

# KLT-155451x

Rev. 004

**Description**

**KLT-155451x** series are long wavelength Fabry-Perot LD sources in TO-56 package with ball lens cap  
**KLT-155451x** series consist of an InGaAsP strained multi-quantum well(MQW) laser diode(LD) and an InGaAs PIN-PD for output monitoring. They operate at 1550 nm wavelength band and with various data rates from 155Mbps upto 1.25 Gbps.  
 They are suitable for fabricating pigtailed LD source, TOSA(transmitter optical sub assembly), and bi-directional module.

**FEATURES**

- High performance strained MQW InGaAsP LD with BH(buried hetero-junction) structure
- Hermetically sealed TO-56 package with Ø1.5mm ball lens cap
- High reliability and environmental endurance
- Operating wavelength of 1.55µm band
- Wide operating temperature range from -40°C to 85°C
- Various data rates from 155Mbps upto 1.25Gbps

**APPLICATIONS**

- SONET OC-1~ OC-48/SDH STM-1 ~ STM-16
- 155Mbps, 622Mbps, and 1.25Gbps for ATM and Ethernet
- Suitable for fabrication of coaxial LD module, TOSA, and Bi-Di module

**Absolute Maximum Ratings**

Parameter	Symbol	Min	Max	unit
Operating temperature	$T_{op}$	-40	85	°C
Storage temperature	$T_{stg}$	-40	100	°C
Peak laser output power	$P_o$		8	mW
Peak reverse laser voltage	$V_{rl}$		2	V
Peak forward monitor PD current	$I_{fp}$		2	mA
Peak reverse monitor PD voltage	$V_{rp}$		10	V

**Optical and Electrical Characteristics (KLT155451x, Top = 25°C otherwise specified)**

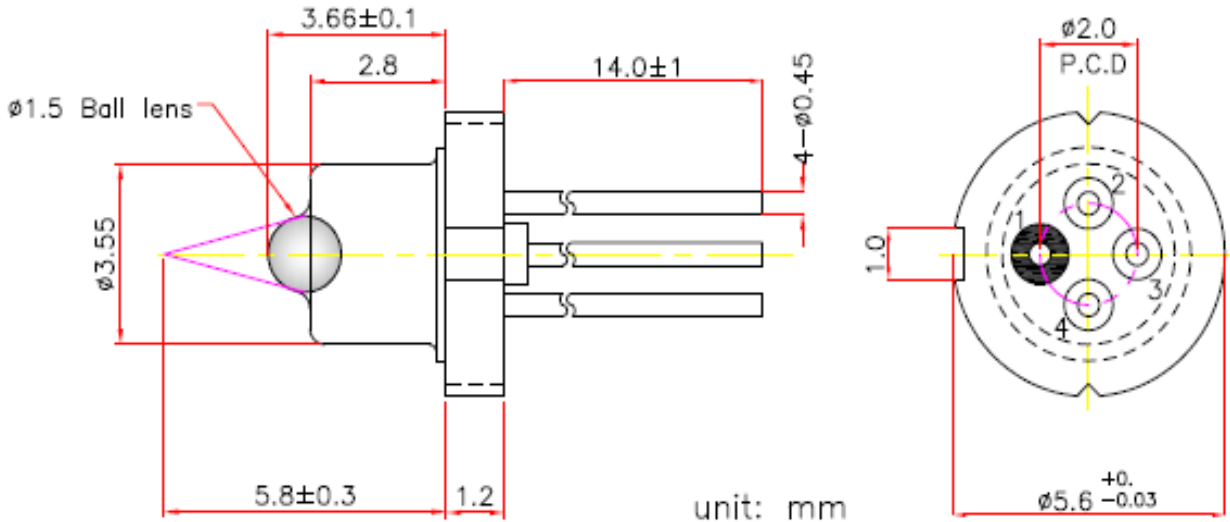
Parameter	Symbol	Min	Typ	Max	Unit	Test Conditions
Operating temperature	$T_{op}$	-40		85	°C	
Threshold current	$I_{th}$	4	8	20	mA	CW, kink free
Operating current	$I_{op}$		27	35		CW, $P_o=5mW$
Slope efficiency	$\eta$	0.2	0.25			CW, $P_o=5mW$
Operating voltage	$V_{op}$		1.1	1.5	V	at rated $P_o = 5mw$
Center wavelength	$\lambda_c$	1530	1550	1570	nm	at rated $P_o = 5mw$
RMS spectral width	$\Delta\lambda$		2	5	nm	at rated $P_o = 5mw$
Optical rise and fall time	$t_r$			0.5	ns	20 to 80 %, $I_b = I_{th}, P_o = 5mw$
	$t_f$			0.5	ns	80 to 20 %, $I_b = I_{th}, P_o = 5mw$
Monitor PD current	$I_m$	0.05			mA	at rated $P_o=5mw$ , $V_{rp} = 1V$
Monitor PD dark current	$I_d$			0.1	µA	$V_{rp} = 10V$
Monitor PD capacitance	$C_m$		10	20	pF	$V_{rp} = 10V$ , 1MHz

Note: The engineering spec can be revised without any previous notice.

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**Outline Drawing**



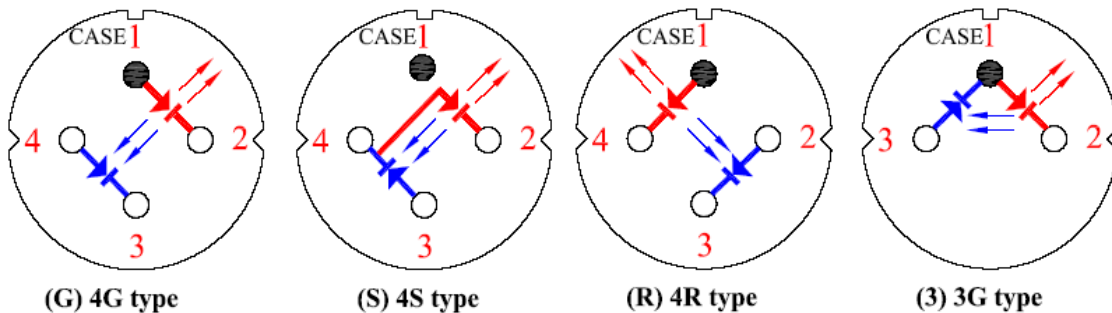
unit: mm  
general tolerance:0.1

**Pin connections**

Pin config.	4S	4G
pin no. 1	Case ground	LD anode/case ground
pin no. 2	LD cathode	LD cathode
pin no. 3	m-PD anode	Monitor PD cathode
pin no. 4	LD anode/m-PD cathode	Monitor PD anode

**Ordering information**

KLT	Device Type	Wavelength	Data Rate	Operating Temp.	Package type	Pin Config.
<b>Kodenshi LD TO</b>	1 : FP(BH)	31 : 1310 nm	4 : 1.25 Gbps	2 : -20~70	1 : 1.5 mm ball lens	S : 4S type
	2 : DFB	55 : 1550 nm	5 : 2.5 Gbps	4 : -20~85	2 : 2.0mm ball lens	G : 4G type
	3 : CWDM-DFB	49 : 1490 nm		5 : -40~85	3 : flat window	R : 4R type
	4 : AR LD	xx:1xx0nm ±3nm(CWDM)			4 : aspheric lens	3 : 3G
		yB(band):O,E,S,C,L,NI,NC				



**Pin configuration of LD TO Package (Bottom view)**