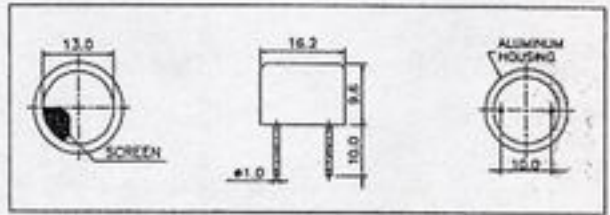
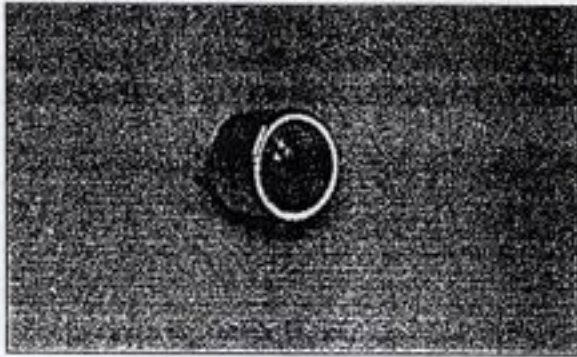


Dimensions: dimensions are in mm



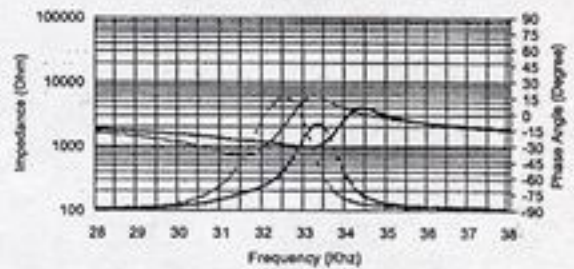
Impedance/Phase Angle vs. Frequency

Tested under 1Vrms Oscillation Level

328SR160 Impedance _____
 328SR160 Phase _____
 328ST160 Impedance _____
 328ST160 Phase _____

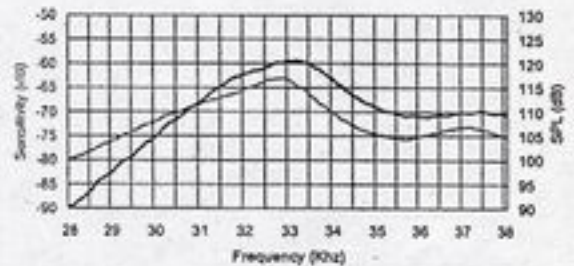
Specification

328ST160	Transmitter
328SR160	Receiver
Center Frequency	32.8±1.0Khz
Bandwidth (-6dB)	328ST160 2.5Khz 328SR160 2.5Khz
Transmitting Sound Pressure Level	115dB min.
at 32.8Khz; 0dB re 0.0002μbar per 10Vrms at 30cm	
Receiving Sensitivity	-67dB min.
at 32.8Khz 0dB = 1 volt/μbar	
Capacitance at 1Khz	±20% 2400 pF
Max. Driving Voltage (cont.)	20Vrms
Total Beam Angle	-6dB 100° typical
Operation Temperature	-30 to 80°C
Storage Temperature	-40 to 85°C



Sensitivity/Sound Pressure Level

Tested under 10Vrms @30cm

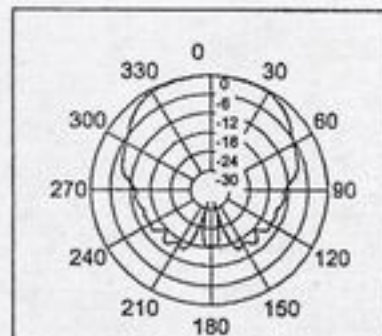


Beam Angle: Tested at 32.8Khz frequency

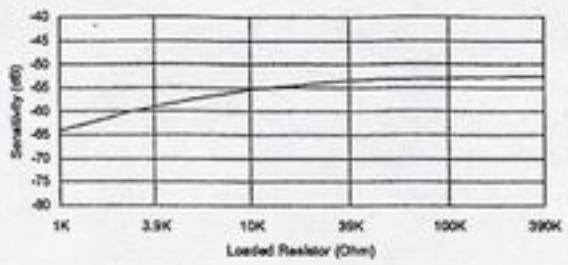
All specification taken typical at 25°C
 Closer frequency tolerance can be supplied upon request.

