

### FEATURES

- Excellent linearity
- Extremely low noise
- Excellent flatness
- Switch CATV on/off
- PWDW
- AGC
- AGC Offset



### DESCRIPTION

SMO-P11 is a low power, but good performance optical receiver. AGC function make output level stably when in the range of -10-0dBm. Small size which can be assembled in a small case. The output RF can be switched by I2C control.

### QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNITS
f	Frequency range		45	1000	MHz
S <sub>22</sub>	Output return losses	f=45 to 1000MHz	-	-14	dB
I <sub>out</sub>	Total current consumption(DC)	V <sub>B</sub> =5V	180	210	mA
I <sub>r</sub>	Inrush current	V <sub>B</sub> =5V	-	3	A

### HANDLING

Fiberglass optical coupling: maximum tensile strength=5N; minimum bending radius=30mm

### LIMITING VALUES

In accordance with the Absolute Maximum Rating System

SYMBOL	PARAMETER	CONDITION	MIN.	MAX.	UNITS
Pin	Optical input power		-16	+5	dBm
	Optical return loss	0dBm		-35	dB
Tstg	Storage temperature		-40	+85	°C
Tmb	Operating mounting base temperature	continuous	-20	+85	°C
ESD	ESD sensitivity	Human body model; R=1.5KΩ;C=100pF	500	-	V

### CHARACTERISTICS

(Bandwidth 45 to 1000MHz ;  $T_{mb}=25^{\circ}C$ ,  $V_B = 5V$ ,  $Z_S=Z_L = 75\Omega$ )

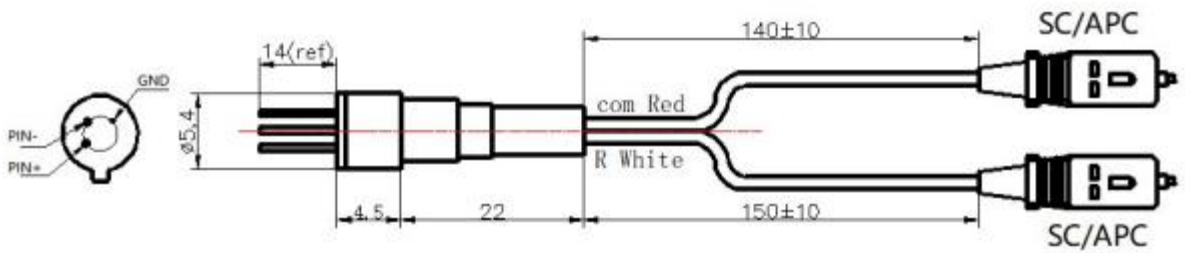
SYMBOL	PARAMETER	UNIT	MIN.	TYP.	MAX.	CONDITIONS
S	responsively	V/W	0.9	-	-	$\lambda=1550nm$
FL1	Flatness of frequency response	dB	-	$\pm 1.0$	$\pm 1.5$	f=45 to 1000 MHz, wide band flatness
FL2	Flatness of frequency	dB	-	-	$\pm 0.4$	Narrow bandwidth per 7MHz
SL	Slope	dB	0	2.0	4.0	From 45-1000MHz
S22	Output Return Loss	dB	-14	-	-	f=45 to 890 MHz
Itot	Total Current Consumption	mA	180	-	210	$V_B=5V$
RF Offset	AGC Offset	dB	-12	0	12	From 45-1000MHz
Automatic Gain Control Receiving Power: -10-0dBm (According to customer requirements)						
Vo1	Output Voltage	dBuV	76	78	81	Popt= -10-0dBm @175.25MHz 42 channels $T=25^{\circ}C$ OMI=4% per channel

