深圳东裕光大电子有限公司
广州市东裕光电科技有限公司

产品规格书
SPECIFICATION

客户名称 CUSTOMER	
产品名称 PRODUCTION	红外接收头
产品型号 MODEL	DY-IRM-WA01-B
版本号 VERSION NO	A1.0

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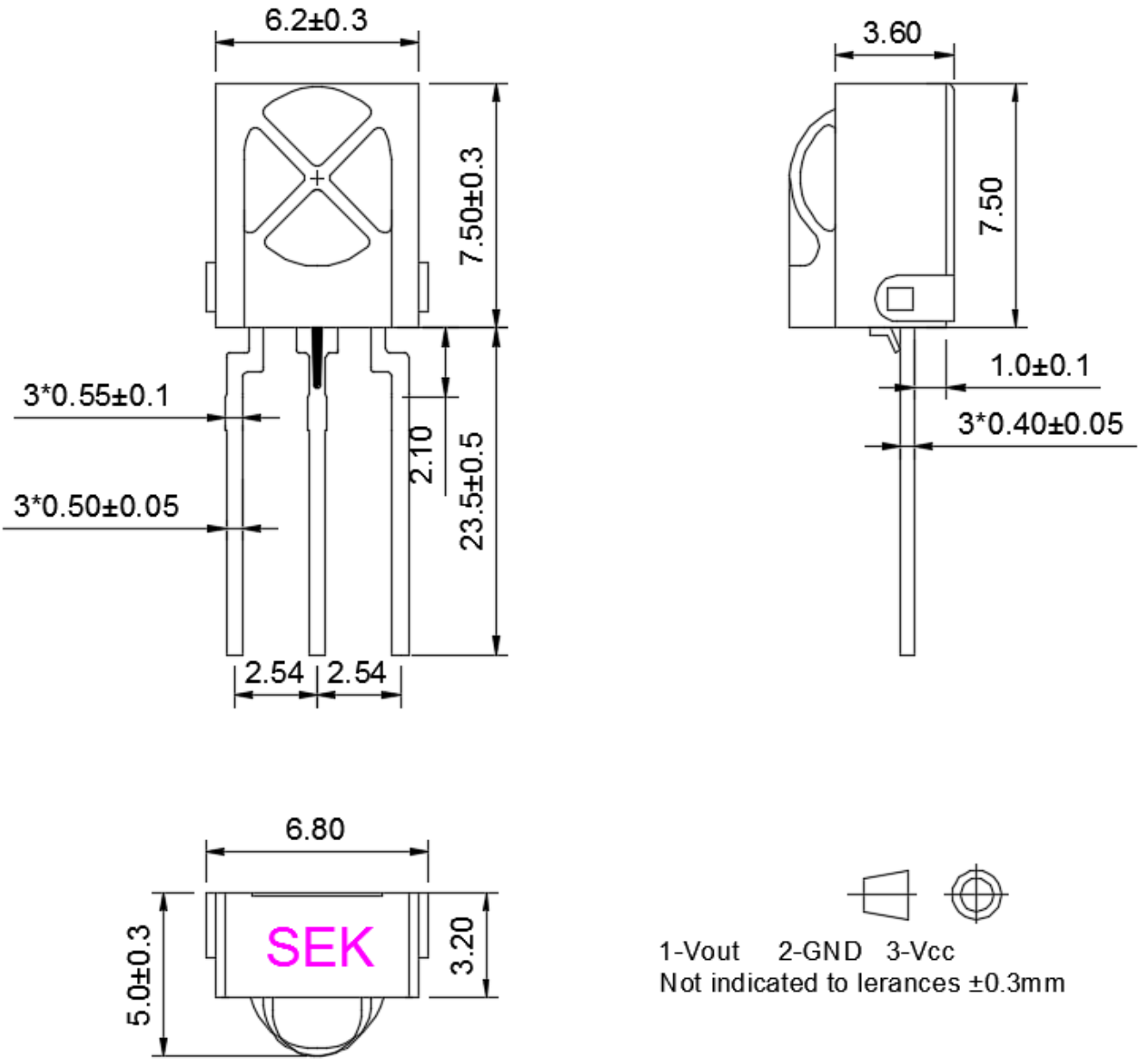
客户确认 CUSTOMER CONFIRMATION	审　核 CHECKED BY	编　制 PREPARED BY
	汪建新	陈少龙

