

SPECIFICATIONS

DESCRIPTION	IR RECEIVER MODULE - CARRIER OUT
SPECIFICATION	
MAKER SPECIFICATION	R76CS5J
CODE No.	
MODEL No.	
SPECIAL ARTICLES	

MANAGER	CHECK	APPROVAL
2011. . .	2011. . .	2011. . .
A TERM OF VALIDITY		YEAR

MAKER	OPTO ELECTRONICS CO., LTD.	82-62-433-4566
ADDRESS	1066-12, Younjang-ri Jinan-eup Jinan-gun Jeonbuk, Korea	
MAKER	OPTO ELECTRONICS(DALIAN) CO., LTD.	86-411-8761-4929
ADDRESS	No.2, Yiankou RD. Economic & Technical Development Zone Dalian, China	

Customer:

<h1>SPECIFICATIONS</h1>		SHEET No.	1 of 8
		DATE	2011. 05. 02.
PART NAME	IR RECEIVER MODULE	TYPE No.	R76CS5J
CODE NO.		FILE No.	OQSS-R-000

1. Application

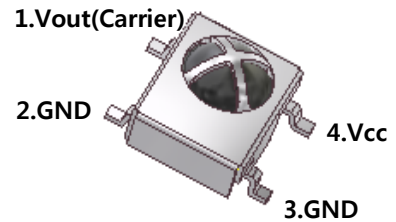
This Specification is applied to inspection and approval of the IR Receiver Module for signal synchronization etc.

2. Description

The Series are miniaturized receiver for infrared remote control system.
 The PIN Photodiode and preamplifier are assembled on lead frame. The epoxy package is designed as IR Filter.
 The module has excellent performance even in disturbed ambient light application and provides protection against uncontrolled carrier out.

3. Features

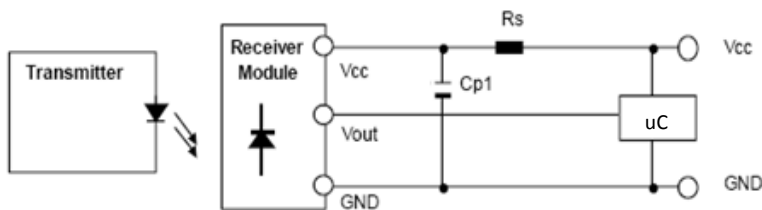
- 1)High ripple rejection
- 2)Wide operating supply voltage : 2.4V ~ 4.5V
- 3)Low current consumption : 3.0V(0.3mA)
- 4) Carrier frequency : 20kHz~40kHz
- 5)Epoxy IR filter characteristic : 810nm~940nm
- 6)Internal pull-up putput : 100kΩ







4. Absolute Maximum Ratings

- 1)Supply voltage : 0 ~ 5.5V
- 2)Supply current : 0 ~ 3.0mA
- 3)Output current : 0 ~ 2.5mA
- 4)Operating temperature : -20°C ~ +80°C
- 5)Storage temperature : -30°C ~ +85°C
- 6)Reflow soldering temperature (Pb Free) : 260°C(Max 5 sec)

5. Minimal Operating Circuit



- 1) Rs : 47ohm ~ 100ohm
 - 2) Cp1 : 4.7uF~100uF
- Rs+Cp1 recommended to suppress power supply disturbance.

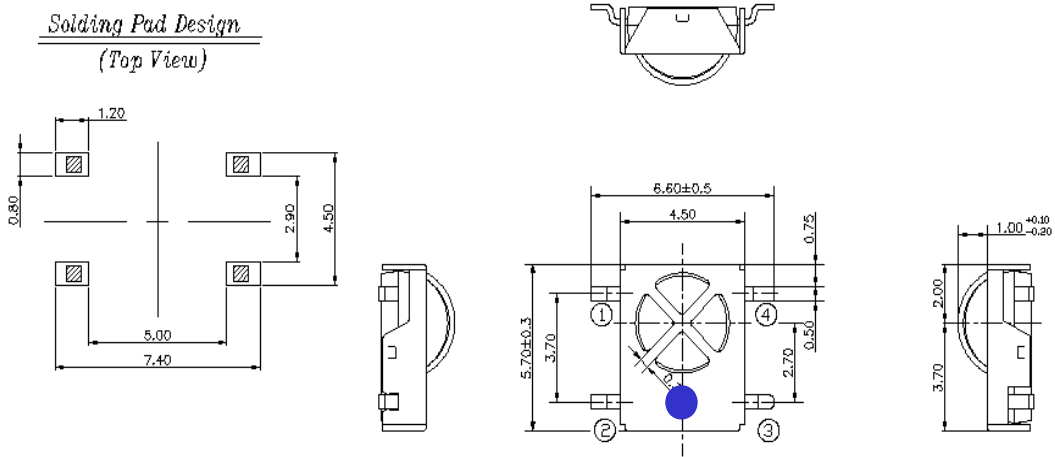
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6. Apperance & Dimensions

