous Reverse Voltage		5	V	10 μ A

OUTLINE DIMENSIONS:

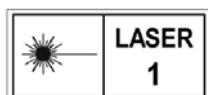
(Unit:mm)



Rev.B

Pinout:

TMC-5A41-147		TMC-5A41-247	
Number	Function	Number	Function
1	VCSEL Anode	1	VCSEL Cathode
2	VCSEL Cathode/ PD Anode	2	VCSEL Anode/ PD Cathode
3	PD Cathode	3	PD Anode
4	Case	4	Case



The VCSEL is a class 1 laser in the safety standard IEC60825-1:2014.