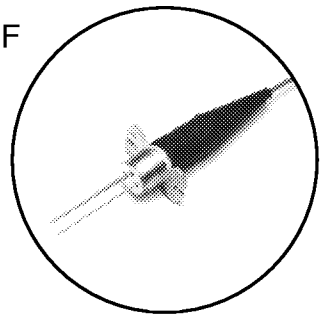
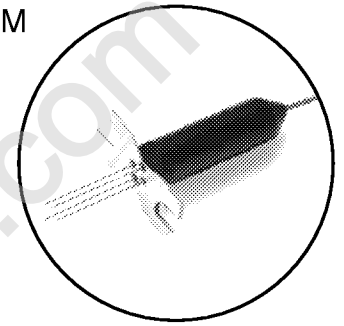
1,550nm MQW-DFB Coaxial Laser Module

FLD5F8HF/KM/LK

HF



KM



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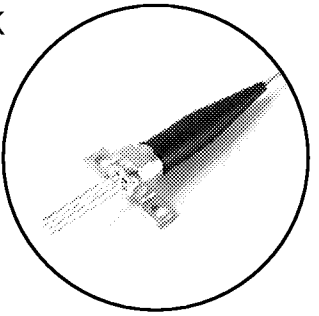

FEATURES

- Low threshold current and Low operating current
- Long life and high reliability
- High temperature operation up to 75°C

APPLICATIONS

- Digital Signal Transmission
- Telecommunication
  - Local Loop
  - Interoffice and Intraoffice
- Data communication

DESCRIPTION

These Multiple Quantum Well (MQW) DFB Lasers are for use in long haul 156/622 Mb/s transmission systems. The uncooled, coaxial design offers a low cost/simplified design alternative to cooled laser solutions. The module includes a DFB laser and monitor photodiode.

ABSOLUTE MAXIMUM RATINGS and ENVIRONMENTAL CONDITIONS

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<10sec., d>2.5mm)	T_{solder}	260	°C
Storage Temperature	T_{stg}	-40 to +90	°C
Operating Case Temperature	T_{op}	-25 to +75	°C
Storage Humidity (Note 1)	X_{stg}	85	%
Operating Humidity (Note 1)	X_{op}	85	%

Note 1. Storage or operating within 500 hours maximum

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OPTICAL AND ELECTRICAL CHARACTERISTICS (T_C=-25°C to +75°C unless otherwise specified)

Parameter	Symbol	Conditions	Limits			Unit
			Min.	Typ.	Max.	
Fiber Output Power	P_f	CW	2.0	-	-	mW
Threshold Current	I_{th}	CW	2	-	50	mA
Forward Voltage	V_F	CW, P_f=2.0mW	-	1.1	1.5	V
Output Power at Bias	P_b	CW, I_f=0.9Ith	-	-	150	μW
Slope Efficiency	S	CW, Pf=2.0mW	33	-	200	μW/mA
Slope Efficiency Ratio	-	S(Tc)/S(25C)	0.45	-	1.5	-
Linearity of dL/dI	S_{var}	CW, 0.2 to 2.4mW	-	-	+/-20	%
Saturation of dL/dI	S_{sat}	CW, 0.2 to 2.4mW	-40	-	-	%
Modulation Current	I_{mod}	CW, Pf=2.0mW	10	-	60	mA
Peak Wavelength	λ_p	CW, Pf=2.0mW	1,530	-	1,570	nm
Spectral Width (-20dB)	$\Delta\lambda$	CW, Pf=2.0mW	-	-	1.0	nm
Sidemode Suppression Ratio	SSR	CW, Pf=2.0mW	30	-	-	dB
Relative Intensity Noise	RIN	CW, Pf=2.0mW B.W.=45M to 150MHz ORL<-25dB	-	-	-120	dB/Hz
Laser Rise Time	T_r	Ib=0.9Ith, Ppk=2.0mW 10 to 90%	-	0.1	0.2	ns
Laser Fall Time	T_f		-	0.2	0.3	ns
Monitor Current	I_m	CW, Pf=2.0mW, VDR=5V	0.05	-	1.0	mA
Monitor Dark Current	I_D	VDR=5V	-	1	500	nA
Monitor Capacitance	C_t	VDR=5V, f=1 MHz	-	6	10	pF
Monitor Frequency Response	fc	VDR=5V, RL=50Ω	100	-	-	MHz
Flatness of Photodiode Frequency Response	-	VDR=5V, RL=50Ω 0 to 10 MHz	-	-	+/-1.5	dB
Linearity of Pf-Im	-	CW, VDR=5V, 0.2 to 2.4mW,	-	-	+/-10	%
Tracking Error	TE	Tc=-25 to 75°C Pf=2.0mW at Tc=25°C APC with monitor PD	-	-	+/-1.0	dB

