WAVESPLITTER™
TECHNOLOGIES, INC.

Datasheet

25Gbps CWDM DFB Laser Chip

P/N: WC5-Cxx3-y00

Description

Wavesplitter WC5-Cxx3-y00 is designed for high speed, high performance optical communication. WC5-Cxx3-y00 used 200um cavity length to optimize over temperature performances and better reliability.

Features

- Data rate up to 25Gbps
- Ridge waveguide edge emitting laser (EEL)
- RoHS Compliant
- Compliant with Telcordia GR-468

APPLICATIONS

- CWDM

Product Specifications

Absolute Maximum Ratings

Parameter	Symbol	Conditions	Min.	Max.	Unit
Operating Temperature WC5-Cxx3-000 WC5-Cxx3-200	T_{op}	---	 0 -20	 +70 +85	°C
Storage Temperature	$T_{Storage}$	---	-40	+85	°C
Solder Reflow Temperature	STEM	10sec Max.	--	260	°C
Light Output Power	P_o	CW	---	10	mW
Laser Reverse Voltage	V_r	---	---	2	V
Forward Current Transient (LD)	I_f	---	---	100	mA

Note 1:

Recommended burn-in conditions:100C, 85mA, 48 hours, and judgment criteria is +/- 10% change of key parameters

25Gbps CWDM DFB Laser Chip

P/N: WC5-Cxx3-y00

Electrical and Optical Characteristics (T=25°C, unless note)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Threshold Current	I_{th}	CW, T_c = 25°C CW T_c = 85°C		6 14	12 16	mA
Forward Voltage	V_f	CW, I_{op} = I_{th}+20mA	---	1.2	1.5	V
Series Resistance	R_s	CW, I_{op} = I_{th}+20mA	---	8	10	Ohm
Slope Efficiency	SE	CW, P_o=1.25 ~ 3.75mW	0.3	0.48	0.6	mW/mA
Side Mode Suppression Ratio	SMSR	CW, P_o=5mW, T_c= -40°C ~ +85°C	35	43	---	dB
Central Wavelength and Wavelength Span	λ	CW, P_o=5mW, T_c= -20°C ~ +85°C	λ-6.5	λ	λ+6.5	nm
Wavelength Temperature Coefficient	Δλ/ ΔT	T_{op} = -40°C ~ +85°C	---	0.09	---	nm/°C
Beam Divergence ⊥	($\theta_{\perp}$)	CW, P_o = 5mW	---	38	---	degree
Beam Divergence //	($\theta_{//}$)	CW, P_o = 5mW	---	26	---	degree
Bandwidth	BW	I_{op}= 40mA, T_c= 25°C I_{op}= 60mA, T_c= 85°C	---	15 13	---	GHz
Rise Time (20%~80%)	t_r/t_f	I_{op} = I_{th} +25mA, T_{op}=25C 20% ~ 80%	---	24	---	ps
Fall Time (20%~80%)	t_r/t_f	I_{op} = I_{th} +25mA, T_{op}=25C 20% ~ 80%	---	27	---	ps

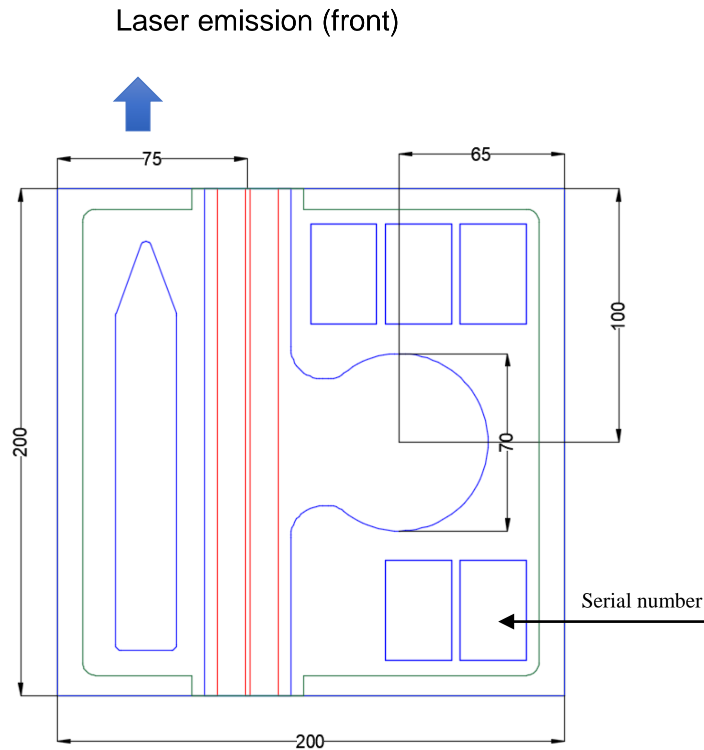
WAVESPLITTER™
TECHNOLOGIES, INC.

