

Feature Highlights

- IrDA1.1, HP-SIR, and Sharp ASK compliant
- Support IrDA data rates form 9.6Kbps to 4Mbps
- Minimal external components
- User programmable ambient light rejection filters
- High performance
 - minimum detectable photocurrent of 250nA @4Mbps, 100nA @ ≤ 115 Kbps
 - analog latency turn around time <100uS (typical)
- Single +2.7V to +5V supply
- Low power consumption <1 uA in shutdown mode
- Wavelength : 870 nm



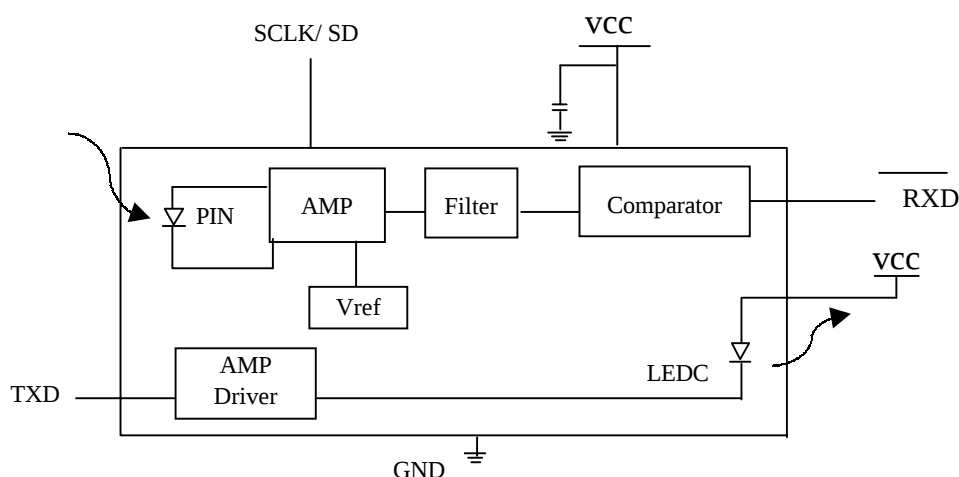
Applications

- Notebook and Subnotebook Computers
- Desktop PCs 、 Printers 、 PDAs
- Telecommunication Products
(Cellular Phones 、 Pagers)
- External Infrared Adapters (Dongles)
- Digital Still and Video Cameras
- Photo Imaging Printers

Description

The UTS-413T is a low cost, low power, multi-mode infrared transceiver module in a ultra slimline form factor ideally suited for portable wireless data communications and connectivity applications. The device consists of an infrared emitting diode (IRED), a photodiode (PIN), and a low power control IC integrated into a single package. Only a few external components are required to fully implement the module .

Block Diagram

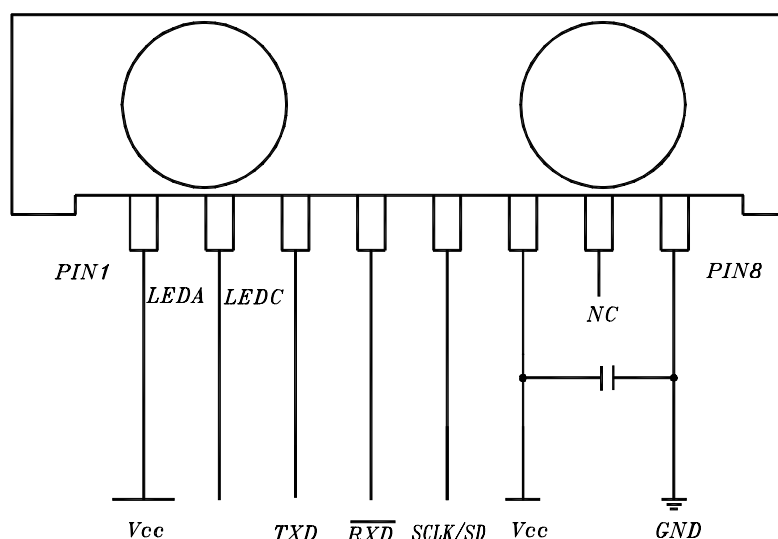


I/O Pins Configuration Table

Pin	Description	Symbol
1	LED Anode	LEDA
2	LED Cathode	LEDC
3	Transmitter Data Input	TXD
4	Receiver Data Output	$\overline{\text{RXD}}$
5	Shutdown Mode	SCLK/SD
6	Supply Voltage	Vcc
7	No Connection	NC
8	Ground	GND

Application Circuit :

