

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 $\varnothing 16\text{mm}$ diameter. This transducer utilizes the piezoelectric properties of engineering ceramic that provides high sound pressure and high sensitivity.

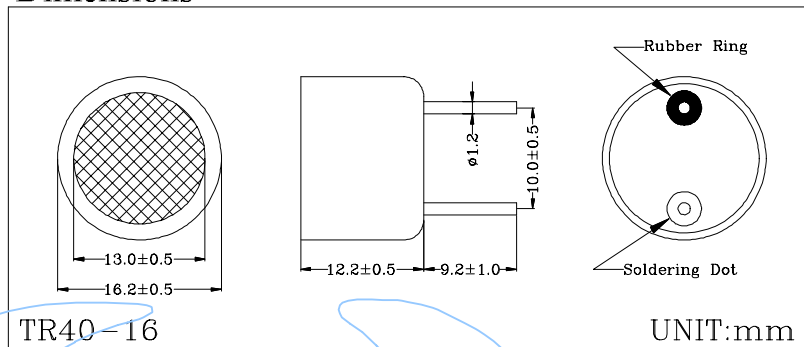
2. Features

- 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	V _{MAX}	20	V _{rms}
Shock Impact	Si	50	G
Operating Relative Humidity *1	RHopr	10 ~ +90	%
Operating Temperature	T _{opr}	-30 ~ +80	°C
Storage Temperature *2	T _{stg}	-40 ~ +90	°C
Soldering Temperature *3	T _{sol}	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

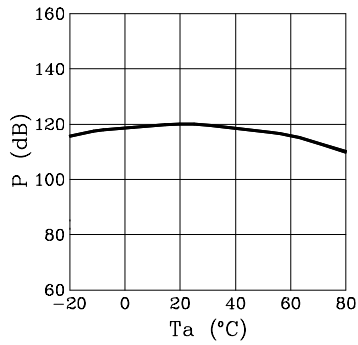
(Ta=25°C)

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

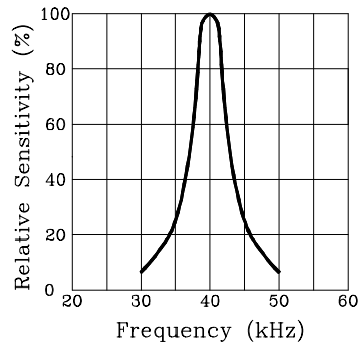
*4 - 0dB = 0.0002μbar (1 atm = 1.01325 bar)

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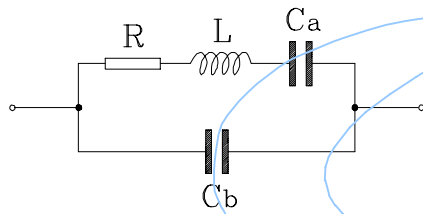
Sound Pressure Level vs Ambient Temperature



Relative Sensitivity vs Frequency



Equivalent Circuit



Directivity Diagram