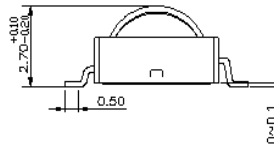
1)Package Dimension(Unit: mm)



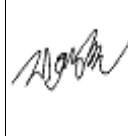



NOTE

(TOLERANCE : ±0.3)

1. Vout (Carrier Output)
2. GND
3. GND
4. Vcc



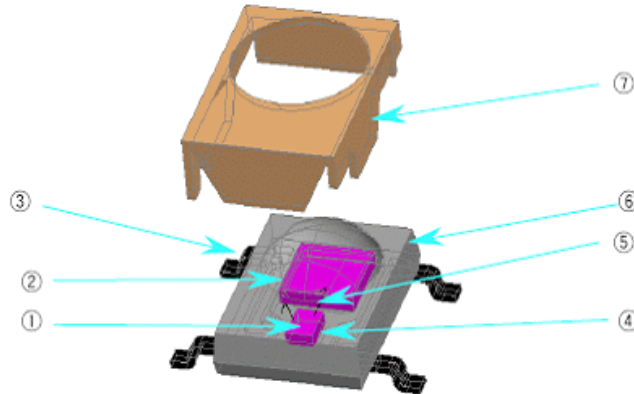
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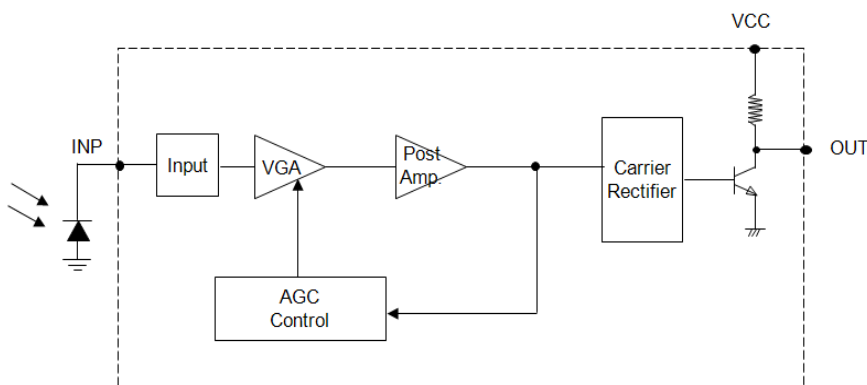
7. Schematic Diagram

1) Internal structure fig



No	Part Name	Materials(Method)	Remark
①	Pre-amp IC	Silicon	
②	PIN Photo Diode	Silicon	
③	Frame	Fe Alloy (External lead: Sn Plating)	
④	Die Attach	Ag Paste	
⑤	Wire	Au Wire (Wire Bonding)	
⑥	Molding	Non-fireproof epoxy resin	Transfer Mold
⑦	Shield Case	Fe (Sn Plated)	

2) Function Block Diagram



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8. Electro-Optical Characteristics (At 25°C unless otherwise notes)

1) Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply Voltage	Vcc	0 ~ 5.5	V
Output Current	Iout	0 ~ 2.5	mA
Operating Temperature	Topr	-20 ~ +80	°C
Storage Temperature	Tstg	-30 ~ +85	°C
Soldering Temperature(*1)	Tsol	260, t<5sec	°C
Reflow Soldering Temperature(*1)	Tsol	260, t<10sec	°C
Moisture Sensitive Level		Level 5a (≤30°C/60%RH 24Hours)	

