

FEATURES

- -40~+85°C operating temperature range
- Low operating and threshold current
- Output Power: 1.6mW (Min.)
- Long life and high reliability

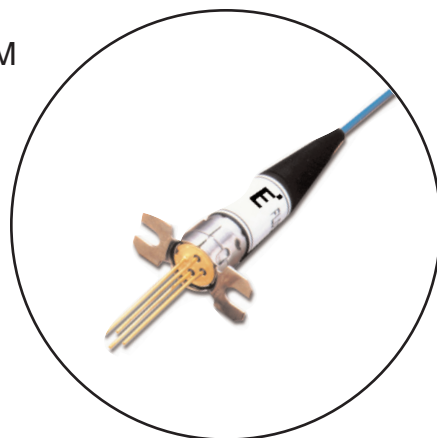
APPLICATIONS

- Digital Signal Transmission
- Telecommunication
 - Local loop
 - Interoffice and intraoffice
- Data communication
- LAN

DESCRIPTION

FLD3C5KM/LK-B is a Fabry-perot laser diode module in a small coaxial type package for single mode fiber including a PIN monitor photodiode, designed for use in data links and local area networks in the 1.3 μ m wavelength region. The laser diode is specially designed to ensure low current and stable operation over a wide temperature range. This assures long life and high reliability. The module can operate from -40 to +85°C. The monitor photodiode which receives emission power from the rear facet of the laser diode, can be used to control the optical power coupled into the fiber. This module employs a highly stable optical coupling system that couples the laser output into a single mode fiber pigtail.

KM



LK



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
Optical Output Power	P_{fmax}	3.0	mW
Forward Current (LD)	I_{Fmax}	150	mA
Reverse Voltage (LD)	V_{rmax}	2	V
Photodiode Reverse Voltage	V_{DRmax}	20	V
Soldering Temperature	T_{solder}	260 (t<10 sec., d>2.5mm)	°C
Storage Temperature	T_{stg}	-40 to +90	°C
Operating Case Temperature	T_{op}	-40 to +85	°C
Storage Humidity (Note 1)	X_{stg}	85	%
Operating Humidity (Note 1)	X_{op}	85	%

Note 1: Storage or operating within 500 hours maximum.

OPTICAL AND ELECTRICAL CHARACTERISTICS ($T_c=25^{\circ}\text{C}$)

Parameter	Symbol	Conditions	Limits			Unit
			Min.	Typ.	Max.	
Fiber Output Power	P_f	CW	1.6	-	-	mW
Threshold Current	I_{th}	CW	5	8	15	mA
Operating Current	I_{op}	CW, $P_f=1.6\text{mW}$	20	-	40	mA
Forward Voltage	V_F	CW, $P_f=1.6\text{mW}$	-	1.2	1.5	V
Series Resistance	R_s	CW, $P_f=1.6\text{mW}$	-	5	8	Ω
Threshold Output Power	P_{th}	CW, $I_f=I_{th}$	-	20	40	μW
Slope Efficiency	S	CW, $P_f=1.6\text{mW}$	60	-	120	$\mu\text{W}/\text{mA}$
Linearity of dL/dI	S_{var}	CW, 0.16 to 2.0mW	-	-	± 15	%
Saturation of dL/dI	S_{sat}	CW, 0.16 to 2.0mW	-30	-	-	%
Center Wavelength	λ_c	CW, $P_f=1.6\text{mW}$	1,290	-	1,330	nm
Spectral Width (RMS)	σ	CW, $P_f=1.6\text{mW}$	-	2.0	3.0	nm
Monitor Current	I_m	CW, $P_f=1.6\text{mW}$, $V_{DR}=5\text{V}$	0.2	-	0.8	mA
Monitor Dark Current	I_D	$V_{DR}=5\text{V}$	-	1.0	50	nA
Linearity of P_f-I_m	-	CW, 0.16 to 2.0mW, $V_{DR}=5\text{V}$	-	-	± 10	%

OPTICAL AND ELECTRICAL CHARACTERISTICS (T_c= -40 to +85°C unless otherwise specified)

