

# STAR MICRONICS

## ★ Audio Components Catalog

**Magnetic Sounders**

**Microphones**

**Balanced Armature Receivers**

**Dynamic Receivers**

**Dynamic Speakers**



**star**★  
®

## About Us

### Star Micronics America, Inc. Audio Components Catalog

Star Micronics America, Inc. is a global manufacturer of precision electronic audio components. Over 50 years of experience in design and manufacturing has enabled Star to create a broad portfolio of high quality and innovative products. Star Micronics audio components include:

- transducers
- speakers
- microphones
- and receivers

These products are used in applications such as:

- automotive
- wireless communications
- medical instrumentation
- test equipment
- alarms
- computer peripherals
- appliances
- and general industrial hardware

For more information, contact Star Micronics America, Inc. at 800-782-7636 x109 or [audiosales@starmicronics.com](mailto:audiosales@starmicronics.com).

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## Magnetic Sounders- External Drive Circuit (Surface Mount & Through Hole)

Star Micronics Magnetic Sounders are world renown for their unmatched quality and performance. This reputation for excellence has allowed Star Micronics to grow into the leading supplier of chimes to the automotive industry as well as a leader in many other applications from medical equipment to HMI devices. The external drive circuit design enables our customers to have complete freedom in how they drive Star sounders through their own custom drive circuits. With both surface mount and through-hole mount sounders available in every specification combination available Star is able to provide a product that is ideal for any application.

### Through Hole Mount - External Drive Circuit

| Model Picture                                                                       | Model Name    | Dimensions (mm) | Rated Voltage (V) | Operating Voltage (V) | Rated Frequency (Hz) | Min SPL (dB) (at 10cm) | Mean Current Consumption (mA) <Max> | Operating Temperature (°C) | Mass (g) |
|-------------------------------------------------------------------------------------|---------------|-----------------|-------------------|-----------------------|----------------------|------------------------|-------------------------------------|----------------------------|----------|
|    | HGP-05AM      | Ø 16 x 12       | 5 V               | 3- 8 V                | 2000                 | 85                     | 70                                  | -40 to 90                  | 4        |
|    | HGP-12AM-A3.2 | Ø 16 x 12       | 12 V              | 6-15 V                | 2000                 | 85                     | 50                                  | -40 to 90                  | 4        |
|    | PMX-04A       | Ø 12 x 7.5      | 1.5 V             | 1-2 V                 | 2048                 | 80                     | 70                                  | -20 to 60                  | 2        |
|    | PMX-04B       | Ø 12 x 7.5      | 1.5 V             | 1-2 V                 | 2731                 | 85                     | 70                                  | -20 to 60                  | 2        |
|   | PMX-04CSY     | Ø 12 x 7.5      | 5 V               | N/A                   | 2731                 | 88                     | 70                                  | -20 to 60                  | 2        |
|  | QCP-03A       | Ø 9 x 4.5       | 3.6 V             | 1-4.3 V               | 2670                 | 85                     | 90                                  | -30 to 60                  | 1        |
|  | QFP-03A       | Ø 14 x 5        | 3 V               | 1-4 V                 | 2000                 | 85                     | 35                                  | -20 to 60                  | 2        |
|  | QMB-01 S/L    | Ø 16 x 22.2     | 1.5 V             | 1-3 V                 | 2048                 | 80                     | 15                                  | -30 to 85                  | 7        |
|  | QMB-06 S/L    | Ø 16 x 14       | 6 V               | 3-12 V                | 2048                 | 85                     | 40                                  | -40 to 85                  | 7        |
|  | QMB-12 S/L    | Ø 16 x 14       | 12 V              | 6-18 V                | 2048                 | 85                     | 40                                  | -40 to 100                 | 7        |
|  | QMB-06A S/L   | Ø 16 x 22.2     | 6 V               | 3-12 V                | 2048                 | 85                     | 40                                  | -40 to 85                  | 7        |
|  | QMB-105PX     | Ø 12 x 5.4      | 1.5 V             | 1-2 V                 | 2048                 | 70                     | 10                                  | -20 to 60                  | 2        |
|  | QMB-108P      | Ø 12 x 7.5      | 1.5 V             | 1-2 V                 | 2743                 | 85                     | 60                                  | -20 to 60                  | 1.6      |
|  | QMB-113P      | Ø 12 x 13       | 1.5 V             | 1-2 V                 | 2048                 | 80                     | 35                                  | -20 to 60                  | 2        |
|  | QMB-111PC     | Ø 12 x 8.5      | 5 V               | 1-5 V                 | 2000                 | 85                     | 40                                  | -20 to 60                  | 2        |
|  | QMB-111PXI    | Ø 12 x 8.5      | 1.5 V             | 1-4 V                 | 2048                 | 80                     | 10                                  | -20 to 60                  | 2        |