(*1)Pb Free Solder





2) Recommended operating Conditions

Parameter	Symbol	Rating	Unit
Operating Voltage	Vcc	2.7 ~ 4.5	V
Input Frequency	fin	20 ~ 40	kHz

3) Elector_Optical Characteristics [Vcc=3.0V]

Parameter	Symbol	Condition	Min	Typ	Max	Unit	
Supply Voltage	Vcc		2.7	-	4.5	V	
Supply Current	Icc	No Input Signal	Vcc=4V	0.25	0.4	0.45	mA
			Vcc=3V		0.3		
High Level Output Voltage (※1)	V _{OH}	30cm over the ray axis	2.9	3.0	-	V	
Low Level Output Voltage (※1)	V _{OL}		-	0.2	0.4	V	
Carrier Out rise time	t _R	Vcc=3V		5		μs	
Carrier Out fall time (※1)	t _F	Vcc=3V		1		μs	
Output Pulse Width (※1)	t _W	Burst Wave = 640μs		640		μs	
Arrival Distance (※1)	D	If=400mA	-	1	-	m	
Output Form		Active Low Output					

※ 1. 640μs burst wave is transmitted by standard(Fig.2, Fig.3) transmitter. However, it measured after the initial transmission pulse is 16(30cm)pulse.

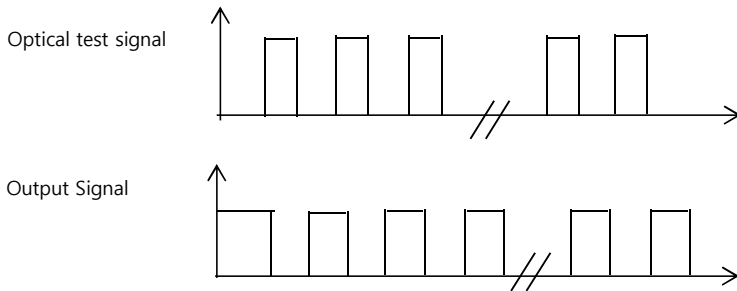
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4) Measurement Conditions

① Fig.1 Test signal, Output signal



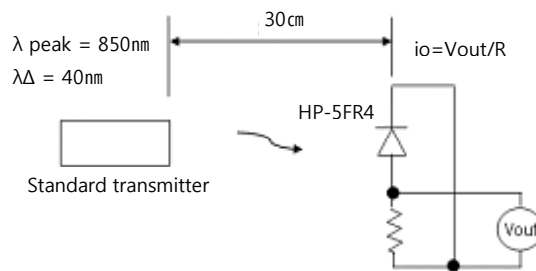
The number of test pulses : Max. 16pules

Frequency : 25kHz

Duty : 50%

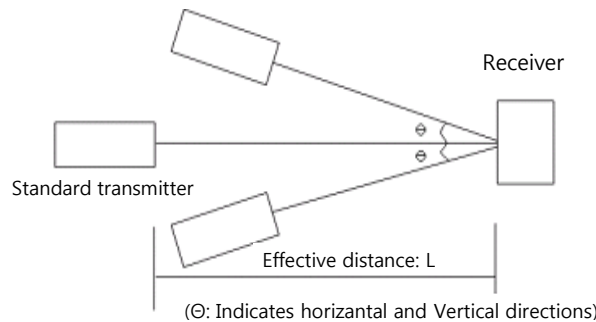
The number of Output pulses : 15~16pules

② Fig.2 Application Circuit



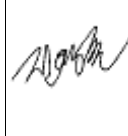



When standard transmitter output the signal at Fig.1 standard photodiode output become $I_o = 5\mu A$ p-p under the measurement condition Fig.2. (Standard transmitter : $I_f = 400mA$)
 HP-5FR4 : standard photodiode has short current $I_{sc} = 32\mu A$ at $E = 1000(lx)$

③ Fig.3 Test Condition of Arrival Distance



☞ Ambient light source : Detecting surface's illumination shall be $100 \pm 50 Lux$ under ordinary white fluorescence lamp without high frequency lighting.

