



Infrared Remote Control Receiver Module

LTM-99 Series

Features

- Compact package
- High immunity from ambient light
- Good performance against electric field disturbance
- 5 volt supply voltage and low power consumption
- Pin out can be changed according to customer's requirement

Description

The LTM-99 series are miniaturized receivers for infrared remote control systems. It is a single unit type module which incorporates a PIN diode and a receiving preamplifier IC. The demodulated output signal can directly be decoded by a microprocessor. It has excellent sensitivity and reliable function even in disturbed working environment.

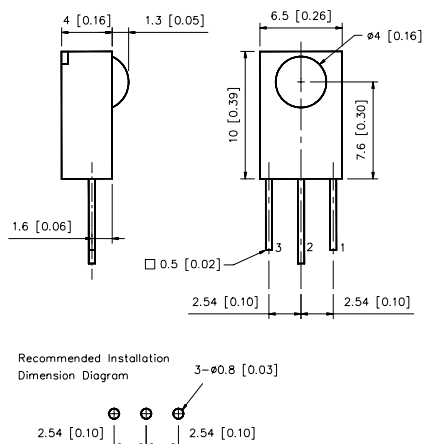
Device No

Device No.	Detecting Window	Package Dimension	Pin Out Function		
			3	2	1
LTM-991-XXS	Side	A	Vout	Gnd	Vcc
LTM-991-XXF	Side	B			
LTM-991-XXT	Top	C			
LTM-991-XXH	Top	D			
LTM-992-XXS	Side	A	Vout	Vcc	Gnd
LTM-992-XXF	Side	B			
LTM-992-XXT	Top	C			
LTM-992-XXH	Top	D			

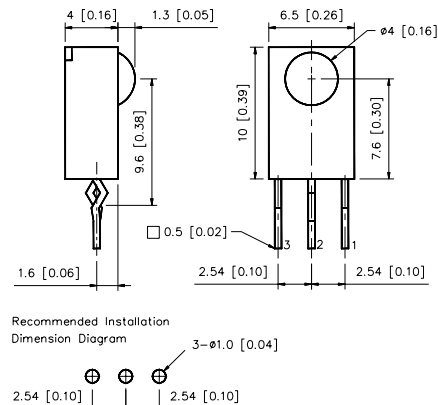
XX: Carrier frequencies for 33, 36, 38, 40, 56.8 kHz

Package Dimensions

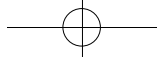
A. LTM-99X-XXS



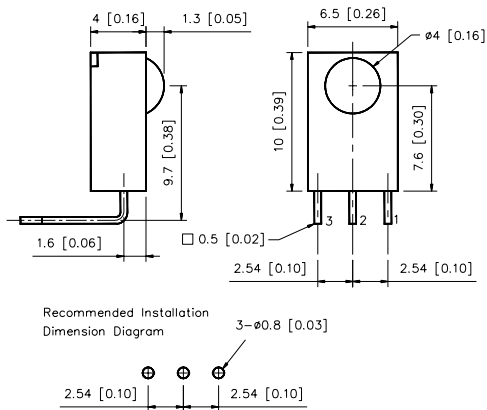
B. LTM-99X-XXF



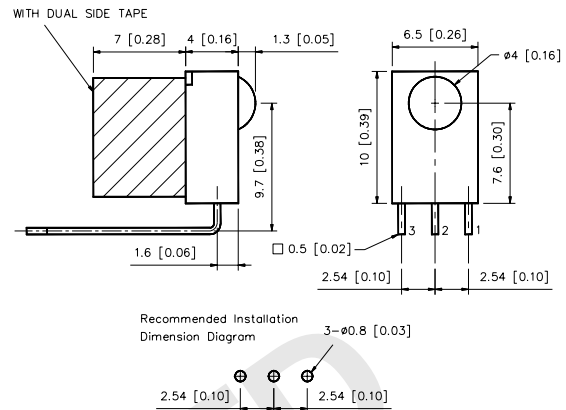
INFRARED PRODUCTS



C. LTM-99X-XXT



D. LTM-99X-XXH



- Note :
1. All dimensions are in millimeters (inches).
 2. Tolerance is $\pm 0.25\text{mm}$ (0.01") unless otherwise noted.
 3. XX: Frequency

