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SPECIFICATION

1、Standard atmospheric condition

Unless otherwise specified, the standard range of atmospheric conditions for making measurements and tests are as follows:

Ambient temperature: 5°C to 35°C

Relative humidity : 45% to 85%

Air pressure : 86kPa to 106kPa

If there is any doubt about the results, measurements shall be made within the following limits:

Ambient temperature: 20±2°C

Relative humidity : 60% to 70%

Air pressure : 86kPa to 106kPa

Operating temperature range: -20°C to 70°C

Storage temperature range: -40°C to 80°C

ISSUE	DATE	WRN	CHKD	APVD	DESCRIPTIONS
	2013.06.26	黃健瑋	郭素玲	郭遠峰	
△x5	2013.07.25	黃健瑋	郭素玲	郭遠峰	Add / Modify the item 2.1, 4, 5, 6, 9.

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2、Electrical characteristics:

	Item	Condition	Specifications
1	△ Raring	φ3.5 Miniature jack	12V 1A
		Light transmitting unit operating voltage	2.7~5.5 V
1	Contact resistance	Measurement shall be made at with small current 1000 Hz (1A max.)	30mΩ max.
2	Insulation resistance	A voltage of 500 V DC shall be applied for 1 minute.	100MΩ min.
3	Dielectric strength	A voltage of 500V AC(50 to 60Hz)shall be applied for 1 minute.	Without damage to parts, arcing or breakdown, etc.

3、Mechanical characteristics

	Item	Condition	Specifications
1	Operating force	Insertion and withdrawal force shall be measured after inserting and withdrawing 3 times by using a mate plug.	Insertion force: 2.94N~29.4N (0.3Kgf~3Kgf)
			Withdrawal force: 2.94N~29.4N (0.3Kgf~3Kgf)
2	Terminal strength	A static load of 4.9N (0.5Kgf) shall be applied to the tip of the terminal for 10 seconds. (x, y, z, direction)	Without cracks or excessive looseness to the terminal. Electrical and mechanical characteristics shall be satisfied. Without play in terminal etc.
3	Contact pressure	The contact pressure during the break contact shall be measured under the normal conditions.	1N (102gf) min.

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△ 4 · Light unit characteristics :

	Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
1	Peak emission wavelength	λ_p	-	640	-	670	nm
2	Transfer speed	-	NRZ signal	-	-	25	Mbps
3	Receiving distance	-	Using APF*	0.2	-	20	m
4	Pulse width distortion	Δ_{tw}	25 Mbps NRZ signal	-11	-	11	ns
5	Fiber coupling light output	P_f	*1	-21	-	-15	dBm
6	Dissipation current	I_{cc}	*2	-	4.0	10	mA
7	High level input voltage	V_{IH}	-	2.0	-	-	V
8	Low level input voltage	V_{IL}	-	-	-	0.8	V
9	Rise time	t_r	*3	-	-	30	ns
10	Fail time	t_f	*3	-	-	30	ns
11	Low→High propagation delay time	T_{PLH}	*3	-	-	100	ns
12	High→Low propagation delay time	T_{PLL}	*3	-	-	100	ns
13	Jitter time	Δ_{tj}	*3	-	1.5	10	ns

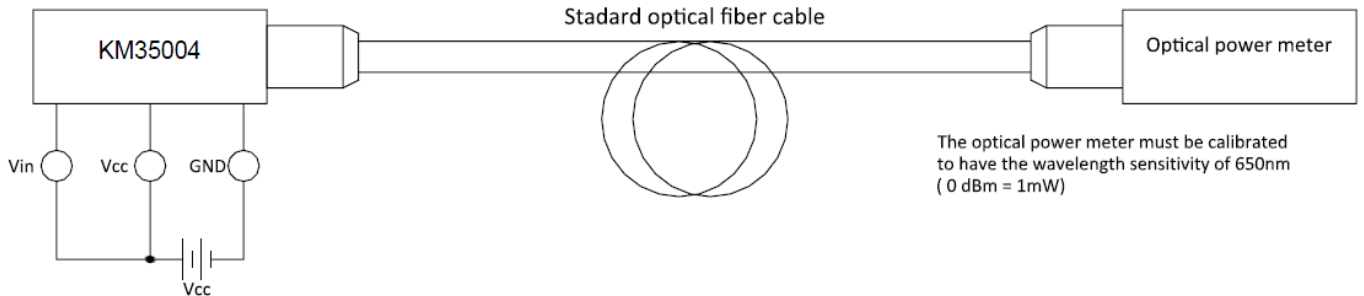
Notes:

