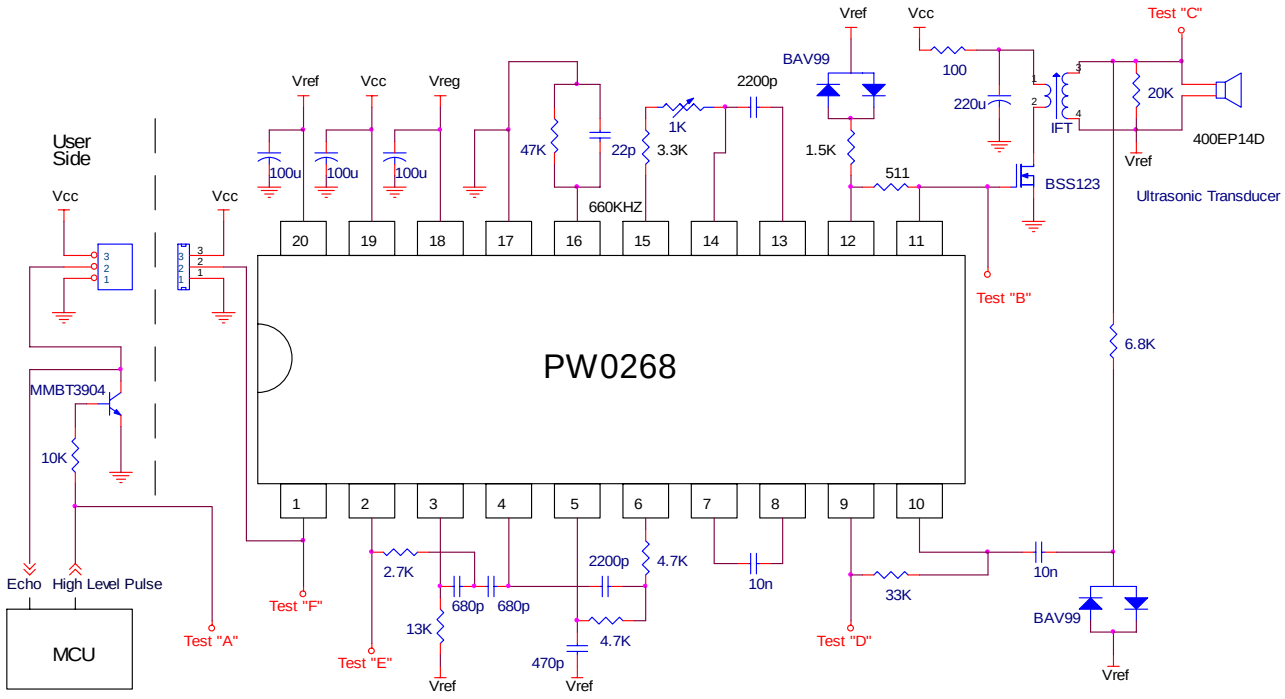
Sonar Ranging Module SRM400

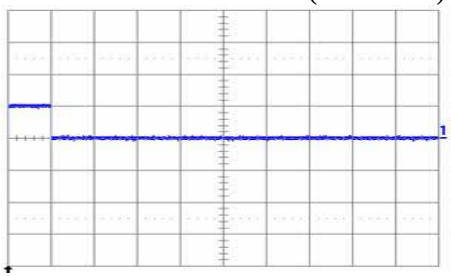
Electronic Circuit Diagram



Waveforms at different test points:

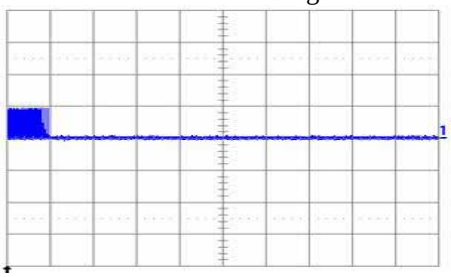
works with transducer model 400EP14D against a hard target of size of 20cmL*20cmW*1cmT at distance of 50cm

"A" Point: Control Pulse (from MCU)