SYMBOL	PARAMETER	UNIT	MIN.	TYP.	MAX.	CONDITIONS
CTB	Composite Triple Beat	dB	-	-	-57	Optical power- 0dBm 42 channels PAL-D.175 .25MHz OMI=4% per channel
CSO	Composite Second Order distortion	dB	-	-	-57	
C-spurious	Carrier to spurious	dB	-	-	-57	
CNR	Noise carrier rating	dB	47	-	-	Optical power/ - 8dBm 42 channels PAL-D.175 .25MHz OMI=4% per channel

### Optical and Electrical Characteristics (T= 25°C)

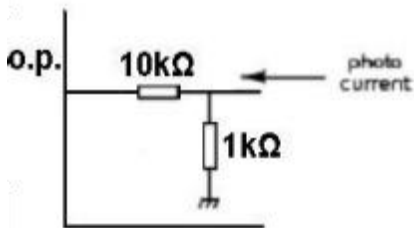
Parameter	Symbol	Min.	Type	Max.	Unit	Test condition	
Pass Channel Wavelength Range	$\lambda$	1540	1550	1560	nm		
Reflect Channel Wavelength	$\lambda$	1260	1310 1490	1500	nm		
	$\lambda$	1575	1577	1625	nm		
Responsivity	R	0.9			A/W	Vr=5V $\lambda=1550\text{nm}$	
Isolation	Pass Channel	Iso	40			dB	1310nm vs 1550nm
			30				1490nm vs 1550nm
			30				1577nm vs 1550nm
	18				$\lambda=1550\text{nm}$		

PDL	Reflect Channel				0.05	dB	$\lambda = 1310\text{nm}$ $\lambda = 1490\text{nm}$
	Pass Channel				0.05		$\lambda = 1550\text{nm}$
Return loss		RL	40			dB	
Insert loss (COM- Reflect)		IL			0.7	dB	$\lambda = 1310/1490\text{nm}$