Datasheet

25Gbps CWDM DFB Laser Chip

P/N: WC5-Cxx3-y00

Outline Dimensions



Chip configuration:

* Chip thickness is 110 (+/-15) um
* Laser cavity is typical 200 um
* Chip size is 200x200 (+/-15) um

ODER INFORMATION

NO	Part number	Description	Note
1	WC5-C273-000	25G CWDM DFB 1271 nm chip, 0~70C	
2	WC5-C293-000	25G CWDM DFB 1291 nm chip, 0~70C	
3	WC5-C313-000	25G CWDM DFB 1311 nm chip, 0~70C	
4	WC5-C333-000	25G CWDM DFB 1331 nm chip, 0~70C	
5	WC5-Cxx3-200	25G CWDM DFB 1271~1331 nm chip, -20~85C	

25Gbps CWDM DFB Laser Chip

P/N: WC5-Cxx3-y00

Die Mount / Wire Bond Recommended Conditions:

■ Recommended Bonding Conditions

Process	Recommended Conditions	
Die Attach	Solder	AuSn (70:30)
	Temperature	350 °C max.
	Dwell time	4s max.
	Atmosphere	N2 Flow
	Weight	14 gf
Wire Bonding	Au 25um Wire	
	Ball bond	
	Temperature	120~140°C
	Weight	25~35g

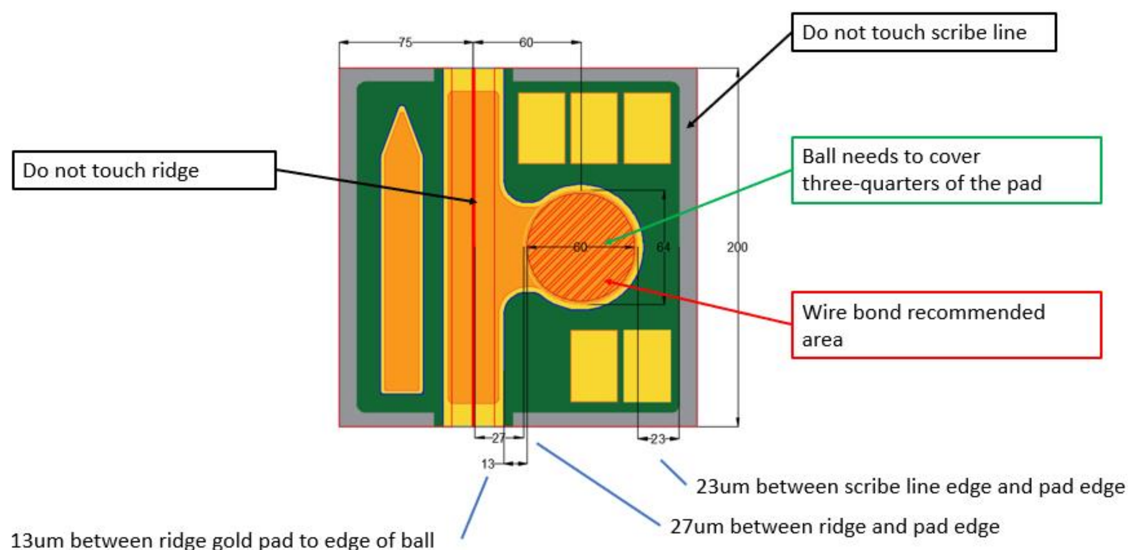
*The conditions would be revised depending on the bonding equipment.

■ Wire bond

1. Do not touch ridge (27um between ridge and pad edge)
2. Do not touch scribe line (23um between scribe line and pad edge)
3. Needs to control the capillary and bonding force to keep the ball size as small as possible
4. The contact surface of the ball should reach 3/4 area coverage of pad. The recommended ball size is about 60um (2~2.5 times of 25um wire)
5. The distance must be greater than 13um between ridge gold pad to edge of ball

25Gbps CWDM DFB Laser Chip

P/N: WC5-Cxx3-y00



■ Burn-in conditions

Temperature: 100°C

Current: 85mA

Time: 48 hours

Criterial : △Ith<10%, △Im<10%

■ HTOL conditions

Temperature: 85°C

Current: 80mA

Criterial:ΔIm<10%(Insitu)

WAVESPLITTER™ TECHNOLOGIES, INC.

Taipei Headquarters
16F-5, No. 75, Sec. 1,
Xintai 5th Rd., Xizhi Dist.,
New Taipei City 22101,
Taiwan
Tel: +886-2-2698-7208
Fax: +886-2-2698-7210

U.S. Branch
2080 Rancho Higuera Ct.
Fremont, CA
94539,
USA
Tel: 510-651-7800
Fax: 510-651-7822

All specification data are accurate on the date of publication for product comparisons and ordering information. WaveSplitter Technologies, Inc. reserves the right to change specifications without notice.