◆ External Dimension (Unit : mm)



IR Receiver Modules for Remote Control Systems

◆ Description

The is a low power IR receiver IC for infrared rem ote control systems, which optimized specifically for application environme nt with RF signal interference (such as WIFI and Bluetooth).
The also inherits many good features from the series, such as low power consumption、high sensitivity and wide supply voltage range. The a ssembles many excellent circuits such as a high gain low noise pre-amplifi er, a limiter, a gain variable amplifier, a band pass filter, a auto gain control circuit, a comparator, a integrator , a waveform shaping circuit and a high f requency noise filter module on a single chip

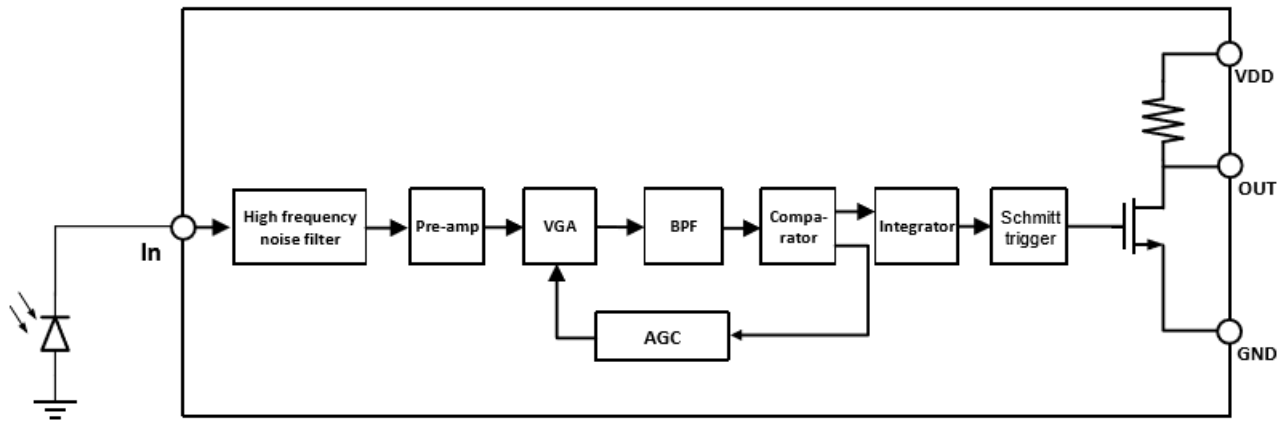
◆ Features

Supply Voltage range：2.7 V to 5.5 V
Very low current consumption (535uA@3V,570uA@5V)
Insensitive Vs ripple & background light source noise
Carrier frequency 36/37.9/40 KHz available
High ESD level
Output active low

◆ Applications

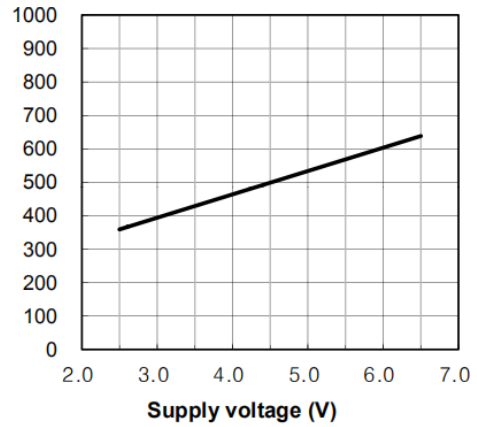
- TV, VCR, AUDIO,Settop-box
- Home Appliances
- Remote Control Equipment

Block Diagram

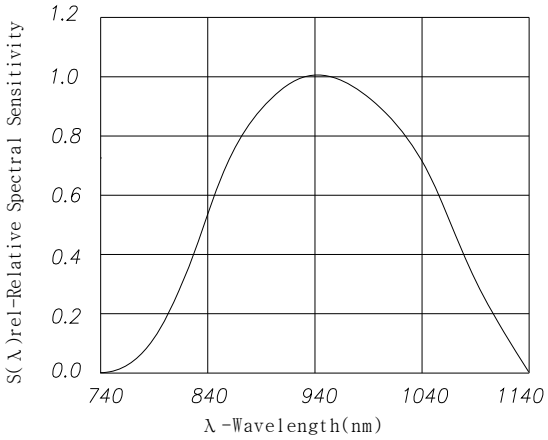


◆ Electrical / Optical Characteristics (Ta=25°)