## Through Hole Mount - External Drive Circuit

| Model Picture | Model Name        | Dimensions (mm) | Rate Voltage (V) | Operating Voltage (V) | Rated Frequency (Hz) | Min SPL (dB) (at 10cm) | Mean Current Consumption (mA) <Max> | Operating Temperature (°C) | Mass (g) |
|---------------|-------------------|-----------------|------------------|-----------------------|----------------------|------------------------|-------------------------------------|----------------------------|----------|
|               | QMB-111PXN        | Ø 12 x 8.5      | 1.5 V            | 1-2 V                 | 2048                 | 80                     | 10                                  | -20 to 60                  | 2        |
|               | QMB-12S/V3.3 N/L* | Ø 16 x 14       | 12 V             | 6-18 V                | 2048                 | 85                     | 40                                  | -40 to 100                 | 7        |
|               | QMX-05            | Ø 12 x 9        | 5 V              | 3-8 V                 | 2400                 | 85                     | 40                                  | -40 to 85                  | 2        |
|               | QMX-12            | Ø 12 x 9        | 12 V             | 6-5 V                 | 2400                 | 85                     | 49                                  | -40 to 85                  | 2        |
|               | RMX-06            | Ø 16 x 14       | 6 V              | 3-12 V                | 2048                 | 85                     | 40                                  | -40 to 85                  | 5        |
|               | RMX-12Y           | Ø 16 x 14       | 12 V             | 6-18 V                | 2048                 | 85                     | 40                                  | -40 to 85                  | 5        |
|               | SMX-01            | 14 x 18 x 11    | 1.5 V            | 1-3 V                 | 2048                 | 80                     | 40                                  | -30 to 80                  | 3.5      |
|               | SMX-06            | 14 x 18 x 11    | 6 V              | 3-10 V                | 2048                 | 85                     | 40                                  | -40 to 85                  | 3.5      |
|               | TMX-06            | Ø 25 x 12.5     | 5 V              | 3-5 V                 | 730                  | 85                     | 80                                  | -40 to 85                  | 9        |
|               | TMX-06S           | Ø 25 x 12.5     | 6 V              | 3-8 V                 | 1000                 | 85                     | 75                                  | -40 to 85                  | 9        |
|               | TMX-12SA3 N/L     | Ø 25 x 12.5     | 12 V             | 8-14 V                | 1000                 | 85                     | 55                                  | -40 to 85                  | 9        |
|               | TMX-12SA-REF      | Ø 25 x 13.5     | 14 V             | 9-16 V                | 1000                 | 85                     | 60                                  | -40 to 85                  | 9        |
|               | TMX-12SC-REF      | Ø 25 x 13.5     | 14 V             | 9-16 V                | 1000                 | 85                     | 60                                  | -40 to 85                  | 9        |
|               | TMX-12F N/L       | Ø 25 x 18       | 12 V             | 8-16 V                | 850                  | 95                     | 40                                  | -30 to 80                  | 9        |
|               | TMX-05H N/L       | Ø 25 x 12.5     | 5 V              | 1-6 V                 | 1500                 | 104                    | 80                                  | -40 to 85                  | 9        |
|               | TMX-12H N/L*      | Ø 25 x 12.5     | 12 V             | 8-16 V                | 1500                 | 104                    | 55                                  | -40 to 85                  | 9        |
|               | WMX-05Y           | Ø 25 x 12.5     | 3.2 V (5 V)      | 1-4 V (1-6 V)         | 800 (1613)           | 85 (80)                | 60 (80)                             | -40 to 85                  | 9        |

