

KE 4-211-2

Components | Microphone Capsule

Cat. No. 002280

General description

The KE 4-211-2 is a pre-polarised, back-electret condenser microphone capsule (pressure receiver) with integrated impedance transformer. The omni-directional capsule features a flat frequency response covering the entire audio range. Both frequency response and sensitivity have very tight tolerances and are independent of each other. The capsule diaphragm has a miniscule hole for the purpose of air pressure compensation. This hole precisely defines the frequency response from 20 Hz upwards, and ensures pressure compensation even if the capsule is built in. Except for this tiny opening, the housing seals the capsule hermetically, ensuring that it can be stored in extreme climates for long periods of time.

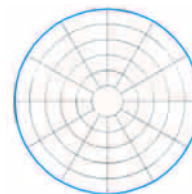


Features

- Pressure receiver
- Wide and flat frequency response
- Extremely small dimensions
- Low self-noise
- High maximum sound pressure level
- High maximum output voltage before feedback
- Extremely insensitive to handling noise and structure-borne noise
- Can be operated with low voltages

Technical Data

Transducer type	back-electret condenser capsule (pressure receiver)
Pick-up pattern.....	omni-directional
Frequency response	20 to 20,000 Hz \pm 3 dB 40 to 15,000 Hz \pm 2.5 dB
Sensitivity (free field, no load, 1 kHz)	10 mV/Pa \pm 2.5 dB - 40 dB ref 1 V/Pa \pm 2.5 dB
Phase relation of output signal (free field, no load, 1 kHz):	
Impedance transformer configuration (source follower)	non-inverting
Amplifier configuration (source circuit)	inverting
Impedance at 1 kHz.....	approx. 1 k Ω
Minimum terminating impedance	4.7 k Ω
Maximum SPL (THD _{total} K2)	130 dB (THD = 1 %), (140 dB, THD = 3 %, V > 7.5 V; R = 18 k Ω)
Equivalent noise level:	
db(A) _{rms}	27 dB
CCIR 468-2, peak value.....	38 dB
Operating voltage.....	+ 0.9 V to + 15 V
Current consumption	approx. 250 μ A
Max. output voltage/load resistance.....	2 V at THD = 3 %, V > 7.5 V; R = 18 k Ω
Storage temperature range.....	-20 °C to +70 °C
Operating temperature range	-10 °C to +50 °C
Resistance to extreme climates (storage)	up to + 40 °C and 90 % relative humidity (SNP 51)
Colour coding	green dot