- * Light output after APF should satisfy P_f range.
- I_{cc} (dissipation current): Current attenuate difference < 20%
- P_f (Fiber coupling light output): Brightness attenuate difference < 20%
- T_{PLH} (propagation L→H delay time): Delay time difference < 20%
- T_{PLL} (propagation H→L delay time): Delay time difference < 20%
- T_r (rise time): Time difference < 20%
- T_f (fall time): Time difference < 20%

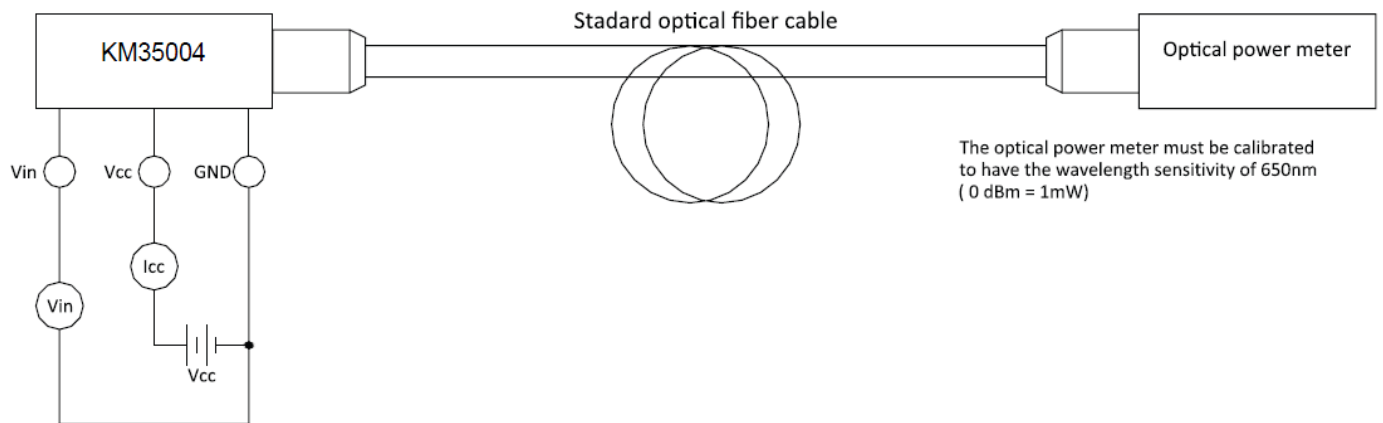
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△ 5. Light unit measuring method:

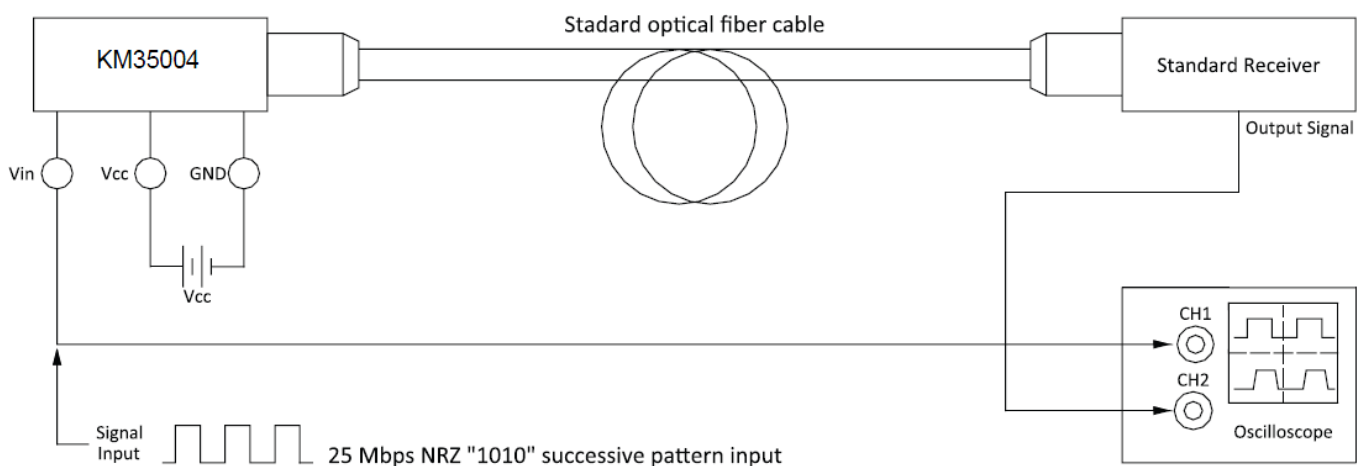
***1: Measuring method of optical output coupling fiber**



