

10G C-band DWDM EML laser chip

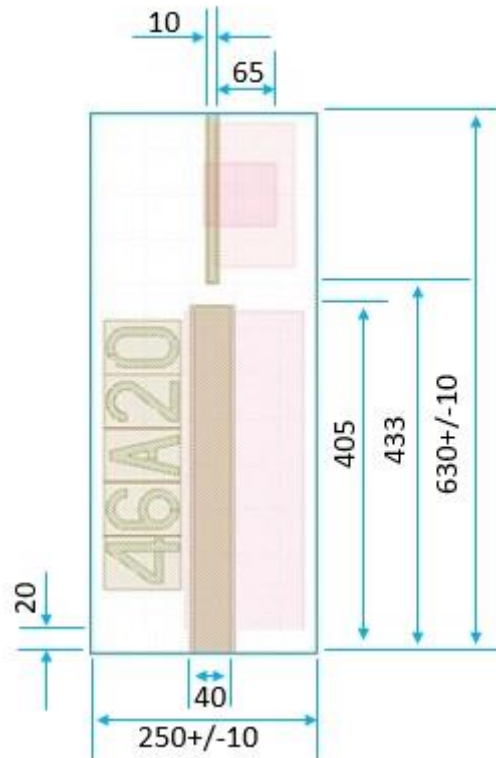
1 Absolute Maximum Ratings

Parameter	Conditions	Min	Max	Unit
Laser Diode Reverse Voltage	CW	-	2	V
Laser Diode Forward Current (No EA bias)	CW	-	150	mA
Laser Diode Forward Current (EA modulated)	Modulated	-	110	mA
Monitor Diode Reverse Voltage		-	15	V
Monitor Diode Forward Current		-	10	mA
Storage Temperature Range		-40	+85	°C
Operating Case Temperature Range		0	+75	°C
Modulator Voltage		-3.5	1	V

2 Optical and Electrical Specifications

Parameter	Symbol	Condition	Min	Typ.	Max	Unit
Operating Temperature	T_{op}		40		55	C
Threshold Current	I_{th}	CW, $T_{op}=45^{\circ}\text{C}$			35	mA
Operating Current	I_{op}	CW	50		100	mA
Output Power	P_o	CW, $I_{op}=70\text{mA}$, $T_{op}=45^{\circ}\text{C}$	9			dBm
Laser series resistance	R_s	$V_{EA}=0\text{V}$, $I_{DFB}=70\text{mA}$ or $3I_{th}$		5	10	Ω
Laser Forward Voltage	V_F	$I_{DFB}=I_{op}$, CW, $V_{EA}=0\text{V}$	-		2	V
Mark Offset Voltage	V_{on}		-0.7		0.5	V
Modulation Voltage	V_{pp}		1		2.5	V
Static extinction ratio	SER	$I_{DFB}=I_{op}$, CW, $V_{EA}=0-3\text{V}$	12			dB
Dynamic extinction ratio	DER	$I_{DFB}=I_{op}$, @ V_{on} , V_{pp} , 10.7Gb/s	10			dB
Eye Mask Margin	MM	10.7Gb/s	15			%
Crossing			30		70	%
Dispersion penalty	DP	$I_{DFB}=I_{op}$, @ V_{on} , V_{pp} 10.7Gb/s, 40km			1.8	dB
Wavelength	λ	T_{op} , CW	1528 .77		1563 .05	nm
Side-mode Suppression Ratio	SMSR	$I_{DFB}=I_{op}$, CW, $V_{EA}=0\text{V}$	35		-	dB
Monitor Current	I_{BD}	$I_{DFB}=I_{op}$, CW, $V_{EA}=0\text{V}$	0.1		3.0	mA
Bandwidth	F_{3dB}	$I_{DFB}=I_{op}$, CW, $V_{EA}=-1\text{V}$, T_{op}	10		-	GHz
Slope Efficiency	SE	$T_{op}=45^{\circ}\text{C}$, $V_{EA}=0\text{V}$	0.08			mW/mA
Linewidth (3dB FWHM)		CW	-		0.03	nm
Kink Free		0 to 100 mA			No Kink	

3 Structure, dimension and interface definition :
 (Structure sketch and numerical mechanical drawings)



Chip thickness . 120 +/- 15

Unit : μm

4 Reliability :

Item	Test	Reference	Condition
Mechanical integrity	Die Shear	Mil-STD-883 Method 2019	
	Wire bonding strength	Mil-STD-883 Method 2011	
Special Tests	ESD Threshold	Telcordia GR-468-CORE	HBM for 3 positive pulse, for 3 negative pulse, $\geq 500\text{V}$