Note: The characteristics are guaranteed under optical back reflection of less than -20dB, unless otherwise specified.

Fig. 1 Forward Current vs Output Power

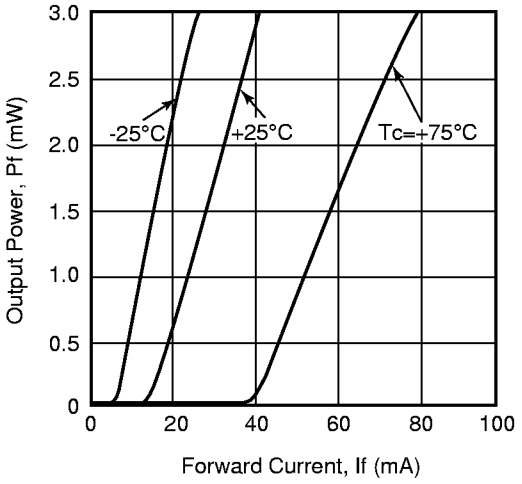


Fig. 2 Forward Voltage vs Forward Current

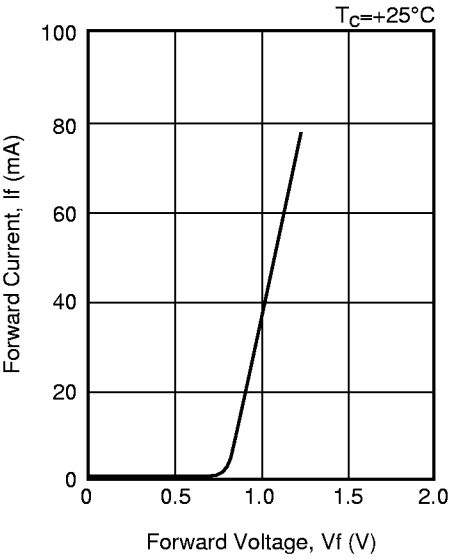


Fig. 3 Spectrum

