Series 3979 Optical Jack Toslink Transmitter with RCA

Material

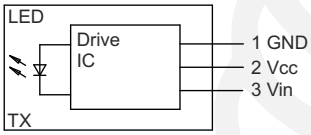
Housing:	PBT, black
Spring:	SUS
Dust cap:	PBT, grey
Holder:	PBT, black
Optic component:	Phosphor bronze, tin plating
LED cover:	PBT, black

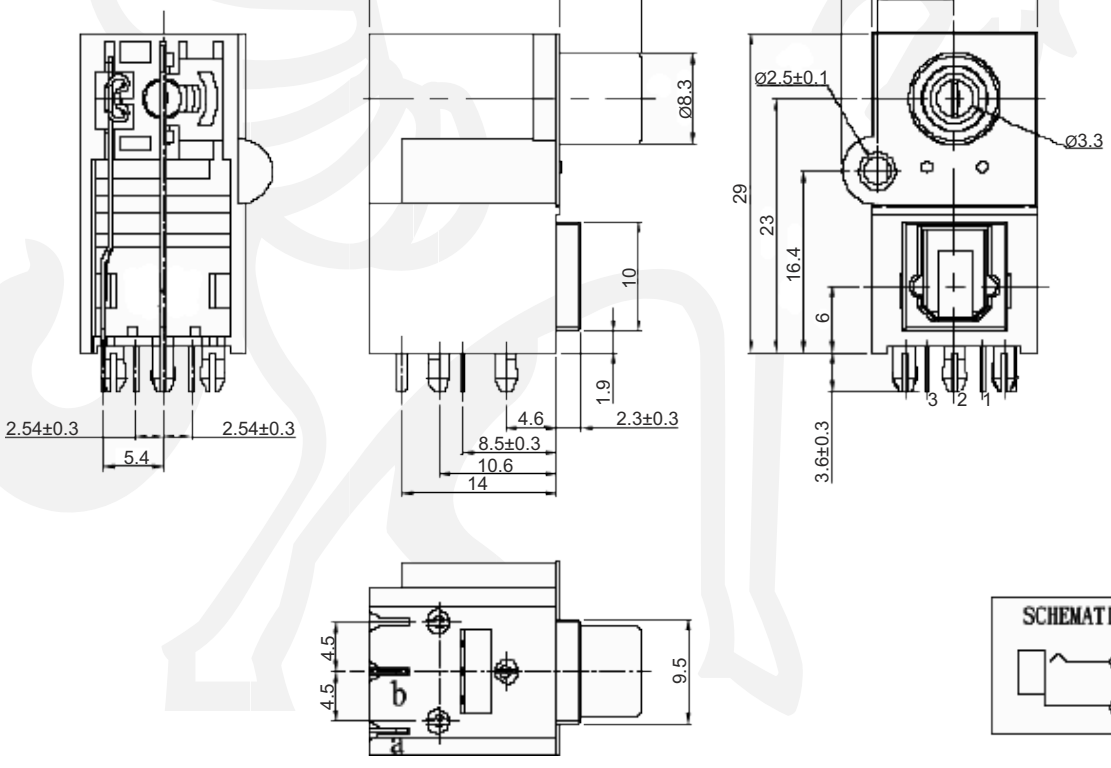
Device selection

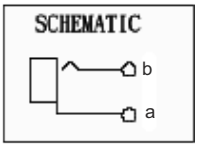
IC material:	Si
LED peak:	650 λp(nm)
Operating voltage:	2.7 - 5.5 (Vcc)
Dissipation current:	5 (mA)
Fiber coupling light output:	min. -21 (dBm), max. -15 (dBm)

Features

High speed signal transmission (16Mbps NRZ signal)
Input TTL compatible, Power supply voltage: +3 to +5V







