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DATA SHEET

PART NO. :PL-IRM546JF41-S20

REV : A/2

CUSTOMER'S APPROVAL : _____ DCC : _____

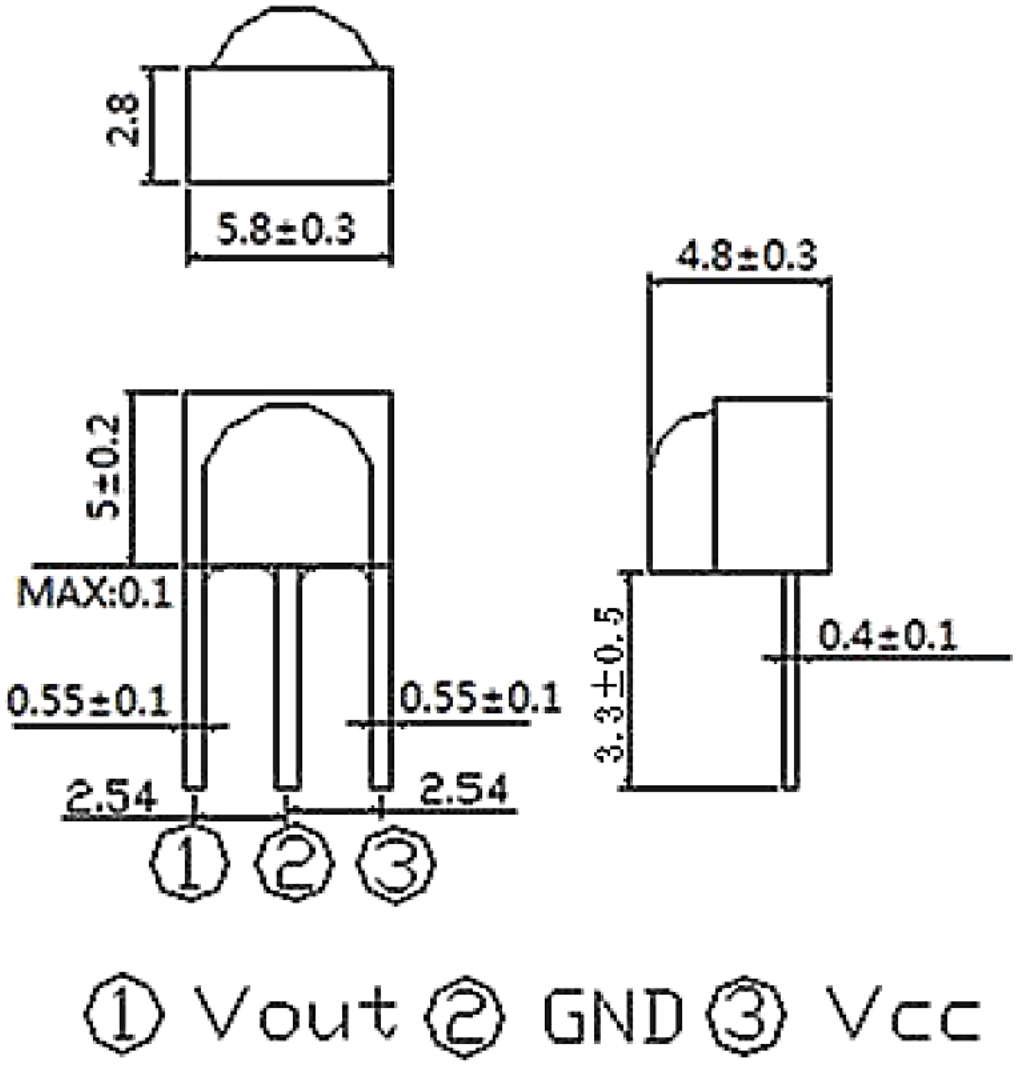
Infrared LED

Part No.:PL-IRM546JF41-S20 REV: A/2

Features

- Photo detector and preamplifier in one package
- Internal filter for the PCM frequency
- High immunity against ambient light
- Improved shielding against electric field disturbance
- 3.0-Volt supply voltage; low power consumption
- TTL and CMOS compatibility.