***2: Input voltage / power dissipation measuring method**

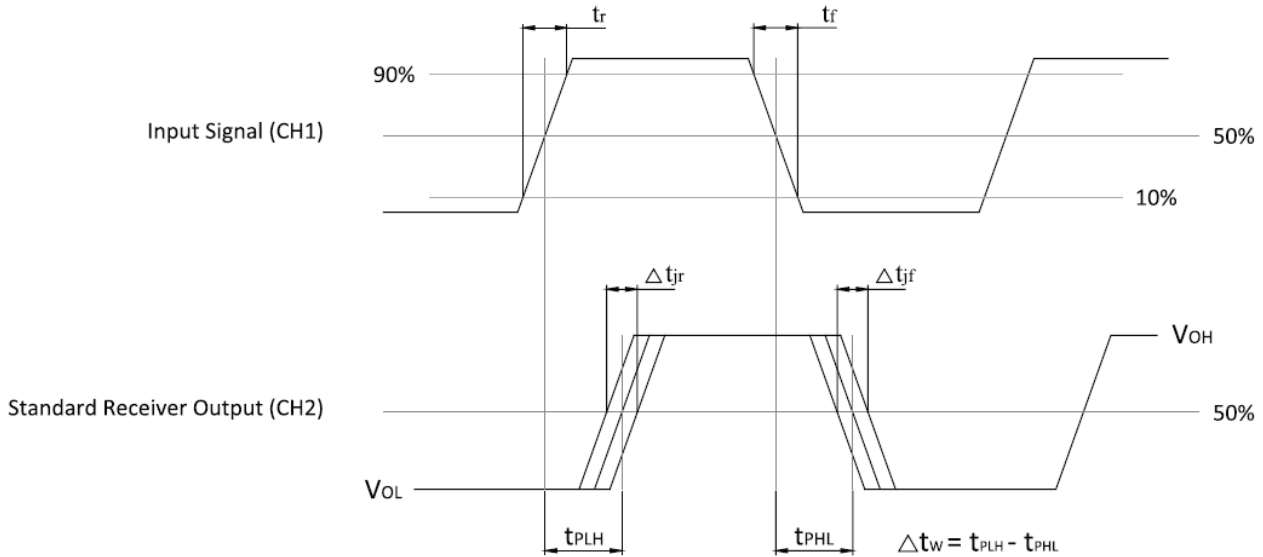


***3: Pulse response and jitter measuring method**



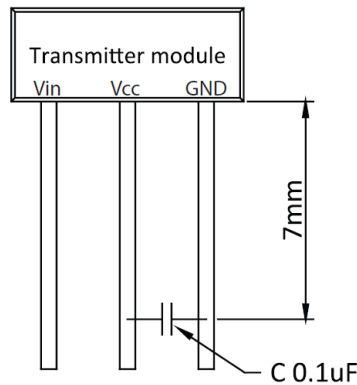
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Note: Input signal

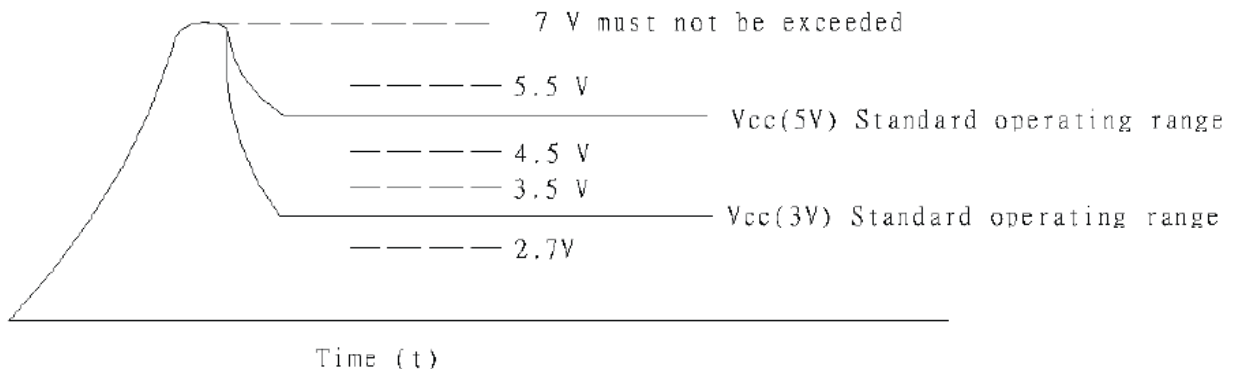


⚠ 6. Precautions for using method (Light unit):

