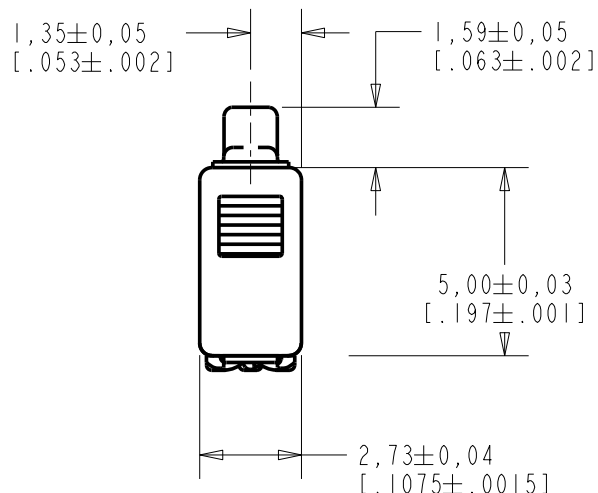


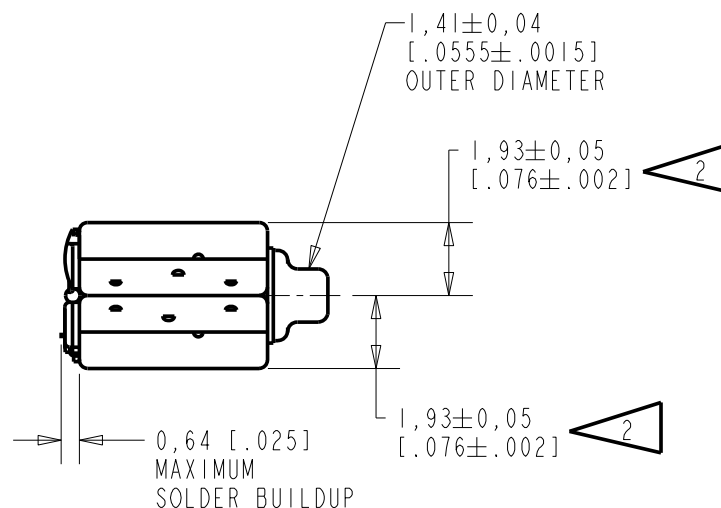
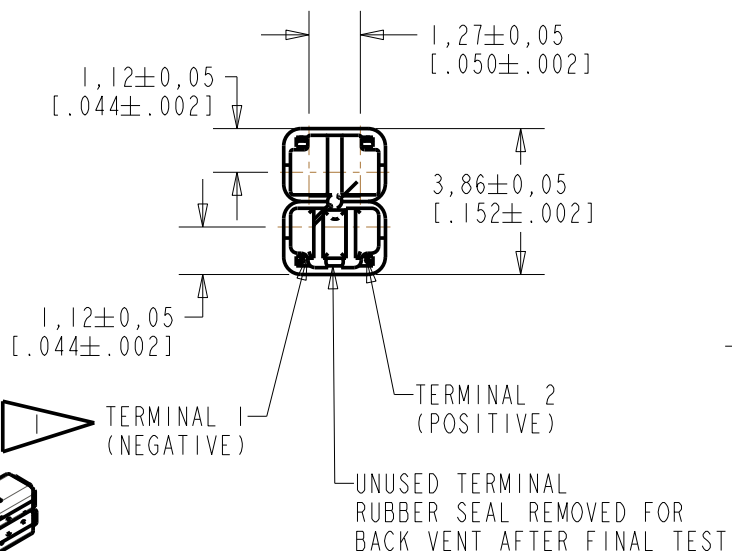
TWFK-30017-000

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 SURFACES FOR CUSTOMER CONVENIENCE. ONLY APPLICABLE FROM ONE SURFACE, NOT TO BE USED TOGETHER.



| Revision | C.O. #     | Implementation Date | RELEASE LEVEL | REVISION |
|----------|------------|---------------------|---------------|----------|
| F        | C10108259P | 12-18-08            | Active        | F        |
| E        | C10106978  | 1-11-08             |               |          |

SCALE 2:1

DIMENSIONS IN MILLIMETERS [INCHES]

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

SCALE:

5:1

DO NOT SCALE DRAWING

TITLE:

