

### TR40-10

#### 1. General Description

The T40-10 and R40-10 are matched pair ultrasonic transmitter and receiver respectively operated at 40kHz center frequency with Ø9.8mm diameter. This transducer utilizes the piezoelectric properties of engineering ceramic that provides high sound pressure and high sensitivity.

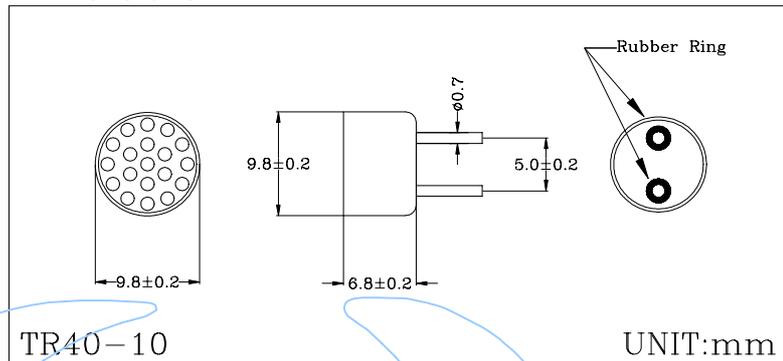
#### 2. Features

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

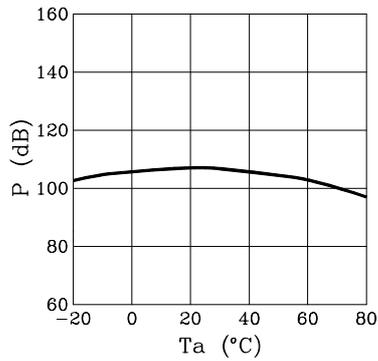
(Ta=25°C)

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	107			dB
	Attenuation of Sound Pressure Level	T=-30°C~+80°C, RH=30%			-10	dB
	Bandwidth	P=112dB, f=40kHz	5.0			kHz
Receiver R40-16	Center Frequency	Still Air	40.0±1.0			kHz
	Sensitivity	f=40kHz	-74			dB/v/μbar
	-6dB Directivity	f=40kHz		100		deg.
	Bandwidth	f=40kHz	5.0			kHz
	Capacitance	Cs		2500		pF

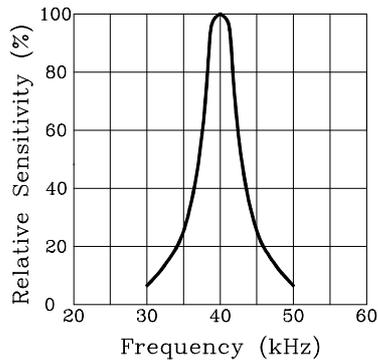
\*4 - 0dB = 0.0002μbar (1 atm = 1.01325 bar)

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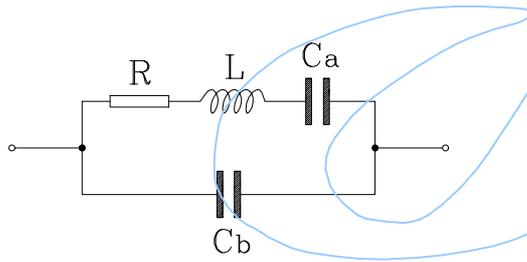
Sound Pressure Level vs Ambient Temperature



Relative Sensitivity vs Frequency



Equivalent Circuit



Directivity Diagram