1. Connect a by-pass capacitor (0.1 μF) close to the light unit within 7 mm of the unit lead frame.



2. Take proper electrostatic-discharge (ESD) precautions while handling these devices. These devices are sensitive to ESD. ESD protection close $\geq 2KV$.
3. Please follow the condition described in the diagram below.



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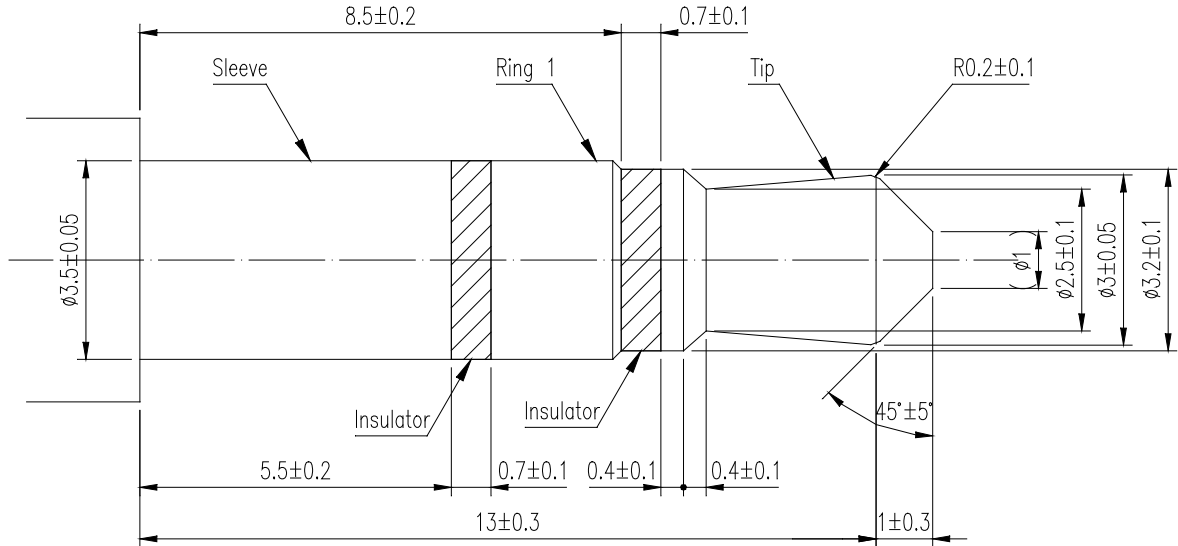
7、Endurance characteristics

Item	Condition	Specifications	
	Reflow Temperature Profile		
	Profile Feature	Pb-Free Assembly	Electrical and mechanical characteristics shall be satisfied, and not show remarkable failure.
	Average Ramp-up Rate (T _{Smax} to T _p)	3 °C/second max	
	Preheat -Temperature Min(T _{Smin}) -Temperature Max(T _{Smax}) -Time (T _s min to max)	150 °C 200 °C 60-180 seconds	
	Time maintained above -Temperature (T _L) -Time (T _L)	217 °C 60-150 seconds	
	Peak/Classification Temperature(T _p)	250 °C	
	Time within 5°C of actual Temperature (t _p)	20-40 seconds	
	Ramp-Down Rate	6 °C/second max	
	Time 25°C to Peak Temperature	8 minutes max	
	Resistance to soldering heat	Reflow Temperature Profile are as below About the plastic properties, please refer to the data sheet of plastic.	
Soldering Iron Test Temperature of soldering Iron : 380±10 °C Soldering time : 3±1 seconds		Same as Reflow Temperature Profile	
	Insertion force	2.94N~29.4N (0.3Kgf~ 3Kgf)	
	Withdrawal force	2.94N~29.4N (0.3Kgf~ 3Kgf)	

