



## Laser

### Chip on Submount

#### Key Features

Distributed Feed Back (DFB)  
Laser

InGaAsP Strained Quantum  
Well Laser Structure on InP

Buried Ridge Stripe (BRS)

Low Beam Divergence  
(FWHM) of 22° x 28°

Output Power: 20mW, 40mW  
and 60mW

C -Band  
(1529nm – 1570nm)  
50 GHz Wavelength Spacing

#### Applications

CW & PW Operation

Telecom TDM and DWDM

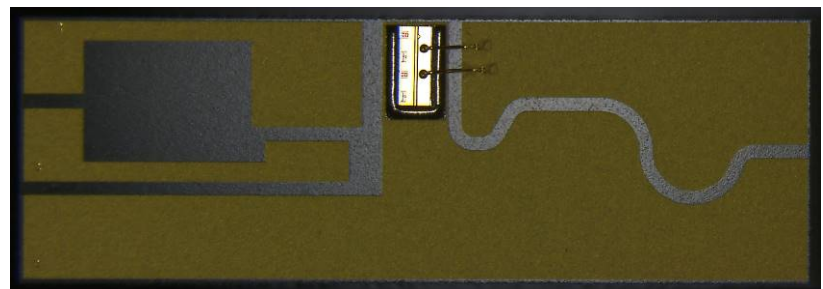
Instrumentation

## 1953LCV1

### Laser Chip on Submount

1953LCV1 chip is a high-performance DFB chip incorporating a Gas Source Molecular Beam Epitaxy (GS-MBE) strained layer multiple quantum well (SLMQW) vertical structure on an InP substrate and a Buried Ridge Stripe (BRS) structure. The BRS structure, achieved with Metal Organic Vapour Phase Deposition (MOVPE) regrowth is performed on 2" wafers whereas facet coatings are made on bars.

This product is available on the whole C-band (1529nm – 1570nm)



## For moreInfo

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or via e-mail at

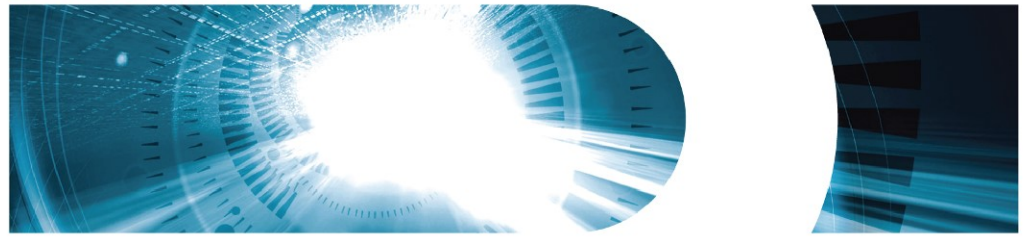
**customerservice@3sptechnologies.com**

# 1953LCV1

## DFB Laser

Chip on Submount

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## ELECTRO-OPTICAL CHARACTERISTICS

All parameters are specified at 25°C Submount Temperature, BOL

Parameters	Conditions	Symbol	Min	Max	Unit
Drive Current Threshold	Intersection point with the x-axis of the P <sub>I</sub> linear fit curve between 0.2mW and 0.8 mW	I <sub>th</sub>	-	30	mA
External Efficiency		Eta	0.22	-	mW/mA
Nominal Optical output Power	200 mA	P <sub>200</sub>	40	-	mW
Maximum Optical Output Power		P <sub>max</sub>	63	-	mW
Current without kink		I <sub>f w/o kink</sub>	300	-	mA
Serial Resistance	V <sub>I</sub> linear fit curve between 2mW and 15 mW	R <sub>s</sub>	-	2.5	Ohm
Peak Emission Wavelength	P <sub>f</sub> =40 mW	L <sub>da P</sub>	(*)	(*)	nm
Side Mode Suppression ratio	P <sub>f</sub> =40 mW	SMSR	35		dB
Parallel Beam Divergence	I <sub>f</sub> =200mA	θ <sub>//</sub>		22	°
Perpendicular Beam Divergence	I <sub>f</sub> =200mA	θ <sub>⊥</sub>		28	°

(\*)  
Peak Emission Wavelength is defined in "Ordering Information" section.

