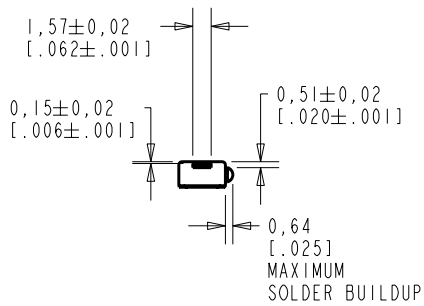
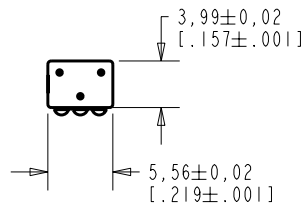


EA-21972-000
SHT 1.1

NOTE:

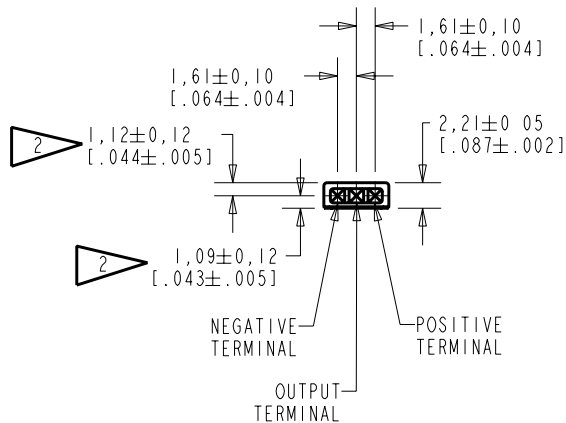
1. INCREASED PRESSURE AT THE SOUND INLET CAUSES A POSITIVE GOING VOLTAGE TO APPEAR AT THE OUTPUT TERMINAL, RELATIVE TO THE NEGATIVE TERMINAL.

2 LOCATED FROM TWO SURFACES FOR CUSTOMER CONVENIENCE. ONLY APPLICABLE FROM ONE SURFACE, NOT TO BE USED TOGETHER. HORIZONTAL LOCATION FOR TERMINAL CENTERED TO $\pm 0,17$ [.007].



NOMINAL WEIGHT
.13 GRAM

DIMENSIONS IN MILLIMETERS [INCHES]



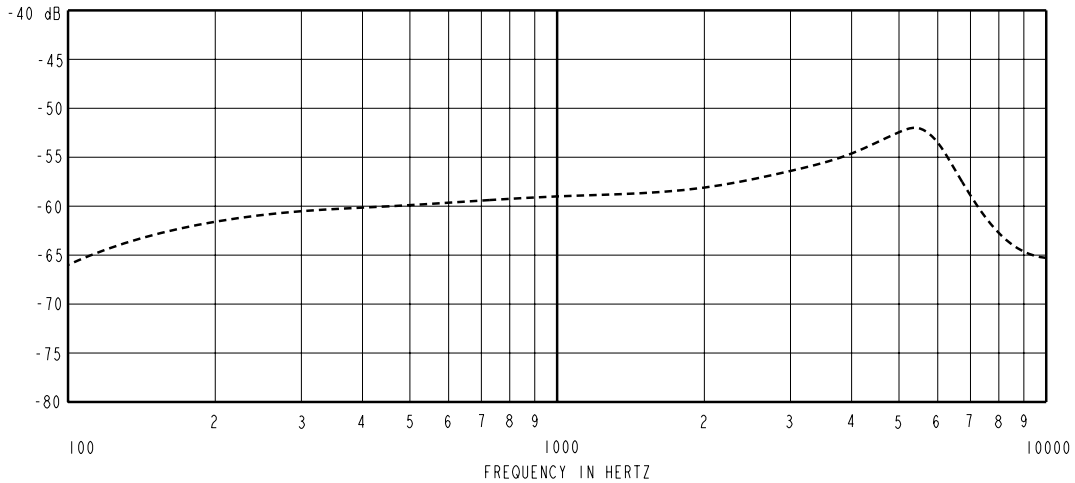
| Revision | C.O. # | Implementation Date | RELEASE LEVEL | REVISION |
|----------|-----------|---------------------|---------------|----------|
| | | | Released | A |
| A | MI0101333 | 12-14-06 | | |

