ML9XX40 SERIES

Notice : Some parametric limits are subject to change

2.5Gbps InGaAsP DFB LASER DIODE

TYPE NAME

ML925B40F / ML920J40S
ML925J40F / ML920L40S

DESCRIPTION

ML9XX40 series are uncooled DFB (Distributed Feedback) laser diodes for 2.5Gbps transmission emitting light beam at 1470~1610nm. λ/4 shifted grating structure is employed to obtain excellent SMSR performance under 2.5Gbps modulation. Furthermore, ML9xx40 can operate in the wide temperature range from 0°C to 85 °C without any temperature control. They are well suited for light source in long distance digital transmission application of coarse WDM.

APPLICATION

- 2.5Gbps long-haul transmission
- Coarse WDM application

FEATURES

- λ/4 shifted grating structure
- Wide temperature range operation (0°C to 85°C)
- High side-mode-suppression-ratio (typical 45dB)
- High resonance frequency (typical 11GHz)

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Conditions	Ratings	Unit
Po	Output power	CW	6	mW
If	Forward current (Laser diode)	---	150	mA
V_{RL}	Reverse voltage (Laser diode)	---	2	V
I_{FD}	Forward current (Photo diode)	---	2	mA
V_{RD}	Reverse voltage (Photo diode)	---	20	V
Tc	Case temperature	---	0 to +85	°C
Tstg	Storage temperature	---	-40 to +100	°C

ELECTRICAL/OPTICAL CHARACTERISTICS (Tc=25°C)

Symbol	Parameter	Test conditions		Min.	Typ.	Max.	Unit
Ith	Threshold current	CW		---	10	15	mA
		CW	<*1>	---	35	40	
		Tc=85°C	<*2>	---	45	50	
Iop	Operation current	CW, Po=5mW		---	35	45	mA
		CW, Po=5mW	<*1>	---	70	80	
		Tc=85°C	<*2>	---	90	100	
Vop	Operating voltage	CW, Po=5mW		---	1.1	1.5	V
η	Slope efficiency	CW, Po=5mW		0.17	0.22	---	mW/mA
		CW, Po=5mW <*3>		0.15	0.20	---	
λp	Peak wavelength	CW, Po=5mW		<*4>,<*5>			nm
SMSR	Side mode suppression ratio	CW, Po=5mW, Tc=0 to 85°C		35	45	---	dB
	Side mode suppression ratio(RF)	2.48832Gbps,Ib=Ith, Ipp=40mA		---	45	---	
θ //	Beam divergence angle (parallel) <*6>	CW, Po=5mW		---	25	---	deg.
θ ⊥	(perpendicular) <*6>	CW, Po=5mW		---	30	---	deg.
fr	Resonance frequency	2.48832Gbps,Ib=Ith, Ipp=40mA		---	11	---	GHz
tr,tf	Rise and Fall time <*7>	2.48832Gbps,Ib=Ith, Ipp=40mA 20%-80%		---	80	120	ps
Im	Monitoring output current (PD)	CW, Po=5mW,VRD=1V,RL=10Ω		0.1	---	1.0	mA
Id	Dark current (PD)	V_{RD}=5V		---	---	0.1	μA
Ct	Capacitance (PD)	V_{RD}=5V		---	10	20	pF

<*1> Applied to ML9xx40-04~09 and -12~17.
<*2> Applied to ML9xx40-10~11 and -18~19.
<*3> Applied to ML925J40F and ML920L40S.
<*6> Beam divergence is not applied to ML925J40F and ML920L40S.
<*7> Except influence of the 18mm lead.

<*4> Peak Wavelength

Type	Symbol	Test Condition	Limits			Unit
			Min.	Typ.	Max.	
ML925B40F-01 / ML920J40S-01 ML925J40F-01 / ML920L40S-01	λp	CW, Po=5mW Tc= 0 to 85ºC	1530	1550	1570	nm
ML925B40F-04 / ML920J40S-04 ML925J40F-04 / ML920L40S-04		CW, Po=5mW Tc= 25ºC	1467	1470	1473	
ML925B40F-05 / ML920J40S-05 ML925J40F-05 / ML920L40S-05			1487	1490	1493	
ML925B40F-06 / ML920J40S-06 ML925J40F-06 / ML920L40S-06			1507	1510	1513	
ML925B40F-07 / ML920J40S-07 ML925J40F-07 / ML920L40S-07			1527	1530	1533	
ML925B40F-08 / ML920J40S-08 ML925J40F-08 / ML920L40S-08			1547	1550	1553	
ML925B40F-09 / ML920J40S-09 ML925J40F-09 / ML920L40S-09			1567	1570	1573	
ML925B40F-10 / ML920J40S-10 ML925J40F-10 / ML920L40S-10			1587	1590	1593	
ML925B40F-11 / ML920J40S-11 ML925J40F-11 / ML920L40S-11			1607	1610	1613	