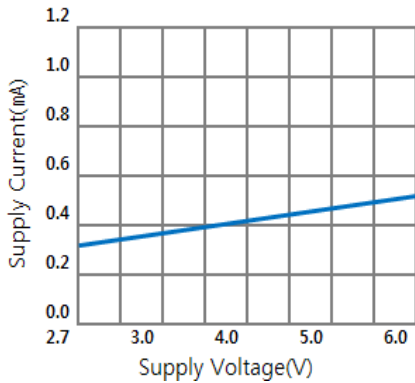
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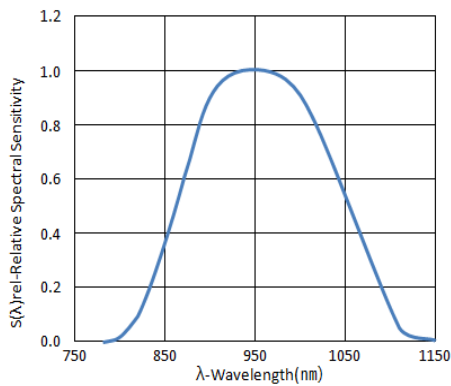
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5) Graph of Electrical/Optical Characteristics

[Fig.1] Supply Current vs. Voltage



[Fig.2] Relative Spectral Sensitivity vs. Wavelength







6) Standard Inspection

All output products shall be inspected based on following items.

- ① Detecting distance.
- ② Current consumption.
- ③ High level output voltage.
- ④ Low level output voltage.
- ⑤ Output Pulse Width

7) Others

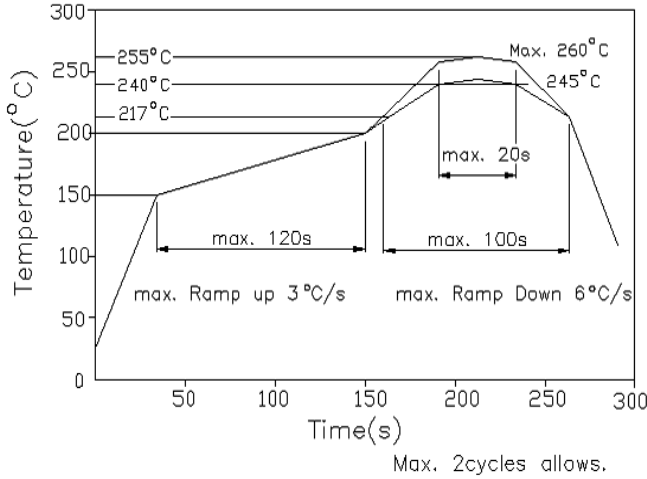
In case any trouble or question arise, both parties agree to make full discussion covering the said problem.

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9. Lead(Pb)-free Reflow Solder Profile

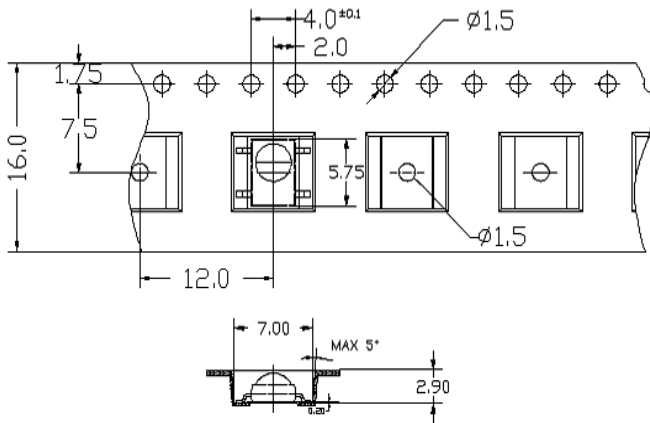


Manual Soldering

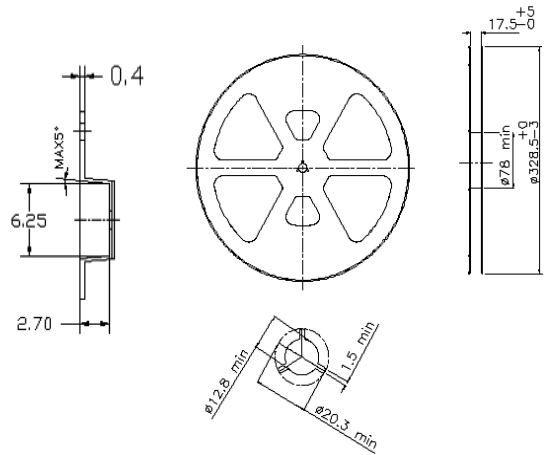
- Use a soldering iron of 25W or less. Adjust the Temperature of the soldering iron below 300°C(three seconds)

