



## Preliminary Data Sheet

### AC5420 Series

#### Uncooled 2.5 Gbps 1550 nm Distributed Feedback Laser (DFB) in TOSA Package



#### Description

The AC5420 series lasers are uncooled semiconductor InGaAsP Distributed-Feedback (DFB) lasers working at 1550 nm wavelength. The device is delivered in hermetic TOSA package with an optical isolator and a monitor photodiode. This high performance and

high reliability laser is suitable for applications up to 2.5 Gbps fiber optic links or local networks.

#### Features

- 1550 nm emission wavelength
- High power over wide temperature range (>1 mW -20°C to +85°C)
- High side-mode-suppression ratio (typical > 35dB)
- Optical Isolator
- High Reliability
- Multi-Quantum Well (MQW) active layer

#### Applications

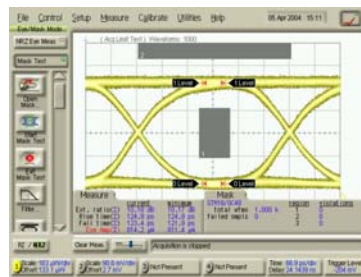
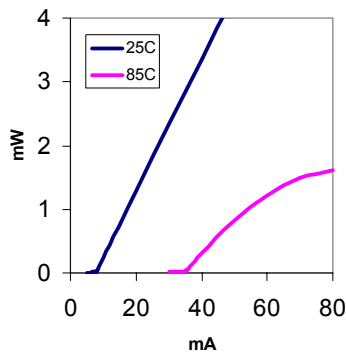
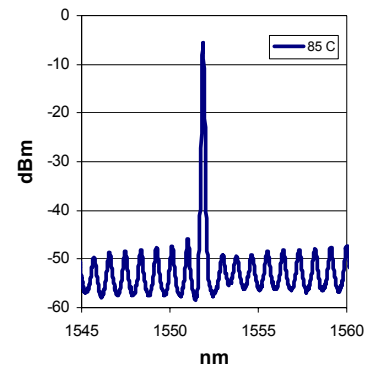
- Telecommunication
- Data communication
- Storage area networks

#### Absolute Maximum Rating

Symbol	Parameter	Ratings	Unit
$V_{RL}$	Reverse Voltage (Laser diode)	2	V
$V_{RD}$	Reverse Voltage (Photodiode)	20	V
$I_{FD}$	Forward current (Photodiode)	2	mA
$T_C$	Case temperature	-20 ~ +85	°C
$T_{stg}$	Storage temperature	-40 ~ +100	°C

**Electrical/Optical Characteristics ( $T_c=25^\circ\text{C}$ )**

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Threshold current	$I_{th}$	CW		9	14	mA
		CW, $85^\circ\text{C}$			45	mA
Optical Power	$P_o$	CW, $I_f = I_{th} + 20\text{ mA}$ , $25^\circ\text{C}$	1.5	2		mW
		CW, $I_f = I_{th} + 30\text{ mA}$ , $85^\circ\text{C}$	0.5	1		
Operating voltage	$V_{op}$	CW, $P_o = 2\text{ mW}$		1.2	1.5	V
Center Wavelength	$\lambda_c$	CW, $P_o = 2\text{ mW}$	1540	1550	1560	nm
		CW, $T_c = -20^\circ\text{C}$ to $+85^\circ\text{C}$	1530		1570	
Side-mode-suppression ratio	SMSR	CW, $P_o = 2\text{ mW}$	30			dB
Optical isolation	-		25			dB
Spectral Width	$\Delta\lambda$	$P_o = 2\text{ mW}$ , -20 dB		0.2		nm
Connector Repeatability	-		-1		1	dB
Tracking Error	TE		-1		+1	dB
Dispersion Penalty		2.5Gbps NRZ 1600ps/nm BER $1e-12$ (80km)			2	dB
Slope Efficiency		CW, $P_o = 2\text{ mW}$ , $25^\circ\text{C}$		0.1		W/A
Rise and fall time	$T_r, T_f$	$I_f = I_{th} + 20\text{ mA}$ , 20~80%			150	ps
Monitor current (Photodiode)	$I_m$	CW, $P_o = 2\text{ mW}$ , $V_{RD} = 1\text{ V}$	0.1	0.5		mA
Dark current (Photodiode)	$I_D$	$V_{RD} = 10\text{ V}$		0.01	0.1	$\mu\text{A}$
Capacitance (Photodiode)	$C_t$	$V_{RD} = 10\text{ V}$ , $f = 1\text{ MHz}$		10	20	pF

