

## 1310nm and 1550nm FP Laser With WDM +APD+FBT

### FW-35653SS3-OA

#### 1. Description:

The FW-35653SS3-OA is a 1310nm and 1550 nm Multiple Quantum Well (MQW) structured Fabry-Perot (FP) laser diode coaxial module with WDM+APD +2X1 Fused Fiber Splitter over a single mode fiber. This module is specified to operate under pulsed condition and designed for light source of Optical Time Domain Reflectometer .

#### 2. Features:

- High stability FP laser chip
- High power for Pulsed application
- Low dark current 、 High responsivity APD
- Coaxial pigtail package with WDM and 2X1 Fused Fiber Splitter
- Operate temperature from -40°C to +85°C

#### 3. Application:

- OTDR

#### 4. Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Condition
<b>Module</b>					
Operating Case Temperature	Top	-40	+85	°C	
Storage Temperature	Tstg	-40	+85	°C	
Solderability	Stemp	--	350°C(<5S)	°C,S	ANSJ/J-ATD-002
			260°C(<10S)	°C,S	
ESD susceptibility	ESD	--	300	V	
<b>Laser Diode</b>					
Forward Current	If	--	120	mA	CW
Forward Voltage	Vf	--	2	V	CW
Pulsed Forward Current	Plf	--	200	mA	PW=10 μ S, Duty=1%
Pulsed Forward Current	Plf	--	400	mA	PW=3nS, Duty=1%
Monitor PD Forward Current	Imf	--	10	mA	
Monitor PD Reverse Voltage	Vmf	--	10	V	
Fiber tensile load (10 sec. Max.)	--	10	--	N	

## 5. Optical/Electrical Characteristics (T=25°C, unless otherwise stated)

### 5.1 1310nm and 1550nm laser without WDM and FBT (Just after fiber coupler)

Parameter	Symbol	Min	Typ	Max	Unit	Test Conditions
1310nm(pulse mode) Optical Output Power	$P_{fl310}$	25	30	--	mW	$I_{FP}=150mA$ , $PW=10\mu S$ , Duty=1%
1310nm(pulse mode) Optical Output Power	$P_{fl310*}$	9.5	--	--		$I_{FP}=150mA$ , $PW=10\mu S$ , Duty=1% After FBT Connector
1310nm(CW) Optical Output Power	$P_{o1310}$	9	12	--		CW, $I_{op}=50mA$
1550nm(pulse mode) Optical Output Power	$P_{fl550}$	20	25	--		$I_{FP}=150mA$ , $PW=10\mu S$ , Duty=1%
1550nm(pulse mode) Optical Output Power	$P_{fl310*}$	7.5	--	--		$I_{FP}=150mA$ , $PW=10\mu S$ , Duty=1% After FBT Connector
1550nm(CW) Optical Output Power	$P_{o1550}$	6	9	--		CW, $I_{op}=50mA$
Threshold Current	$I_{th}$	--	8	15	mA	T=25 °C, $I_{op}=50mA$
Forward Voltage	$V_F$	--	1.5	2	V	CW, $I_{op}=50mA$
Center Wavelength	$\lambda_c$	$\lambda_c -20$	$\lambda_c$	$\lambda_c +20$	nm	CW, T=25 °C
Spectral Width (-20 dB)	-	--	--	3.5	nm	CW, T=25 °C
Rise/Fall Times	$t_R, t_F$	--	0.2	2	ns	10% to 90%
Monitor Current	$I_{mon}$	100	--	--	$\mu A$	CW, $I_{op}=50mA$
Monitor Dark Current	$I_D$	--	--	0.1	$\mu A$	$V_R=5 V$

### 5.2 APD(After Connector)

Parameter	Symbol	Min	Typ	Max	Unit	Test Conditions
Wavelength	$\lambda$	1000	--	1650	nm	
APD Breakdown voltage	$V_{br}$	40	48	53	V	$I_{pd}=10\mu A$ , $P=0mW$
Dark Current	$I_d$	--	--	50	nA	$P=0mw$ , $V_r=0.9V_{br}$
Responsivity1	RE	0.31	--	--	A/W	M=1, $\lambda=1310nm, P_o=1\mu W$
Responsivity3	RE	0.35	--	--	A/W	M=1, $\lambda=1550nm$ , $P_o=1\mu W$
Capacitance	C	--	0.36	0.5	PF	f=1MHZ, $V_r=5V$ , $E_e=0$
-3dBm Bandwidth	BW	2	3.5	--	GHZ	$RL=50\Omega$ , M=10
Temperature coefficient of VBR	dVBR/dT		0.135	0.16	V/°C	-45~20°C
			0.105			20~85°C