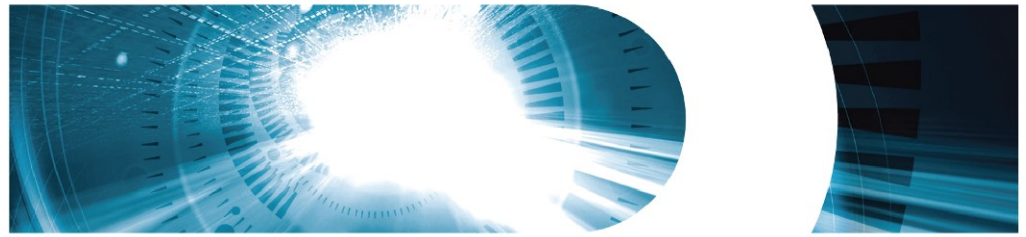
## ABSOLUTE MAXIMUM RATINGS

Exposing the device to stresses above those listed in this section could cause permanent damage. The device is not meant to operate under conditions outside the operational limits described in subsequent sections. Exposure to absolute maximum rating conditions for extended periods may adversely affect device reliability.

Parameter Conditions	Symbol	Min	Max	Unit
Storage Temperature	T <sub>stg</sub>	-40	+85	°C
Operating temperature	T <sub>op</sub>	-40	+85	°C
Chip operating temperature	T <sub>submount</sub>	-	+35	°C
Forward Drive Current	I <sub>f max</sub>	-	500	mA
Reverse Voltage	V <sub>r max</sub>	-	2	V
ESD (Human Body Model)	V ESD		1 000	V

# 1953LCV1 DFB Laser

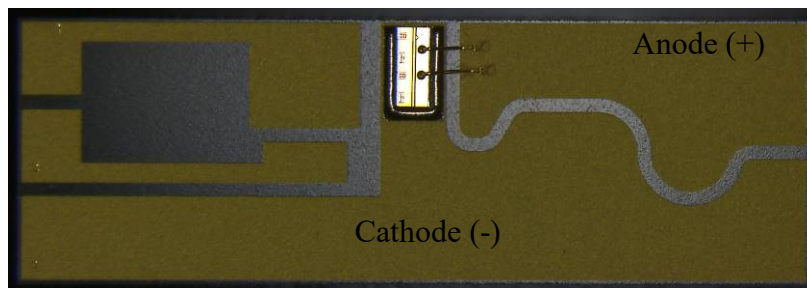
Chip on Submount



## DIMENSIONS AND WIRING

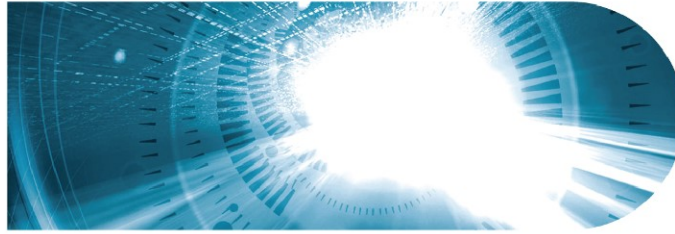
Parameter	Test Conditions	Min	Typ	Max	Unit
Chip length		580	600	620	$\mu\text{m}$
Chip width		230	250	270	$\mu\text{m}$
Chip thickness		65	85	105	$\mu\text{m}$
Submount length		5880	6000	6020	$\mu\text{m}$
Submount width		1980	2000	2020	$\mu\text{m}$
Submount thickness		615	635	655	$\mu\text{m}$

- CW & PW application



# 1953LCV1 DFB Laser Chip on Submount

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## QUALIFICATION and RELIABILITY