Model available:

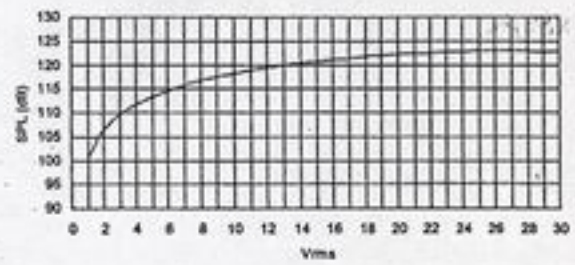
1 | 328ST/R160 | Aluminum Housing | P.13



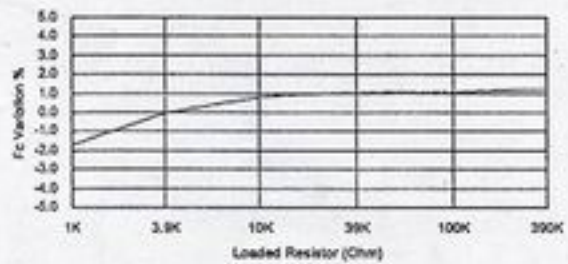
Sensitivity Variation vs. Loaded Resistor



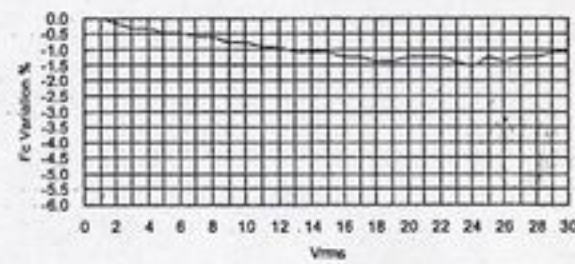
SPL Variation vs. Driving Voltage



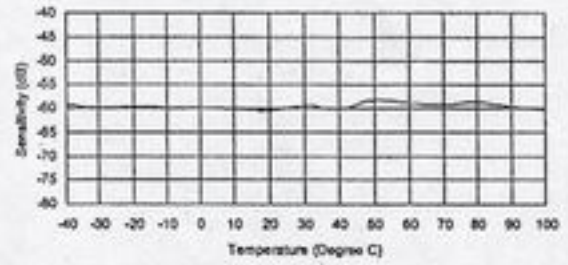
Center Frequency Shift vs. Loaded Resistor



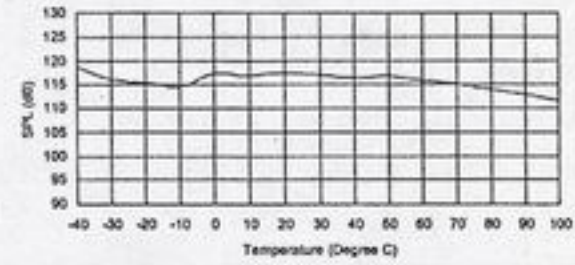
Center Frequency Shift vs. Driving Voltage



