

IR RECEIVER MODULE for Surface Mount Assembly

General Description:

The SDR138-TR is miniaturized SMD-IR receiver for infrared remote control systems. PIN diode and preamplifier are assembled on lead frame, the epoxy package is designed as IR filter.

The demodulated output signal can directly be decoded by a microprocessor. The main benefit is the reliable function even in disturbed ambient and the protection against uncontrolled output pulses.

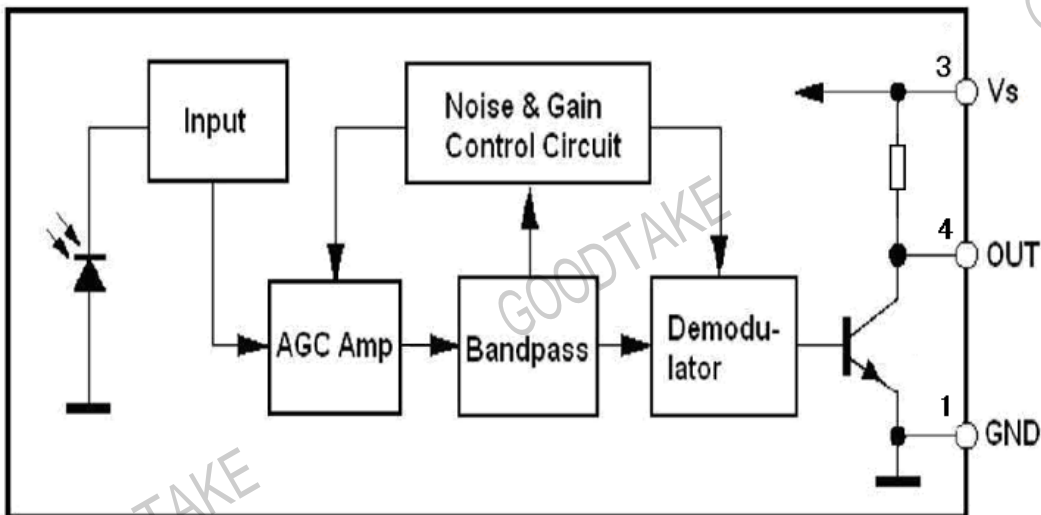
Features

- Photo detector and Preamplifier in one package
- Internal filter for PCM frequency
- TTL and CMOS compatibility
- Output active low
- Low power consumption
- Suitable burst length ≥ 10 cycles/burst

Special Features

- Enhanced immunity against all kinds of disturbance light
- No occurrence of disturbance pulses at the output
- Wide supply-voltage range: 2.7V~5.5V, automatic supply voltage adaptation

Block Diagram



Absolute Maximum Ratings

Tamb = 25 °C

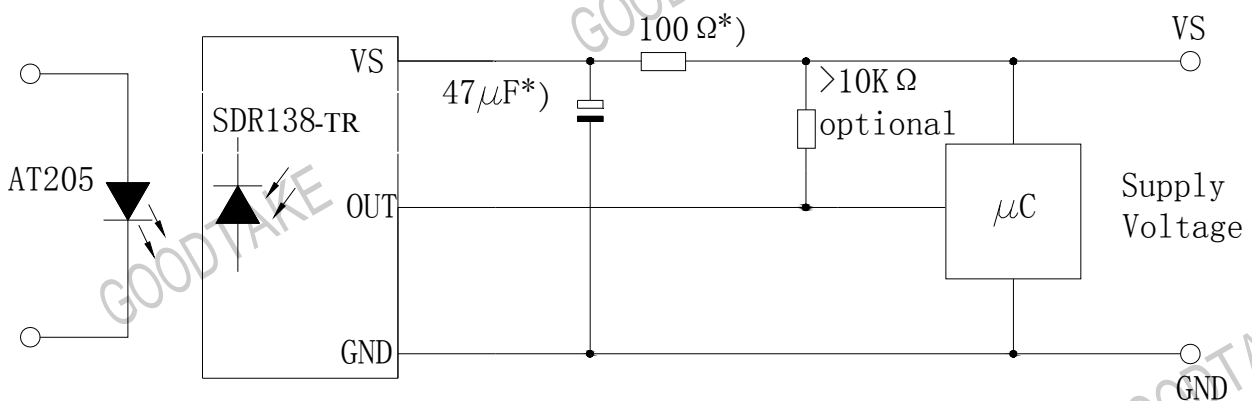
Parameter	Test Conditions	Symbol	Value	Unit
Supply Voltage		Vs	6.0	V
Supply Current		Is	5	mA
Output Voltage		Vo	6.0	V
Storage Temperature Range		Tstg	-30...+105	°C
Operating Temperature Range		Tamb	-25...+85	°C
Power Consumption	(Tamb ≅ 85 °C)	ptot	50	mW
Soldering Temperature	t ≅ 5s	Tsd	260	°C