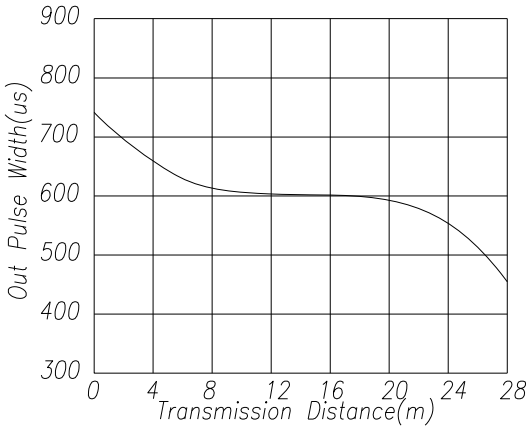
[Fig.1] Supply Current vs. Voltage



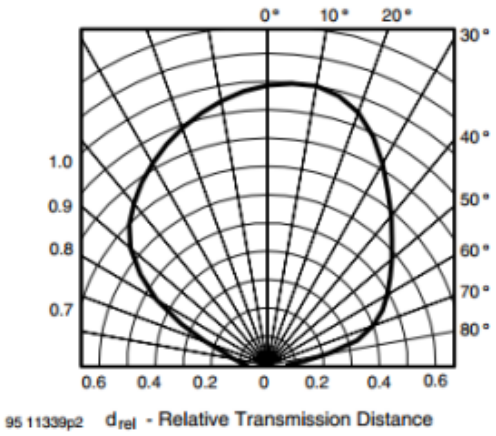
[Fig.2] Relative Spectral Sensitivity



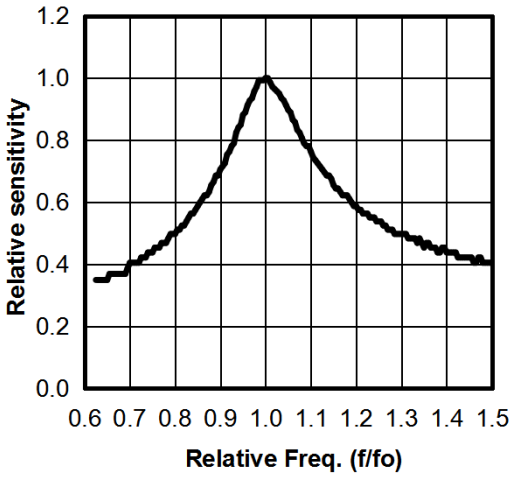
[Fig.3] Output Pulse Width vs. Distance



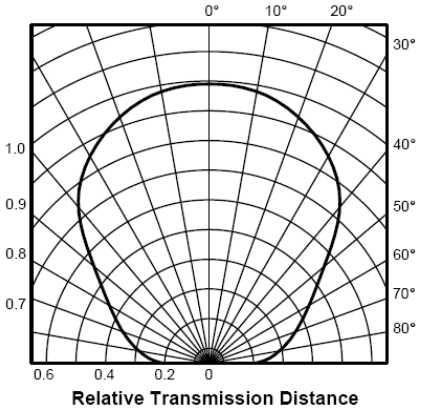
[Fig.4] Directivity (V)



[Fig.5] BPF Fc Curve

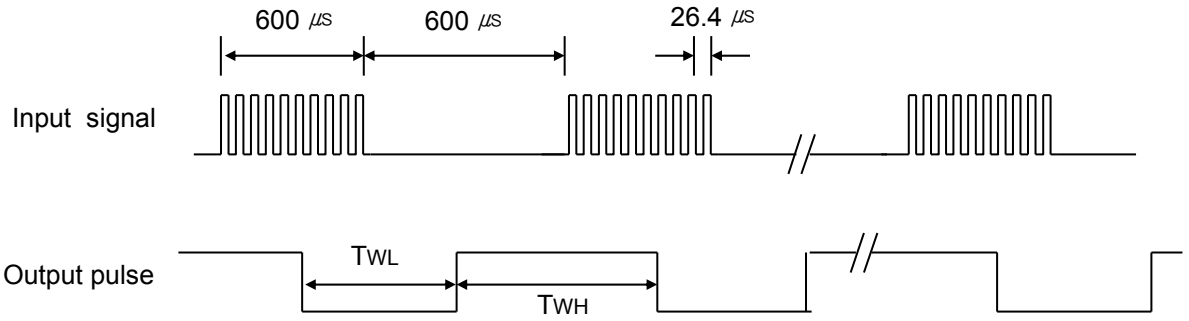


[Fig.6] Directivity (H)