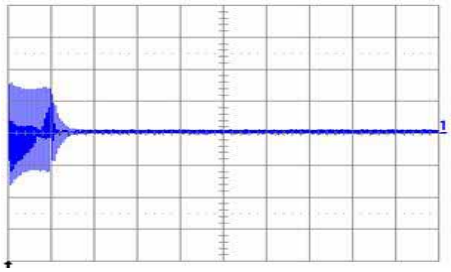
H: 0.5ms/div
V: 5V/div

"B" Point: Tone bursts Signal



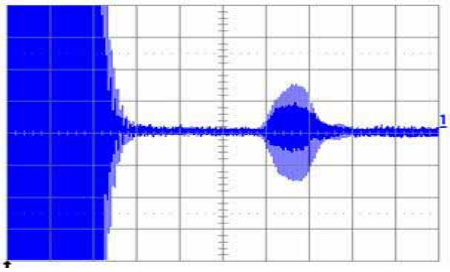
H: 0.5ms/div
V: 5V/div

"C" Point: Transducer loading



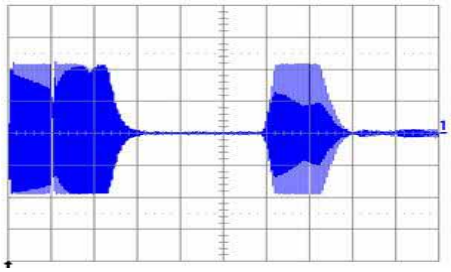
H: 0.5ms/div
V: 50V/div

"D" Point: 1st Pre-Amplifier



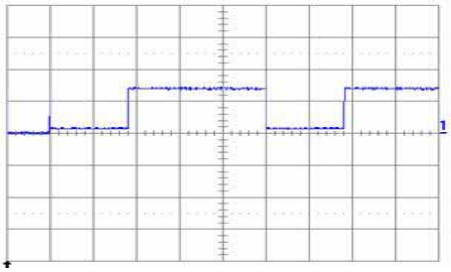
H: 0.5ms/div
V: 20mV/div

"E" Point: Main 32 Steps TCG Amplifier



H: 0.5ms/div
V: 1V/div

"F" Point: Digital Echo signal Output

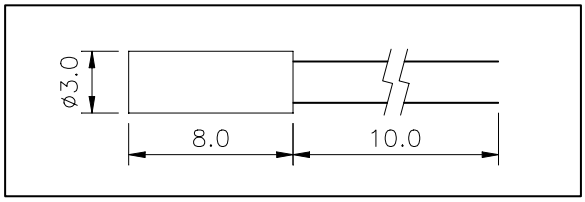


H: 0.5ms/div
V: 5V/div

Refer to PW-0268 Sonar Ranging IC for detail information.

Quartz Crystals & Matching Transformers

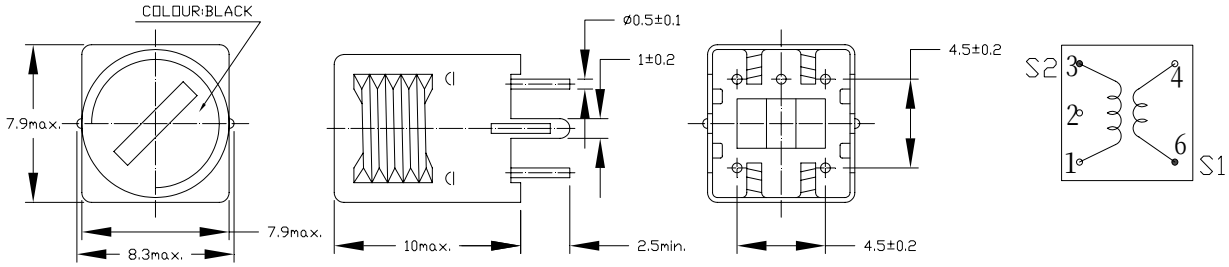
Miniature Tuning Fork Quartz Crystals



Specification

Model Number	Nominal Frequency Hz	Tolerance at 25°C PPM	Temperature Stability –10°C to +70°C PPM	Load Capacitance pF	Series Resistance Ohm	Shunt Capacitance pF	Drive Level mW
S40000	40,000	± 60	± 45	12.5	35,000	2.3	0.001
S32768	32,768	± 20	± 30	12.5	35,000	2.3	0.001

Matching Transformers



Specification

Parts Number	K4000001	K4000002	K4000003	K4000004
Operating Frequency	40.0 KHz	40.0 KHz	40.0 KHz	40.0 KHz
Variable Inductance (min.)	10.6 mH± 6%	10.6 mH± 6%	10.6 mH± 6%	10.6 mH± 6%
Unloaded Q (min.)	70	100	25	47
Turn Ratio	1:10	1:10	1:10	1:10
Matching Transducer	400EP14D	400EP14D (Temperature Compensated Type	235SR130	400EP18A