Tolerances	
Linear	0.1~2.0 ± 0.10 >2.0 ± 0.20

RoHS compliant

All dim. in mm

3979 T	0	Y
Series T = Transmitter	Option	Packing Y = Tray

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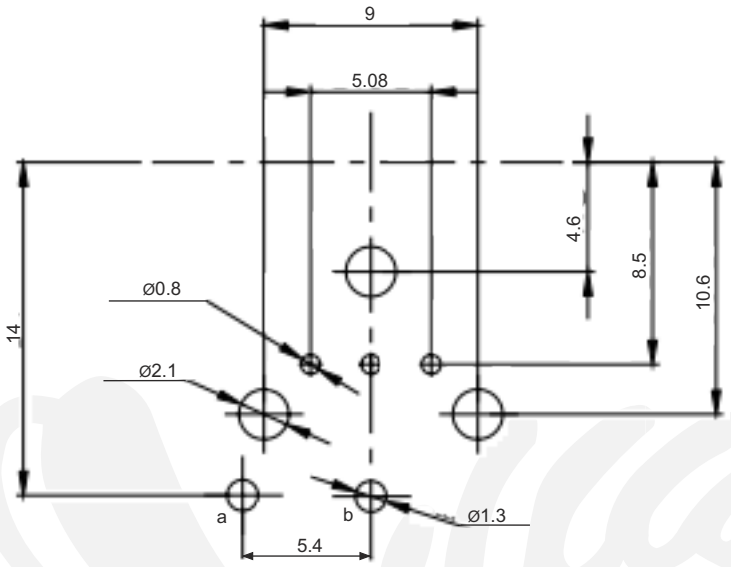

Absolute Maximum Rating (Ta = 25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage	Vcc	-0.5 to 7	V
DC Input Voltage	Vin	Vcc + 0.5	V
Power Dissipation	P	70	mW
Storage Temperature	Tstg	-30 to 80	°C
Operating Temperature	Topr	-20 to 70	°C
Soldering Temperature	Tsol	260*	°C

* Soldering time ≤ 5s / 2 times.

Electro-Optical Characteristics

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Peak Emission Wavelength	λp	-	630	-	690	nm
Transmission Speed	T	16 Mbps NRZ signal	-	-	16	Mbps
Pulse Width Distortion	tw	16 Mbps NRZ Signal	-15	<+5	15	ns
Light Coupling Output*	Pi	*1	-21	-	-15	dBm
Dissipation Current	Icc	*1	-	5	10	mA
High Level Input Voltage	V_{IH}	*2	2.0	-	-	V
Low Level Input Voltage	V_{IL}	*2	-	-	0.8	V
Rise Time	t_r	*3	-	-	30	ns
Fall Time	t_f	*3	-	-	30	ns
Low → High propagation delay time	t_{PLH}	*3	-	-	100	ns
High → Low propagation delay time	t_{PHL}	*3	-	-	100	ns
Jitter time	tj	*3	-	1.5	15	ns

* Light Input after APF should satisfy Pi range

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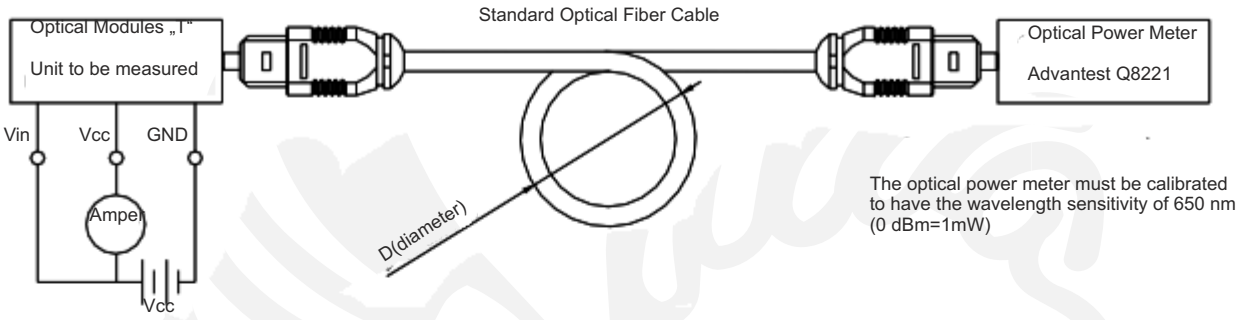
Recommended Operating Conditions (Ta = 25°C)