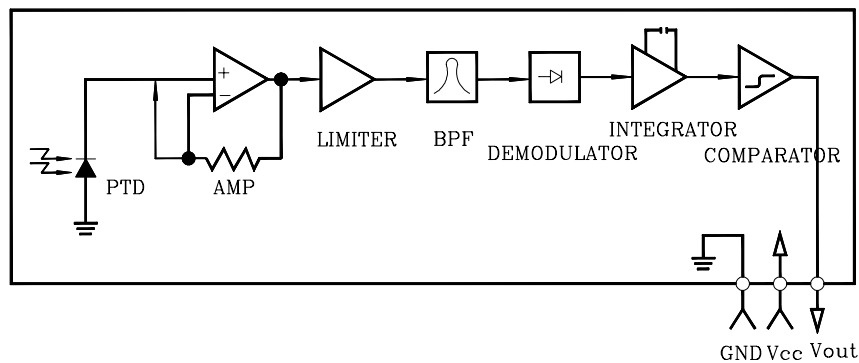
Absolute Maximum Ratings (Ta=25°C)

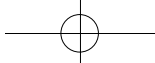
Parameter	Symbol	Rating	Unit
Supply Voltage	Vcc	6.0	V
Operating Temperature	Topr	-20 ~ +70	°C
Storage Temperature	Tstg	-25 ~ +85	°C
Soldering Temperature	Tsd	260	°C

Recommended Operating Condition

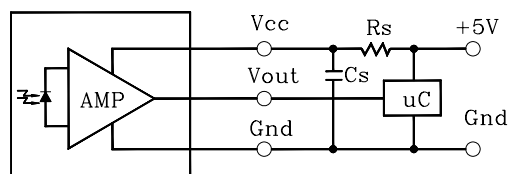
Parameter	Symbol	Min	Max	Unit
Supply Voltage	Vcc	4.7	5.3	V

Block Diagram





Application Circuit



Rs: 47 ohm
Cs: 47 uF/6.3V

- Rs and Cs is only necessary to suppress power supply disturbance.

Electrical Characteristics

Item	Symbol	Conditions	Rating			Unit
			Min	Typ	Max	
Current Consumption	I _{cc}	No signal input, V _{cc} =5V	1.1		2.5	mA
Wave Length of the Max. Sensitivity	λ Smax	—		940		nm
Reception Distance	L	At the ray axis	10			m
		The ray receiving surface at a vertex and in relation to the ray axis: a: in the range of 30° cone b: in the range of 45° cone	8 6			
Low Level Output Voltage	V _{OL}	—			0.5	V
High Level Output Voltage	V _{OH}	—	4.5			V
Low Level Pulse Width	t _{WL}	Specified by the output tWL period within a range from 5cm to the reception distance	400	600	800	μ S
High Level Pulse Width	t _{WH}	Specified by the output tWH period within a range from 5cm to the reception distance	400	600	800	μ S
Noise Suppression	NQ	25-50°C No outside light			0	Pulse

Note: Detailed condition please refer to measuring method.

