

IR Receiver Module for Surface Mount Assembly

Description

SCM7238 consists of a PIN Photo diode of high speed and a preamplifier IC in one package. Used as a receiver for Infrared remote control systems

Features

Small size SMD package 4.7W x 4.85L x 1.5 mmH

Wide supply-voltage range : 2.5V to 5.5V

Shielded against electrical field disturbance

High immunity against ambient light disturbances

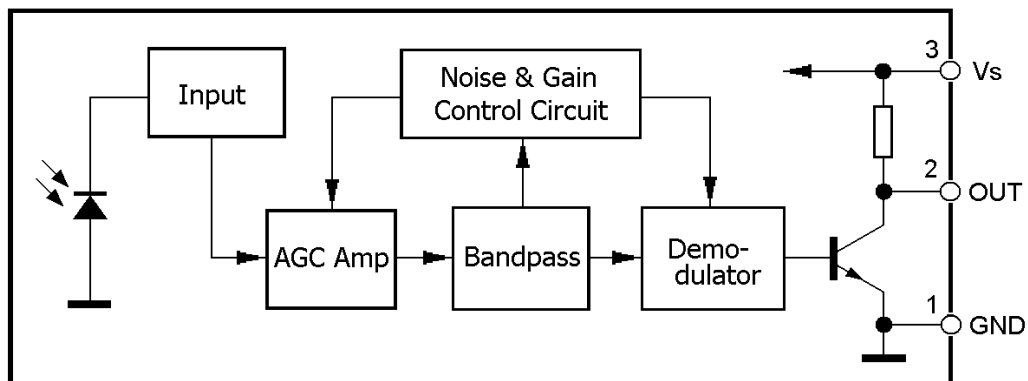
TTL and CMOS compatible

Suitable for short burst signal ≥ 6 cycles/burst

Applications

3D LED TV, IPTV, Set Top Box, 3D BD player

Functional Block Diagram



Maximum Ratings

Ta =25°C , Vcc=5.0V (Vcc=3.0V)

Parameter	Test conditions	Symbol	Ratings	Unit
Supply Voltage		V _{max}	6.0	V
Supply current		I _{max}	3.5	mA
Operating Temperature	25°C	T _{opr}	-25~ +85	°C
Storage Temperature		T _{stg}	-25 ~ +105	°C
Soldering Temperature	Reflow time = 5S max	T _{sol}	255	°C

Recommended operating condition

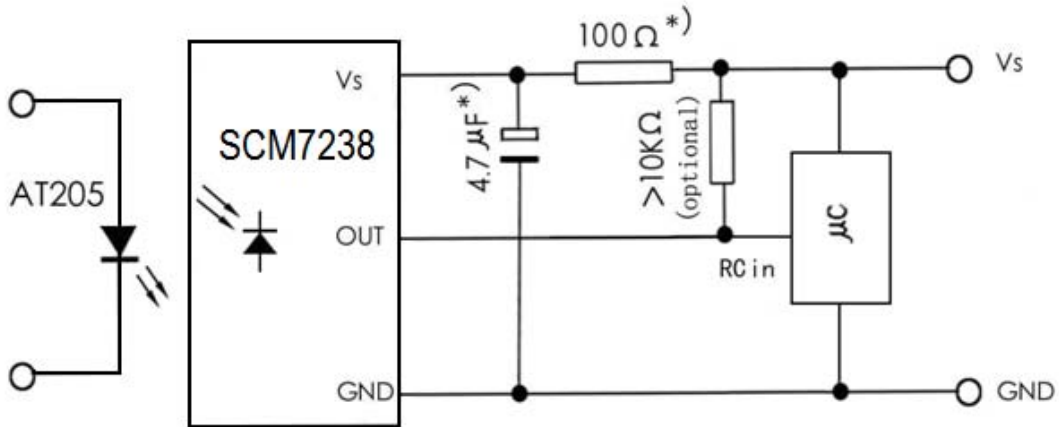
Parameter	Condition	Symbol	Min	Typ.	Max.	Unit
Operating Supply Voltage		V _s	2.5		5.5	V
Current Consumption	Input = 0	I _s		0.5		mA

