Infrared Remote Control Receiver Module

LTM-97 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-97 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.

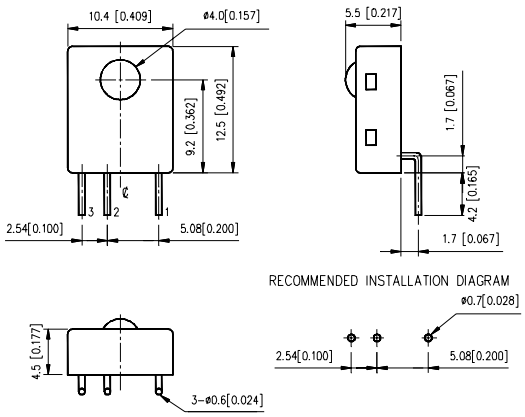
Device No.

Device No.	Detecting Window	Package Dimension	Pin Out Function		
			3	2	1
LTM-97AS-XX	Side	A	Gnd	Vcc	Vout
LTM-97AT-XX	Top	B			
LTM-97BS-XX	Side	C	Gnd	Vcc	Vout
LTM-97BT-XX	Top	D			
LTM-97CS-XX	Side	C	Vcc	Vout	Gnd
LTM-97CT-XX	Top	D			
LTM-97DS-XX	Side	C	Vout	Vcc	Gnd
LTM-97DT-XX	Top	D			
LTM-97ES-XX	Side	C	Vout	Gnd	Vcc
LTM-97ET-XX	Top	D			

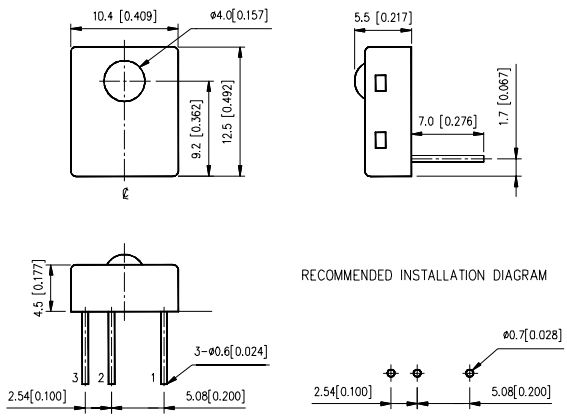
XX: Carrier frequencies for 33, 36, 38, 40, 56.8 kHz

Package Dimensions

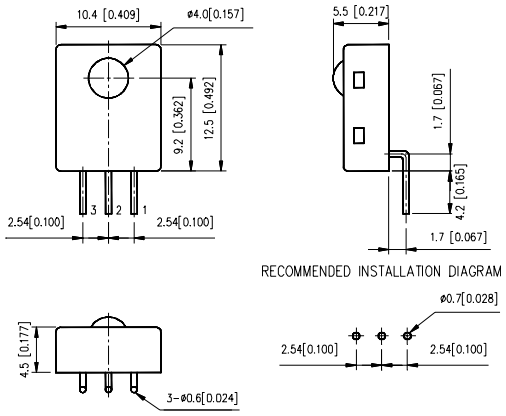
A. LTM-97AS-XX



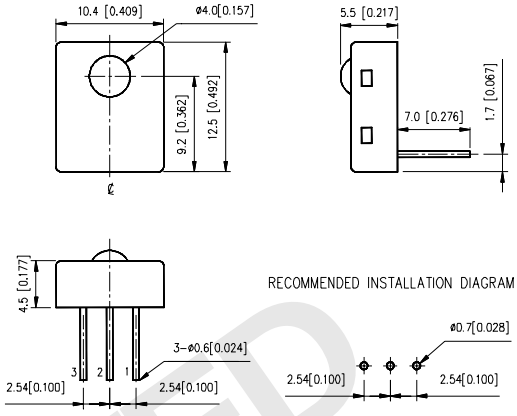
B. LTM-97AT-XX



C. LTM-97BS/CS/DS/ES-XX



D. LTM-97BT/CT/DT/ET-XX

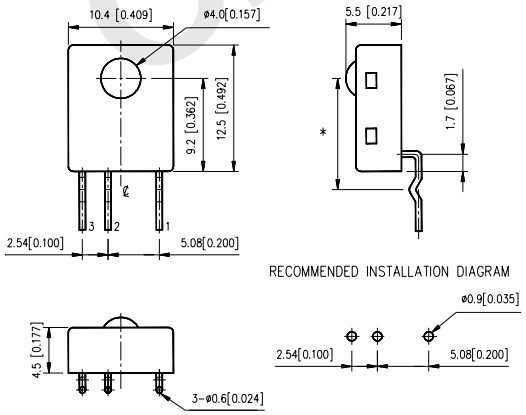


Note: 1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.25mm (0.01") unless otherwise noted.
3. XX: Frequency