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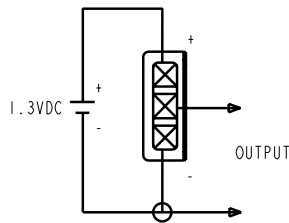
| | | | |
|----------------------|------------|--------------|----------|
| SCALE: | 2:1 | DR. BY | DATE |
| DO NOT SCALE DRAWING | | LSY | 12-14-06 |
| TITLE: | MICROPHONE | EA-21972-000 | CK. BY |
| OUTLINE DRAWING | | SHT 1.1 | GJP |
| | | | DATE |
| | | | GJP |
| | | | DATE |
| | | | GJP |
| | | | 12-21-06 |

KE111ASTZE.FRM Rev: B

SENSITIVITY IN dB RELATIVE TO 1.0 VOLT/0.1 Pa (N/M²) FOR CONDITIONS SHOWN BELOW.



| FREQUENCY | SENSITIVITY | | | DEVICE CONFORMITY | |
|-----------|-------------|-------|-------|------------------------------|-------|
| | MIN. | NOM. | MAX. | RANGE OF DEVIATION FROM 1kHz | |
| 100 | --- | -66.0 | --- | -11.0 | -4.0 |
| 1000 | -62.0 | -59.0 | -56.0 | 0.0 | 0.0 |
| ≈ 5100 | --- | -52.0 | --- | +4.0 | +10.0 |



NOTES:

1. CASE CONNECTED TO NEGATIVE TERMINAL.
2. MICROPHONE TO BE FUNCTIONAL WITH 10 VDC SUPPLY.
3. CONFORMS TO REQUIREMENTS SHOWN ON 'ELECTRET MICROPHONE ENVIRONMENTAL QUALIFICATION TEST, SHEET 2.2'.

| PORT LOCATION | DC SUPPLY | AMPLIFIER CURRENT DRAIN | SENSITIVITY CHANGE ON REDUCING SUPPLY TO 0.9VDC | "A" WEIGHTED NOISE (1 kHz EQUIV. SPL) | OUTPUT IMPEDANCE OHMS | | | CAPACITANCE ±50% | |
|---------------|-----------|-------------------------|---|---------------------------------------|-----------------------|------|------|------------------|-----|
| | | | | | MIN. | NOM. | MAX. | 1-2 | 1-3 |
| 9NJ | 1.3V | 50 uA MAX. | 3 dB MAX. | 28.5 dB MAX. | 2000 | 3500 | 6000 | NA | NA |

| Revision | C.O. # | Implementation Date | RELEASE LEVEL | REVISION |
|----------|-----------|---------------------|---------------|----------|
| A | M10101333 | 12-14-06 | Released | A |

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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

TITLE: **MICROPHONE** EA-21972-000
PERFORMANCE SPECIFICATION SHT 2.1

| DR. BY | DATE |
|---------|----------|
| LSY | 12-14-06 |
| CK. BY | DATE |
| GJP | 12-21-06 |
| APP. BY | DATE |
| GJP | 12-21-06 |

WHEN THESE TESTS ARE USED TO ESTABLISH PRODUCT QUALIFICATION, CORRELATION OF TEST EQUIPMENT WITH KNOWLES ELECTRONICS IS ALSO REQUIRED TO ELIMINATE EQUIPMENT AND TEST METHOD VARIATION.

BECAUSE THIS IS AN ACCELERATED LIFE TEST, IT FOLLOWS THAT THE UNITS WHICH HAVE BEEN TESTED WILL NOT QUALIFY AS IN-WARRANTY RETURNS. SINCE THESE TESTS ARE DESTRUCTIVE IN NATURE, DEVICES SUBJECTED TO THESE TESTS SHOULD NOT BE USED IN PRODUCTION.

1. ACCELERATED DAMP HEAT TEST.

1.1 PRECONDITIONING:

TIME - 16 HOURS
TEMPERATURE - $22^{\circ}\text{C} \pm 1^{\circ}\text{C}$
HUMIDITY - 60% MAX. R.H.