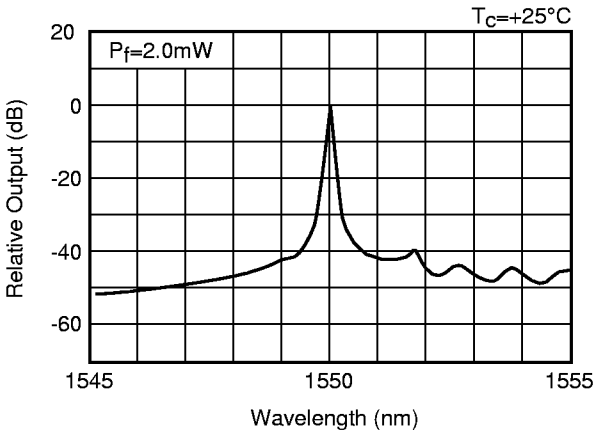


Fig. 4 Temperature Dependance of Threshold Current

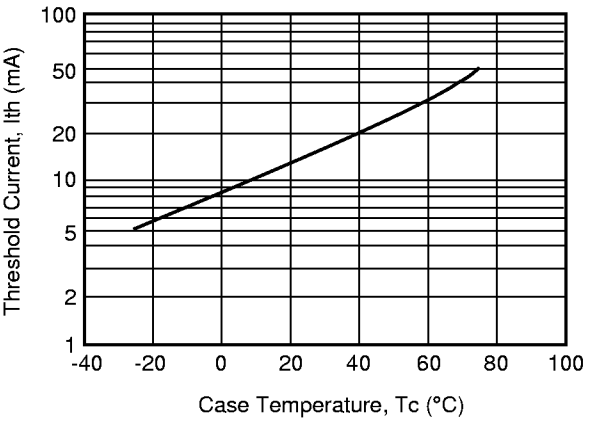


Fig. 5 Temperature Dependance of Wavelength

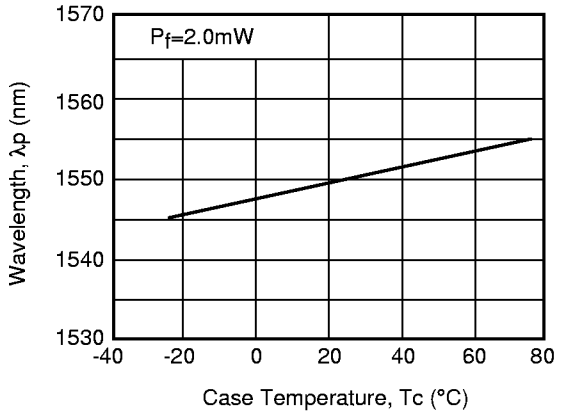


Fig. 6 Temperature Dependance of Slope Efficiency