Electro-Optical Characteristics

Ta =25°C

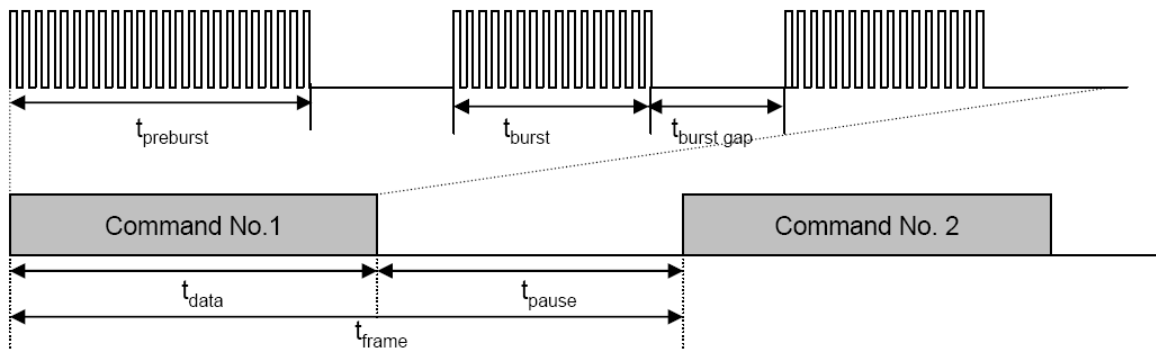
Parameter	Condition	Symbol	Min.	Typ.	Max.	Unit
Test Voltage		V _s		5.0 (3.0)		V
Current Consumption	No signal input (V _s = 3V)	I _s		0.5 (0.45)	0.8 (0.65)	mA
High level Output voltage		V _{OH}	V _s - 0.25			V
Low level Output voltage	(Active Low)	V _{OL}	-	0.2	0.4	V
Peak Wavelength		λ _p		940		nm
Transmission Distance	at the ray axis = 0 ° environ intensity at 50 Lux	L	15	22		m
Low level Output Pulse Width 1	Input pulse Burst = 600μS, Period = 1.2ms	T _{pwl1}	400	600	800	μS
Low level Output Pulse Width 2	Input pulse Burst = 160μS, Period = 480μs	T _{pwl2}	60		260	μS
B.P.F Center Frequency	SCM236	f _o		37.9		kHz
Directivity	Angle of half transmission distance	φ1/2		±60		deg

Applications Circuit



*) RC network recommended to suppress noise from power-line

Suitable Data Format



Type	Minimum Burst Length T_{burst}	Minimum Burst Gap time $T_{burst-gap}$	Minimum data Pause time t_{pause}
SCM7238	8 pulses	14 pulses	1mS

Suitable for Sharp Remote Control Code with signal time bit of $\geq 200\mu S$.

Reliability

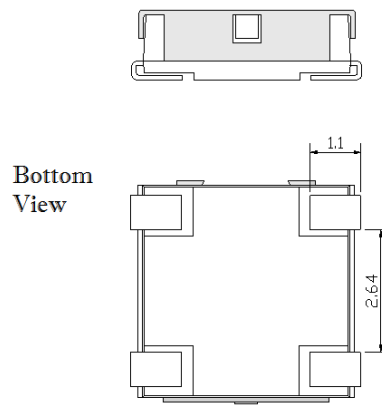
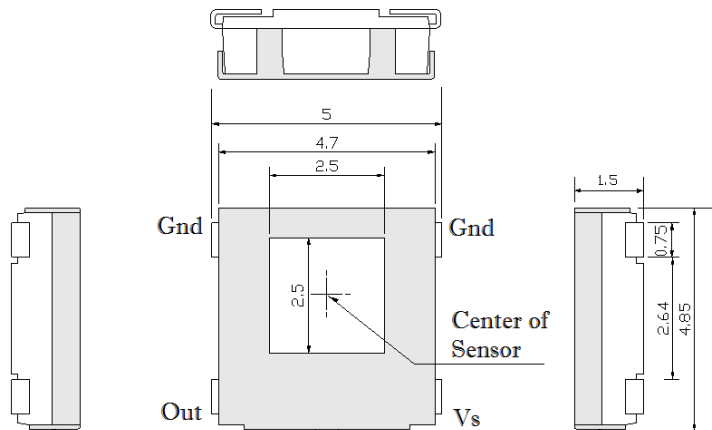
Test Item	Test Method	Test Condition	Sample = n pcs.	Failure = n pcs.		
High Temp Storage	Tstg at max +85°C	240 hours	22	0		
Low Temperature Storage	Tstg at min -25°C	240 hours	22	0		
Temperature humidity Bias Test	Applied the specific voltage at Ta = +85°C / RH =85%	240 hours	22	0		
Thermal cycling	Temperature cycle chart		20 cycles	11	0	
	Sequence /cycle	Temp (°C)				Time (minute)
	LT storage	-25				30
	Restored in Standard atmosphere					10
	HT storage	+85				30
	Restored in Standard atmosphere					10
Resistance to soldering heat	Peak at 255°C, Recommended soldering profile: 230°C	30 seconds	11	0		
Operating life test	Apply with specified working voltage (5V) and resistive load 4.7kΩ, continuous operation with temperature below maximum rating	240 hours	22	0		