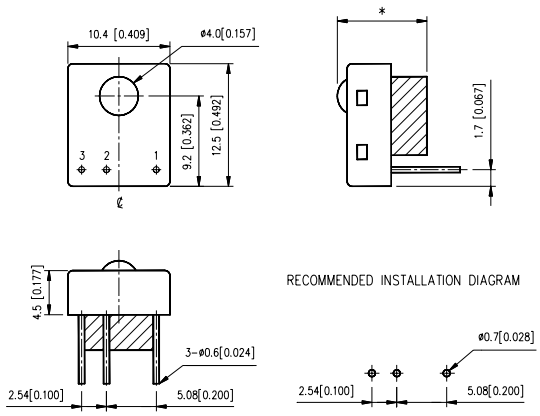
Special Forming (Option)

- We provide lead forming service if it's necessary.
- "*" Dimension can be changed according to customer's requirement

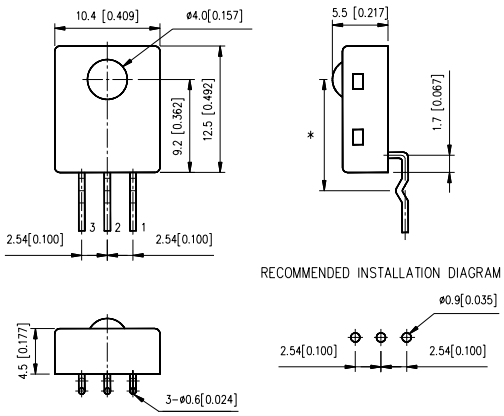
A. LTM-97AS-XX#



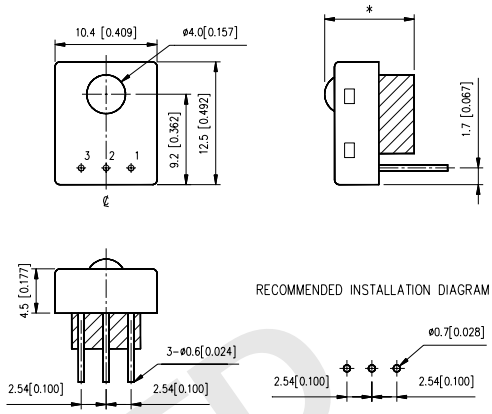
B. LTM-97AT-XX#



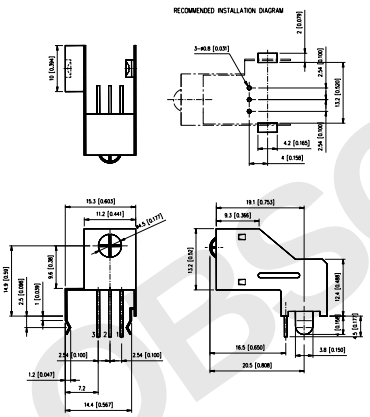
C. LTM-97BS/CS/DS/ES-XX#



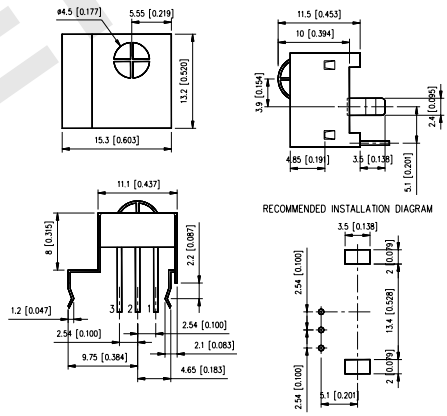
D. LTM-97BT/ CT/DT/ET -XX#



E. LTM-97XS-XXF



F. LTM-97XT-XXH



Note: 1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.25mm (0.01") unless otherwise noted.
3. XX: Frequency

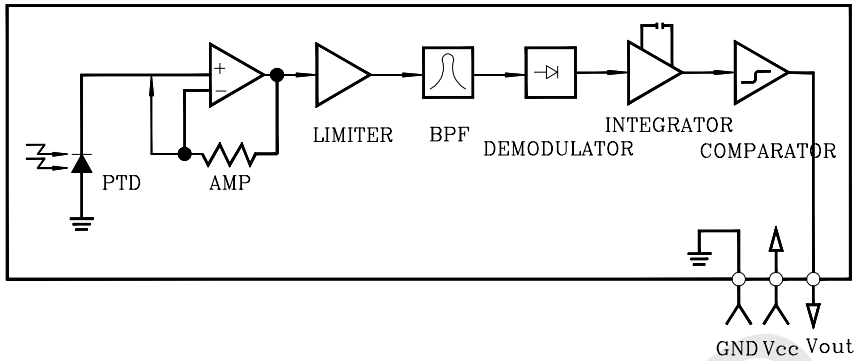
Absolute Maximum Ratings (Ta=25℃)

