



# BETA87C

Vocal Microphone

Shure online user guide for BETA87C supercardioid electret condenser microphone.  
Version: 3.1 (2023-I)

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# BETA87C

## Vocal Microphone

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### General Description

The Shure BETA87C vocal microphone is precision-engineered to deliver an extremely smooth, extended high-end frequency response in a cardioid condenser design. The warm, natural sound creates an ideal environment for personal monitoring with excellent rear rejection.

An advanced, cartridge shock mount system, hardened steel-mesh grille, and superior build quality withstand the rigors of daily touring and sound reinforcement.

### Features

- Premier live performance microphone with Shure quality, ruggedness, and reliability
- Uniform cardioid pick-up pattern for maximum gain before feedback and excellent rejection of off-axis sound
- Smooth, wide frequency response with slight presence rise and controlled proximity effect tailored for vocals
- Advanced cartridge shock mount system absorbs mechanical shock and minimizes handling noise
- Very low susceptibility to RF and electromagnetic hum
- Dent-resistant steel mesh grille and enamel coated metal alloy construction resist wear and abuse
- Effective built-in pop filter reduces undesirable wind and breath noise

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### Applications

#### General Rules for Use

- Do not cover any part of the microphone grille with your hand, as this will adversely affect microphone performance.
- Aim the microphone toward the desired sound source (such as the talker, singer, or instrument) and away from unwanted sources.
- Place the microphone as close as practical to the desired sound source.
- Work close to the microphone for extra bass response.
- Use only one microphone to pick up a single sound source.
- For better gain before feedback, use fewer microphones.
- Keep the distance between microphones at least three times the distance from each microphone to its source (“three to one rule”).
- Place microphones as far as possible from reflective surfaces.
- Add a windscreen when using the microphone outdoors.
- Avoid excessive handling to minimize pickup of mechanical noise and vibration.

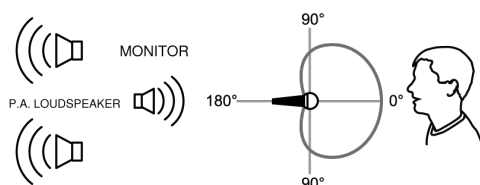
#### Applications And Placement

The following table lists the most common applications and placement techniques. Keep in mind that microphone technique is largely a matter of personal taste; there is no one “correct” microphone position.

Application	Suggested Microphone Placement	Tone Quality
Vocals	Lips less than 15 cm (6 in.) away or touching the wind-screen, on axis to microphone.	Robust sound, emphasized bass, maximum isolation from other sources.
	<b>15 to 60 cm (6 in. to 2 ft.) away from mouth, just above nose height.</b>	Natural sound, reduced bass.
	<b>20 to 60 cm (8 in. to 2 ft.) away from mouth, slightly off to one side.</b>	Natural sound, reduced bass and minimal "s" sounds.
	<b>90 cm to 1.8 m (3 to 6 ft.) away.</b>	Thinner, distant sound; noticeable levels of ambient noise.

## Avoiding Pickup of Unwanted Sound Sources

Place the microphone so that unwanted sound sources, such as monitors and loudspeakers, are directly behind it. To minimize feedback and ensure optimum rejection of unwanted sound, always test microphone placement before a performance.



**Recommended Loudspeaker Locations for Cardioid Microphones**

## Proximity Effect

Unidirectional (cardioid) microphones progressively boost bass frequencies by 6 to 10 dB below 100 Hz when the microphone is at a distance of about 6 mm (1/4 in.) from the sound source. This phenomenon, known as proximity effect, can be used to create a warmer, more powerful sound. To prevent explosive low frequency sound during close-up use, the bass response gradually rolls off. This provides greater control and helps the user take advantage of proximity effect.

## Power Requirements

This microphone requires phantom power and performs best with a 48 Vdc supply (IEC-61938). However, it will operate with slightly decreased headroom and sensitivity with supplies as low as 11 Vdc.

Most modern mixers provide phantom power. You must use a **balanced** microphone cable: XLR-to-XLR.

# Specifications

## Type

Electret Condenser

## Frequency Response

50 to 16,000 Hz

## Polar Pattern

Cardioid

## Output Impedance

100  $\Omega$

## Sensitivity

*at 1kHz, open circuit voltage*

-51 dBV/Pa(2 mV) [1]

## Maximum SPL

*1 kHz at 1% THD, 1 k $\Omega$  load*

139 dB

## Signal-to-Noise Ratio

70.5 dB

## Dynamic Range

*at 1kHz, 1 k $\Omega$  load*

117 dB

## Clipping Level

*1 kHz at 0.25% THD, 1 k $\Omega$  load*

-6 dBV(0.5 V)

## Self Noise

*typical, equivalent SPL, A-weighted*

22 dB

## Hum Pickup

*typical, at 60 Hz, equivalent SPL/mOe*

-5 dB

## Polarity

Positive pressure on diaphragm produces positive voltage on pin 2 with respect to pin 3

## Weight

0.207 kg(0.475 lbs)

## Connector

Three-pin professional audio (XLR), male, balanced

## Housing

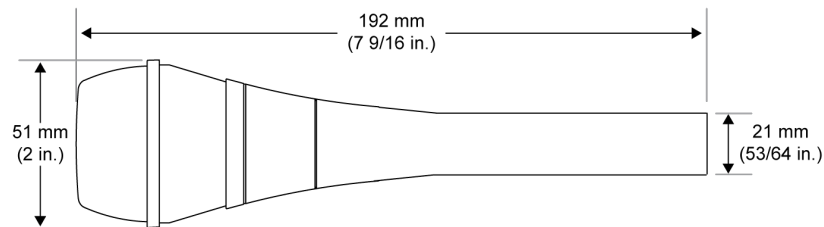
Aluminum construction with painted blue metallic finish, and hardened steel grille with nickel satin chrome plating