1.2 TEST CONDITIONS:

TIME AT CONDITIONS: - 1000 HOURS
TEMPERATURE - $63^{\circ}\text{C} \pm 1^{\circ}\text{C}$
HUMIDITY - 95% R.H. $\pm 2\%$
VOLTAGE STRESS - DETAILED FIG. 1

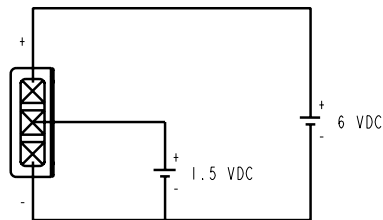


FIG. 1

(AVOID CONDENSATION FALLING ON UNITS UNDER TEST.)

1.3 INITIAL MEASUREMENTS:

AFTER PRECONDITIONING, MEASURE SENSITIVITY PER SHEET 2.1 OF THE APPLICABLE KNOWLES ELECTRONICS MICROPHONE PERFORMANCE SPECIFICATION.

1.4 TEST PROCEDURE:

INSERT UNIT(S) INTO TEST CHAMBER PER CONDITIONS OF 1.2.

1.5 RECOVERY:

TIME - 2 HOURS
TEMPERATURE - $22^{\circ}\text{C} \pm 1^{\circ}\text{C}$
HUMIDITY - 60% MAX. R.H.

1.6 FINAL MEASUREMENTS:

MEASURE SENSITIVITY PER CONDITIONS DESCRIBED ON SHEET 2.1.

1.7 REQUIREMENT:

NO UNITS WILL BE INOPERATIVE FOLLOWING THE TEST AND RECOVERY CYCLE.

2. SHOCK TEST

2.1 PRECONDITIONING:

TIME - 16 HOURS
TEMPERATURE - $22^{\circ}\text{C} \pm 1^{\circ}\text{C}$
HUMIDITY - 60% MAX. R.H.

2.2 TEST CONDITIONS:

HALF-SINE IMPULSE DURATION - 100 MICROSECONDS
PEAK AMPLITUDE - 20,000 g

SPURIOUS DEVIATIONS IN THE HALF-SINE IMPULSE CURVE SHALL BE REDUCED TO WHERE RESULTS ARE NOT APPRECIABLY AFFECTS.

UNIT(S) TO BE SUBJECTED TO THE TEST CONDITIONS EITHER IN THE COVER UP OR COVER DOWN ORIENTATION.

2.3 INITIAL MEASUREMENTS:

AFTER PRECONDITIONING, MEASURE AND RECORD THE 1 kHz SENSITIVITY PER SHEET 2.1 OF THE APPLICABLE KNOWLES ELECTRONICS MICROPHONE PERFORMANCE SPECIFICATION.

2.4 TEST PROCEDURE:

STRESS UNIT(S) ACCORDING TO THE ABOVE 2.2 TEST CONDITIONS.

2.5 RECOVERY:

UNITS TO BE MEASURED IMMEDIATELY AFTER TEST CYCLE.

2.6 FINAL MEASUREMENTS:

MEASURE AND RECORD THE 1 kHz SENSITIVITY PER SHEET 2.1.

2.7 REQUIREMENT:

THE UNIT(S) SHALL SHOW A MAXIMUM CHANGE IN 1 kHz SENSITIVITY (INITIAL TO FINAL) OF 1.0 dB AS A RESULT OF THE TEST CYCLE.

| Revision | C.O. # | Implementation Date | RELEASE LEVEL | REVISION |
|---|-----------|---------------------|---------------|----------|
| | | | Released | A |
| A | M10101333 | 12-14-06 | | |
| 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 |
| KNOWLES ELECTRONICS ITASCA, ILLINOIS U.S.A. | | | LSY | 12-14-06 |
| | | | CK. BY | DATE |
| TITLE: MICROPHONE PERFORMANCE SPECIFICATION | | | EA-21972-000 | GJP |
| | | | SHT 2.2 | DATE |
| | | | APP. BY | DATE |
| | | | GJP | 12-21-06 |