Judging criteria: Compare all electrical data of the tested devices before and after tests, no significant difference accepted.

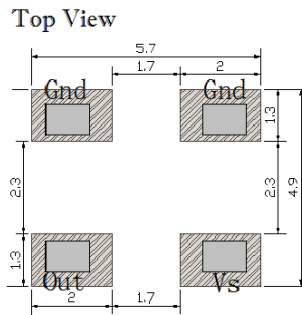
Package Outline

Dimensions in mm

General tolerance +/- 0.15mm



Recommended PC solder pattern



Reflow Soldering profile

SS-00254-05

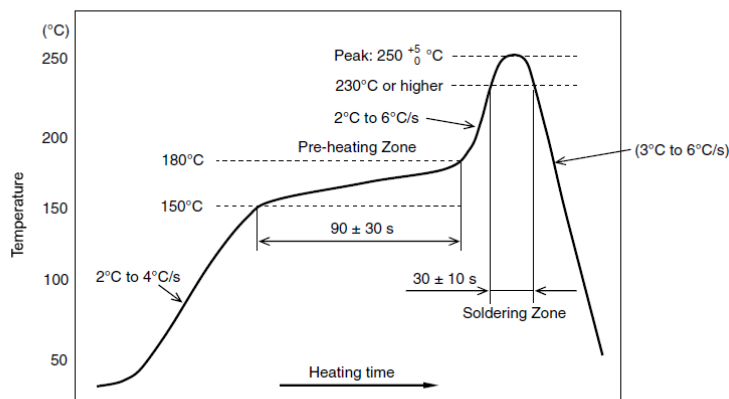


Figure 5.2 Temperature profile for evaluating the heat resistance of a component (a component's surface)