1953 LCV1 laser chip is qualified based on Telcordia GR-468-Core recommendations.

Wear Out Failure In Time is lower than 100 FIT

- for 15 years duration
- at chip conditions of :
  - . 40 mW Output Power
  - . and 25°C temperature

## LASER SAFETY INFORMATION

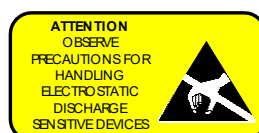
Appropriate precautions should be taken to prevent undue exposure to naked eye.  
This product is classified Class 3B Laser Chip according to IEC 60825-1.

## HANDLING

This product is to be used in a class 10.000 clean room (ISO 7 standard) at the following recommended conditions : 19~23°C and 40~60% HR

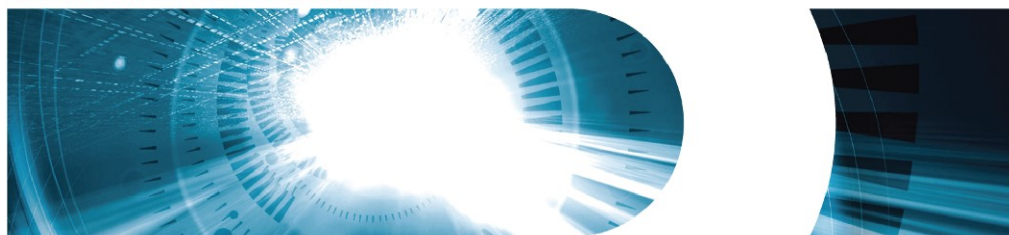
This product is sensitive to electrostatic discharge and should not be handled except at a static free workstation. Appropriate precautions should be taken to prevent ESD : use wrist straps, grounded work surfaces and anti-static techniques when handling the device.

Care should be taken to avoid supply transient and over voltage that can cause electrical overstress damage to the chip. Over voltage above the maximum specified in absolute maximum rating section may cause permanent damage to the device.



# 1953LCV1 DFB Laser

Chip on Submount



## ORDERING INFORMATION

Chip on Submount (CoS) generic part number:

<b>CoS Part Number</b>
3CN01541XX

Code related to wavelength (XX) is defined as follows: for example, part number 3CN01541CB is for a 1953LCv1 CoS at 1534.25nm supplied with wavelength at 25°C between 1533.52 and 1534.32nm to tune the chip temperature to meet the 1534.25nm IUT wavelength

XX P/N	Lda ITU (nm)	Lda Min (nm)	Lda Max (nm)
BP	1529.55	1528,82	1529,62
BQ	1529.94	1529,21	1530,01
BR	1530.33	1529,6	1530,4
BS	1530.72	1530	1530,79
BT	1531.12	1530,39	1531,18
BU	1531.51	1530,78	1531,57
BV	1531.90	1531,17	1531,96
BW	1532.29	1531,56	1532,35
BX	1532.68	1531,95	1532,75
BY	1533.07	1532,34	1533,14
BZ	1533.47	1532,74	1533,53
CA	1533.86	1533,13	1533,92
CB	1534.25	1533,52	1534,32
CC	1534.64	1533,91	1534,71
CD	1535.04	1534,31	1535,1
CE	1535.43	1534,7	1535,49
CF	1535.82	1535,09	1535,89
CG	1536.22	1535,49	1536,28
CH	1536.61	1535,88	1536,67
CJ	1537.00	1536,27	1537,07
CK	1537.40	1536,67	1537,46
CL	1537.79	1537,06	1537,86
CM	1538.19	1537,46	1538,25
CN	1538.58	1537,85	1538,65
CP	1538.98	1538,25	1539,04
CQ	1539.37	1538,64	1539,44
CR	1539.77	1539,04	1539,83
CS	1540.16	1539,43	1540,23
CT	1540.56	1539,83	1540,62
CU	1540.95	1540,22	1541,02
CV	1541.35	1540,62	1541,41
CW	1541.75	1541,02	1541,81
CX	1542.14	1541,41	1542,21
CY	1542.54	1541,81	1542,6
CZ	1542.94	1542,21	1543
DA	1543.33	1542,6	1543,4
DB	1543.73	1543	1543,8
DC	1544.13	1543,4	1544,19
DD	1544.53	1543,8	1544,59
DE	1544.92	1544,19	1544,99
DF	1545.32	1544,59	1545,39