Front View



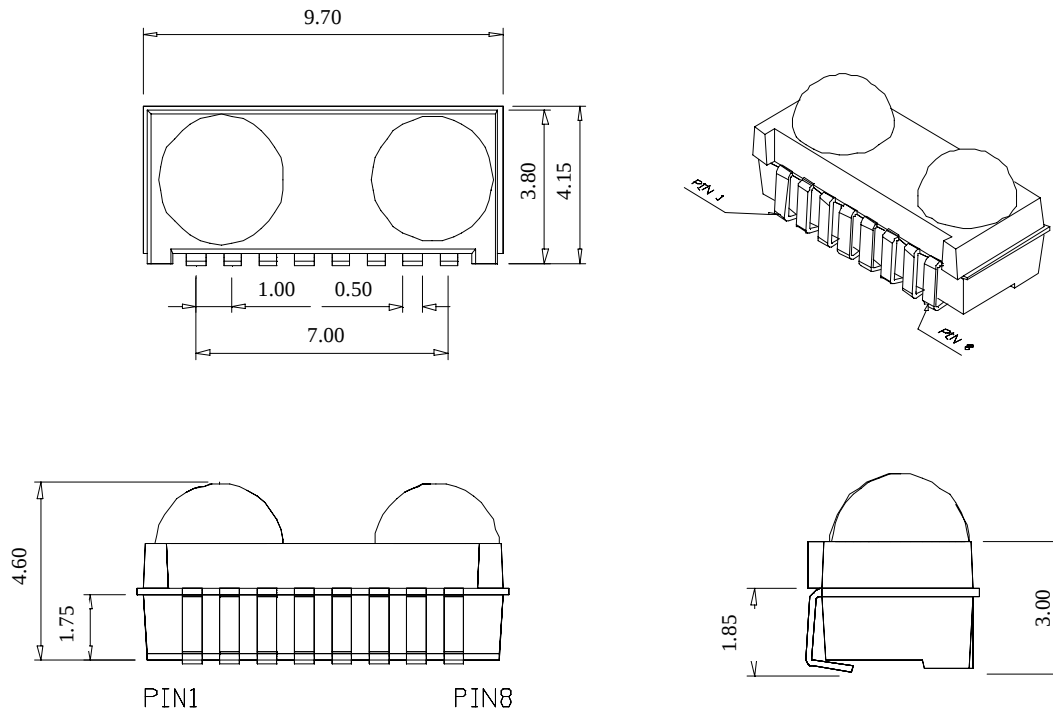
Recommended Application Circuit Components

1. Vcc (PIN 6) Connect a 1.0 ~ 10 μ F capacitor to ground as close as possible to this pin.
2. R_{LEDA} R_{LEDA} is an optional resistor for current limiting in series with PIN 1.

Recommended R_{LEDA} values :

V _{LEDA} (V)	2.7	3.0	3.5	4.0	5.0
R _{LEDA} (Ω)	0	0	1.0	2.7	5.1

Package Outline With Dimensions



PIN OUT

1	LEDA
2	LEDC
3	TXD
4	RXD
5	SLCK/SD
6	Vcc
7	NC
8	GND

NOTE: 1.All dimensions in milimeter.

2.Package dimensions tolerance $\pm 0.2\text{mm}$ unless otherwise noted.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit	Conditions
Storage Temperature	T _s	-25	85	°C	
Operating Temperature	T _A	-25	80	°C	
Lead Solder Temperature	T _J		260	°C	
Repetitive Pulsed LED Current	I _{LED (RP)}		650	mA	≤ 90 μs Pulse Width ≤ 25% Duty Cycle
Peak LED Current	I _{LED (PK)}		1000	mA	≤ 2 μs Pulse Width ≤ 25% Duty Cycle
Supply Voltage	V _{CC}	-0.5	5.5	V	
Voltage at any pins	V _{max}		V _{CC} +0.3	V	

Recommended Operating Conditions

Parameter	Symbol	Min.	TYP.	Max.	Conditions
Operating Temperature	T _A	-20 °C		75 °C	
Supply Voltage	V _{CC}	3.0 V		5.0 V	

Electrical and Optical Characteristics

Parameter	Symbol	Min.	TYP.	Max.	Conditions
Receiver Data Logic High	V _{RDXH}	V _{CC} × 0.8 V			Into CMOS Load
Receiver Data Logic Low	V _{RDXL}			0.2 V	Into CMOS Load
Transmitter Data Logic High	V _{TXDH}	V _{CC} × 0.6 V			Into CMOS Load
Transmitter Data Logic Low	V _{TXDL}			V _{CC} × 0.4V	Into CMOS Load
Supply Current	I _s		13 mA	18 mA	Receiver Mode
Shutdown Current	I _{PD}		0.1 μA	1 μA	SCLK/SD=1
Average Transmit LED Driver Current	I _{TD}			160 mA	≤ 90 μs Pulse Width ≤ 25% Duty Cycle
Radiant IRED Peak Wavelength	λ _p		870 nm		I _f =20mA
Radiant IRED Wavelength Spectral Line Half Width	Δ λ _{1/2}		50 nm		I _f =20mA
Radiant IRED Viewing Angle	2 θ _{1/2}	30 degrees			
Receiver PIN Viewing Angle	2 θ _{1/2}	30 degrees			