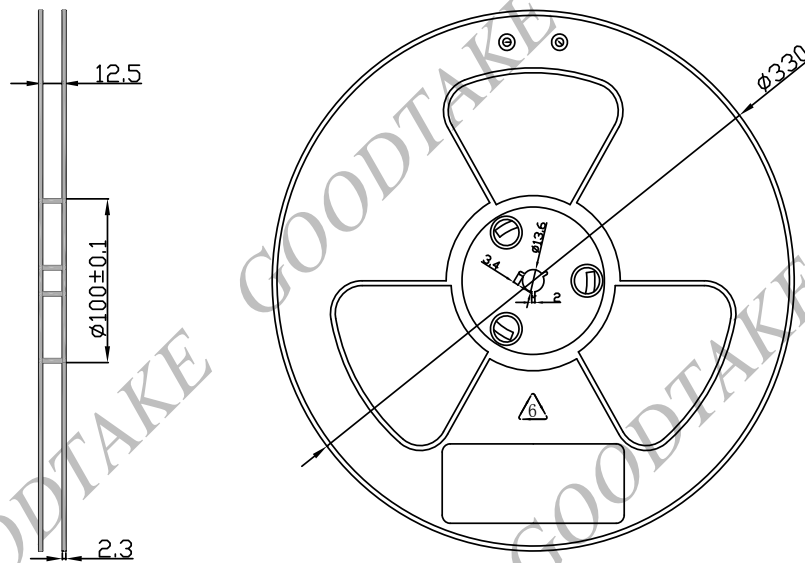
Pb-free solder

Pb-free soldering paste, melting temperature: 230~235°C

Components: Sn/Ag 3%/ Cu 0.5%

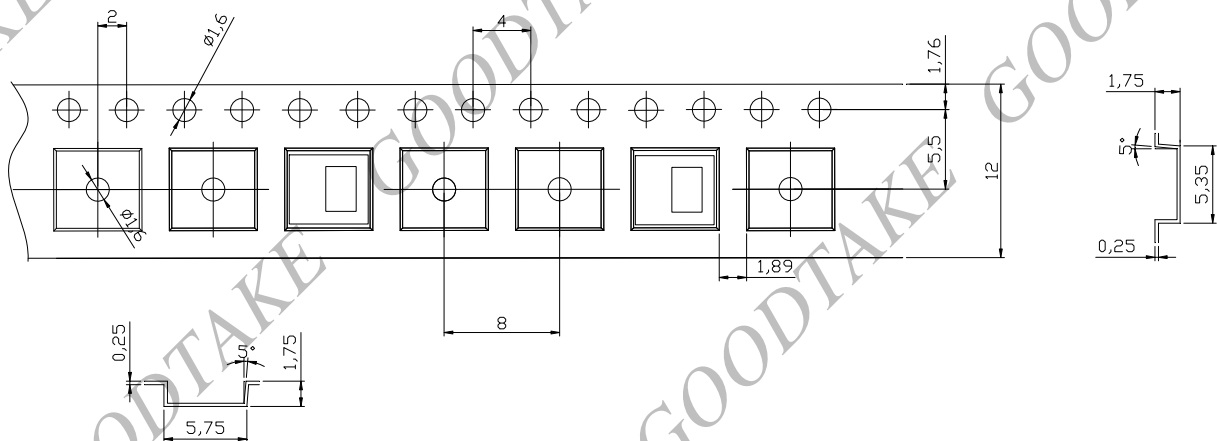
Taping Specification

Shape and dimensions of reels (unit in mm)

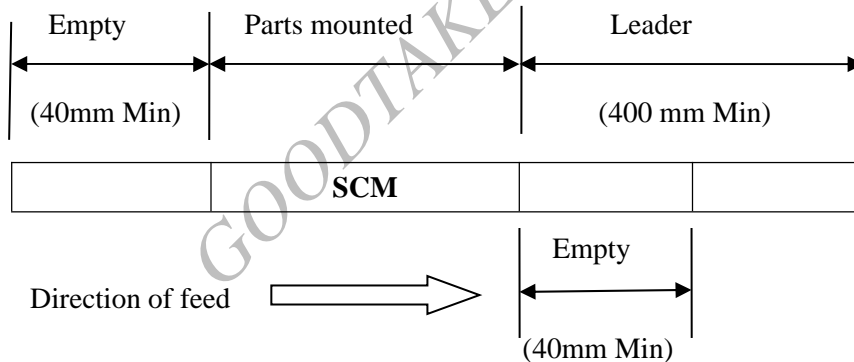


Dimensions of tape

Direction of feed



Configuration of tape



Quantity : 2,000pcs/ reel

Unit weight: 0.06g per piece

Antistatic dry packing

Opto devices in PLCC package may be sensitive to moisture. Devices are taped & reeled, sealed in antistatic bag with silica gel desiccants.

Do not open the sealed moisture-proof bag before ready to use.
If sealing is void, baking treatment may be required.

Storage

Shelf life – Devices should be stored in its original packing, in a controlled environment of temperature less than 40°C and relative humidity below 90%.

Suggested shelf life is 12 months.

Floor life – After opening of the sealed package, the reeled devices should be consumed within 48 hours, in a controlled environment condition of $T_{amb} < 30\text{ }^{\circ}\text{C}$, $RH = < 60\%$.

Remaining unused parts should be stored in Dry Box.

Drying (Baking Process)

If original packing is voided (such as faded silica gel or exceeded storage time), baking treatment should be performed with the following conditions:-

T storage = $60 \pm 5\text{ }^{\circ}\text{C}$, $RH < 1\%$, time = 24hours.