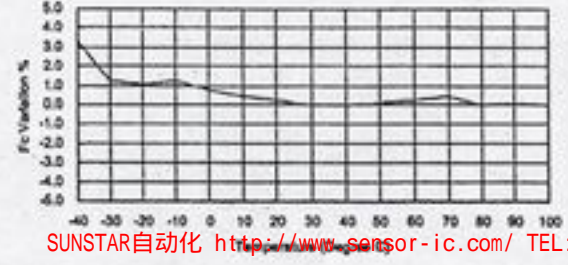
Sensitivity Variation vs. Temperature



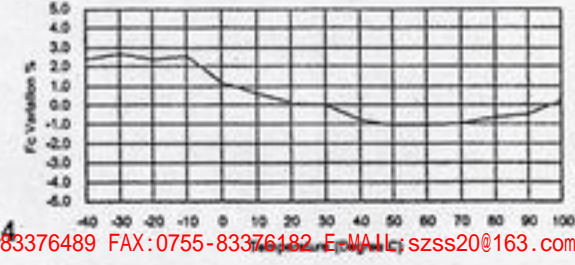
SPL Variation vs. Temperature



Center Frequency Shift vs. Temperature



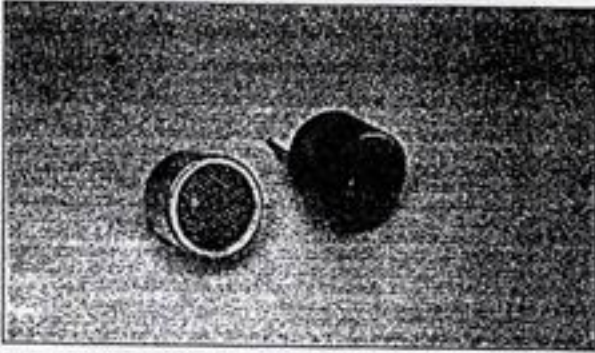
Center Frequency Shift vs. Temperature



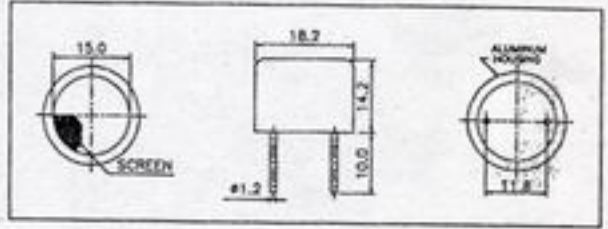
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328ST/R180



Dimensions: dimensions are in mm



Specification

328ST180	Transmitter
328SR180	Receiver
Center Frequency	32.8±1.0Khz
Bandwidth (-6dB)	328ST180 2Khz
	328SR180 2Khz
Transmitting Sound Pressure Level	117dB min.
at 32.8Khz; 0dB re 0.0002μbar per 10Vrms at 30cm	
Receiving Sensitivity	-64dB min.
at 32.8Khz 0dB = 1 volt/μbar	
Capacitance at 1Khz	±20% 2400 pF
Max. Driving Voltage (cont.)	20Vrms
Total Beam Angle	-6dB 45° typical
Operation Temperature	-30 to 80°C
Storage Temperature	-40 to 85°C

All specification taken typical at 25°C
Closer frequency tolerance can be supplied upon request.

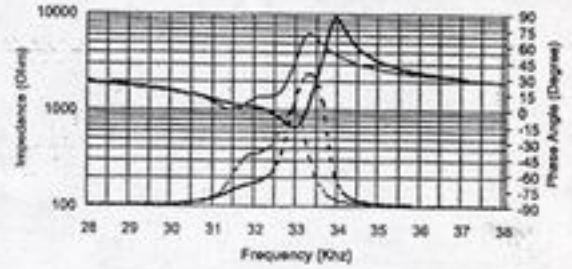
Model available:

1	328ST/R180	Aluminum Housing
2	328ST/R18B	Black Al. Housing

Impedance/Phase Angle vs. Frequency

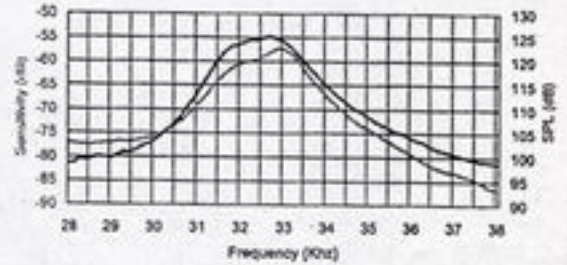
Tested under 1Vrms Oscillation Level

328SR180 Impedance	_____
328SR180 Phase	_____
328ST180 Impedance	_____
328ST180 Phase	_____