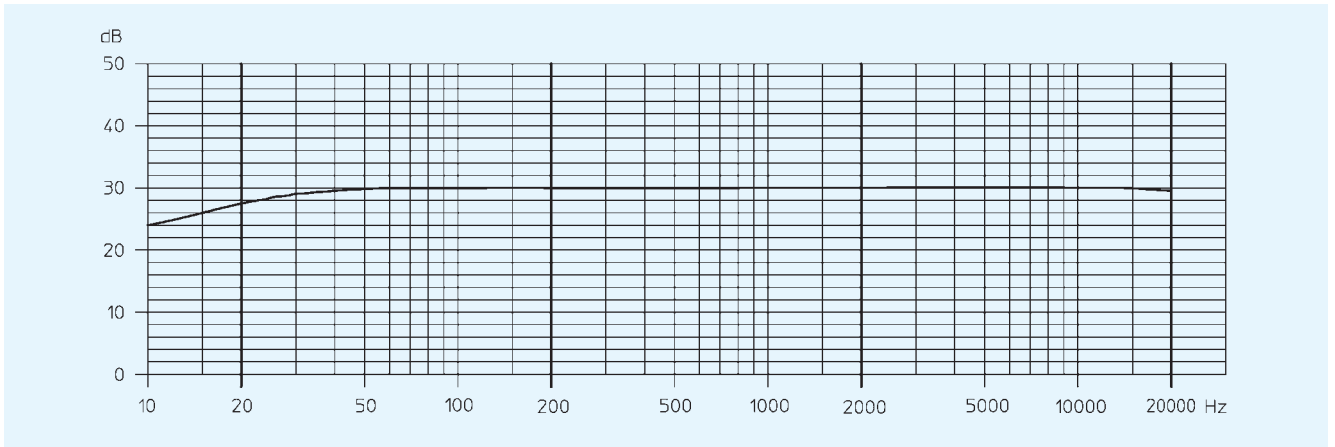
Omni-directional pick-up pattern

KE 4-211-2

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Frequency response



Source follower common drain

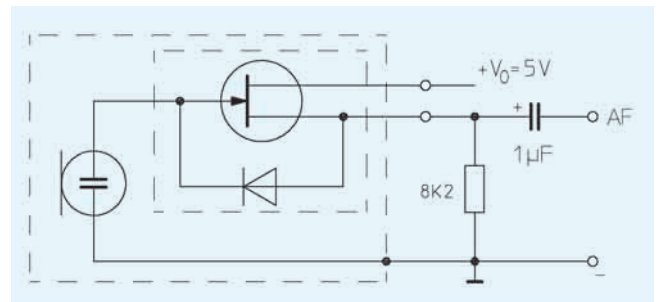
Operating voltage

1.5 V ~ 2.5 V
2.5 V ~ 5.0 V
5.0 V ~ 7.5 V
7.5 V ~ 9.0 V
9.0 V ~ 15 V

Recommended load

2.7 k Ω
5.6 k Ω
10 k Ω
18 k Ω
22 k Ω

Impedance transformer configuration

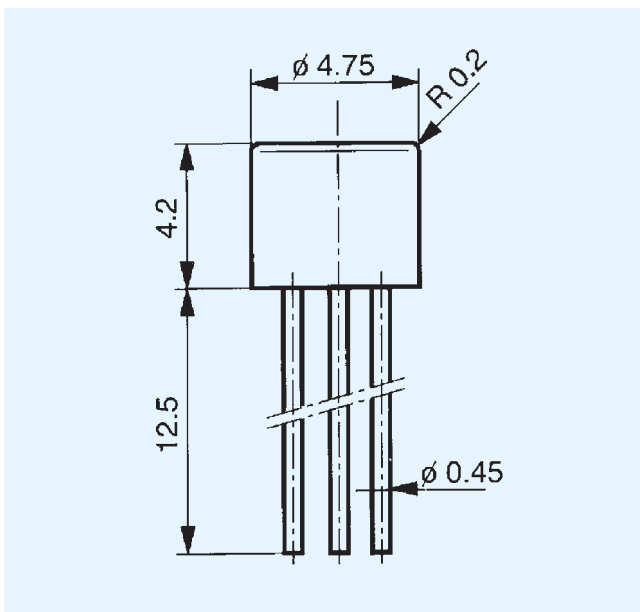


In this configuration the phasing is positive, i.e. a positive pressure impulse generates a positive output signal.

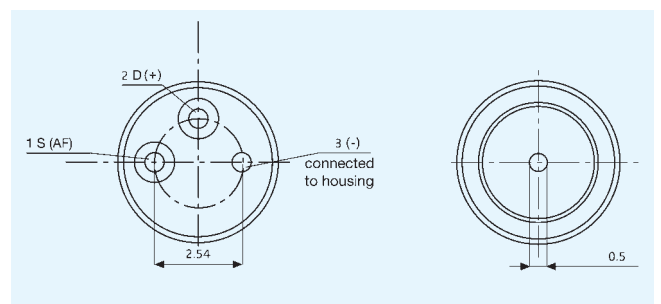
Note

If the mic capsule is to be bonded in place, please make sure to use a solvent-free adhesive such as Technical 8390/8299 or Loctite Multibond. Please pay special attention to the soldering instructions given in the appendix.

Dimensions (in mm)

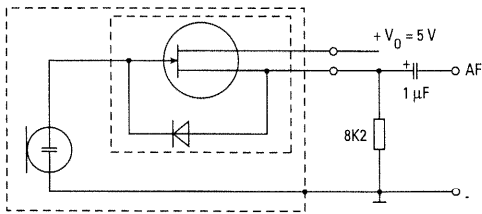


Wiring



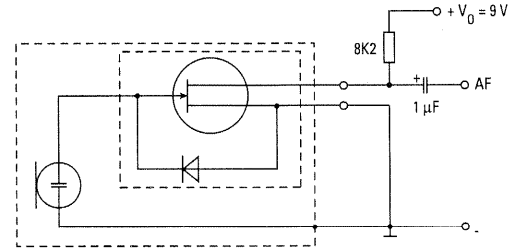
Microphone capsules

Impedance transformer configuration



In this configuration the phasing is positive, i.e. a positive pressure impulse generates a positive output signal.

Amplifier configuration



In this configuration the phasing is negative, i.e. a positive pressure impulse generates a negative output signal.

The sensitivity increases by 10 to 14 dB.