10. Taping and Reel Dimensions in millimeters

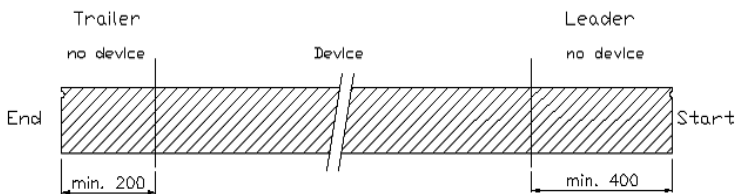
1) Taping



2) Reel



3) Leader and



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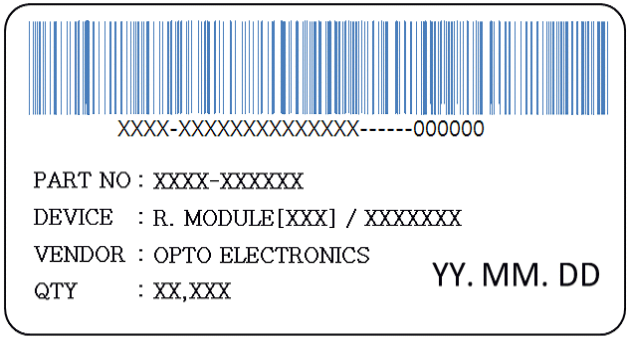
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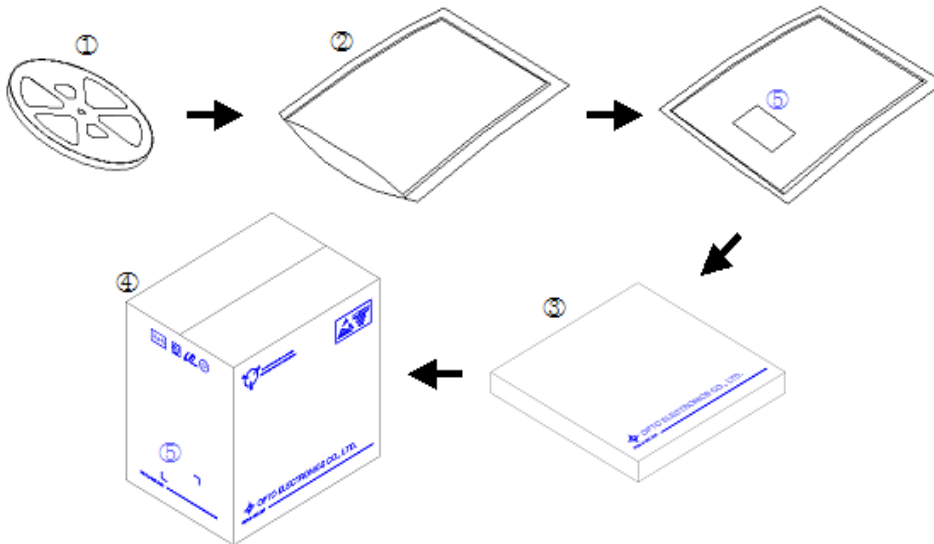
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11. Packing

No	Part Name	Dimension(mm)	Quantity(pcs)
①	Reel	13 " × 24t	1,500
②	Aluminum bag	365×420×0.3t	-
③	Inner box	430×430×50t	3,000
④	Out box	450×450×360t	15,000
⑤	Standard label	 <p>XXXX-XXXXXXXXXXXXXXXXXXXX-000000</p> <p>PART NO : XXXX-XXXXXX DEVICE : R. MODULE[XXX] / XXXXXXXX VENDOR : OPTO ELECTRONICS QTY : XX,XXX</p> <p style="text-align: right;">YY. MM. DD</p>	

- Example



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