Basic Characteristics

Tamb = 25 °C

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
Supply Current	Vs = 5V, Ev = 0	ISD	0.7	1.1	1.4	mA
Supply Voltage		Vs	2.7		5.5	V
Transmission Distance	IR diode AT205, If = 400 mA	d	20			m
Output Voltage Low	IosL = 2 mA, f = fo, tp/T = 0.4	VOsL			250	mV
Carrier frequency		fo		37.9		kHz
Peak Wavelength		λ		940		nm
Directivity	Angle of half transmission distance	φ1/2		±50		deg

Application Circuit



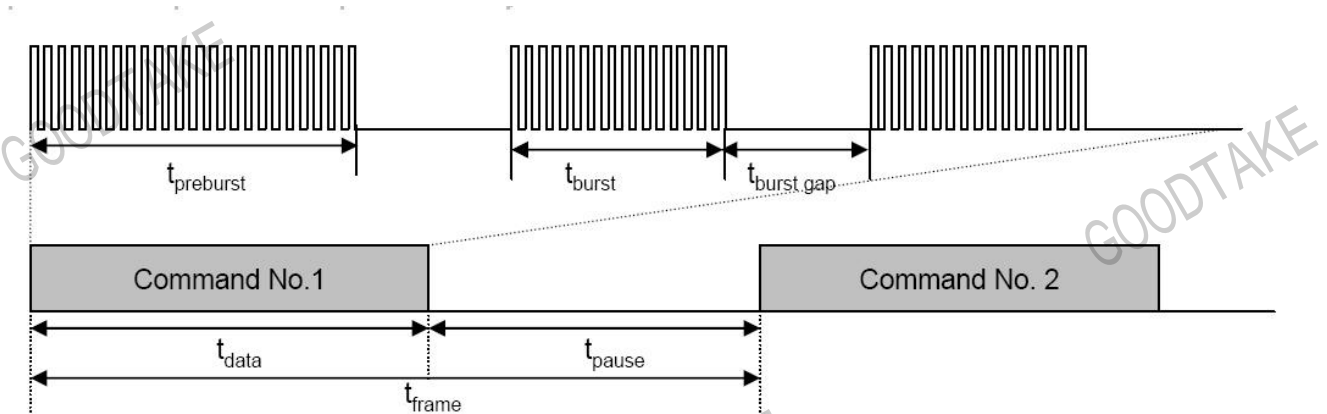
*) recommended to suppress power supply disturbance

Reliability Test

TEST ITEM	TEST CONDITION	TEST TIME	SAMPLE NUM	OK NUM
High Temperature Storage	Ta=+85°C	t=240H	22	22
Low Temperature Storage	Ta=-25°C	t=240H	22	22
Resistance to soldering heat	Soak into solder tub of Tsd=260°C	1cycle 5sec	22	22
Electro Static Discharge	HBM C=100pF, R=1.5kΩ, 2kV,	each pin test once	22	22
High Temperature/Humidity*	Ta=+85°C, 90%RH	t=240H	22	22
Heat Cycle*	-25°C~+85°C(0.5H)	20cycle	22	22

Note : *(electro-optical characteristics) shall be satisfied after leaving 2 hours in the normal temperature