### 5.3 Fused Fiber WDM Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Test Conditions
Center Wavelength 1	$\lambda$	1290	1310	1330	nm	
Center Wavelength 2	$\lambda$	1530	1550	1570	nm	
Isolation	ISO	15	--	--	dB	
Non-Adjacent Channel Isolation	Directivity	55	--	--	dB	
Insertion Loss	IL	--	--	0.5	dB	
Polarization Dependent Loss	PDL	--	--	0.1	dB	

Other Specifications of WDM:

Fiber type:SMF-28e 900um loose tube

Fiber colour of Input side:White

Fiber colour of 1550nm:Red

Fiber colour of 1310nm:Blue

Package size ( $\Phi \times L$ ) mm:3x56

### 5.4 2X1 50/50 Fused Fiber Splitter (FBT) Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Test Conditions
Center Wavelength 1	$\lambda$	1290	1310	1330	nm	
Center Wavelength 2	$\lambda$	1530	1550	1570	nm	
Non-Adjacent Channel Isolation	Directivity	55	--	--	dB	
Insertion Loss	IL	--	--	3.8	dB	
Polarization Dependent Loss	PDL	--	--	0.15	dB	

Other Specifications of FBT:

Fiber type:SMF-28e 900um loose tube

Fiber colour of Input side:White

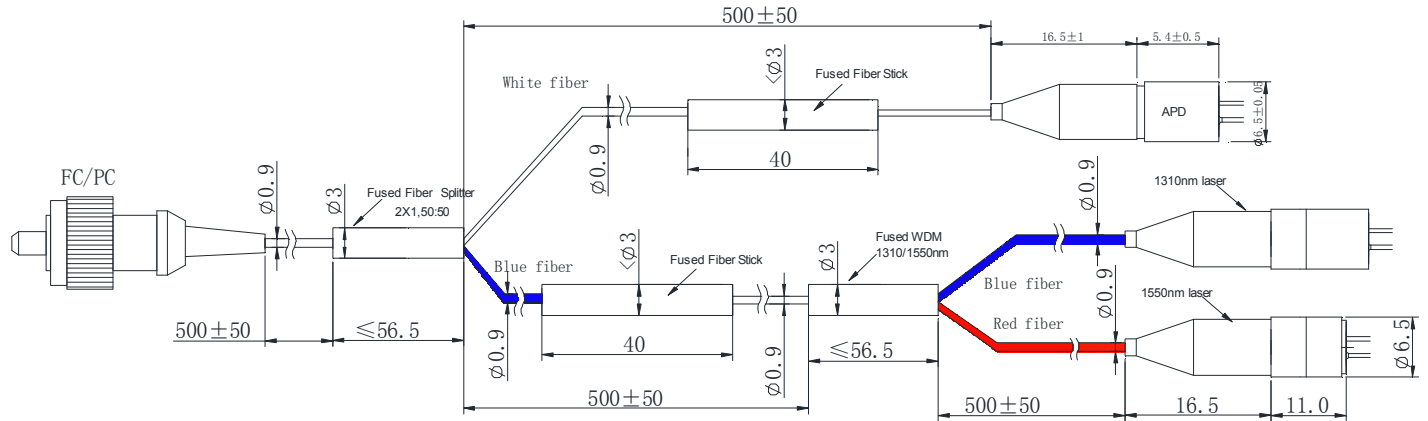
Fiber colour of output1:White

Fiber colour of output2:Blue

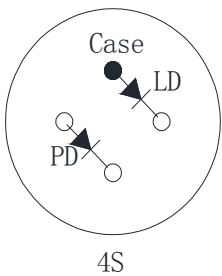
Package size ( $\Phi \times L$ ) mm:3x56

## 6. Dimensions And Pin Type

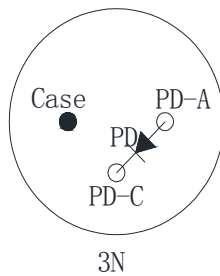
### 6.1 Dimensions,Dimensions are in millimeters. All dimensions are $\pm 1\text{mm}$ unless otherwise specified. (FC/PC)



### 6.2 Pin Type(Bottom View)



1310nm /155nm laser



APD

## 7. Order information

FW-35653SSx-OA

- Optical Connector :
- 1--SC/PC Pigtail
  - 2-- SC/APC Pigtail
  - 3--FC/PC Pigtail
  - 4--FC/APC Pigtail

## 8. Contact us

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