Parameter	Symbol	Conditions	Limits			Unit
			Min.	Typ.	Max.	
Fiber Output Power	P _f	CW	1.6	-	-	mW
Threshold Current	I _{th}	CW	2	-	35	mA
Threshold Current Ratio	I _{th} (T _c)/I _{th} (25)		0.25	-	4.5	-
Forward Voltage	V _F	CW, P _f =1.6mW	-	1.2	1.5	V
Series Resistance	R _s	CW, P _f =1.6mW	2	-	10	Ω
Threshold Output Power	P _{th}	CW, I _f =I _{th}	-	-	80	μW
Slope Efficiency	S	CW, P _f =1.6mW	30	-	200	μW/mA
Slope Efficiency Ratio	S(T _c)/S(25)		0.5	-	1.6	-
Linearity of dL/dI	S _{var}	CW, 0.16 to 2.0mW	-	-	±20	%
Saturation of dL/dI	S _{sat}	CW, 0.16 to 2.0mW	-30	-	-	%
Center Wavelength	λ _c	CW, P _f =1.6mW	1,260	-	1,360	nm
Spectral Width (RMS)	σ	CW, P _f =1.6mW	-	-	3.0	nm
Laser Rise Time	T _r	I _b =I _{th} , P _{pk} =1.6mW, 10 to 90%	-	0.2	0.4	ns
Laser Fall Time	T _f	I _b =I _{th} , P _{pk} =1.6mW, 10 to 90%	-	0.3	0.5	ns
Monitor Current	I _m	CW, P _f =1.6mW, V _{DR} =5V	0.15	-	1.0	mA
Monitor Dark Current	I _D	V _{DR} =5V	-	-	500	nA
Monitor Capacitance	C _t	V _{DR} =5V, f=1MHz	-	6	10	pF
Linearity of P _f -I _m	-	CW, 0.16 to 2.0mW, V _{DR} =5V	-	-	±10	%
Tracking Error	TE	T _c = -40 to 85°C, P _f =1.6mW at T _c =25°C, APC with monitor PD	-	-	±1.0	dB

