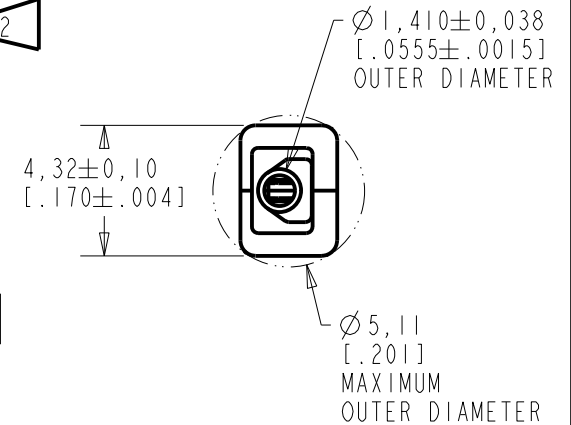
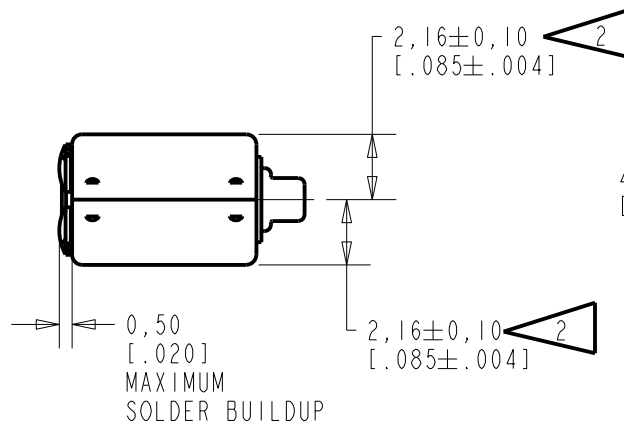
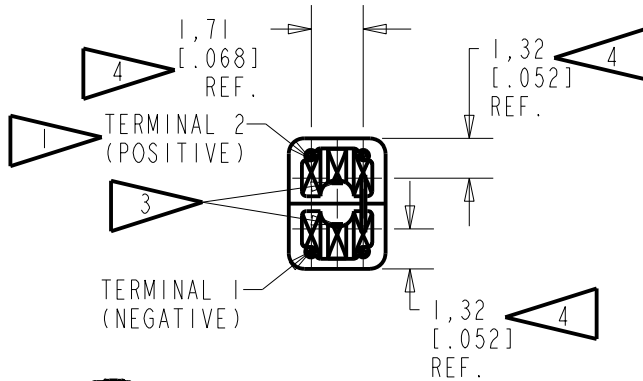
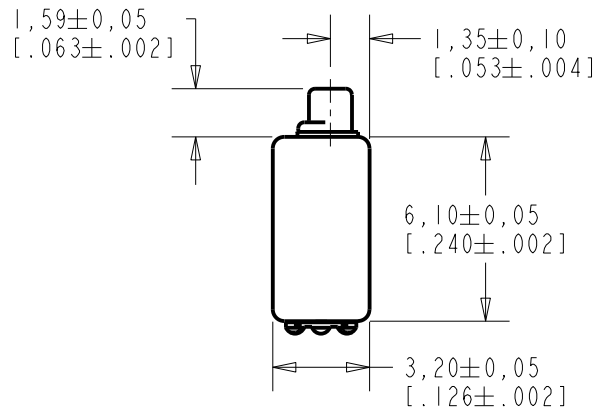


**GR-31587-000**

**SHT 1.1**

NOTES:

- 1 A POSITIVE GOING VOLTAGE AT TERMINAL 2, RELATIVE TO TERMINAL 1, CAUSES A DECREASE IN PRESSURE AT THE SOUND OUTLET.
- 2 LOCATED FROM TWO SURFACE FOR CUSTOMER CONVENIENCE. ONLY APPLICABLE FROM ONE SURFACE, NOT TO BE USED TOGETHER.
- 3 TERMINAL ELECTRICALLY CONNECTED TO CASE.
- 4 DIMENSION TO APPROXIMATE CENTER OF TERMINAL PAD.