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

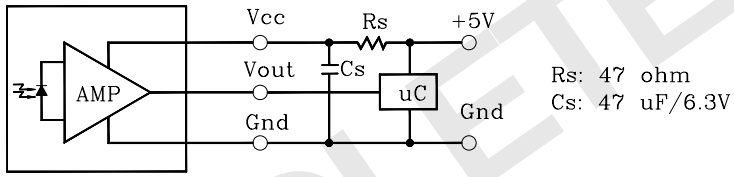
Recommended Operating Condition

Parameter	Symbol	Min	Max	Unit
Supply Voltage	Vcc	4.7	5.3	V

Block Diagram



Application Circuit



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

Electrical Characteristics

Item	Symbol	Conditions	Rating			Unit
			Min	Typ	Max	
Current Consumption	Icc	No signal input, Vcc=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	VOL	–			0.5	V
High Level Output Voltage	VOH	–	4.5			V
Low Level Pulse Width	tWL	Specified by the output tWL period within a range from 5cm to the reception distance	400	600	800	μS
High Level Pulse Width	tWH	Specified by the output tWH period within a range from 5cm to the reception distance	400	600	800	μS
Noise Suppression	NQ	25-50℃ No outside light			0	Pulse

Note: Detailed condition please refer to measuring method.

Measuring Method

A. Reception distance measurement

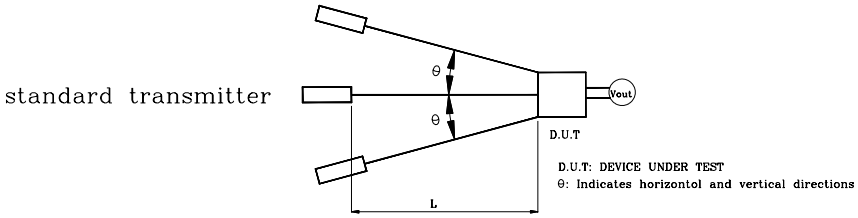


Fig. 1 Reception distance measuring condition

B. Standard transmitter

The transmitter whose output is adjusted up become Vo=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 λ p=940nm, △λ =50nm.

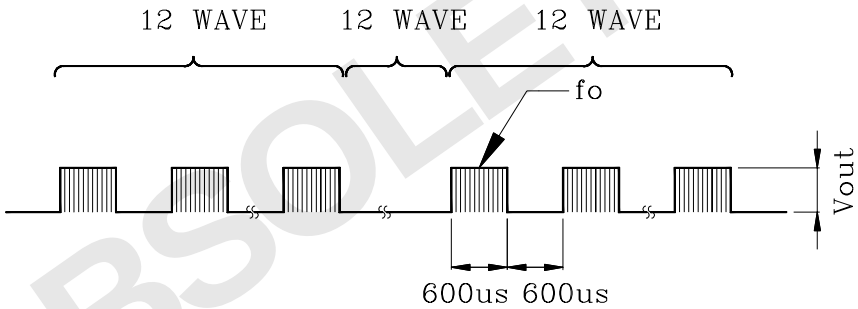


Fig. 2 Output wave form

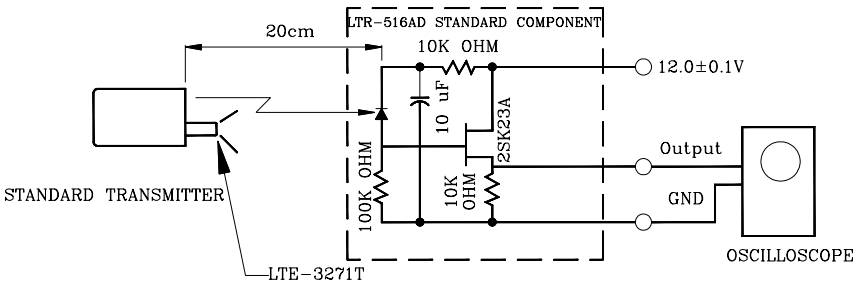


Fig. 3 Measuring method

C. Pulse width measurement

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

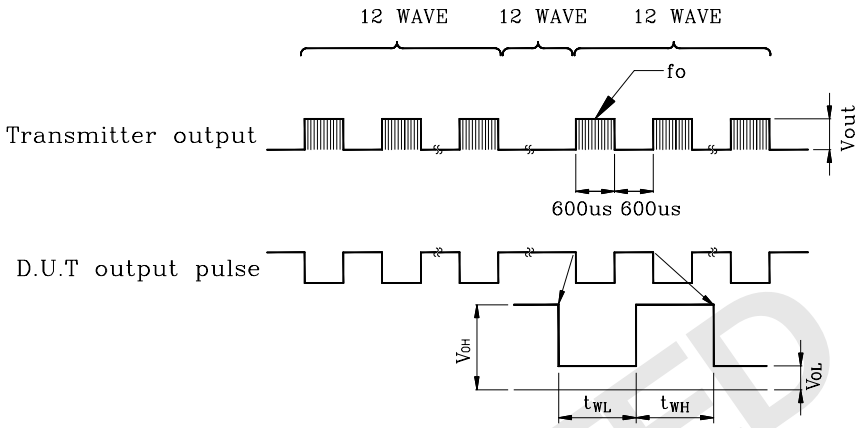


Fig. 4 Output pulse