Microphone capsules

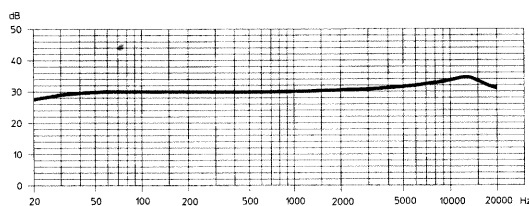
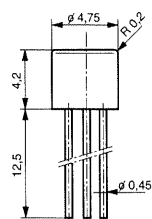
Omni-directional electret microphone capsule

KE 4-211-1

Cat. no. 02014

Features

- Especially suitable for speech
- Exceptionally compact design (TO 18 transistor size)
- Excellent frequency response
- Back electret design ensures excellent attenuation of handling noise
- Low operating voltage



Technical Data

(measured in impedance transformer circuit)

Frequency response	20 - 20,000 Hz
Sensitivity (free field, no load) (1 kHz)	10 mV/Pa ± 2.5 dB
Electrical impedance (1 kHz)	approx. 1 kΩ (V _O = 5V)
Min. terminating impedance	4.7 kΩ
Equivalent sound level	38 dB (CCIR-weighted)
Supply voltage	+ 0.9 ... 15 V
Current consumption	approx. 250 μA at V _O = 5V
Controllability	depending on operating voltage
Temperature range	storage: -20°C to +70°C operation: -10°C to +50°C
Climatic factors	up to +40°C and 90 % relative humidity (storage)

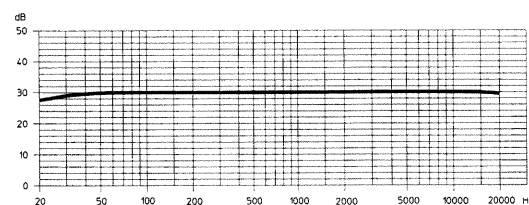
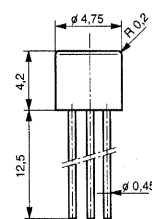
Omni-directional electret microphone capsule

KE 4-211-2

Cat. no. 02280

Features

- Capsule with extremely flat frequency response
- Exceptionally compact design (TO 18 transistor size)
- Superb frequency response
- Back electret design ensures excellent attenuation of handling noise
- Low operating voltage



Technical Data

(measured in impedance transformer circuit)

Frequency response	20 - 20,000 Hz
Sensitivity (free field, no load) (1 kHz)	10 mV/Pa ± 2.5 dB
Electrical impedance (1 kHz)	approx. 1.5 kΩ (V _O = 5V)
Min. terminating impedance	4.7 kΩ
Equivalent sound level	38 dB (CCIR-weighted)
Supply voltage	+ 0.9 ... 15 V
Current consumption	approx. 250 μA at V _O = 5V
Controllability	depending on operating voltage
Temperature range	storage: -20°C to +70°C operation: -10°C to +50°C
Climatic factors	up to +40°C and 90 % relative humidity (storage)

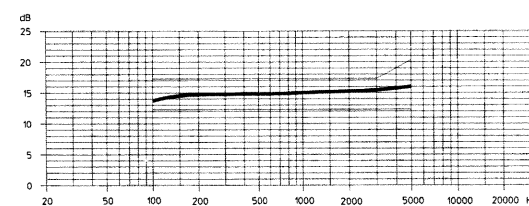
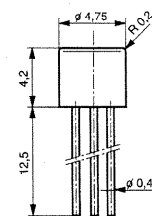
Omni-directional electret microphone capsule

KE 4-211-7

Cat. no. 03243

Features

- Capsule with restricted frequency response
- Exceptionally compact design (TO 18 transistor size)
- Back electret design ensures excellent attenuation of handling noise
- Low operating voltage



Technical Data

(measured in impedance transformer circuit)