SCALE 2:1  
 NOMINAL WEIGHT 0.25 GRAMS  
 DIMENSIONS IN MILLIMETERS [INCHES]

Revision	C.O. #	Implementation Date	RELEASE LEVEL	REVISION
B	CI0114522	3-19-13	Active	B
A	CI0113458	5-23-12		

SCALE: 4:1		DR. BY: OO	DATE: 5-23-12
DO NOT SCALE DRAWING			
TITLE: RECEIVER		GR-31587-000	
OUTLINE DRAWING		SHT 1.1	
		APP. BY: GJP	DATE: 5-24-12
		APP. BY: GJP	DATE: 5-25-12

**KNOWLES ELECTRONICS**  
 ITASCA, ILLINOIS U.S.A.

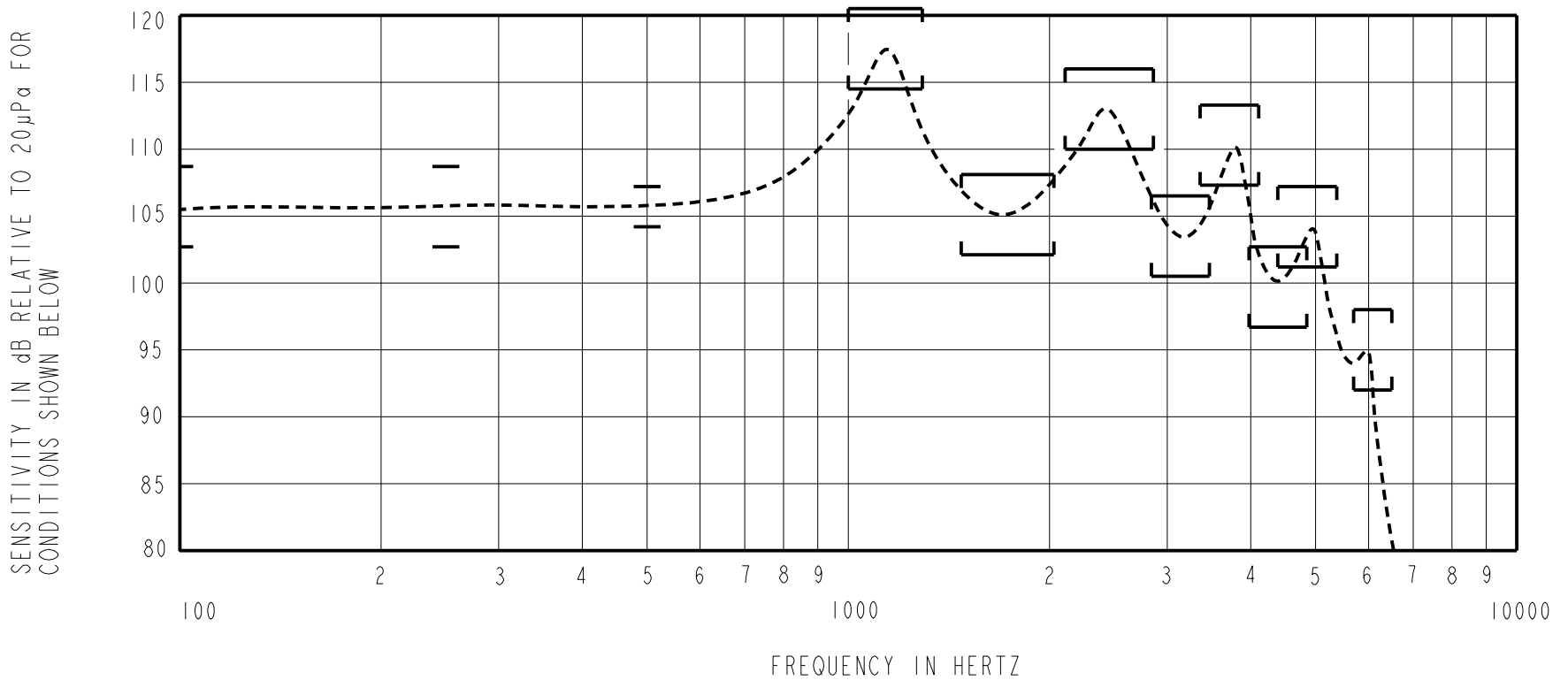
THIS IS A PAIR OF RECEIVERS WITH VERY LOW VIBRATION IN ALL DIRECTIONS, AND A QUADRAPOLE MAGNETIC RADIATION PATTERN.

NO DAMPING

GR-31587-000

SHEET 2.1

CONSTANT VOLTAGE DRIVE CONDITIONS



ACOUSTICAL

SENSITIVITY  
DEVICE WILL PRODUCE THE SPL LISTED BELOW UNDER TEST CONDITIONS DESCRIBED IN TABLE 4. NOMINAL SENSITIVITY AT 1kHz IS dB RELATIVE TO 20µPa. ALL OTHER VALUES IN dB RELATIVE TO THE SENSITIVITY AT 500Hz.

