

IrDA Evaluation Kit

Description

The transceiver front-end contains both, transmitter and receiver for an optical IR transmission system. LED driver, broad band amplifier and comparator for digitizing the output signal are included. Designed for IrDA applications, the transceiver is also excellently suited for all IR-data transmission systems between 20 kHz and 1 MHz.

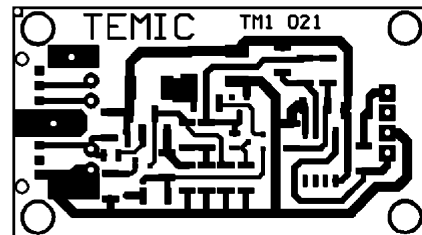
As transmitter a high speed IR emitter TSHF 5400 in a 5 mm LED package with typical symmetrical rise and fall times of 30 ns is used. The peak operating current is adjusted to only 200 mA. The receiver is a fast 1 mm diameter pin photodiode also in a 5 mm LED package. The printed wire

board is additionally wired for a side view receiver/transmitter combination which will be available soon. By increasing the driver current or exchanging the detector diode (e.g. BPV 23) the performance can be adapted to the demands of larger output and (or) higher sensitivity. The receiver's sensitivity level and its angular distribution are in accordance with the IrDA specification. The emitter is designed also to fulfill the IrDA demands of intensity and emission angle.

The transceiver can easily be installed by using the cable connector supplied with the unit. The pin assignment is shown in figure 1.

Features

- IrDA compatible transceiver front-end
- Transmission bandwidth 1 MHz
- Transmission distance 1.5 m
- Built-in new high speed GaAlAs transmitter
- Connector for easy installation



94 8818

Figure 1 Printed wire board

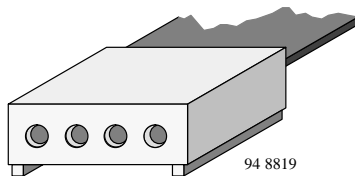


Figure 2 Pin assignment

Pins	
RxD:	Receiver output, active low
TxD:	Transceiver input, active high (>3 V)
+V _S :	5 V ± 10 %
GND:	Ground

Characteristics

Kit data of the electrical and optical ports in comparison to IrDA specification

Supply voltage $V_S = 5\text{ V} \pm 10\%$

Parameter	Symbol	Min	Typ	Max	Unit
Transmission Distance	d	1	1.2		m
Active Output Specifications					
Peak Wavelength	λ_p	0.85	0.87	0.90	μm
Maximum Intensity in Angular Range	I_{emax}			500	mW/sr
Half-Power Angle, degrees	$^\circ$	± 15	± 20	± 30	$^\circ$
Minimum Intensity in Angular Range	I_{emin}	40			mW/sr
Rise Time, Fall Time, 10–90 %	t_r, t_f		0.04	0.6	μs
Optical Over Shoot, %			5	25	
Pulse Length @ 9.6 kBd (Electrical Input Pulse Length 1.62 μs)	t_{dl}	1.41	1.6	22.13	μs
Pulse Length @ 115.2 kBd (Electrical Input Pulse Length 1.62 μs)	t_{ds}	1.41	1.6	2.71	μs
Rising Edge Peak to-Peak Jitter (during one IrDa byte)	t_j			0.2	μs
Active Input Specifications					
Half-Power Angle, degrees	α	± 15	30		$^\circ$
Minimum Incidence in Angular Range	E_{emin}	40	30		mW/m ²
Electrical Input and Output Specifications					
Supply Voltage	V_s	4.5	5 V	5.5	V
Input Voltage (active)	V_{ih}	3		$V_S+0.5$	V
Input Voltage (inactive)	V_{il}	-0.5		0.5	V
Output Voltage (active)	V_{ol}			0.5	V
Output Voltage (inactive)	V_{oh}	V_S-1		V_S	V

