

**Features**

- : 10mW High power VCSEL
- : 1Gbps data rates
- : 850nm wavelength range
- : Back monitor Photo diode
- : Flat window Type TO-46 Can Package
- : Other configurations available on request

**Applications**

- : High speed Data Communications
- : Gigabit Ethernet
- : Fiber Channel
- : Free Space Optics
- : Sensor

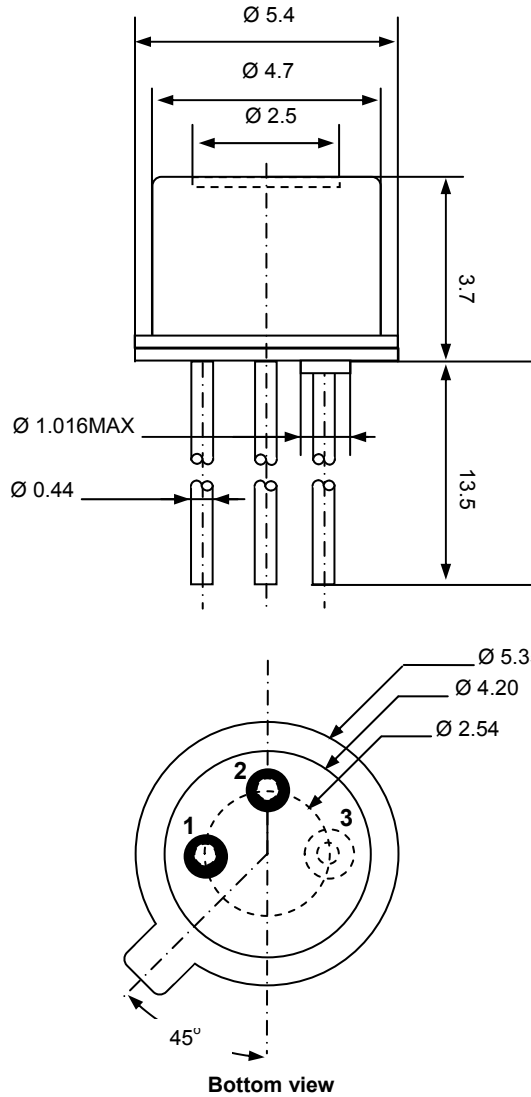
**Description**



**Absolute Maximum Ratings**

Parameter	Rating
Storage Temperature	-40 to 100 °C
Operating Temperature	0 to 70 °C
Lead Solder Temperature	260 °C, 10 sec
Continuous Forward Current	30mA
Continuous Reverse Voltage	5V (@10µA)

Dimensions



**PIN OUT**

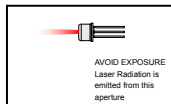
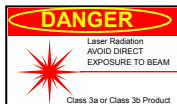
PH85-F1P1S2-KC		PH85-F1P1S2-AC	
Number	Function	Number	Function
1	A <sub>VCSEL</sub>	1	K <sub>VCSEL</sub>
2	K <sub>VCSEL</sub> , A <sub>m-PD</sub>	2	A <sub>VCSEL</sub> , K <sub>m-PD</sub>
3	K <sub>m-PD</sub>	3	A <sub>m-PD</sub>

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

Parameters	Symbol	Specified			Unit	Test Conditions
		Min.	Typ.	Max.		
Optical Output Power	$P_o$		8		mW	$I_f = 20 \text{ mA}$
Threshold Current	$I_{th}$		5		mA	CW
$I_{th}$ Temperature Variation	$\Delta I_{th}$		2.5		mA	$T_a=0$ to $70^{\circ}\text{C}$
Slope Efficiency	$\eta$	0.2	0.4		W/A	$I_f = 20 \text{ mA}$
$\eta$ Temperature Variation	$\Delta\eta / \Delta T$		-0.5		%/ $^{\circ}\text{C}$	$T_a=0$ to $70^{\circ}\text{C}$ at $20 \text{ mA}$
Peak Wavelength	$\lambda_p$	840	850	860	nm	$I_f = 20 \text{ mA}$
$\lambda_p$ Temperature Coefficient	$\Delta\lambda / \Delta T$		0.06		nm/ $^{\circ}\text{C}$	$T_a=0$ to $70^{\circ}\text{C}$ at $20 \text{ mA}$
Spectral Bandwidth	$\Delta\lambda$			0.85	nm	$I_f = 20 \text{ mA}$ , (RMS)
Beam Divergence	$\Theta$		29		$^{\circ}$	$I_f = 20 \text{ mA}$ , ( Full Width, $1/e^2$ )
Forward Voltage	$V_f$		2.0	2.3	V	$I_f = 20 \text{ mA}$
Breakdown Voltage	$V_b$		-10		V	
Series Resistance	$R_s$		20	30	Ohm	$I_f = 20 \text{ mA}$
Parameters	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Monitor Current	$I_{PD}$	0.1		1	mA	$P_o = 8 \text{ mW}$
$I_{PD}$ Temperature Variation	$\Delta I_{PD}/\Delta T$		0.2		%/ $^{\circ}\text{C}$	$P_o = 8 \text{ mW}$
Dark current	$I_D$			20	nA	$P_o=0 \text{ mW}, V_R=3 \text{ V}$
PD Reverse Voltage	$BVR_{PD}$	30	115		V	$P_o=0 \text{ mW}, I_R=10 \mu\text{A}$
PD Capacitance	C			100	pF	$V_R=0 \text{ V}, \text{Freq}=1 \text{ MHz}$
				55		$V_R=3 \text{ V}, \text{Freq}=1 \text{ MHz}$