LIMIT TYPE	FREQUENCY (Hz)	MINIMUM	NOMINAL	MAXIMUM
REL	100	-3.0	0.0	+3.0
REL	250	-3.0	0.0	+3.0
REF	500	-1.5	105.7	+1.5
PEAK 1	990-1390	+8.8	+11.8	+14.8
VALLEY 1	1600-2200	-3.6	-0.6	+2.4
PEAK 2	2160-2900	+4.3	+7.3	+10.3
VALLEY 2	2900-3500	-4.5	-1.5	+1.5
PEAK 3	3390-4130	+1.6	+4.6	+7.6
VALLEY 3	4090-4890	-8.7	-5.7	-2.7
PEAK 4	4500-5460	-4.1	-1.1	+1.9
PEAK 5	5700-6500	-13.1	-10.1	-7.1

TABLE 1

TOTAL HARMONIC DISTORTION  
DEVICE WILL NOT EXCEED TOTAL HARMONIC DISTORTION LEVELS LISTED BELOW.

FREQUENCY (Hz)	AC DRIVE (Vrms)	DC BIAS (V)	LIMIT (%)
1/3 PEAK1 (TYP. 391)	0.112	0	3
1/2 PEAK1 (TYP. 586)	0.112	0	3
1/3 PEAK1 (TYP. 391)	0.224	0	8
1/2 PEAK1 (TYP. 586)	0.315	0	10

TABLE 2

MAXIMUM OUTPUT LEVEL

POWER (mW)	500 Hz SPL (dB)	REQUIRED VOLTAGE (Vrms)	Peak SPL (dB)	REQUIRED VOLTAGE (Vrms)
10	120.1	0.703	135.9	0.925

TABLE 3

TEST CONDITIONS

NOMINAL SOURCE VOLTAGE	0.112 Vrms, 0 mA DC BIAS
SOURCE IMPEDANCE	<1 Ohm
TUBING	8 mm X 1 mm ID + 28 mm X 1.5mm ID EAR HOOK SIMULATOR + 25 mm X 2 mm ID TUBE + 18 mm X 3 mm ID TUBE
COUPLER CAVITY	2 CM <sup>3</sup> , SIMULATED ANSI S3.7 TYPE HA-3 (IEC 60318-5)
MAXIMUM DRIVE VOLTAGE	1.55 Vrms

TABLE 4

ELECTRICAL

DC RESISTANCE @ 20°C	40.9 Ohms ± 10%
IMPEDANCE @ 500 Hz	58.6 Ohms ± 15%
INDUCTANCE @ 500 Hz	10.8 mH TYPICAL
CAPACITANCE @ 10 MHz	2.9 pF TYPICAL

TABLE 5

ISOLATION: CASE WILL BE ELECTRICALLY ISOLATED FROM THE COIL CIRCUIT.

MECHANICAL

PORT LOCATION: 12S

SOLDER TYPE: SAC305

TEMPERATURE

OPERATING: SENSITIVITY WILL NOT VARY MORE THAN +1/-3 dB AT 500 Hz FROM -17°C TO 63°C

STORAGE: -40°C TO 63°C

SHOCK RESISTANCE: 90% SURVIVAL RATE WITH THD @ 1/3 PEAK FREQUENCY LESS THAN 10%, THD @ 1/2 PEAK FREQUENCY LESS THAN 20% AND LESS THAN 3dB CHANGE IN SENSITIVITY AT 1kHz WHEN SUBJECTED TO 14,100 G.

**KNOWLES ELECTRONICS**  
ITASCA, ILLINOIS U.S.A.

Revision	C.O. #	Implementation Date	RELEASE LEVEL	REVISION
B	C10114522	3-19-13	Active	B
A	C10113458	5-23-12		
WHEN TEST LIMITS ARE USED TO ESTABLISH INCOMING INSPECTION ACCEPTANCE/REJECTION CRITERIA, CORRELATION OF TEST EQUIPMENT WITH KNOWLES IS ALSO REQUIRED FOR ELIMINATION OF EQUIPMENT AND TEST METHOD VARIATION			DR. BY	DATE
TITLE: <b>RECEIVER</b> PERFORMANCE SPECIFICATION			OQ	5-23-12
			GR-31587-000 SHT 2.1	
			GJP	5-24-12
			APP. BY	DATE
			GJP	5-25-12