XX P/N	Lda ITU (nm)	Lda Min (nm)	Lda Max (nm)
DG	1545.72	1544,99	1545,79
DH	1546.12	1545,39	1546,18
DJ	1546.52	1545,79	1546,58
DK	1546.92	1546,19	1546,98
DL	1547.32	1546,59	1547,38
DM	1547.72	1546,99	1547,78
DN	1548.11	1547,39	1548,18
DP	1548.51	1547,78	1548,58
DQ	1548.91	1548,19	1548,98
DR	1549.32	1548,59	1549,38
DS	1549.72	1548,99	1549,78
DT	1550.12	1549,39	1550,18
DU	1550.52	1549,79	1550,58
DV	1550.92	1550,19	1550,98
DW	1551.32	1550,59	1551,38
DX	1551.72	1550,99	1551,79
DY	1552.12	1551,39	1552,19
DZ	1552.52	1551,79	1552,59
EA	1552.93	1552,2	1552,99
EB	1553.33	1552,6	1553,39
EC	1553.73	1553	1553,8
ED	1554.12	1553,4	1554,2
EE	1554.54	1553,81	1554,6
EF	1554.94	1554,21	1555,01
EG	1555.34	1554,61	1555,41
EH	1555.75	1555,02	1555,81
EJ	1556.15	1555,42	1556,22
EK	1556.55	1555,83	1556,62
EL	1556.96	1556,23	1557,02
EM	1557.36	1556,63	1557,43
EN	1557.77	1557,04	1557,83
EP	1558.17	1557,44	1558,24
EQ	1558.58	1557,85	1558,64
ER	1558.98	1558,25	1559,05
ES	1559.39	1558,66	1559,45
ET	1559.79	1559,06	1559,86
EU	1560.20	1559,47	1560,27
EV	1560.61	1559,88	1560,67
EW	1561.01	1560,28	1561,08
EX	1561.42	1560,69	1561,48
EY	1561.83	1561,1	1561,89

XX P/N	Lda ITU (nm)	Lda Min (nm)	Lda Max (nm)
EZ	1562.23	1561,5	1562,3
FA	1562.64	1561,9	1562,71
FB	1563.05	1562,32	1563,11
FC	1563.45	1562,73	1563,52
FD	1563.86	1563,13	1563,93
FE	1564.27	1563,54	1564,34
FF	1564.68	1563,95	1564,74
FG	1565.08	1564,36	1565,15
FH	1565.49	1564,77	1565,56
FJ	1565.90	1565,17	1565,97
FK	1566.31	1565,58	1566,38
FL	1566.72	1565,99	1566,79
FM	1567.13	1566,4	1567,2

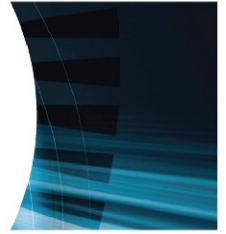
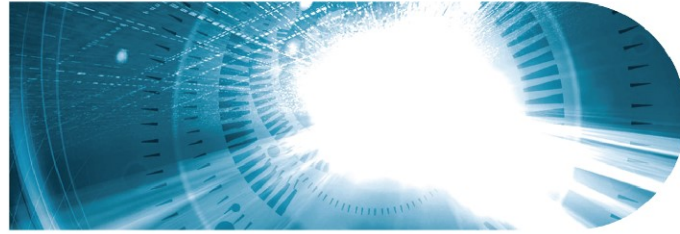


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