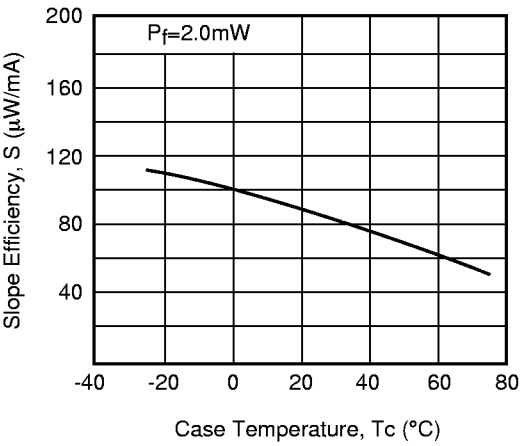


Fig. 7 Tracking

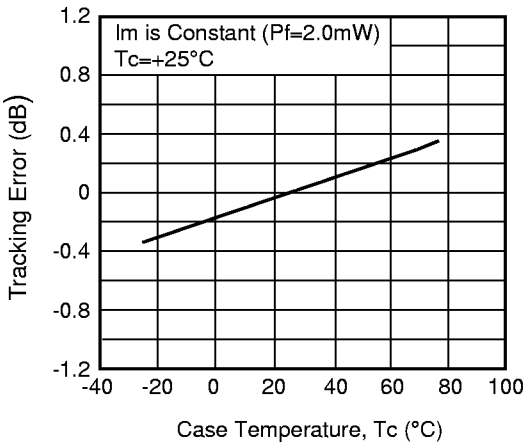


Fig. 8 Frequency Response

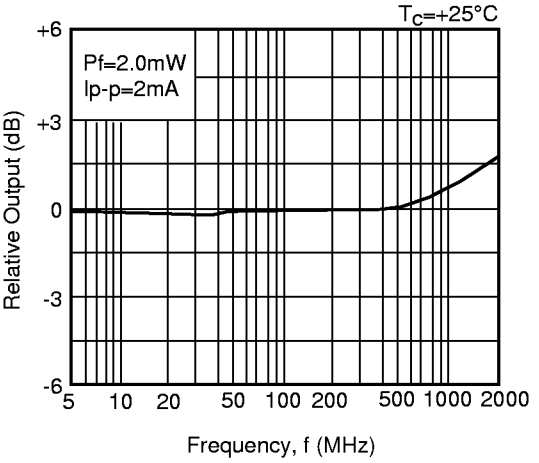


Fig. 9 Pulse Response

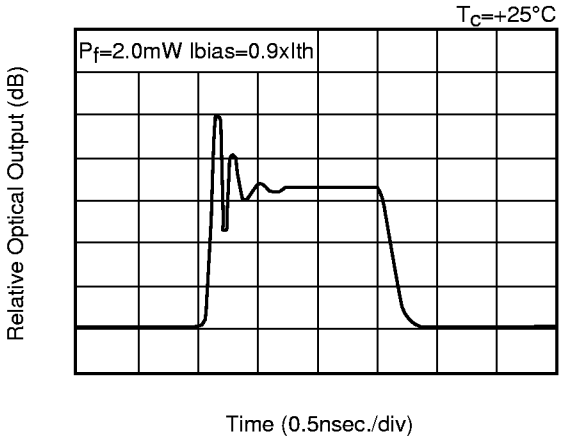
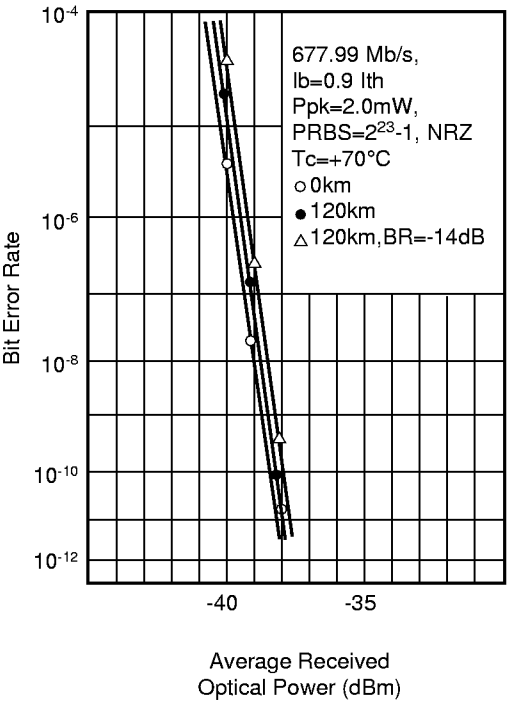
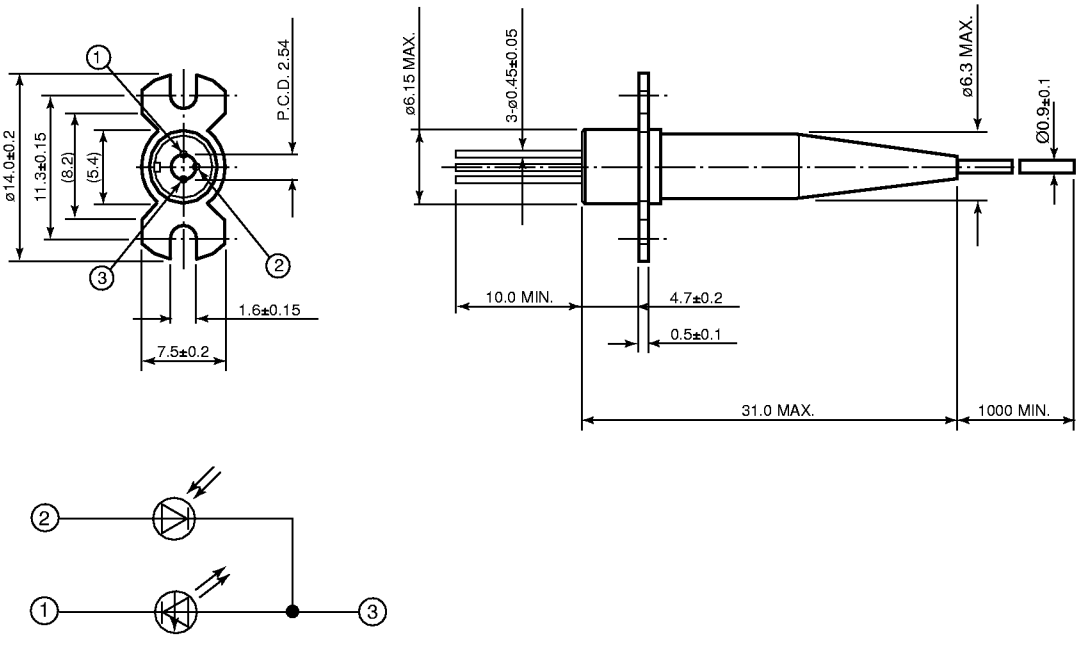