Fig. 1 Optical Output Power and Monitor Current vs. Forward Current

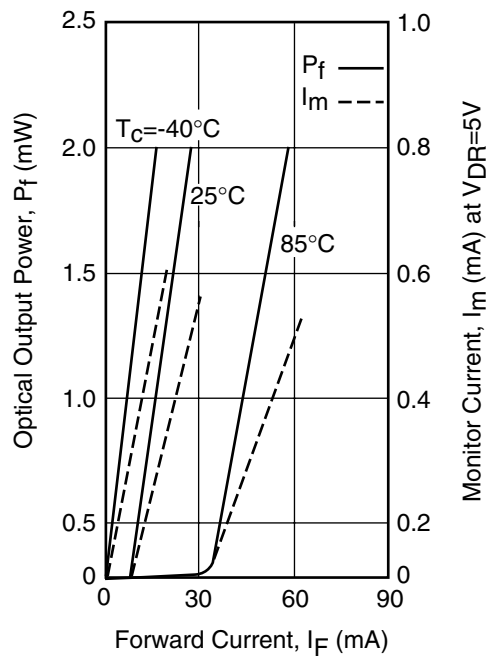


Fig. 2 Forward Current vs. Forward Voltage

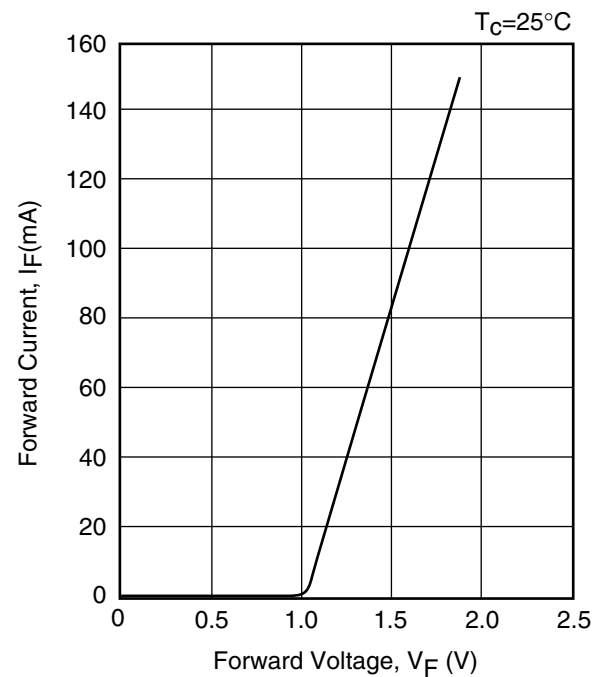


Fig. 3 Temperature Dependence of Threshold Current

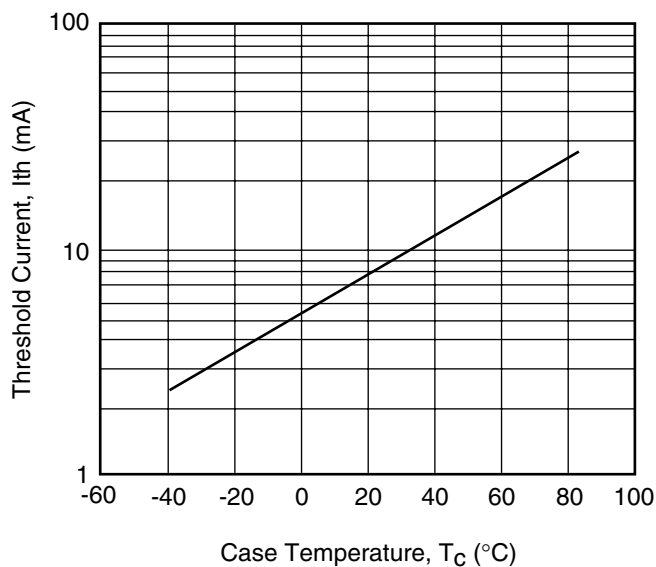


Fig. 4 Lasing Spectrum

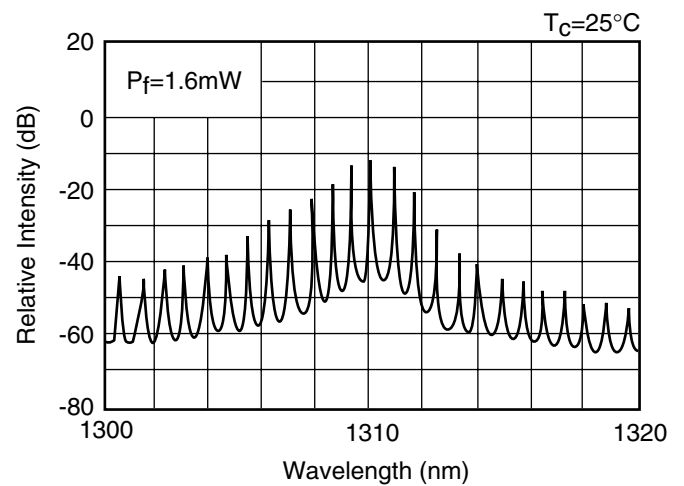


Fig. 5 Temperature Dependence of Center Wavelength

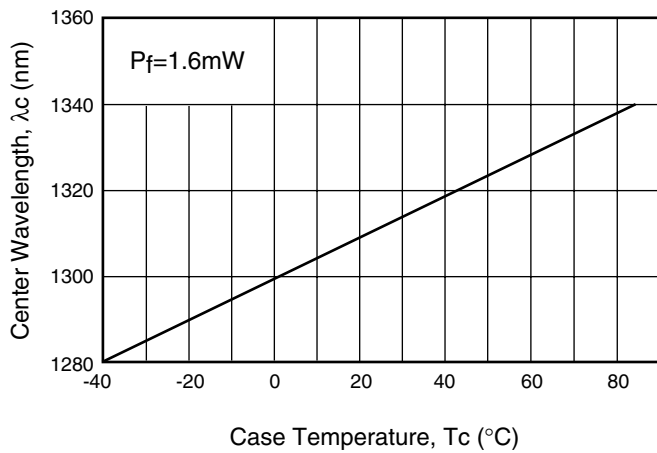


