

850nm 10Gb/s Multimode VCSEL LC TOSA (Preliminary)

Bookham's high speed multimode LC connectorized VCSEL TOSA is designed to meet stringent specifications for high speed data communications up to a data rate of 10 Gb/s. The high performance, high reliability multimode 850nm VCSEL of the TOSA is assembled in a hermetic and low electrical parasitic TO46 package with integrated monitor photodiode and is aligned to a precision LC plastic barrel. The optical assembly can be used with 50/125 μm and 62.5/125 μm multimode fibers.

Features

- 850nm multimode emission
- Data rates up to 10 Gb/s
- Low threshold and operation current
- High reliability
- Hermetic and low electrical parasitic TO46 package
- Integrated monitor photodiode (MPD)
- LC plastic connector sleeve
- Compatible with 50/125 μm and 62.5/125 μm MM fibers
- Optional flex connector to PCB
- Differentially driven (other configurations available on request)

Applications

- Datacom applications up to 10 Gb/s

Product Code	Data Rate	Package	Configuration	MPD	Connector
APA7301012000	10Gb/s	TO46 with optional 50 Ω flex	Differentially driven	Yes	LC plastic connector sleeve



Electro – Optical Characteristics*

Parameter	Symbol	Conditions	Ratings			Unit
			Min	Typ	Max	
VCSEL						
Threshold current	I_{th}	$T = 25^{\circ}C$		1.0	1.6	mA
Fiber coupled optical power	P_{oc}	$I_{op} = 6.5mA, 50/125\mu m$ fiber	0.3	0.6		mW
Slope efficiency	η	$I_{op} = 6.5mA$	0.07	0.11	0.15	mW/mA
Coupling efficiency	η_{oc}	$I_{op} = 6.5mA$		70		%
Operating voltage	U_{op}	$I_{op} = 6.5mA$		1.9		V
Differential resistance	R_d	$I_{op} = 6.5mA$		50	85	Ω
Emission wavelength	λ	$I_{op} = 6.5mA$	840	850	860	nm
Spectral bandwidth, RMS	$\Delta\lambda$	$I_{op} = 6.5mA$			0.4	nm
Rise time	t_r	$I_{op} = 6.5mA, 20\% - 80\%$			40	ps
Fall time	t_f	$I_{op} = 6.5mA, 20\% - 80\%$			45	ps
Relative intensity noise	$RIN_{12(OMA)}$	$I_{op} = 6.5mA, 7.73GHz$ BW			-128	dB/Hz
Total Capacitance	C	$I_{op} = 6.5mA$			0.7	pF
Monitor Photo Diode (MPD)						
Monitor current	I_{pd}	$P_{oc} = 0.6mW, U_r = 3V$	50			μA
Dark current	$I_{d_{pd}}$	$P_{oc} = 0mW, U_r = 3V$			50	nA

Thermal Characteristics

Parameter	Symbol	Ratings			Unit
		Min	Typ	Max	
Wavelength tuning co-efficient	$\delta\lambda/\delta T$		0.06		nm/K
Threshold current variation -10 to +85°C	ΔI_{th}			1.2	mA

*T=25°C unless otherwise noted

Absolute Maximum Ratings

Parameter	Rating	Unit
Peak forward current	12	mA
VCSEL reverse voltage	5	V
MPD reverse voltage	10	V
MPD forward current	10	mA
Operating temperature	-10 to +85	°C
Storage temperature	-40 to +100	°C
Lead solder temperature (for 10 sec)	260	°C

RoHS Compliance



Bookham is fully committed to environment protection and sustainable development and has set in place a comprehensive program for removing polluting and hazardous substances from all of its products. The relevant evidence of RoHS compliance is held as part of our controlled documentation for each of our compliant products. RoHS compliance parts are available to order, please refer to the ordering information section for further details.

Ordering Information

Product Code	Data Rate	Package
APA7301012000	10 Gb/s	TO46 with optional 50Ω flex

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