Back-to Back, 25 °C,  $I_{th} + 20\text{ mA}$ , ER 10dB

**Ordering Information:**

**AC5420-W-X-YZ**

Where: W= Pin-out Options (see outline drawing this page for details)

- A = A-Type
- B = B-Type
- F = F-Type

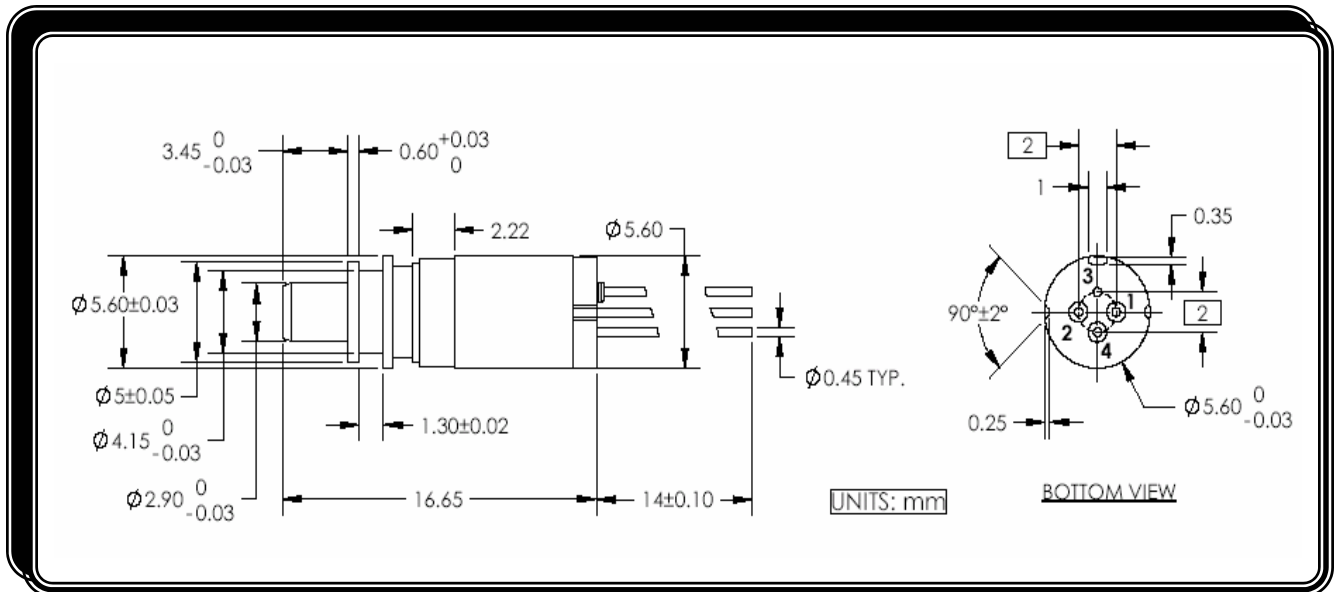
X= Lens Cap Type

- A = Aspherical Lens
- B = High Index Ball Lens
- S = Standard Ball Lens

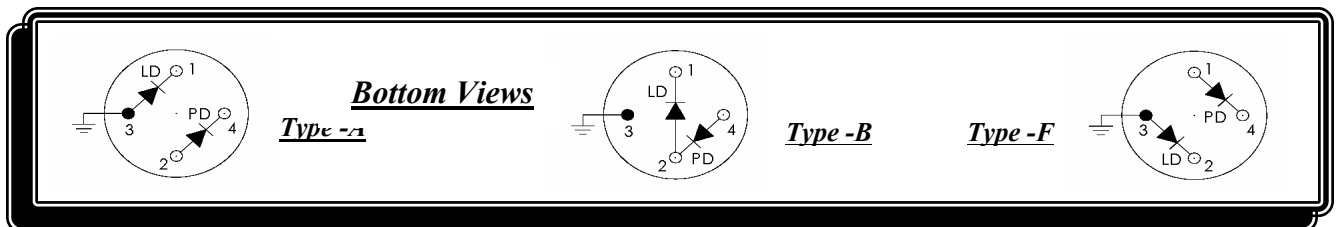
YZ= Receptacle Type

- L2 = LC Metal
- S2 = SC Metal

**Outline Drawings**



**Pin-Out Options**



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