Package Dimension



① Vout ② GND ③ Vcc

NOTES:

1. All dimensions are in millimeters.
2. Tolerances unless dimensions ±0.1mm

- **Absolute Maximum Ratings(Ta=25℃)**

Parameter	Symbol	Rating	Unit
Supply voltage	Vcc	0-6	V
Operating Temperature	Topr	-20~+80	℃
Storage Temperature	Tstg	-20~+80	℃
Lead Soldering Temperature*3	Tsol	260(<5s)	℃

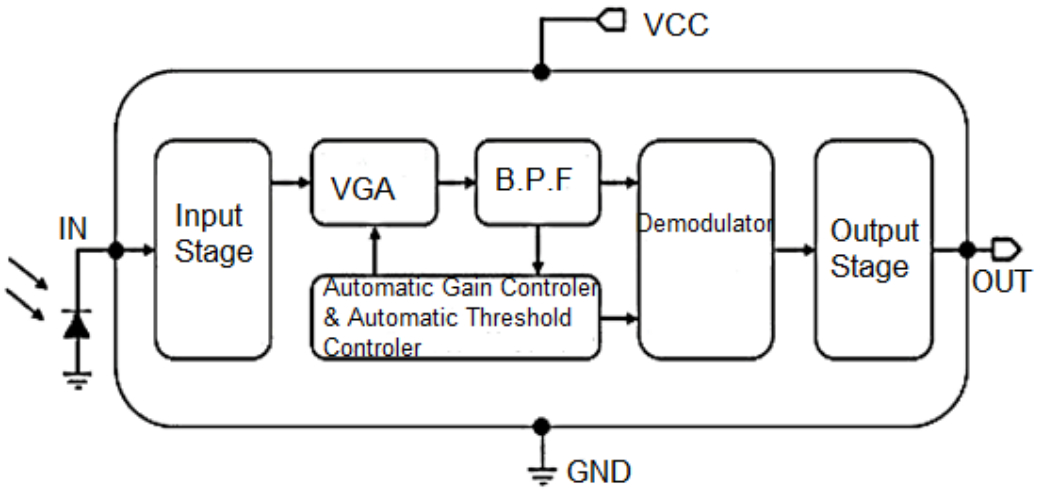
Note :

1. Below 25 Free Air Temperature
2. 1% Pulse width≦100μs,Duty cycle= 1%
3. 2.5mm form body for 5 seconds

- **Electrical and optical characteristics(Ta=25℃)**

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
working voltage	Vcc	---	2.7	---	5.5	V
Supply Current	Icc	Vcc=5.0v	---	0.3	0.8	mA
B.P.F. Center Frequency	fo	---	---	37.9	---	kHz
Peak Wavelength	λp	---	---	940	---	nm
Low Level Output Voltage	Vol	---	---	0.20	0.40	mV
High Level Output Voltage	Voh	Vcc=5.0v	Vs-0.4	---	Vs+0.2	V
pulse width	Tpw	---	400	---	800	μS
Arrival Distance	L1	(θ=0)	12	---	---	m
Half angle	2θ1/2	---	---	±45	---	Deg

