Waitrony

Ultrasonic Transducer

TR40-16

1. General Description

The T40-16 and R40-16 are matched pair ultrasonic transmitter and receiver respectively operated at 40kHz center frequency with ∅16mm diameter. This transducer utilizes the piezoelectric properties of engineering ceramic that provides high sound pressure and high sensitivity.

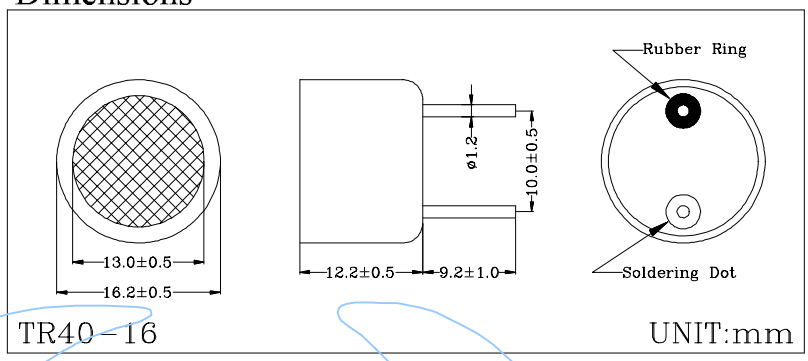
2. Features

- High sound pressure
- High sensitivity
- Air medium
- Metal housing

3. Applications

- Auto switching
- Car obstacle avoidance
- Range finder
- Fluid level control
- burglar alarm

Dimensions



4. Absolute Maximum Ratings

(Ta=25°C)

Parameter	Symbol	Ratings	Unit
Maximum Input Voltage	VMAX	20	Vrms
Shock Impact	Si	50	G
Operating Relative Humidity *1	RHopr	10 ~ +90	%
Operating Temperature	Topr	-30 ~ +80	°C
Storage Temperature *2	Tstg	-40 ~ +90	°C
Soldering Temperature *3	Tsol	240	°C

*1 - Ambient temperature Ta = 25°C.
*2 - Within 24 hours.
*3 - At the position of 2mm from the bottom face within 5 second.

5. Electro-Sonic Characteristics

(Ta=25°C)

Parameter		Symbol	Conditions	Min.	Typ.	Max.	Unit
Transmitter T40-16	Center Frequency	fc	Still Air		40.0±1.0		kHz
	Sound Pressure Level *4	P	f=40kHz	120			dB
	Attenuation of Sound Pressure Level	ΔP	T=-30°C~+80°C, RH=30%			-10	dB
	Bandwidth	Δλ	P=120dB, f=40kHz	5.0			kHz
Receiver R40-16	Center Frequency	fc	Still Air		40.0±1.0		kHz
	Sensitivity	S	f=40kHz	-59			dB/v/μbar
	-6dB Directivity	θ-6dB	f=40kHz		55		deg.
	Bandwidth	Δλ	f=40kHz	5.0			kHz
	Capacitance	Cs			2100		pF

*4 - 0dB = 0.0002μbar (1 atm = 1.01325 bar)

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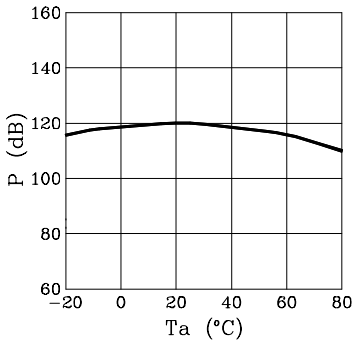
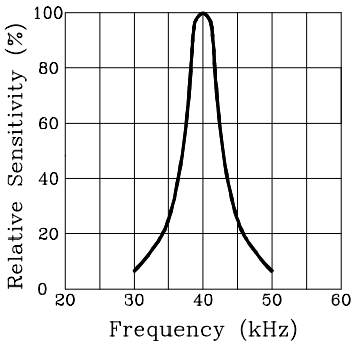
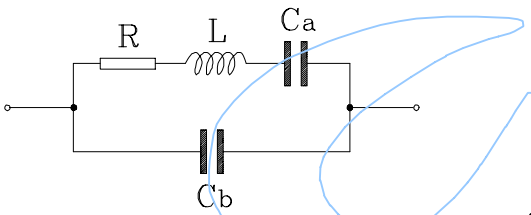
Sound Pressure Level vs Ambient Temperature



Relative Sensitivity vs Frequency



Equivalent Circuit



Directivity Diagram