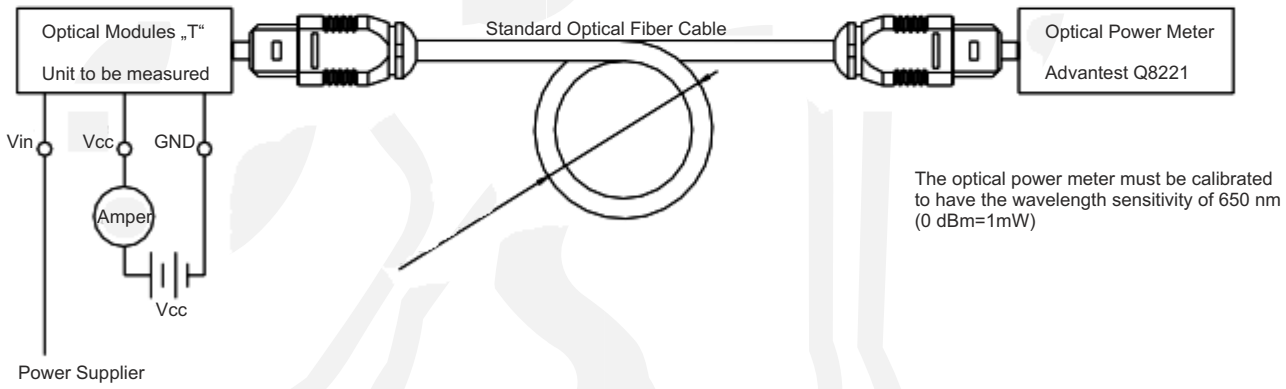
Parameter	Symbol	Min.	Typ	Max.	Unit
Supply Voltage	Vcc	2.7	-	5.5	V
High Level input Voltage	V_{IH}	2.0	-	Vcc	V
Low Level Input Voltage	V_{IL}	0	-	0.8	V

Measuring Method (1)



Conditions:
1. Vcc = 5.0 V ± 0.05 V (DC)
2. If bundle up the fiber optic cable, make it into a loop with the diameter D ≥ 10cm

Measuring Method (2)



Conditions:
1. Vcc = 5.0 V (State of Operating)
2. Amper Current Meter
3. Vin: to Power Supplier (or Signal Generator) (DC:0 - 5 V)

JuInput conditions and the method of judgement:

No.	Input conditions	Judgement
1	$V_{in} \geqq 2.0V$	$-21 \leqq P_f \leqq -15$ dBm, Icc $\leq$ 10mA
2	$V_{in} \leqq 0.8V$	$P_f \leqq -36$ dBm, Icc $\leq$ 10mA

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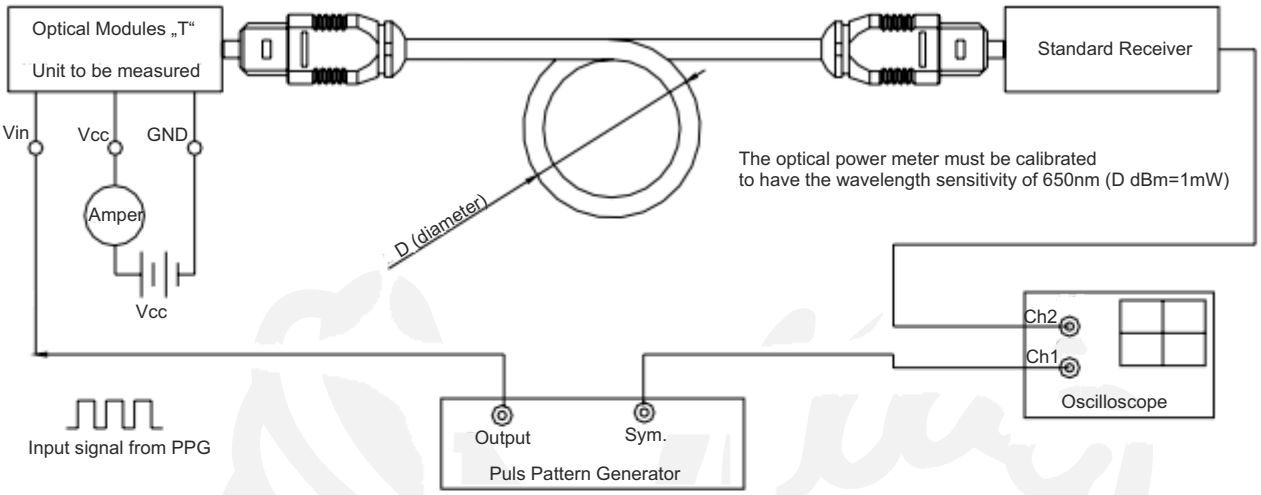
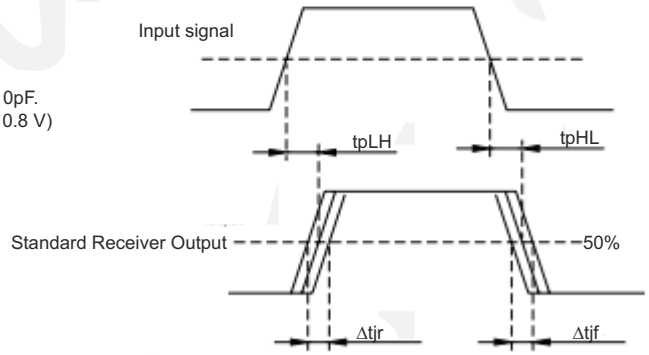
Measuring Method (3)