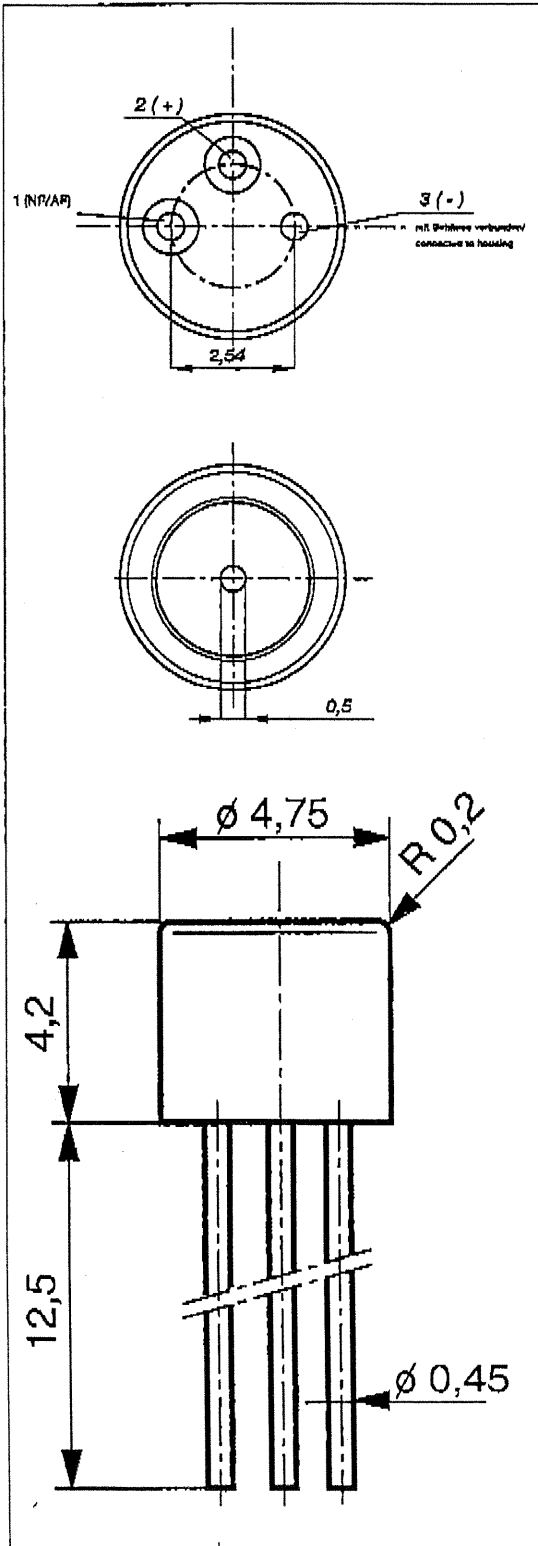
Frequency response	100 - 5,000 Hz
Sensitivity (free field, no load) (1 kHz)	10 mV/Pa ± 2.5 dB
Electrical impedance (1 kHz)	approx. 1 kΩ (V _O = 5V)
Min. terminating impedance	4.7 kΩ
Equivalent sound level	38 dB (CCIR-weighted)
Supply voltage	+ 0.9 ... 15 V
Current consumption	approx. 250 μA at V _O = 5V
Controllability	depending on operating voltage
Temperature range	storage: -20°C to +70°C operation: -10°C to +50°C
Climatic factors	up to +40°C and 90 % relative humidity (storage)

Elektret-Mikrofonkapsel

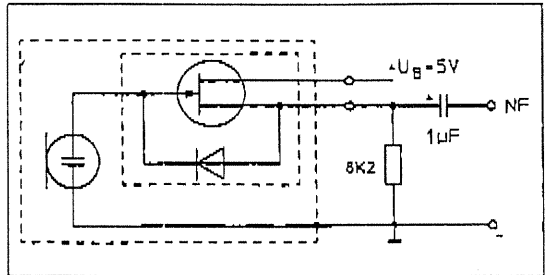
Electret microphone capsule

KE 4

Abmessungen
Dimensions (in mm)



Impedanzwandlerschaltung
Impedance transformer configuration



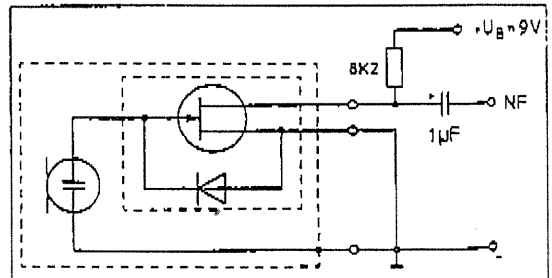
Hinweis:

In dieser Konfiguration ist die Phasenlage positiv, d.h. ein positiver Druckimpuls erzeugt ein positives gerichtetes Ausgangssignal.

Note:

In this configuration the phasing is positive, i. e. a positive pressure impulse generates a positive output signal.

Verstärkerschaltung
Amplifier configuration



Hinweis:

1. In dieser Konfiguration ist die Phasenlage negativ, d.h. ein positiver Druckimpuls erzeugt ein negativ gerichtetes Ausgangssignal.
2. Der Feldleiterlauf-Übertragungsfaktor erhöht sich um 10 bis 14 dB.

Note:

1. In this configuration the phasing is negative, i.e. a positive pressure impulse generates a negative output signal.
2. The sensitivity increases by 10 to 14 dB.