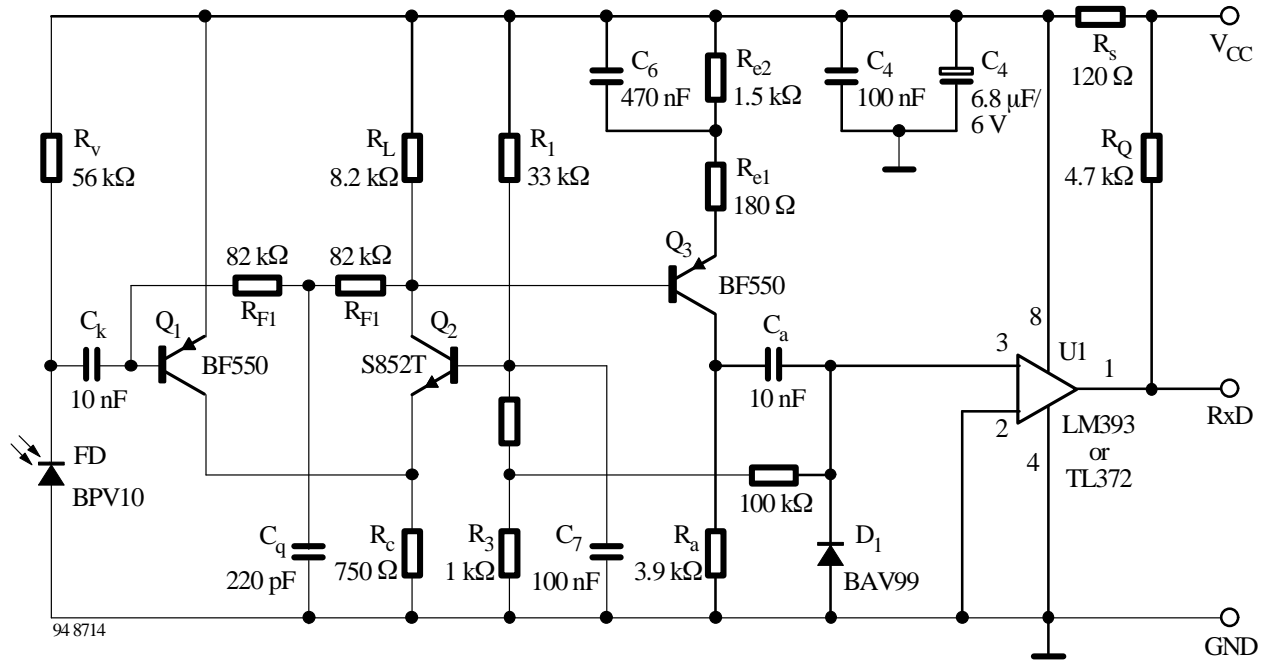


Figure 3 Circuit diagram of IR-transceiver: receiver unit

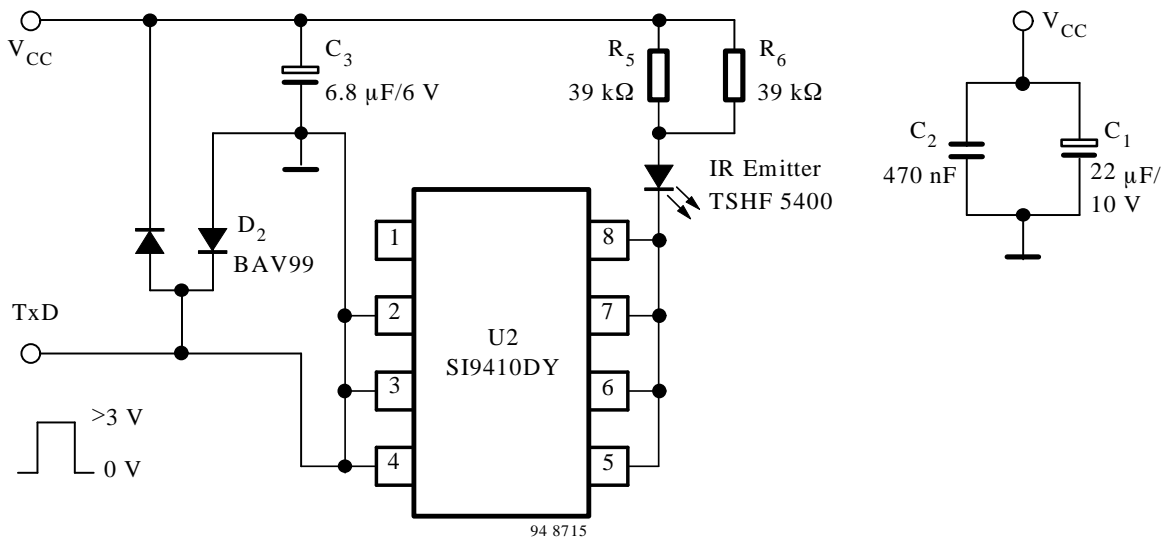


Figure 4 Circuit diagram of IR-transceiver: transmitter

We reserve the right to make changes to improve technical design without further notice.

Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer. Should the buyer use TEMIC products for any unintended or unauthorized application, the buyer shall indemnify TEMIC against all claims, costs, damages, and expenses, arising out of, directly or indirectly, any claim of personal damage, injury or death associated with such unintended or unauthorized use.

TEMIC TELEFUNKEN microelectronic GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany
Telephone: 49 (0)7131 67 2831, Fax Number: 49 (0)7131 67 2423