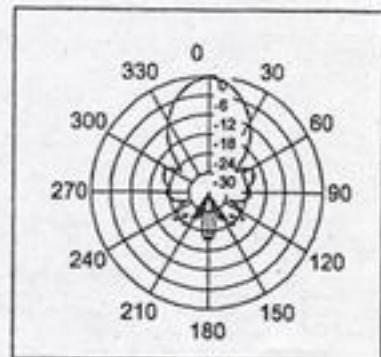


Sensitivity/Sound Pressure Level

Tested under 10Vrms @30cm

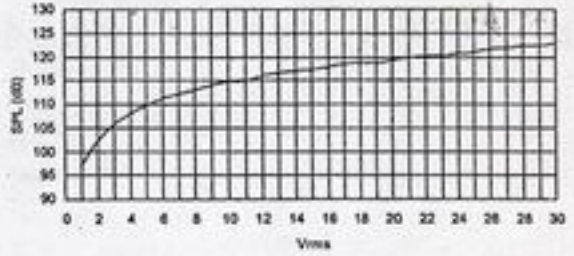
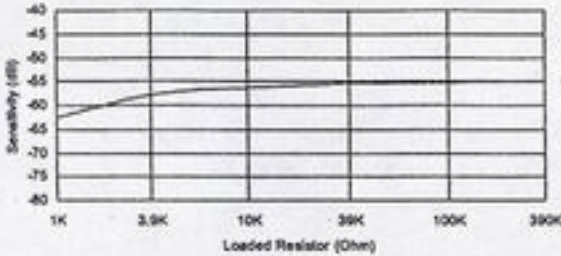


Beam Angle: Tested at 32.8Khz frequency



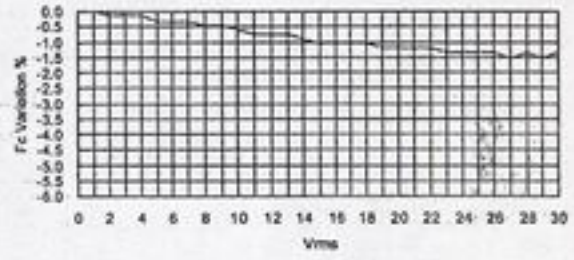
Sensitivity Variation vs. Loaded Resistor

SPL Variation vs. Driving Voltage



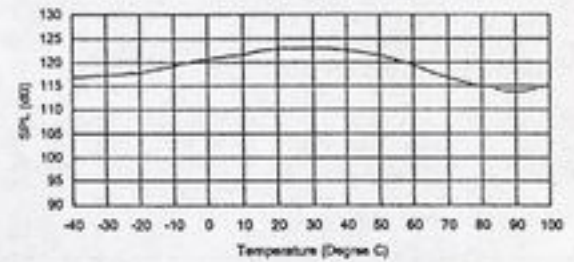
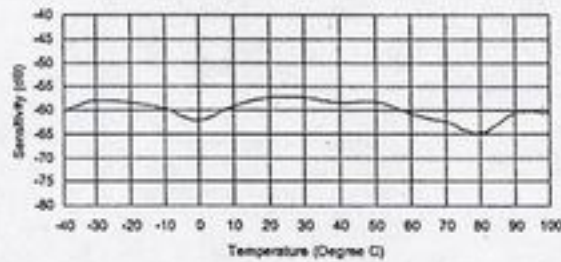
Center Frequency Shift vs. Loaded Resistor

Center Frequency Shift vs. Driving Voltage



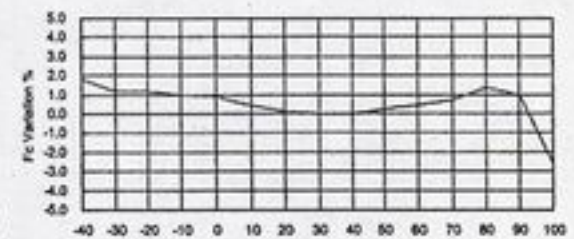
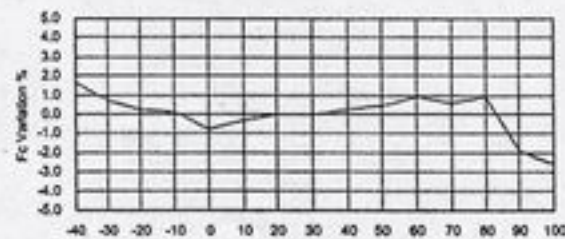
Sensitivity Variation vs. Temperature