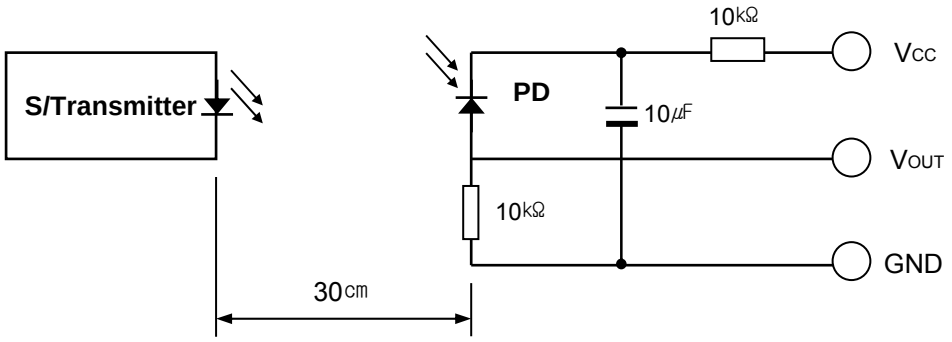
◆ Measurement Conditions

[Fig.6] Output Waveform (at freq.=37.9KHz)



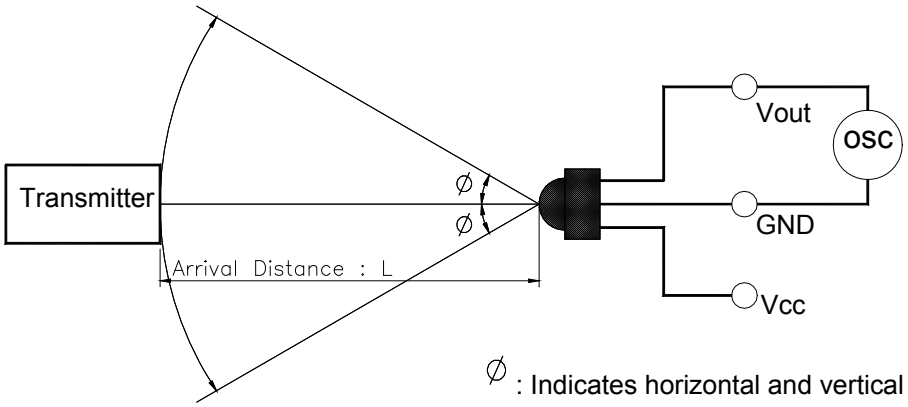
TWL = 400 μs ~ 800 μs , TWH = 400 μs ~ 800μs

[Fig.7] Transmitter



※ The specifications shall be satisfied under the following conditions. The standard transmitter shall be specified of the burst wave form adjusted to VOUT 200mVp-p upon Po measuring circuit Standard Transmitter