**Notes**

\* These specifications are subject to change without notice


**NOTICE**

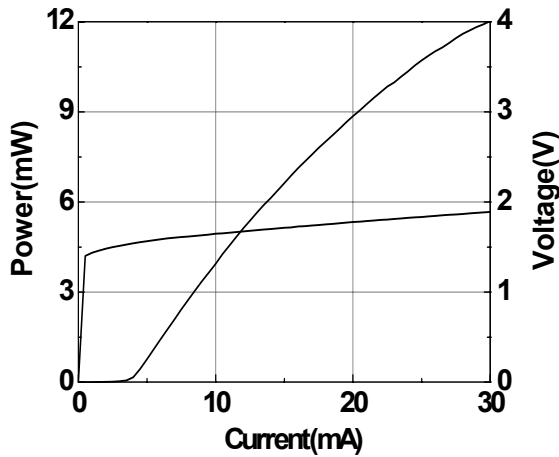
The inherent design of this component causes it to be sensitive to electrostatic discharge(ESD). To prevent ESD-induced damage and/or degradation to equipment, take normal ESD precautions when handling this product

**DANGER**

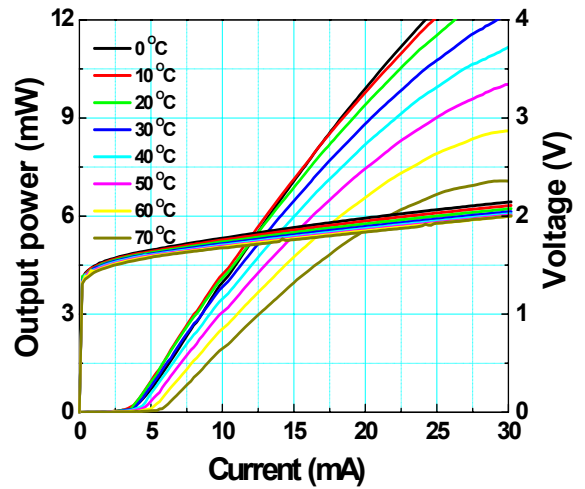
The VCSEL is a class IIIb laser and should be treated as a potential eye hazard. Due to the size of the component, the applicable warning logotype, aperture label, and certification / identification label cannot be placed on the component itself.

Characteristics Curves

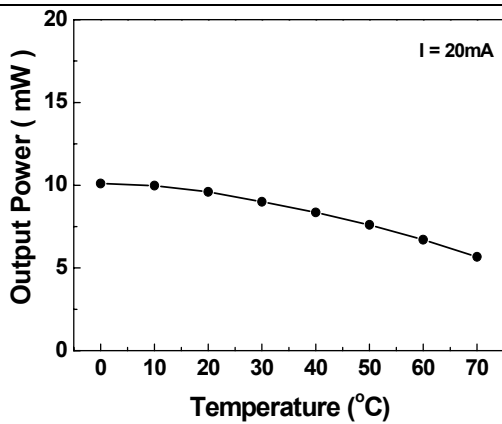
LIV Curve



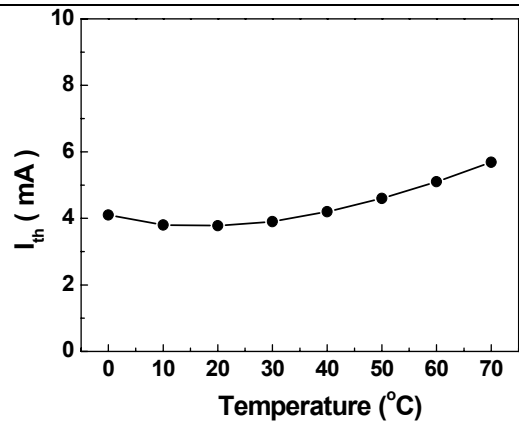
LIV vs Temperature



$P_o$  vs Temperature



$I_{th}$  vs Temperature



FFP