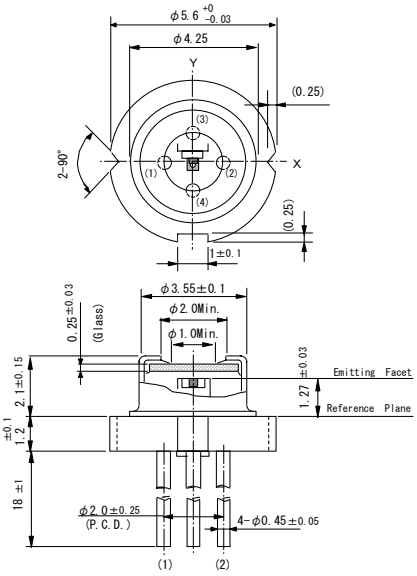
<*5> Peak Wavelength

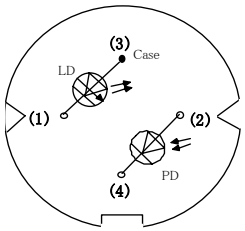
Type	Symbol	Test Condition	Limits			Unit
			Min.	Typ.	Max.	
ML925B40F-12 / ML920J40S-12 ML925J40F-12 / ML920L40S-12	λp	CW, Po=5mW Tc= 25ºC	1468	1470	1472	nm
ML925B40F-13 / ML920J40S-13 ML925J40F-13 / ML920L40S-13			1488	1490	1492	
ML925B40F-14 / ML920J40S-14 ML925J40F-14 / ML920L40S-14			1508	1510	1512	
ML925B40F-15 / ML920J40S-15 ML925J40F-15 / ML920L40S-15			1528	1530	1532	
ML925B40F-16 / ML920J40S-16 ML925J40F-16 / ML920L40S-16			1548	1550	1552	
ML925B40F-17 / ML920J40S-17 ML925J40F-17 / ML920L40S-17			1568	1570	1572	
ML925B40F-18 / ML920J40S-18 ML925J40F-18 / ML920L40S-18			1588	1590	1592	
ML925B40F-19 / ML920J40S-19 ML925J40F-19 / ML920L40S-19			1608	1610	1612	

OUTLINE DRAWINGS

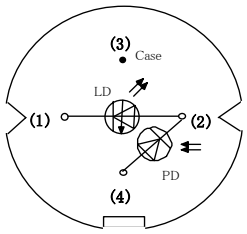
ML925B40F
ML920J40S

Dimensions : mm





ML925B40F

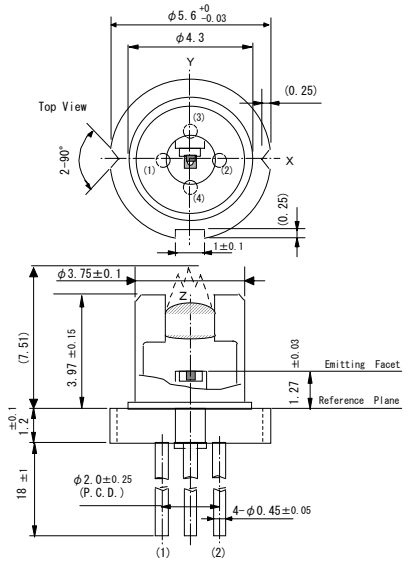


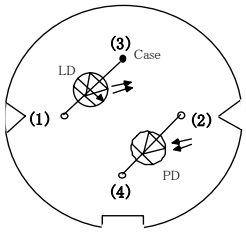
ML920J40S

Pin Connection
(Top view)

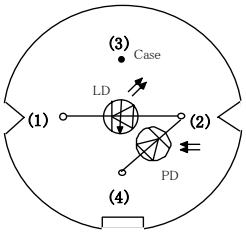
ML925J40F
ML920L40S

Dimensions : mm





ML925J40F



ML920L40S

Pin Connection
(Top view)