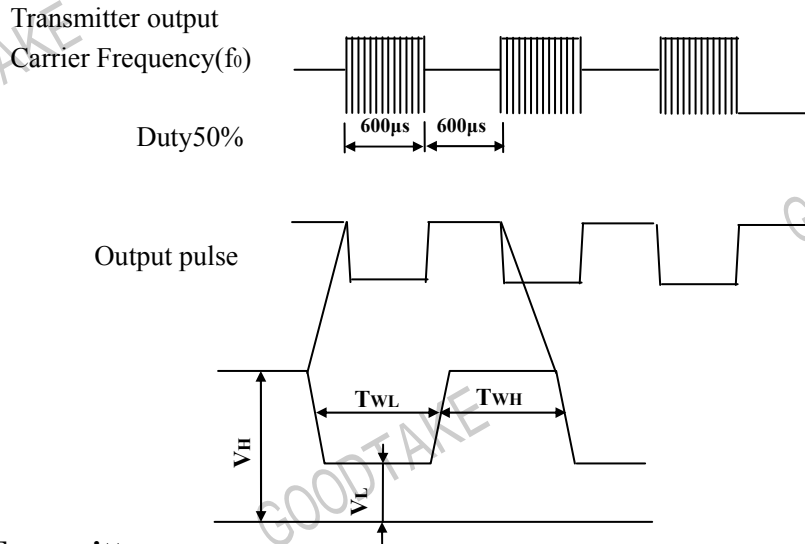
Suitable Data Format



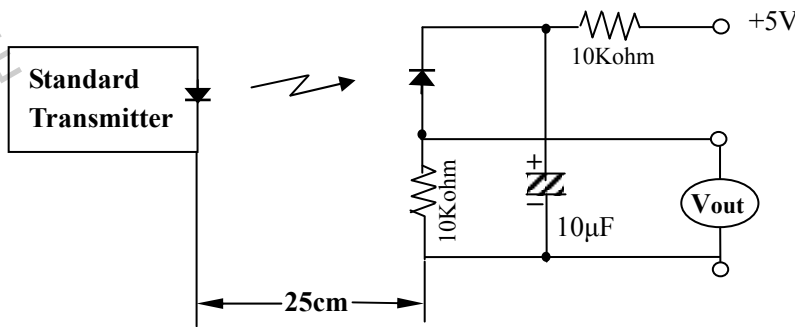
- Minimum burst length(t_{burst}) of 10 pulses per burst
- Minimum burst gap time($t_{burst\ gap}$) 14 pulse
- Minimum data pause time(t_{pause})>25msec
- Output active low
- Some examples for suitable data format are:NEC Code, Sharp Code, RC-5, RC-A

Measure Method

1) . Output Pulse Width



2) . Standard Transmitter



Characteristics Curve($T_{amb}=25^\circ C$ unless otherwise specified)