Block Diagram



Test Method

A. Standard Transmitter

ON/OFF pulse width satisfied from 25 cm to detection limit

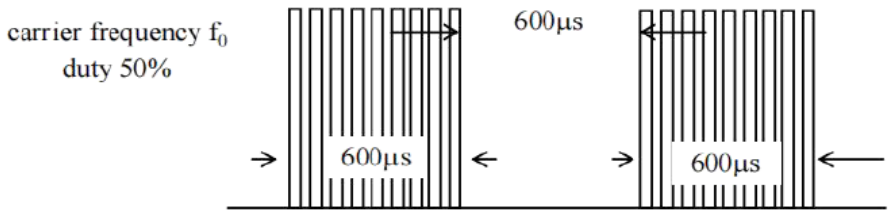


Fig 1. Burst Wave

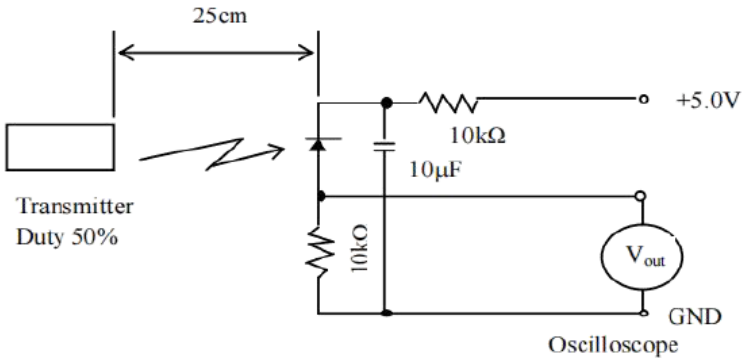
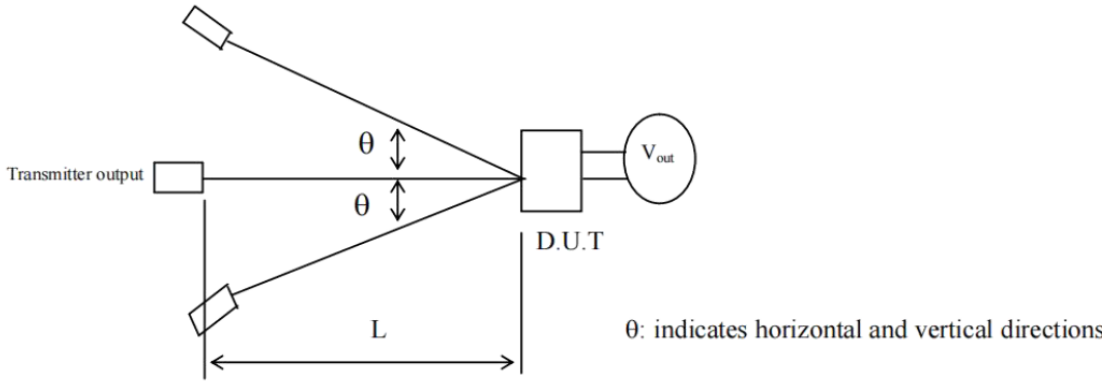
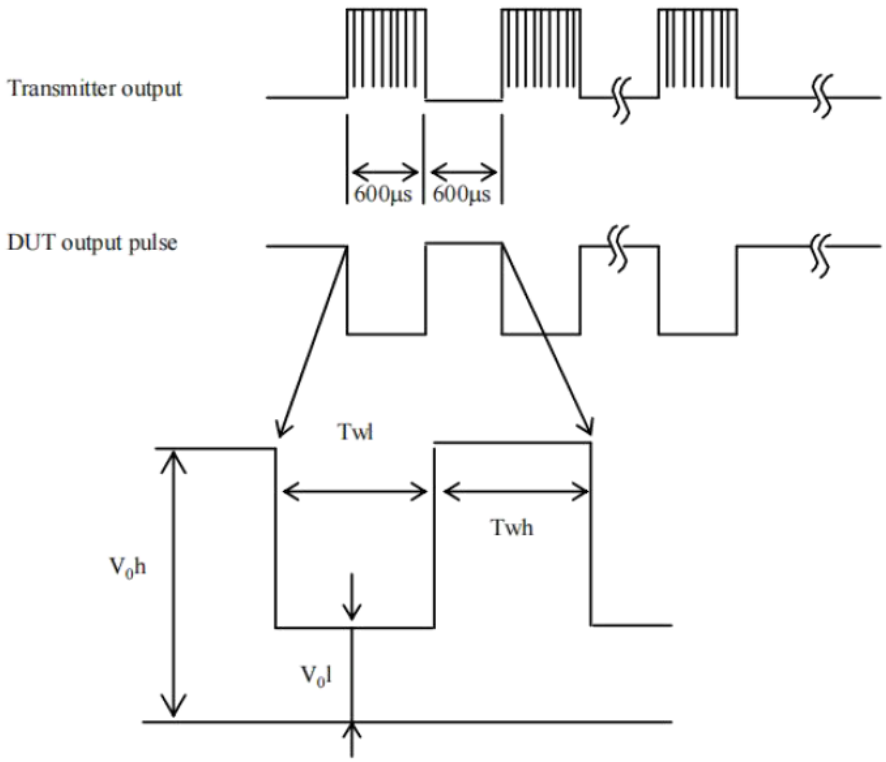