Measuring Method

A. Reception distance measurement

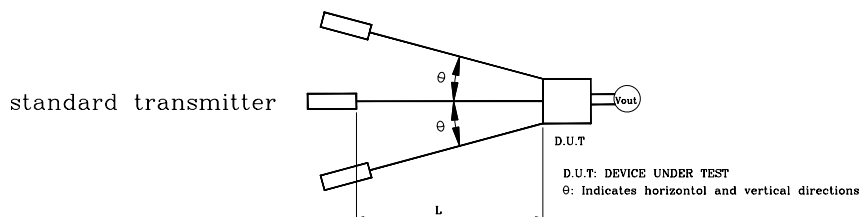
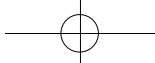


Fig. 1 Reception distance measuring condition

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B. Standard transmitter

The transmitter whose output is adjusted up become $V_o=400m$ Vp-p by output waveform as show in Fig. 2 and the measuring method as shown in Fig. 3 is specified as the standard transmitter. However, the infrared diode to be used for the transmitter should be $\lambda_p=940nm$, $\Delta\lambda=50nm$.

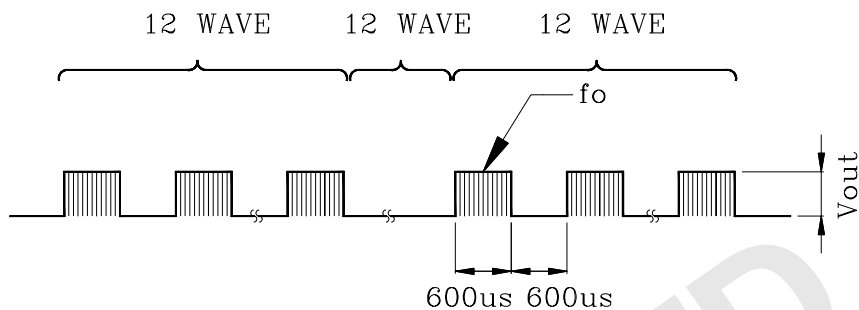


Fig. 2 Output wave form

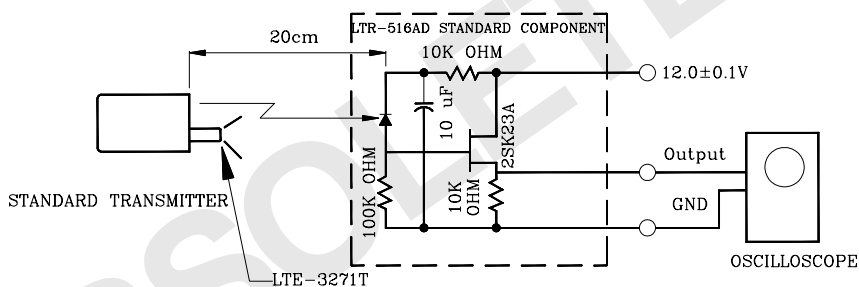


Fig. 3 Measuring method

C. Pulse width measurement

The following wave forms are transmitter output and our receiver module's output.

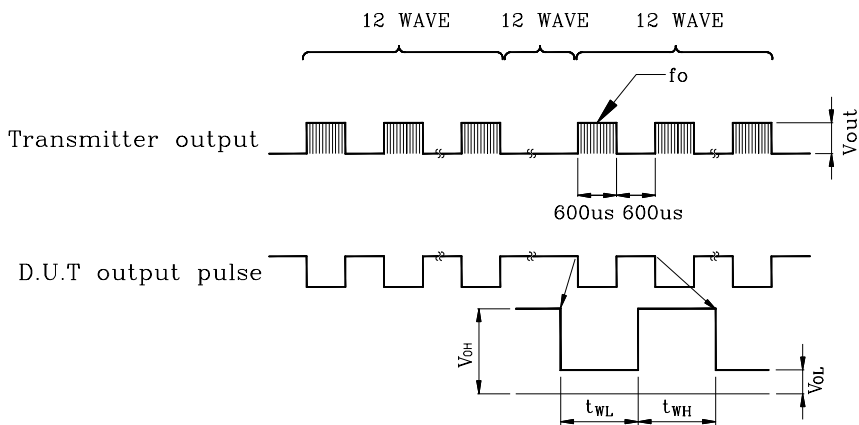


Fig. 4 Output pulse