RECEIVER

OUTLINE DRAWING

TWFK-30017-000

SHT 1.1

| DR. BY  | DATE   |
|---------|--------|
| AB      | 6-7-06 |
| CK. BY  | DATE   |
| GJP     | 6-8-06 |
| APP. BY | DATE   |
| GJP     | 6-8-06 |

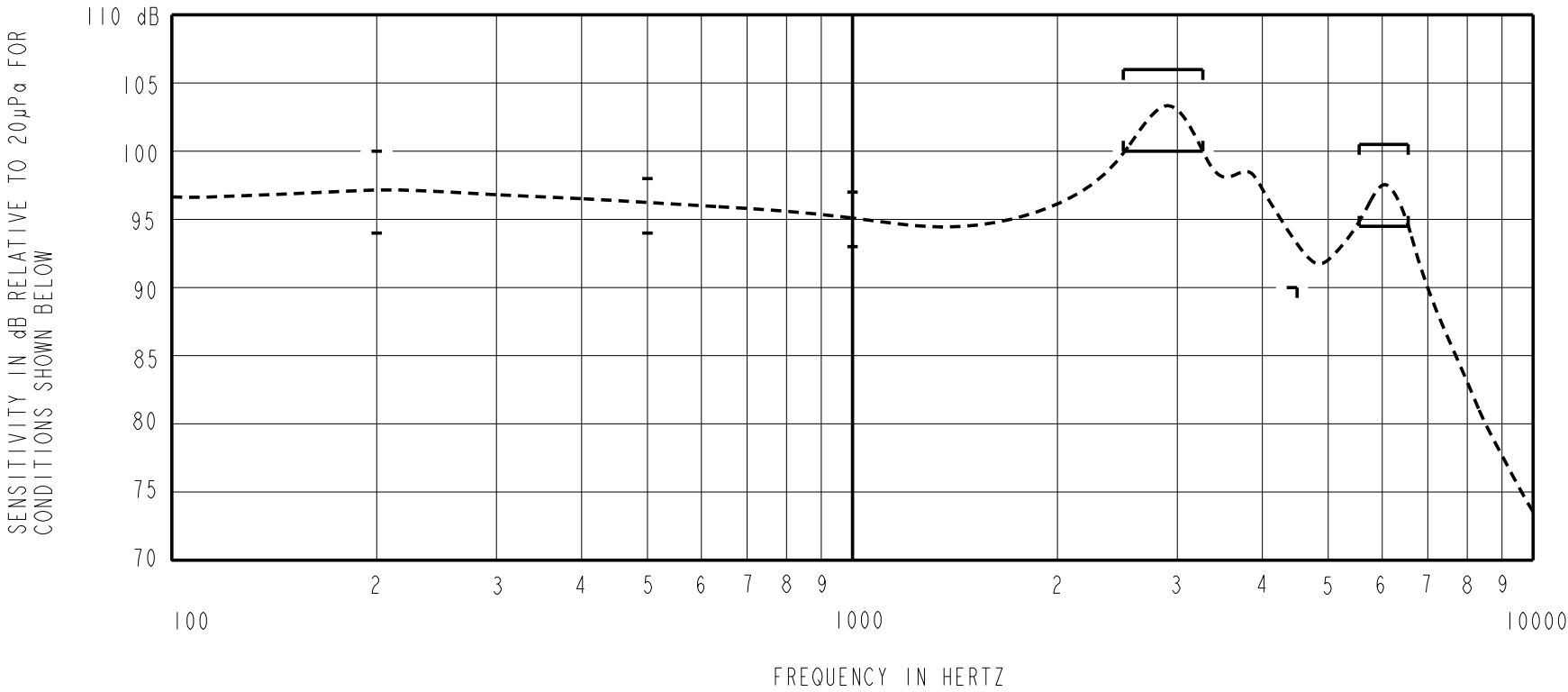
UNDAMPED MAGNETIC BALANCED ARMATURE RECEIVERS INTENDED FOR USE AS THE HIGH AND LOW FREQUENCY DRIVERS IN A Hi Fi SYSTEM. THE TWFK IS A WIDEBAND FK AND FK RECEIVER PAIR WITH AN EXTENDED HIGH FREQUENCY RESPONSE AND SHOCK PROTECTION. FK RECEIVER VENTED THROUGH UNUSED TERMINAL.

