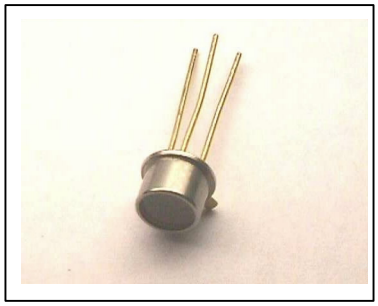
TMC-5F31-xxx

High speed VCSEL TO-46 metal can

FEATURES:



- Industry standard TO-46 package with flat window glass.
- Optimized for fiber optical communication with a monitor PD.
- Low dependence of electrical and optical characteristic over temperature.
- Symmetrical beam.
- High coupling efficiency to multi-mode fibers.
- Speed > 1 GHz.

ELECTRO-OPTICAL CHARACTERISTICS:

PARAMETERS	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS(1)
Threshold Current	I_{th}		3	6	mA	
Output Power	P_o	1	2	3	mW	I_F =12 mA(2)
Operating Current	I_{OP}		12		mA	Adjustable to establish 1.5 mW output power
Slope Efficiency	η		0.25		mW/mA	I_F=12 mA(3)
Wavelength	λ_P	830	850	860	nm	I_F=12 mA
Forward Voltage	V_F	1.7	1.9	2.3	V	I_F=12 mA
Breakdown voltage	V_{BD}	10	15		V	I_R=10 μA
Series Resistance	R_S		40		Ω	I_F =12 mA
Monitor Current	I_M	1	2		uA	V_R=5 V, P_o = 1.5 mW
Beam Divergence	θ		8		degree	I_F=12 mA(4)

Notes:

1. All parameters except mentioned are measured at I_F=12 mA, 25°C, CW.
2. Higher power can be provided under request.
3. Slope efficiency is defined as $\Delta P/(12-I_{th})$ at 25°C.
4. Beam divergence is defined as the angle of light intensity at Full Width at Half Maximum (FWHM).

THERMAL CHARACTERISTICS:

PARAMETERS	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
Thermal Resistance	R_{th}		900		°C /W	T_A=25°C
I_{th} Temperature Variation	ΔI_{th}	-1		1	mA	T_A=0~70°C
V_F Temperature Coefficient	$\Delta V_F/\Delta T$		-2.5	-3.5	mV/°C	T_A=0~70°C, I_F=12 mA
Temperature Coefficient	$\Delta\eta/\Delta T$		-0.15		%/°C	T_A=0~70°C, I_F=12 mA
$_P$ Temperature Coefficient	$\Delta\lambda_P/\Delta T$		0.06		nm/°C	T_A=0~70°C, I_F=12 mA

ABSOLUTE MAXIMUM RATINGS:

PARAMETERS	MIN	MAX	UNIT	CONDITIONS
Storage Temperature	-40	125		
Operating Temperature	-20	85		
Lead Solder Temperature		260		5 seconds
Continuous Forward Current		40	mA	
Continuous Reverse Voltage		10	V	

Fig. 1 Typical Optical Characteristics

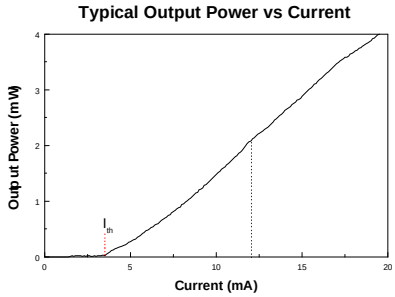


Fig. 2 Typical Electrical Characteristics

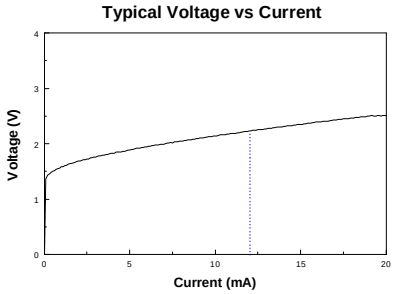
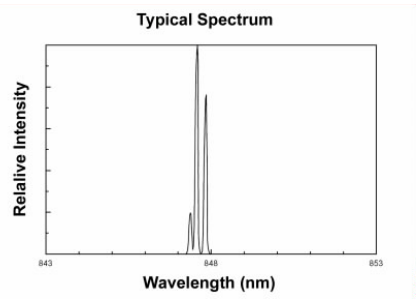
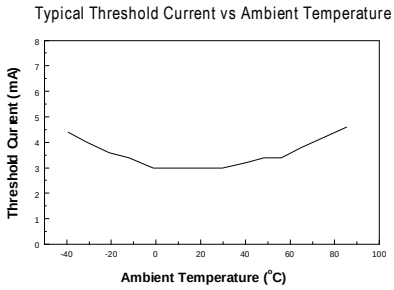


Fig. 3 Spectrum When Driving Current 15 mA



3 transverse modes typically.

Fig. 4 Temperature Dependence of Threshold Current

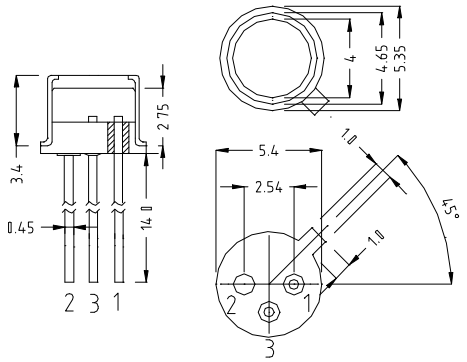


WARNING:

The VCSEL is a class IIIb laser in the safety standard ANSI Z136.1 and should be treated as a potential eye hazard.

OUTLINE DIMENSIONS:

• Unit: mm



• PINOUT:

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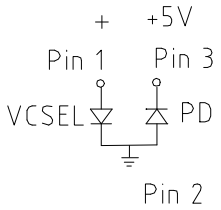

Pin 1: VCSEL Anode

Pin 2: VCSEL Cathode
PD Anode
Case

Pin 3: PD Cathode

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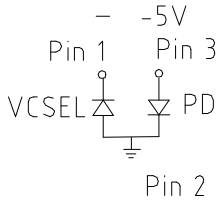

Pin 1: VCSEL Cathode

Pin 2: VCSEL Anode
PD Cathode
Case

Pin 3: PD Anode

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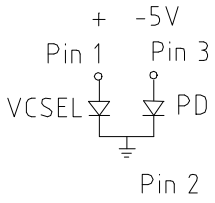

Pin 1: VCSEL Anode

Pin 2: VCSEL Cathode
PD Cathode
Case

Pin 3: PD Anode