Conditions
1. Vcc = 5.0V
2. Vin = 16 Mbps NRZ duty 50 % signal.
   ($V_{ih} \geq 2.0$ V, $V_{il} \leq 0.8$ V)
3. The probe of the oscilloscope must be more than 1MΩ and less than 10pF.
4. When jitter is testing, the Vin = 16 Mbps PRBS signal ($V_{ih} \geq 2.0$ V, $V_{il} \leq 0.8$ V)



No.	Test Item	Symbol	Test Conditions
1	L to H pulse delay time	tpLH	It is definded by drawing in this page.
2	H to L pulse delay time.	tpHL	It is definded by drawing in this page.
3	Pulse width distortion	Δtw	Δtw = tpHL-tpLH
4	L to H Jittter	Δt_{jr}	Set the trigger on the rise of input signal to measure the jitter of the rise of output.
5	H to L Jitter	Δt_{jf}	Set the trigger on the rise of input signal to measure the jitter of the fall of output.

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Reliability test

No.	Item	Test Condition	Samples (n) Defective (c)
1	High temp. storage	Ta = 80°C, 500h	n=22, c=0
2	Low temp. storage	Ta = -30°C, 500h	n=22, c=0
3	High temp. operation	Ta = 60°, Vcc=5.0V ON, 500h	n=22, c=0
4	High temp. & Humidity storage	Ta = 40°C, 90%RH, 500h	n=22, c=0
5	Temp. Cycling	Ta = -30°C ~ +80°C (30min) (30min) 20 cycles	n=22, c=0
6	Shock	Acceleration 1000m/s², pulse width 6 ms, X,Y,X/ 3 times each direction	n=11, c=0
7	Vibration	10 ~ 55 Hz/sweep 1 min. amplitude: 1.5mm, X,Y,Z/2 hour each.	n=11, c=0
8	Terminal Strength (tension)	Weight: 5N, 30sec./each terminal	n=11 c=0
9	Terminal Strength (bending)	Weight: 2.5N (in the axial direction),0°-90°-0°, 2times/each terminal 2times/each terminal	n=11, c=0
10	Soldering Heat	Ta=260°C±5°C, 5sec., 2 times. Dip the area at adistance of more than 1.6mm from the element base, Ta=350°C±5°C, 3sec, 1 time. Dip the area at a distance of more than 7mm from the lens.	n=11, c=0
11	Solder ability	Ta=245°C±5°C, 5 sec. used a rosin flux.	n=11, c=0
12	Repeated Operation	After 500 cycles of mating and un-mating, the following value shall be satisfied.	n=11, c=0
13	Repeat open/close operation of shutter	After 1000 times the function shall be no trouble. Shutter shall be no damage.	n=11, c=0

If there is any doubt aboutthe results Ambient temperature: 5°C ~ 35°C, relative humidity : 45% ~ 85%.
In the test 1 to 5, 10 above the transmitter shall be subjected to standard atmospheric conditions for 2 hrs.
after which measurement shall be made.

Judgement criteria

In the testing items of 1-7 and 10 electro-optical characteristics shall be satisfied in following:

Upper specification limit x ≤0.8 Lower specification limit x ≥1.2	Upper specificatin limit x ≤1.2 Lower specification limit x ≥0.8	Upper specification limit x ≤1.2 Lower specification limit x ≥1.2
Current consumption (Icc) High level input voltage (V_{IH}) Low level input voltage(V_{IL}) Low to high propagation delay (t_{PLH}) High to low propagtion delay (t_{PHL}) Jitter time (Δt_j)	Fiber coupling Light output (P_f)	Pulse width distortion (Δt_w)

Test No. 8 & 9: Without cracks on the terminal.
Test No. 11 : A new uniform coating of solder shall cover a minimum of 75% of the surface be immersed.
Test No. 12 : Mating force ≤ 39.2N; 5.9N≤ un-mating force ≤ 39.2N.

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