SPL Variation vs. Temperature

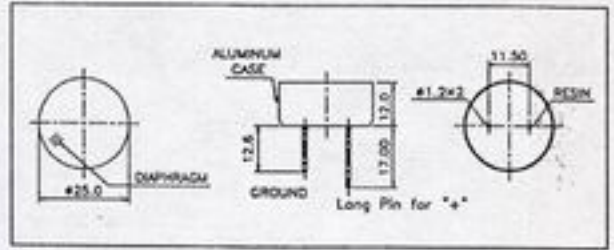
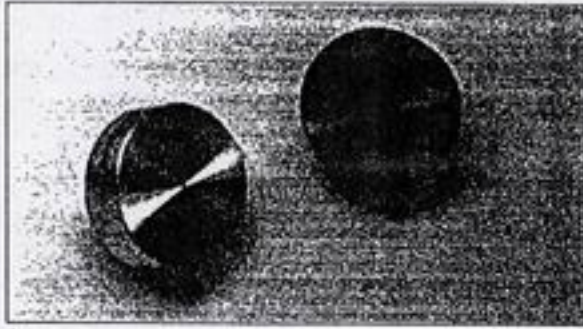


Center Frequency Shift vs. Temperature

Center Frequency Shift vs. Temperature



Dimensions: dimensions are in mm



Specification

328ET250	Transmitter
328ER250	Receiver
Center Frequency	32.8±1.0Khz
Bandwidth (-6dB)	328ET250 1.0Khz 328ER250 1.0Khz
Transmitting Sound Pressure Level at 32.8Khz; 0dB re 0.0002μbar per 10Vrms at 30cm	113dB min.
Receiving Sensitivity at 32.8Khz 0dB = 1 volt/μbar	-67dB min.
Capacitance at 1Khz ±20%	2400 pF
Max. Driving Voltage (cont.)	20Vrms
Total Beam Angle -6dB	33° typical
Operation Temperature	-30 to 80°C
Storage Temperature	-40 to 85°C

All specification taken typical at 25°C
Closer frequency tolerance can be supplied
upon request.

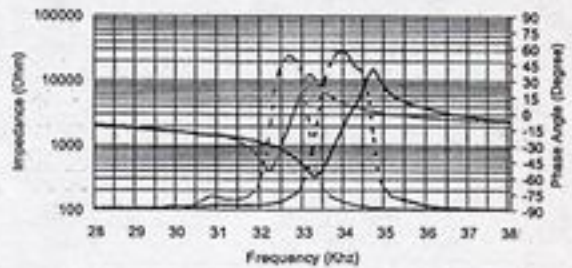
Model available:

1	328ET/R250	Aluminum Housing
2	328ET/R25B	Black Alum. Housing

Impedance/Phase Angle vs. Frequency

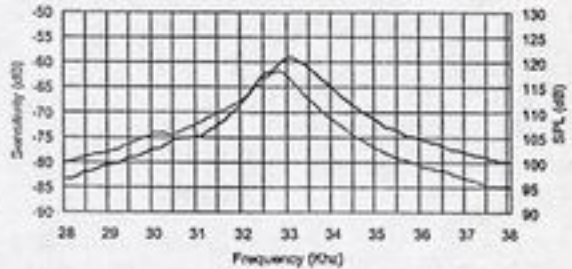
Tested under 1Vrms Oscillation Level

328ER250 Impedance	_____
328ER250 Phase	_____
328ET250 Impedance	_____
328ET250 Phase	_____