UNDAMPED

TWFK-30017-000  
SHEET 2.1

NOTE: SPECIFICATIONS FOLLOWED BY AN ASTERISK (\*) ARE 100% TESTED.

CONSTANT VOLTAGE DRIVE CONDITIONS (WITH VENT BLOCKED).



ACOUSTICAL

SENSITIVITY\*  
DEVICE WILL PRODUCE THE SPL LISTED BELOW UNDER TEST CONDITION IN TABLE 3.  
NOMINAL SENSITIVITY AT 1kHz IS dB RELATIVE TO 20 μPa. ALL OTHER VALUES IN dB RELATIVE TO THE SENSITIVITY AT 1kHz.

| FREQUENCY (Hz) | MINIMUM | NOMINAL | MAXIMUM |
|----------------|---------|---------|---------|
| 200            | -1.0    | +2.0    | +5.0    |
| 500            | -1.0    | +1.0    | +3.0    |
| 1000           | -2.0    | 95.0    | +2.0    |
| 2500-3100      | +5.0    | +8.0    | +11.0   |
| 4500           | -5.0    | ---     | ---     |
| 5500-6500      | -0.5    | +2.5    | +5.5    |

TABLE 1

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

| FREQUENCY (Hz) | AC DRIVE (V rms) | DC BIAS (mA) | LIMIT (%) |
|----------------|------------------|--------------|-----------|
| 930            | .085             | 0            | 5         |
| 1400           | .085             | 0            | 5         |
| 500            | .240             | 0            | 10        |

TABLE 2

TEST CONDITIONS

0.82μF CAPACITOR CONNECTED TO THE INPUT OF THE WBFK RECEIVER

|                        |                                                             |
|------------------------|-------------------------------------------------------------|
| NOMINAL SOURCE VOLTAGE | .085 V rms, 0 V DC BIAS                                     |
| SOURCE IMPEDANCE       | <1 Ohm                                                      |
| TUBING                 | 10mm [.394"] LONG, 1mm [.039"] I.D.                         |
| COUPLER CAVITY         | 2 CM <sup>3</sup> , SIMULATED ANSI S3.7 TYPE HA-3 (IEC 126) |

TABLE 3

ELECTRICAL

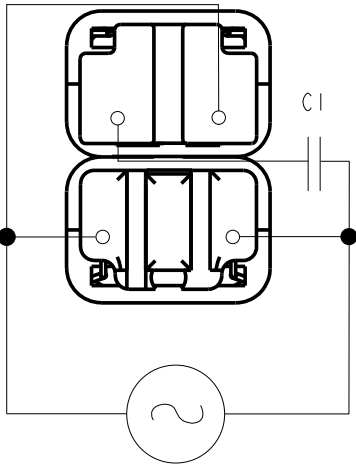
|                    |                                               |
|--------------------|-----------------------------------------------|
| DC RESISTANCE      | 25 Ohms ± 10%*<br>25 Ohms FK / 12.5 Ohms WBFK |
| IMPEDANCE @ 500 Hz | 31.0 Ohms ± 15%*                              |
| IMPEDANCE @ 1kHz   | 43.0 Ohms ±15%*                               |

TABLE 4

MECHANICAL

PORT LOCATION: 12S  
SOLDER TYPE: SAC305

TEMPERATURE:  
OPERATING: SENSITIVITY AT 500Hz WILL NOT VARY BY MORE THAN ±3 dB FROM 0°C TO 63°C.  
STORAGE: -40°C TO 63°C.



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

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| Revision                                                                                                                                                                                                     | C.O. #     | Implementation Date | RELEASE LEVEL             | REVISION                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------------------|---------------------------|----------------------------------|
| F                                                                                                                                                                                                            | C10108259P | 12-18-08            | Active                    | F                                |
| E                                                                                                                                                                                                            | C10106978  | 1-11-08             |                           |                                  |
| 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<br>AB              | DATE<br>6-7-06                   |
| TITLE: RECEIVER                                                                                                                                                                                              |            |                     | CK. BY<br>GJP             | DATE<br>6-8-06                   |
| PERFORMANCE SPECIFICATION                                                                                                                                                                                    |            |                     | TWFK-30017-000<br>SHT 2.1 | APP. BY<br>GJP<br>DATE<br>6-8-06 |

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