[Fig.8] Test condition of arrival distance



∅ : Indicates horizontal and vertical directions

[Measurement condition for arrival distance **]**

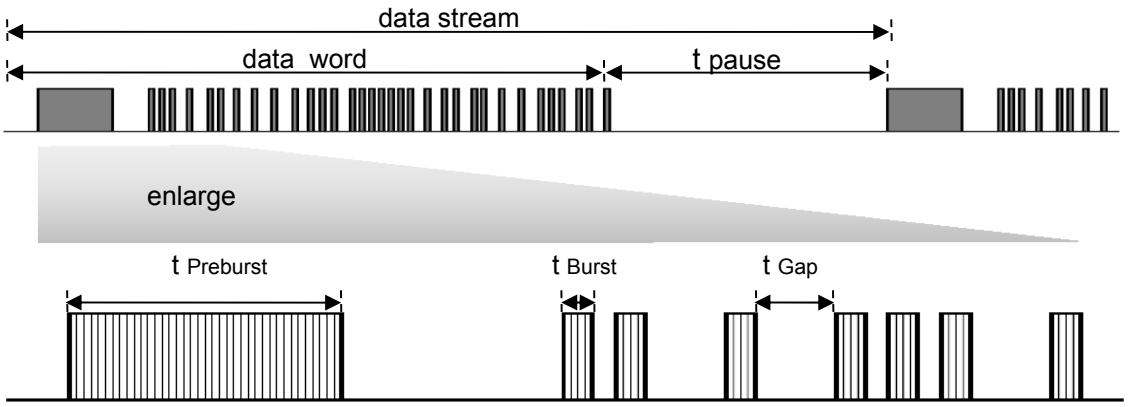
☞ Ambient light source : Detecting surface illumination shall be irradiate 200±50Lux under ordinary white fluorescence lamp without high frequency lighting

◆ Data signal limitation for Series

Item	Symbol	Time
Minimum burst length	t_{Burst}	300uS
Minimum gap time after each burst	t_{Gap-1} t_{Gap-2}	350uS
Minimum data pause time	t_{Pause}	25ms

* note 1)
: t_{Pause_min} Could be changed by different data word format. Therefore, for new application on sets please refer to “Required data pause time(t_{Pause})” on above.

[Fig. 9] Data Signal diagram



- t Burst ; length of a burst in pulses of the carrier frequency.
- t Gap ; length of the gap between two burst in pulses of carrier.
- t pause ; length of the pause between two data words.
- tPreburst ; lead code of data word

◆ Reliability Test Items

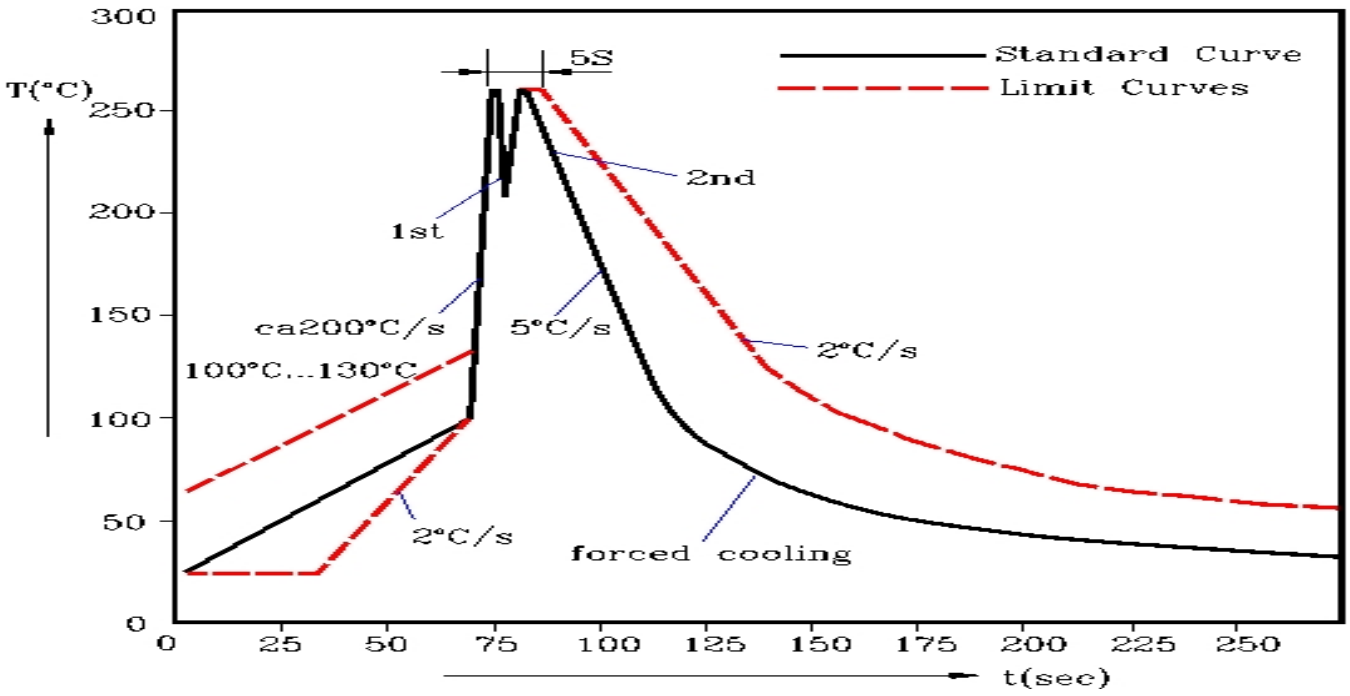
Parameter	Test conditions		Remark
High Temperature	Ta=+85℃, Vcc=5.0V	t=1000h	※1, ※2
Low Temperature	Ta=-30℃, Vcc=5.0V	t=1000h	※1, ※2
High Temp./ High Humidity	Ta=+85℃ 85%RH	t=1000h	※2
Heat Cycle	Ta=-25℃(0.5h) to +85℃(0.5h)	200 cycle	※2, ※3
Fall Test	Height=75cm, 5 times		※4