## Power Requirements

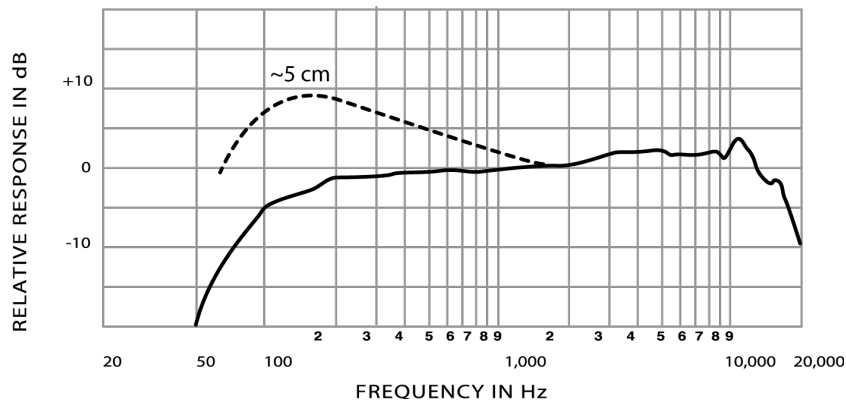
11 to 52 V DC phantom power(1.2 mA)

[1] 1 Pa=94 dB SPL

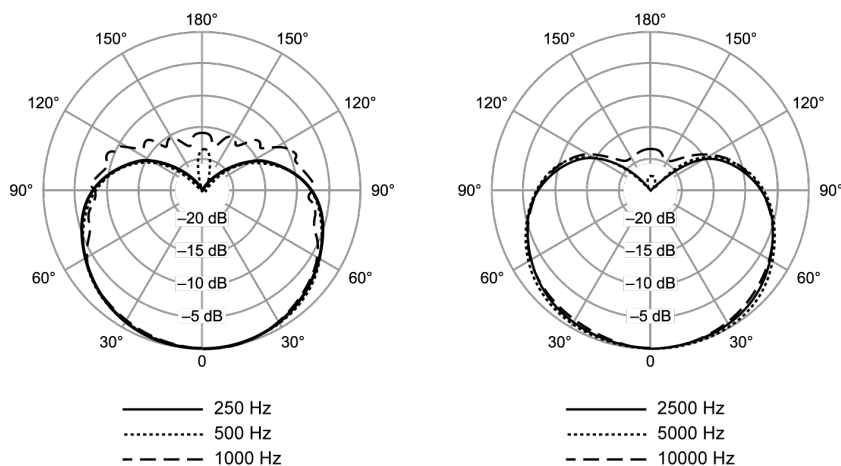
[2] S/N ratio is difference between 94 dB SPL and equivalent SPL of self noise, A-weighted



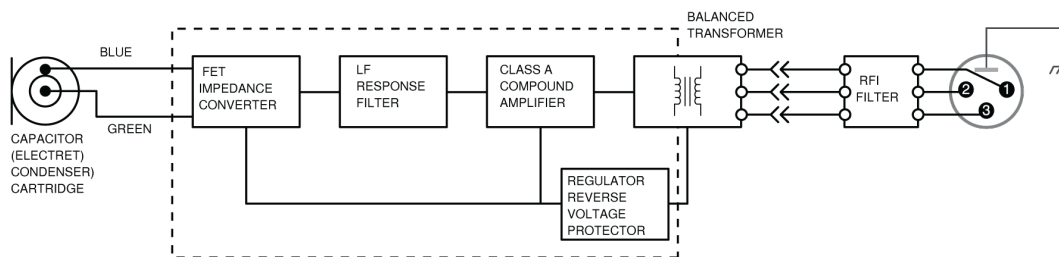
Overall Dimensions



Typical Frequency Response



Typical Polar Pattern



BLOCK DIAGRAM

## Accessories

### Furnished Accessories

Microphone Clip for SM58, SM57, SM87A, BETA87A, BETA87C, PGA57, PGA58, PGA48, PGA81	A25D
Zippered Carrying Bag	95A2314

### Optional Accessories

Shock Stopper® Isolation Mount	A55HM
Black Foam Windscreen for KSM8, SM85, SM86, SM87A, BETA87A, and BETA87C	A85WS
25 foot (7.5m) Triple-Flex® Microphone XLR Cable with chrome connectors	C25F

### Replacement Parts

Grille for Wired and Wireless BETA87, BETA87A and BETA87C	RK312
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<b>Cartridge for BETA87C</b>	RPM118
<b>Plug (Connector) Assembly</b>	90J1984

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## Certifications

### CE Notice

Hereby, Shure Incorporated declares that this product with CE Marking has been determined to be in compliance with European Union requirements.

The full text of the EU declaration of conformity is available at the following site: <https://www.shure.com/en-EU/support/declarations-of-conformity>.

### UKCA Notice

Hereby, Shure Incorporated declares that this product with UKCA Marking has been determined to be in compliance with UKCA requirements.

The full text of the UK declaration of conformity is available at the following site: <https://www.shure.com/en-GB/support/declarations-of-conformity>.

The CE Declaration of Conformity can be obtained from: [www.shure.com/europe/compliance](http://www.shure.com/europe/compliance)

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