Fig2. Standard transmitter measurement circuit

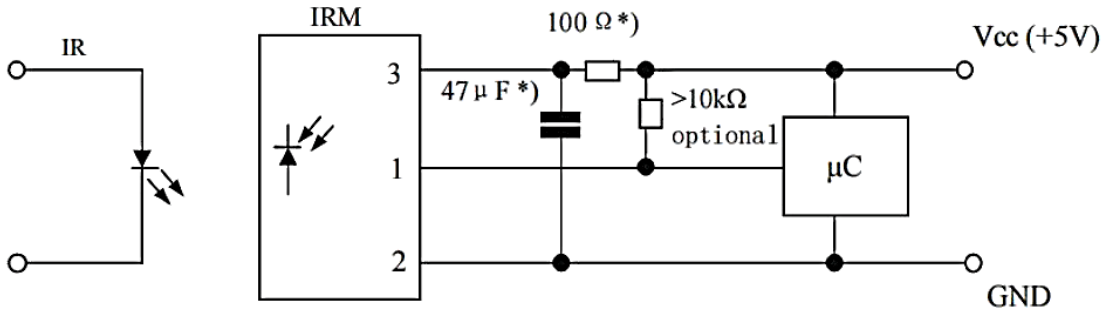
B. Detection Length Test



C . Pulse Width Test



Application Circuit



*) recommended to suppress power supply disturbances

Code information

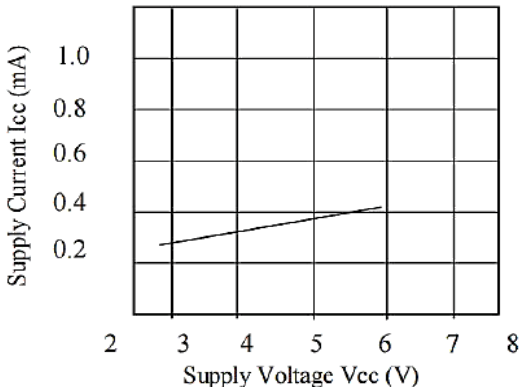
Item	Symbol	limitation
Minimum burst length	Tburst-min	150us
Maximum burst length	Tburst-max	700us
Minimum gap time after each burst(For bursts less than 700usec)	Tgap-1 Tgap-2	275us
Minimum gap time in the data stream(For bursts greater than 700usec)	Tpause -1 Tpause -2	> “tactual_burst*2+30msec”
Maximum number of continuous data		2000 Bit/sec
Data Format	NEC&Toshiba sharp Code	Yes
	RC5/RC6 Code	Yes
	Sony 12bit Code	Yes
	Sony 15bit / 20bit Code	No
	RCA / RCMM Code	Yes

Note:

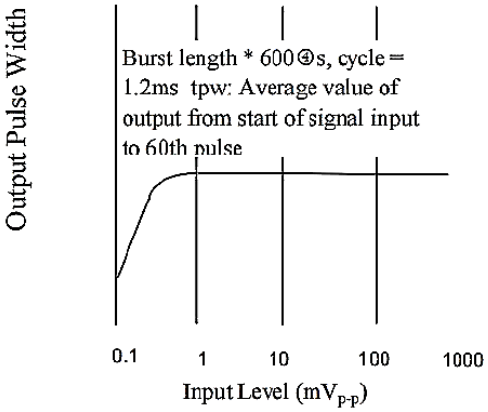
Minimum 30cm if between RCM and Transmitter for normal operating