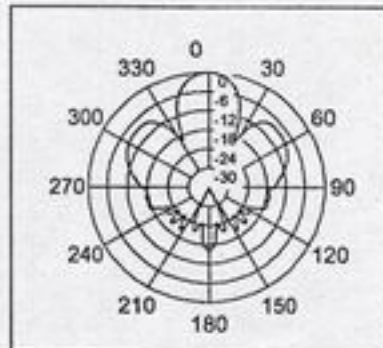


Sensitivity/Sound Pressure Level

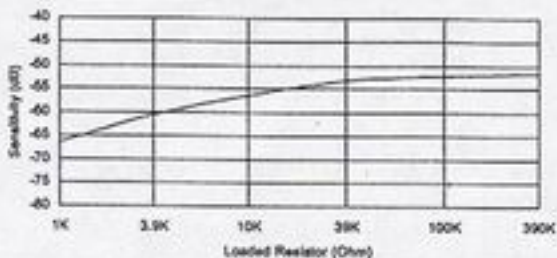
Tested under 10Vrms @30cm



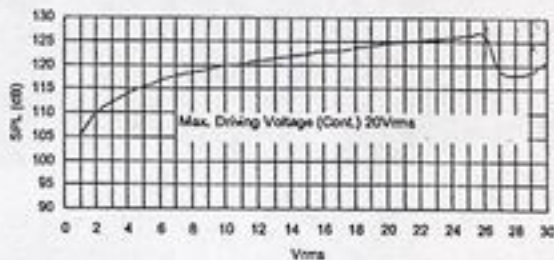
Beam Angle: Tested at 32.8Khz frequency



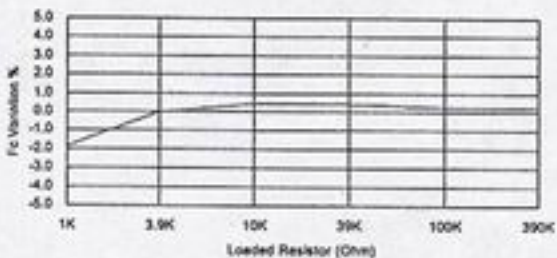
Sensitivity Variation vs. Loaded Resistor



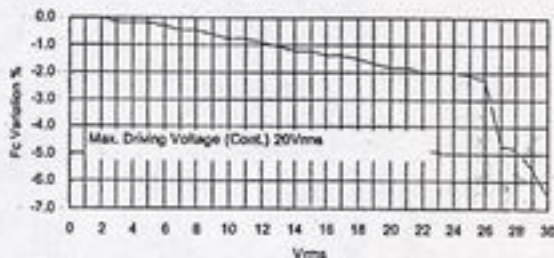
SPL Variation vs. Driving Voltage



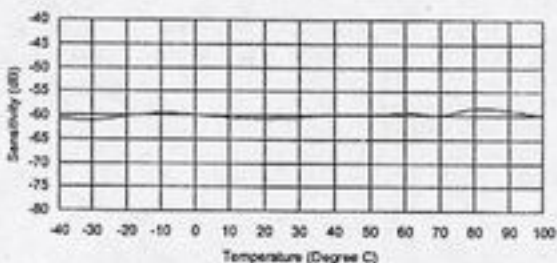
Center Frequency Shift vs. Loaded Resistor



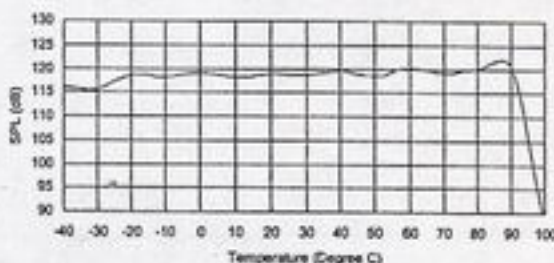
Center Frequency Shift vs. Driving Voltage



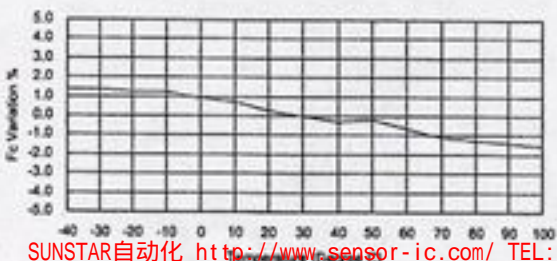
Sensitivity Variation vs. Temperature



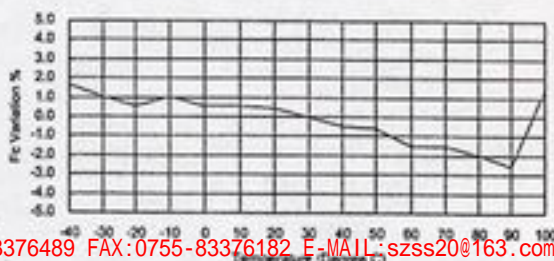
SPL Variation vs. Temperature



Center Frequency Shift vs. Temperature



Center Frequency Shift vs. Temperature



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