### Photodiode pin monitoring voltage corresponding to the table

O.P.Power	voltage	O.P.Power	voltage	O.P.Power	voltage	O.P.Power	Voltage	O.P.Power	voltage	O.P.Power	voltage
dBm	v	dBm	v	dBm	v	dBm	v	dBm	v	dBm	v
2.00	1.5849	-1.00	0.7943	-4.00	0.3981	-7.00	0.1995	-10.00	0.1000	-13.00	0.0501
1.90	1.5488	-1.10	0.7762	-4.10	0.3890	-7.10	0.1950	-10.10	0.0977	-13.10	0.0490
1.80	1.5136	-1.20	0.7586	-4.20	0.3802	-7.20	0.1905	-10.20	0.0955	-13.20	0.0479
1.70	1.4791	-1.30	0.7413	-4.30	0.3715	-7.30	0.1862	-10.30	0.0933	-13.30	0.0468
1.60	1.4454	-1.40	0.7244	-4.40	0.3631	-7.40	0.1820	-10.40	0.0912	-13.40	0.0457
1.50	1.4125	-1.50	0.7079	-4.50	0.3548	-7.50	0.1778	-10.50	0.0891	-13.50	0.0447
1.40	1.3804	-1.60	0.6918	-4.60	0.3467	-7.60	0.1738	-10.60	0.0871	-13.60	0.0437
1.30	1.3490	-1.70	0.6761	-4.70	0.3388	-7.70	0.1698	-10.70	0.0851	-13.70	0.0427
1.20	1.3183	-1.80	0.6607	-4.80	0.3311	-7.80	0.1660	-10.80	0.0832	-13.80	0.0417
1.10	1.2882	-1.90	0.6457	-4.90	0.3236	-7.90	0.1622	-10.90	0.0813	-13.90	0.0407
1.00	1.2589	-2.00	0.6310	-5.00	0.3162	-8.00	0.1585	-11.00	0.0794	-14.00	0.0398
0.90	1.2303	-2.10	0.6166	-5.10	0.3090	-8.10	0.1549	-11.10	0.0776	-14.10	0.0389
0.80	1.2023	-2.20	0.6026	-5.20	0.3020	-8.20	0.1514	-11.20	0.0759	-14.20	0.0380
0.70	1.1749	-2.30	0.5888	-5.30	0.2951	-8.30	0.1479	-11.30	0.0741	-14.30	0.0372
0.60	1.1482	-2.40	0.5754	-5.40	0.2884	-8.40	0.1445	-11.40	0.0724	-14.40	0.0363
0.50	1.1220	-2.50	0.5623	-5.50	0.2818	-8.50	0.1413	-11.50	0.0708	-14.50	0.0355
0.40	1.0965	-2.60	0.5495	-5.60	0.2754	-8.60	0.1380	-11.60	0.0692	-14.60	0.0347
0.30	1.0715	-2.70	0.5370	-5.70	0.2692	-8.70	0.1349	-11.70	0.0676	-14.70	0.0339
0.20	1.0471	-2.80	0.5248	-5.80	0.2630	-8.80	0.1318	-11.80	0.0661	-14.80	0.0331
0.10	1.0233	-2.90	0.5129	-5.90	0.2570	-8.90	0.1288	-11.90	0.0646	-14.90	0.0324
0.00	1.0000	-3.00	0.5012	-6.00	0.2512	-9.00	0.1259	-12.00	0.0631	-15.00	0.0316
-0.10	0.9772	-3.10	0.4898	-6.10	0.2455	-9.10	0.1230	-12.10	0.0617	-15.10	0.0309
-0.20	0.9550	-3.20	0.4786	-6.20	0.2399	-9.20	0.1202	-12.20	0.0603	-15.20	0.0302
-0.30	0.9333	-3.30	0.4677	-6.30	0.2344	-9.30	0.1175	-12.30	0.0589	-15.30	0.0295
-0.40	0.9120	-3.40	0.4571	-6.40	0.2291	-9.40	0.1148	-12.40	0.0575	-15.40	0.0288
-0.50	0.8913	-3.50	0.4467	-6.50	0.2239	-9.50	0.1122	-12.50	0.0562	-15.50	0.0282
-0.60	0.8710	-3.60	0.4365	-6.60	0.2188	-9.60	0.1096	-12.60	0.0550		
-0.70	0.8511	-3.70	0.4266	-6.70	0.2138	-9.70	0.1072	-12.70	0.0537		
-0.80	0.8318	-3.80	0.4169	-6.80	0.2089	-9.80	0.1047	-12.80	0.0525		
-0.90	0.8128	-3.90	0.4074	-6.90	0.2042	-9.90	0.1023	-12.90	0.0513		