Typical Electro-Optical Characteristics Curves

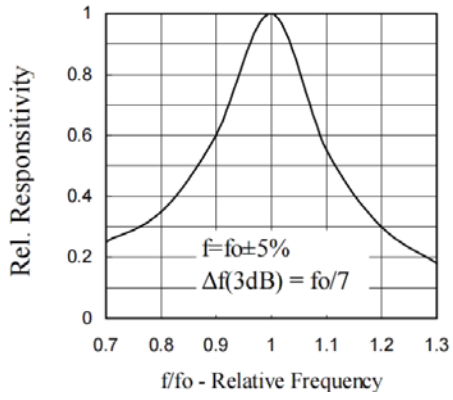
Supply voltage vs supply current



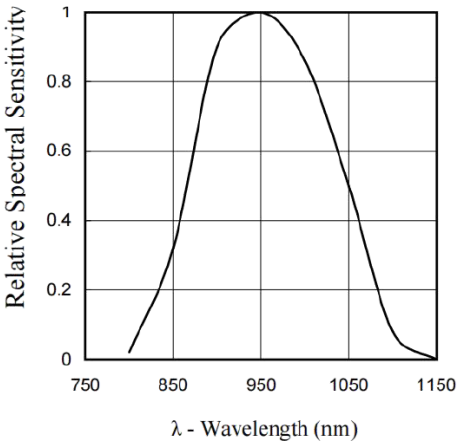
Input level vs output pulse width



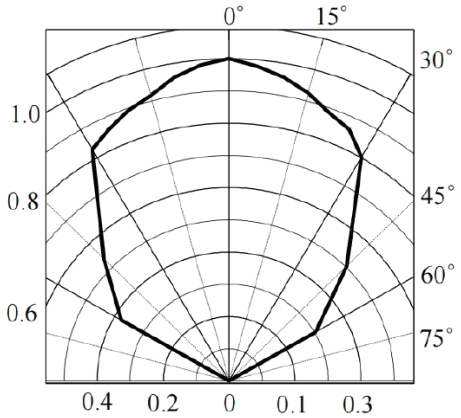
Frequency dependence of responsitivity



Relative spectral sensitivity vs wavelength



Relative tranimission



Reliability

Test item	Test condition	Standard
High temperature	Ta=+80℃ T=48H	Note2
Life Test	VCC=5V T=500H	Note2
Low temperature	Ta=-30℃ T=48H	Note2
Temperature cycle	-35℃(0.5H)~+85℃(0.5H) 20cycle	Note2
Dropping	Test devices shall be dropped 3 times naturally onto hard wooden board from a 75cm height position.	Note2
Soldering ability test	Ta=260℃ T=5S	Note3

NOTE

1. Distance between emitter & detector specifies maximum distance that output wave form satisfies the standard under the conditions below against the standard transmitter.
   (1) Measuring place: Indoor without extreme reflection of light.
   (2) Ambient light source: Detecting surface illumination shall be 200±50Lux under ordinary hite fluorescense lamp of no high frequency lighting.
   (3) Standard transmitter: burst wave indicated in Fig1.of standard transmitter shall be arranged to 50mVp-p under the measuring circuit specified in Fig2.
2. (electro-optical charactistics) shall be satisfied after leaving 1 hours in the normal temperature.
3. (electro-optical charactistics) shall be satisfied and 90% or more of the solder area is covered with solder.

Inspection standard

1. Among electrical characteristics, total number shall be inspected on items blow.
   1.1 front distance between emitter & detector
   1.2 Current consumption
   1.3 H level output voltage
   1.4 L level output voltage
2. Items except above mentioned are not inspected particularly, but shall fully satisfy.

CAUTION (When use and storage of this device)

1. Store and use where there is no force causing transformation or change in quality.
2. Store and use where there is no corrosive gas or sea (salt) breeze.
3. Store and use where there is no extreme humidity.
4. Solder the lead-pin within the condition of ratings. After soldering do not add extra force.
5. Do not wash this device. Wipe the stains of diode side with a soft cloth. You can use the solvent, ethylalcohol or methylalcohol or isupropylene only.
6. To prevent static electricity damage to the Pre-AMP make sure that the human body, the soldering iron isconnected to ground before using.
7. Put decoupling device between Vcc and GND for reduse the noise from power supply line.
8. The performance of remote-control system depends on environments condition and ability of periferal parts. Customer should evaluate the performance as total system in those conditions after system up with components such as commander, micon and this receiver module.

Others

1. This device is not design to endure radiative rays and heavily charged particles.
2. In case where any trouble or questions arise, both parties agress to make full discussion covering the said problem.