Fig. 6 Tracking Characteristics

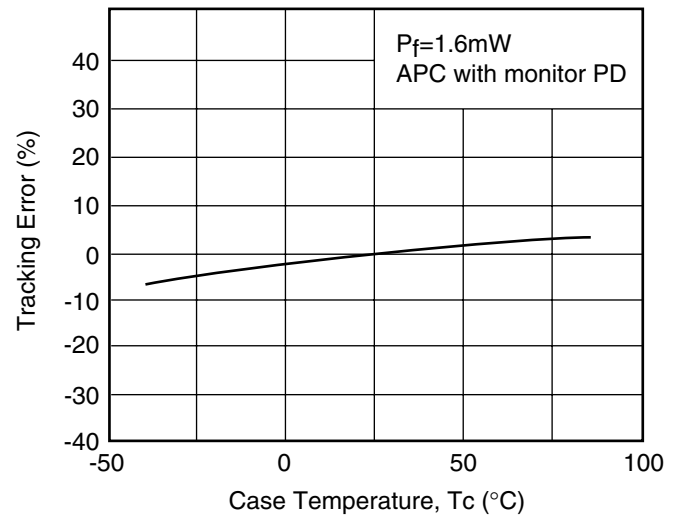


Fig. 7 Pulse Response

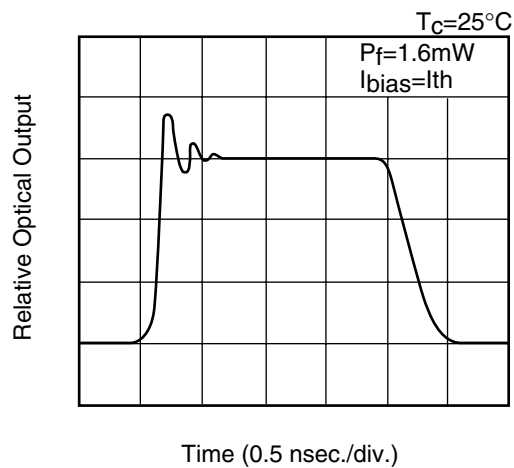
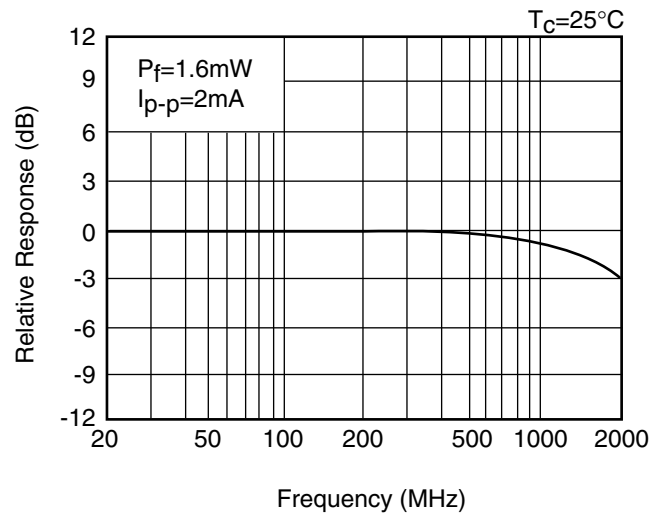
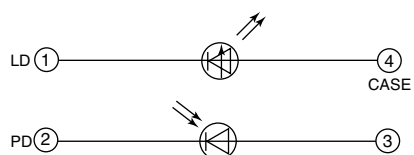
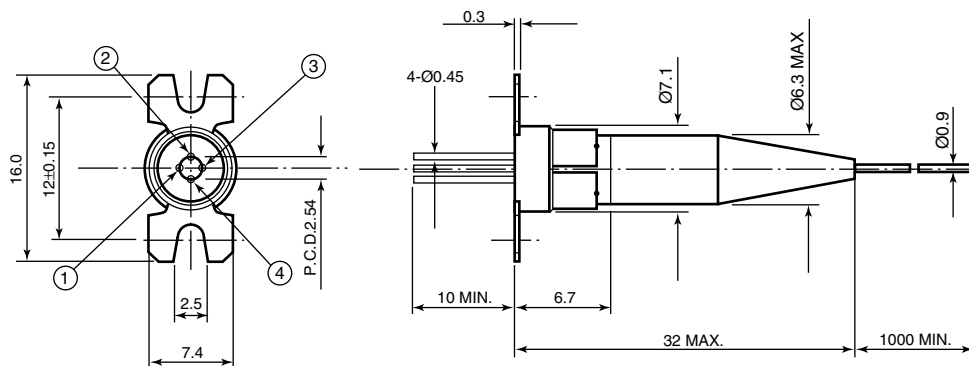


Fig. 8 Frequency Response



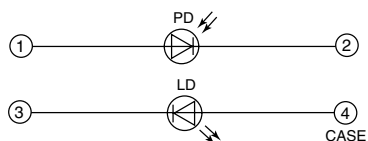
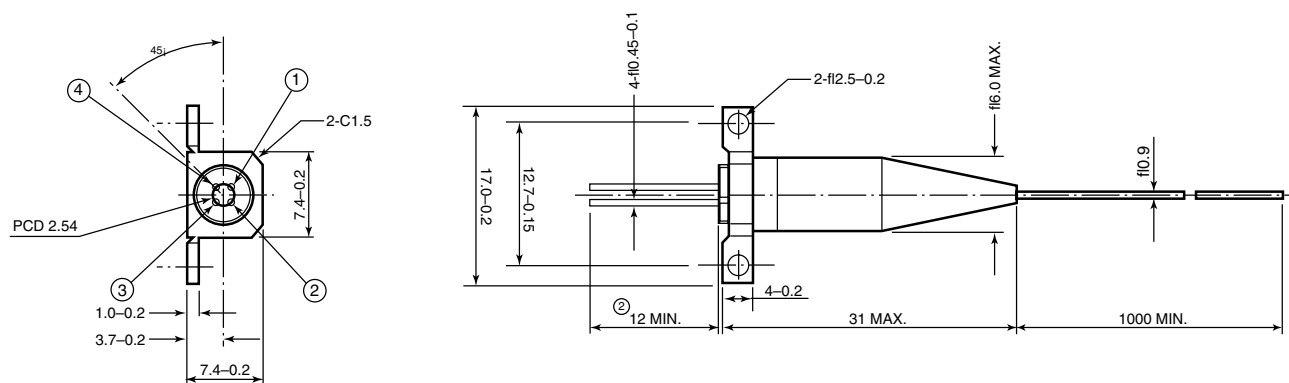
"KM" PACKAGE

UNIT: mm



"LK" PACKAGE

UNIT: mm



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