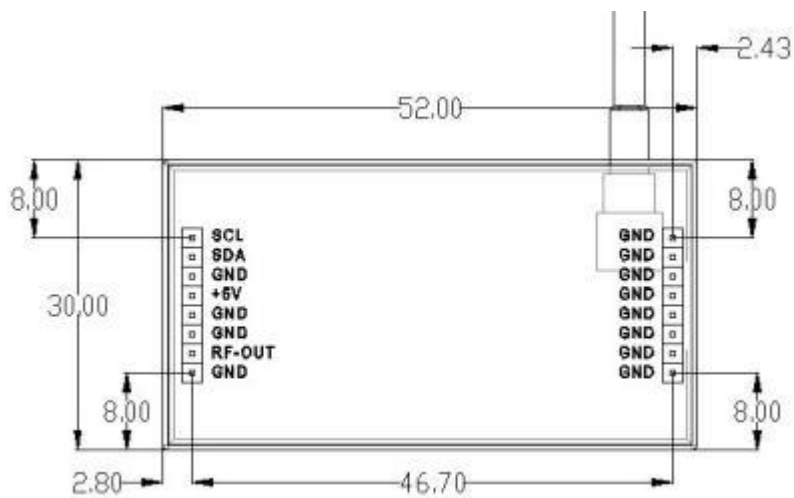
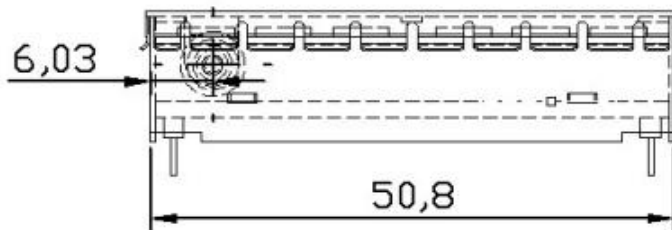
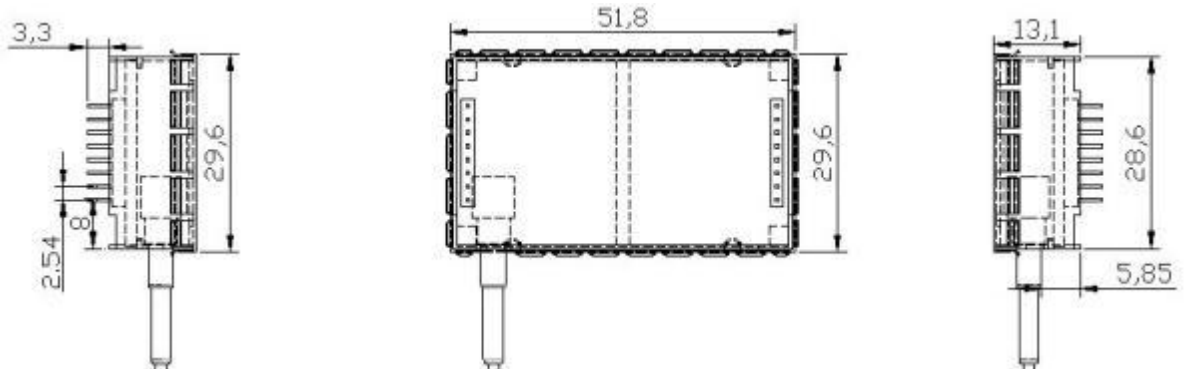
#### Notes:

The calculation formula of:  $\text{dBm} = 10 \cdot \lg((\text{O.P.})\text{mV/R})$

When measured the optical power corresponding to the monitor volt . may cause some tolerance that the range is  $\pm 0.08\text{V}$

DIMENSION (Tolerance:  $\pm 1\text{mm}$ )

reverse side



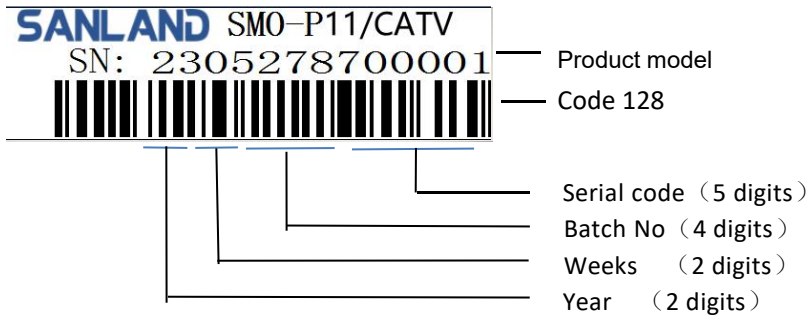
### PIN DESCRIPTION



### THE FINISHED PRODUCT FIGURE

### TABLE

Product label: 35\*10mm, pasted on the metal cover.



### PACKING

#### 1、 Monomer identification:

1.1 The product serial number label is pasted on the upper left corner of the product metal shell.

1.2 The model and serial number label of the pin tube are pasted on the red optical fiber line,

model: JZPW4-SSSS- 1.



#### 2、 Minimum package

2.1 The bottom box is made of black anti-static plastic, and the upper cover is made of transparent plastic.

2.2 Place 8 plastic blister boxes. See the figure below.



#### 3、 Outer box

3.1 Special large carton, size: 425\*388\*235mm.

3.2 Each large box contains 2\*10\*8 = 160pcs

**SANLANDTECHNOLOGY**

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