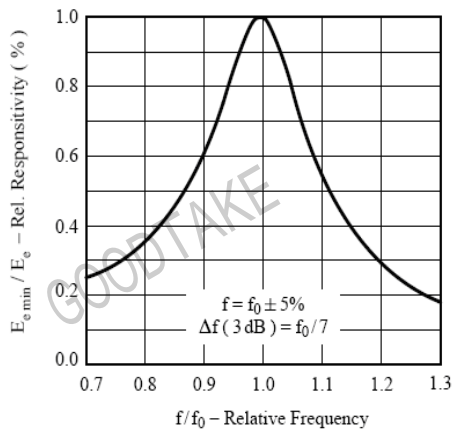


Figure 1. Frequency Dependence of Responsivity

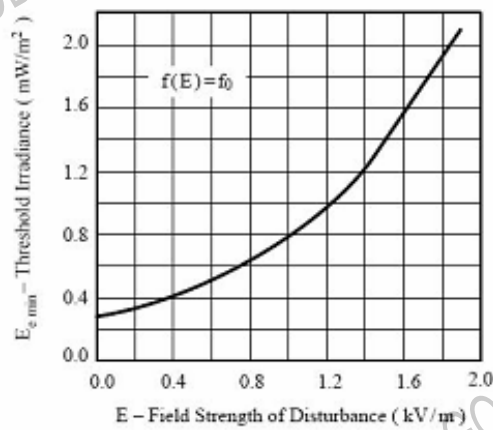
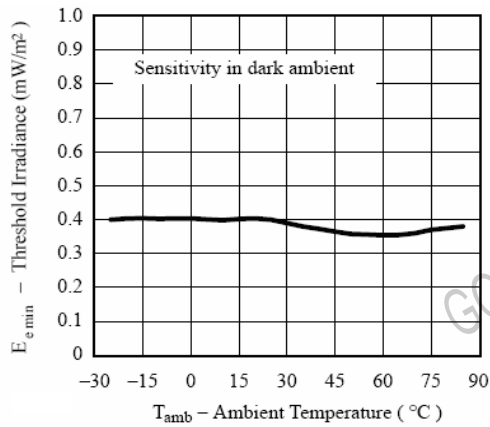
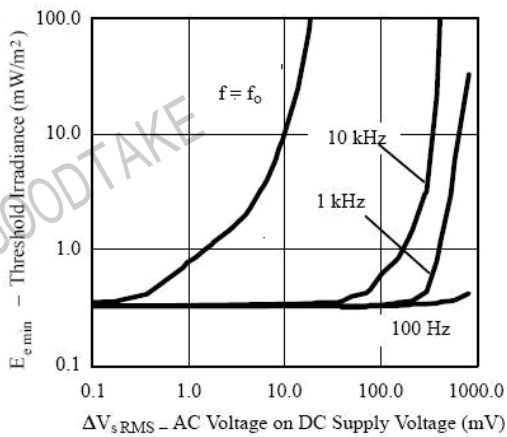
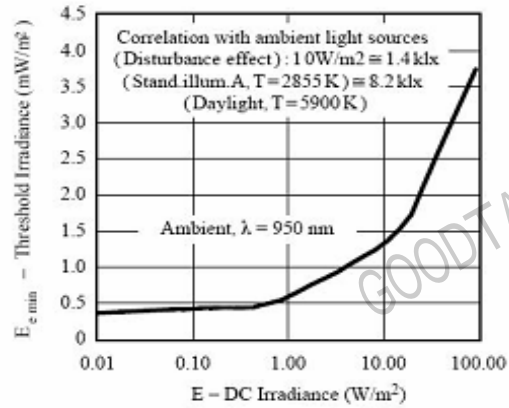
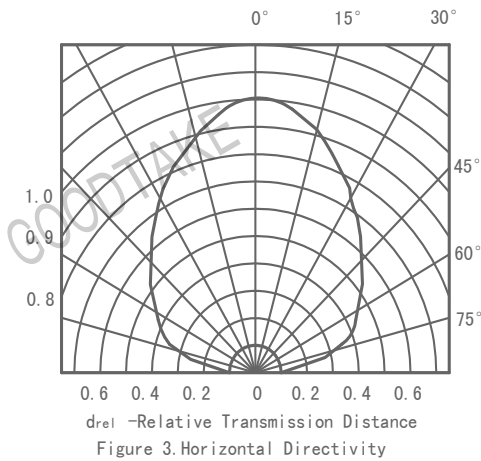
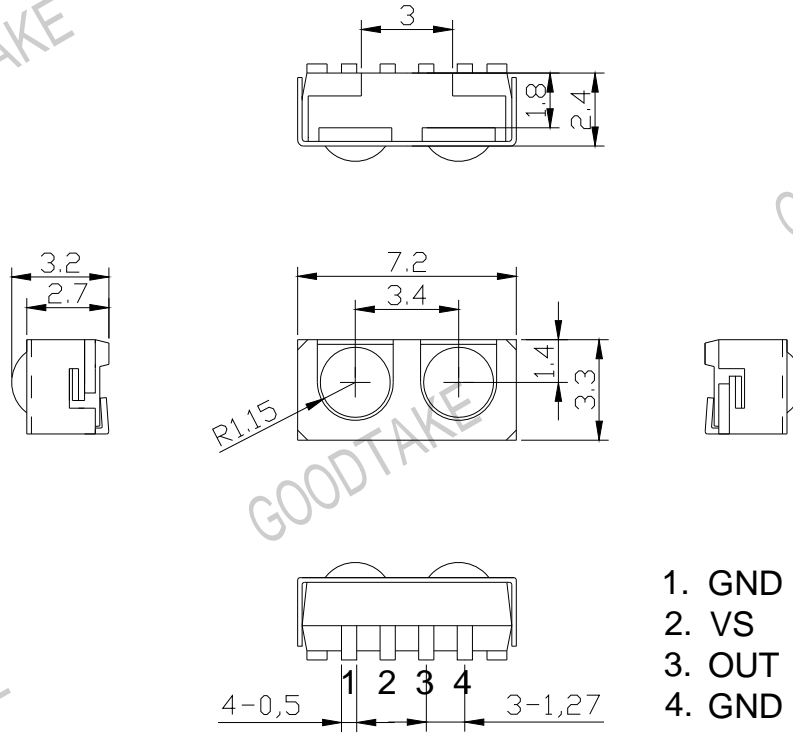


Figure 2. Sensitivity vs. Electric Field Disturbance:



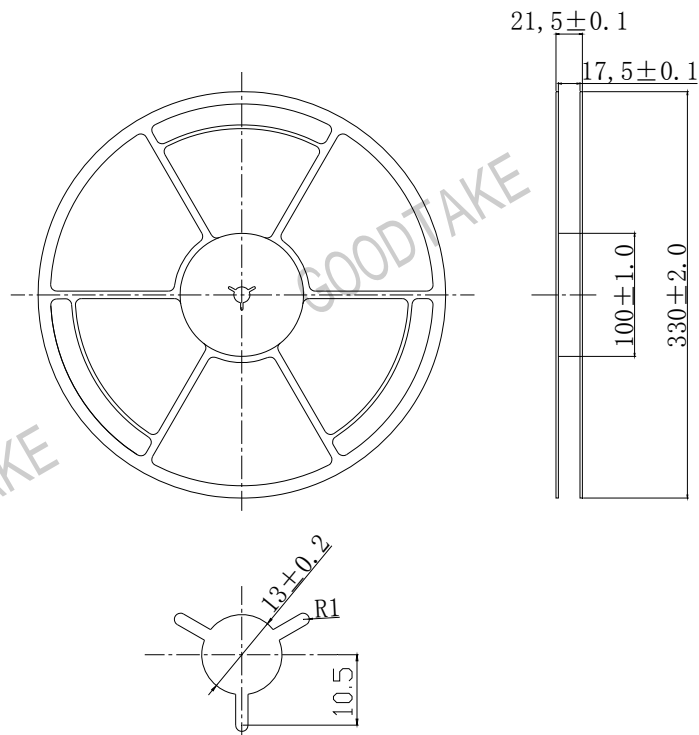
Package Outline

Dimensions in mm: tolerance $\pm 0.2\text{mm}$

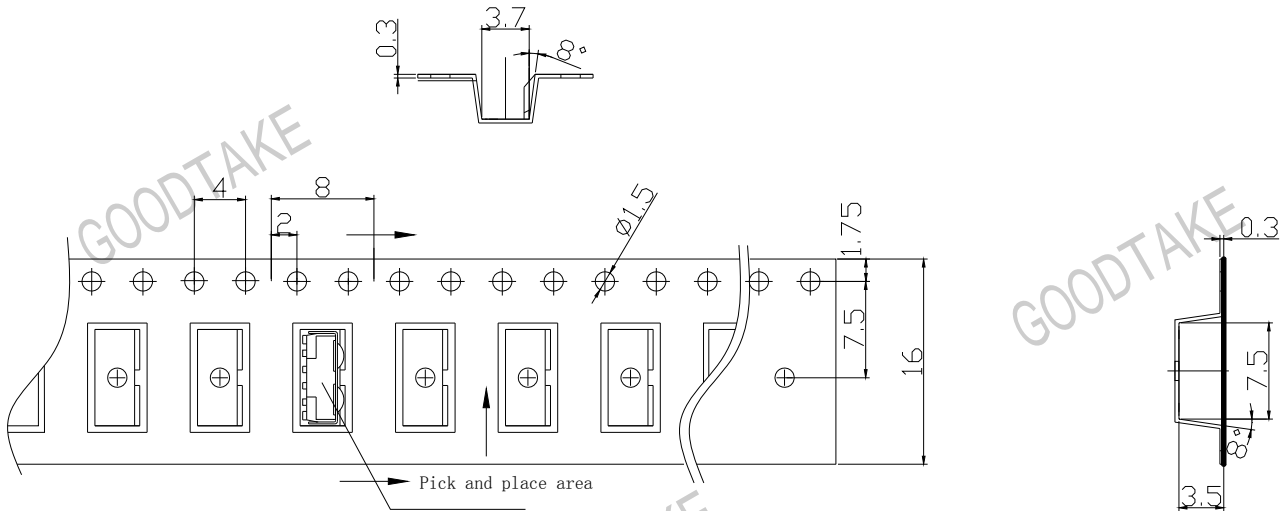


Taping Specifications

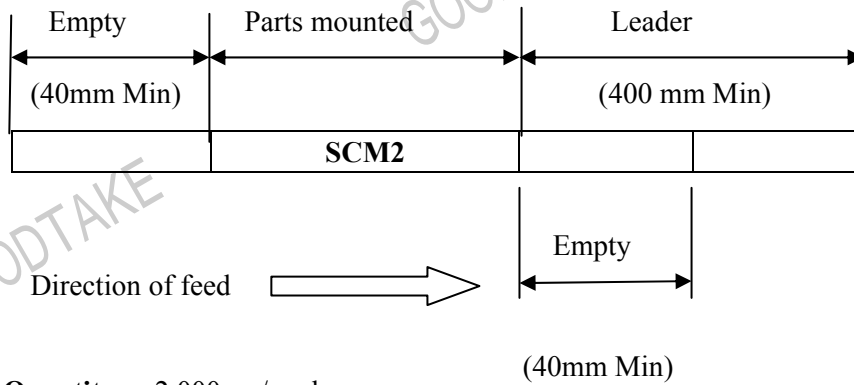
(1) Shape and dimensions of reels: unit in mm



(2) Dimensions of tape



(3) Configuration of tape



(4) Quantity: 2,000pcs/ reel

Leader And Trailer Dimensions