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Item	Condition	Specifications	
2 Solderability	Temperature of solder : $250^{\circ}\text{C} \pm 5^{\circ}\text{C}$ Time of dip : 3 ± 0.5 seconds Length of dip : $2 \pm 0.5\text{mm}$ (from top of terminal)	A new uniform of solder shall cover a minimum of 90% of the surface being immersed.	
3 Humidity test	The jack shall be stored at a temperature of $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and a humidity of 90%~95% for 96 hours. Then the jack shall be maintained at standard atmospheric conditions for 1 to 2 hours after which measurement shall be made.	Dimensional requirements shall be satisfied. Electrical and mechanical characteristics shall be satisfied.	
	Insulation resistance	50M Ω min.	
4 Dry heat	The jack shall be stored for 96 hours at a temperature of $85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ immediately after which measurement shall be made.	Dimensional requirements shall be satisfied. Electrical and mechanical characteristics shall be satisfied.	
	Insulation resistance	50M Ω MIN.	
5 Cold	The jack shall be stored for 96 hours at a temperature of $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ immediately after which measurement shall be made.	Dimensional requirements shall be satisfied. Electrical and mechanical characteristics shall be satisfied.	
	Insulation resistance	50M Ω MIN.	
6 Composite temperature / humidity cyclic test	The jack shall be subjected to 10 continuous cycles. Then the jack shall be stored at standard atmospheric conditions for 24 hours for recovery, after which measurement shall be made. Temperature shall be reduced from 25°C to -10°C within 30 minutes. Humidity uncontrolled at a temperature less than 25°C .	Electrical and mechanical characteristics shall be satisfied.	

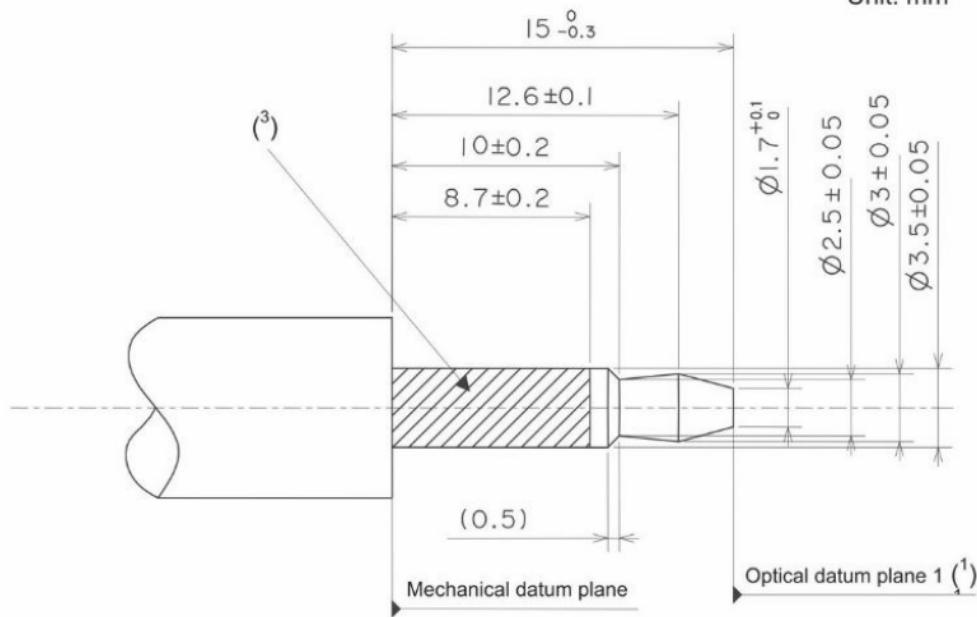
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9.2 Mate plug :



Mini Plug

Unit: mm



Optical plug

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10 · Endurance test sequence :

		Test group								
		A	B	C	D	E	F	G	H	I
Test sequence										
Test Item										
2.1	Contact resistance	1,6		1,6		1,6	1,6	1,6	1,6	1
2.2	Insulation resistance	2,7		2,7		2	2	2	2,7	2,6
2.3	Dielectric strength	3,8		3,8		3,7	3,7	3,7	3,8	3,7
3.1	Operating force	4,9		4		4,8	4,8	4,8	4,9	4
3.2	Terminal strength	5								
3.3	Contact pressure		1							
4.1	Resistance to soldering heat			5						
4.2	Solderability				1					
4.3	Humidity test					5				
4.4	Dry heat						5			
4.5	Cold							5		
4.6	Composite temperature / humidity cyclic test								5	
4.7	Operating endurance									5

Test sample quality : 2 pcs min. / group