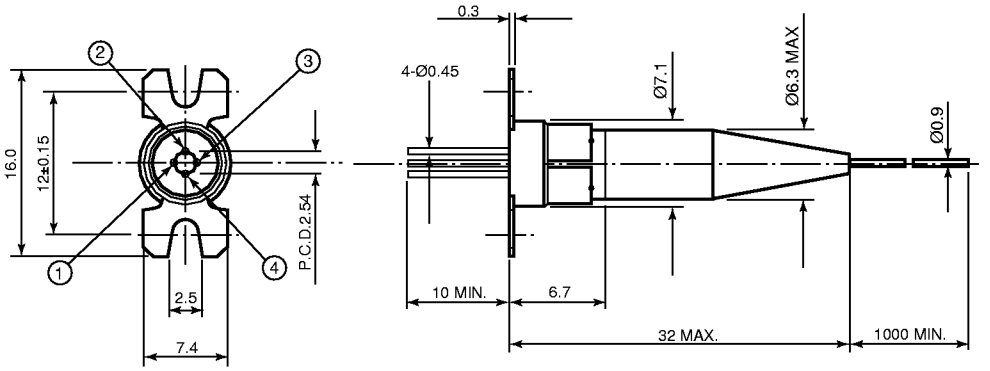
Fig. 10 Transmission Characteristics

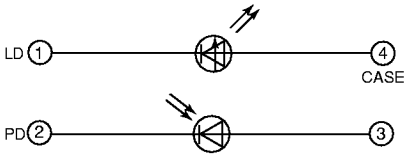


"HF" PACKAGE **UNIT: mm**

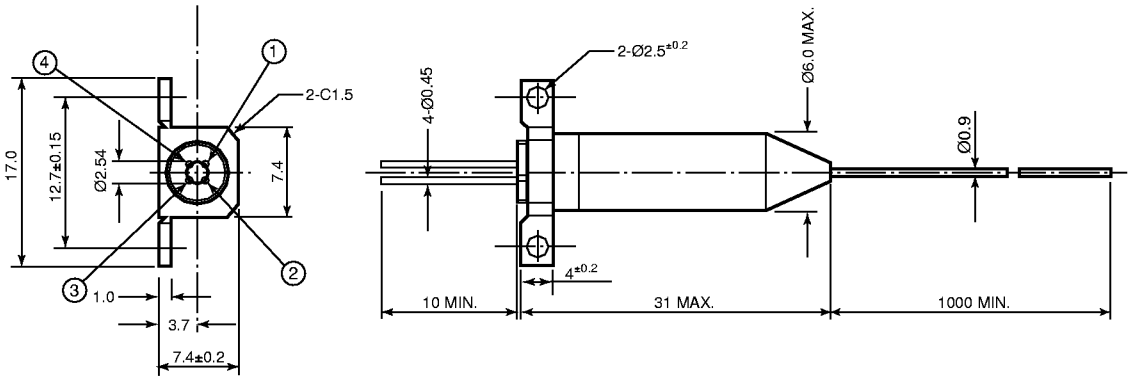


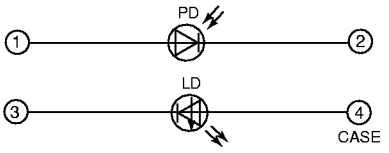
"KM" PACKAGE **UNIT: mm**





"LK" PACKAGE **UNIT: mm**





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