※ 1. Supply voltage of load test is 5V.
※ 2. Electro-optical characteristics shall be satisfied after leaving 2 hours in the normal condition.
※ 3. Heat cycle test shall repeat above condition 20 times under no load.
※ 4. The test devices shall be dropped three time on the hard wooden board from a height of 75㎝.

◆ Material Configuration

Parameter	Configuration	Remark
IC	Silicon(99%)	
Photo diode	Silicon(99%)	
Lead frame	Iron(99.5%), Silver(0.5%)	
Epoxy resin	Resin(55.5%), Hardener(45.5%)	
Silver epoxy	Silver(80%), Resin(10%), Hardener(10%)	
Bond wire	Gold(99.99%)	
Shield Case	Iron(99%), Tin(1%)	Inside

◆ DIP波峰焊接工艺曲线图



◆ Absolute Maximum Ratings

(Ta = 25℃)

Parameter	Symbol	Min.	Max.	Unit
Supply Voltage	VCC	0	7.0	V
Supply Current	ICC	0	3.0	mA
Output Voltage	Vout	0	7.0	V
Output Current	Iout	0	2.5	mA
Storage Tempera ture	Tstg	-30	+85	℃
Operating Tempera ture	Tamb	-25	+85	℃
Soldering Temperature	T_{sd}	260℃±5℃, Max 10 sec		℃

* Stress above those listed under Absolute Maximum Ratings may cause permanent damage of device. This is stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for longer periods may affect device reliability.

◆ Electro-optical Characteristics

(Ta = 25℃)

Parameter	Symbol	Conditions	Vcc	Min	Typ	Max	Unit
Operating Voltage	Vcc	-	-	2.7	-	5.5	V
Supply Current	Icc	No input si gnal	5	0.3	0.53	0.7	mA
			3	0.2	0.40	0.6	
B.P.F Center Frequency	fo		5	-	37.9	-	Khz
			3	-	37.9	-	
Peak Wave Length	λP			-	940	-	nm
High Level Output Voltage	VOH	Fig.1	5	Vcc-0.5	-	-	V
			3	Vcc-0.5	-	-	
Low Level Output Voltage	VOL	Fig.1	5	-	0.2	0.4	V
			3		0.2	0.4	
High Level Output Pulse Width	TWH	Fig.1	5	400	600	800	μs
			3	400	600	800	
Low Level Output Pulse Width	TWL	Fig.1	5	450	600	750	μs
			3	400	600	800	
Arrival Distance	L	Fig. 1,2,3	±0°	18	-	-	m
			±30°	12	-	-	
			±45°	8	-	-	
Output Form	Active Low						

** Arrival Distance Effected by Environment

ESD Test Results

Parameter	Conditions	Specification	Results
Machine Model	C=200pF, R=0Ω	Min ±400V	>±400V
Human Body Model	C=100pF, R=1.5kΩ	Min ±4000V	>±4000V
Charged Device Model	R=100MΩ, 1Ω	Min ±800V	>±800V

◆ **Suitable Data format for Series ;**

data format	code acceptable
NEC	O
RC5_Philips	O
RC6_Philips	O
RCA_ Thomson	X
Sony 12 Bit	O
Sony 15 Bit	X
Sony 20 Bit	X
XMP/RCMM	X
Toshiba	O
Continuous code	X
Power meter	X

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