\* also available with wash label



## Surface Mount - External Drive Circuit

| Model Picture                                                                       | Model Name  | Dimensions (mm)   | Sound Port Location | Rated Voltage (V) | Operating Voltage (V) | Rated Frequency (Hz) | Min SPL(dB) (at 10cm) | Mean Current Consumption (mA) <Max> | Operating Temperature (°C) | Mass (g) |
|-------------------------------------------------------------------------------------|-------------|-------------------|---------------------|-------------------|-----------------------|----------------------|-----------------------|-------------------------------------|----------------------------|----------|
|    | MLT-03CHN   | 10.25 x 8.5 x 3.0 | Side Sound Channel  | 3.6 V             | 1-4.5 V               | 3000                 | 107                   | 100                                 | -30 to 70                  | 0.5      |
|    | MLT-03GC    | 8.5 x 8.5 x 4     | Side                | 3.6 V             | 1-4.5 V               | 2700                 | 103                   | 100                                 | -30 to 70                  | 0.5      |
|    | MLT-03HH    | 8.5 x 8.5 x 4     | Top                 | 3.6 V             | 1-4.5 V               | 3000                 | 102                   | 100                                 | -30 to 70                  | 0.5      |
|    | MNT-03A     | 9 x 9 x 4.5       | Top                 | 3.6 V             | 1-4.5 V               | 2670                 | 85                    | 90                                  | -30 to 70                  | 0.7      |
|    | MQT-03F     | 8.5 x 8.5 x 3.2   | Top                 | 3 V               | 1-4.5 V               | 2670                 | 87                    | 80                                  | -30 to 70                  | 0.4      |
|    | MUT-01A     | 11 x 14 x 3       | Side                | 1.5 V             | 1.2-1.7 V             | 3200                 | 85                    | 65                                  | -20 to 70                  | 1        |
|    | MUT-03A     | 11 x 14 x 3       | Side                | 3 V               | 1-4.5 V               | 3200                 | 87                    | 70                                  | -20 to 70                  | 1        |
|    | MZT-03A-BLK | 10 x 12 x 2       | Top                 | 3.6 V             | 0.7-4.2 V             | 2670                 | 83                    | 70                                  | -30 to 70                  | 0.5      |
|   | NAT-12V     | 15 x 17 x 12      | Top                 | 12 V              | 8-14 V                | 2000                 | 90                    | 75                                  | -40 to 85                  | 3        |
|  | NFT-03C     | 5.0 x 5.0 x 3.0   | Top                 | 3 V               | Max 4 V               | 4000                 | 84                    | 100                                 | -30 to 70                  | 0.3      |
|  | NFT-03D     | 5.0 x 5.0 x 2.0   | Top                 | 3 V               | Max 4 V               | 4500                 | 78                    | 110                                 | -30 to 70                  | 0.3      |



## Magnetic Sounders- Internal Drive Circuit

With Star Micronics internal drive circuit magnetic sounders no external circuitry is required for operation. Star's HMB and TMB series have the drive circuitry built in and are DC operated making them easy and cost effective to design into applications where only simple tones are required.

| Model Picture                                                                     | Model Name | Dimensions (mm) | Connection Type | Rated Voltage (VDC) | Operating Voltage (VDC) | Rated Frequency (Hz) | Min SPL (dB) (at 10cm) | Mean Current Consumption (mA) <Max> | Operating Temperature (°C) | Mass (g) |
|-----------------------------------------------------------------------------------|------------|-----------------|-----------------|---------------------|-------------------------|----------------------|------------------------|-------------------------------------|----------------------------|----------|
|  | HMB-06     | Ø 16 x 14       | Pins            | 6 VDC               | 4-7 VDC                 | 2200                 | 85                     | 30                                  | -40 to 85                  | 5        |
|  | HMB-12     | Ø 16 x 14       | Pins            | 12 VDC              | 8-16 VDC                | 2200                 | 85                     | 30                                  | -40 to 85                  | 5        |
|  | TMB-05     | Ø 12 x 9.5      | Pins            | 5 VDC               | 4-6.5 VDC               | 2300                 | 85                     | 30                                  | -40 to 85                  | 2        |
|  | TMB-12     | Ø 12 x 9.5      | Pins            | 12 VDC              | 8-16 VDC                | 2300                 | 85                     | 30                                  | -40 to 85                  | 2        |

## Microphones

Star Micronics designs and manufactures high performance back electret condenser microphones in very small sizes (as small as 3mm) which are ideal for applications where space is critical such as mobile phones and headsets. Many contact methods such as lead wire, spring, and surface mount are available. Our MAB-03A-T-D1 microphone was the first mass produced electret microphone with digital output available in the market and represents the cutting edge of microphone design. It is ideal for microphone array applications and applications where antenna interference is a concern.

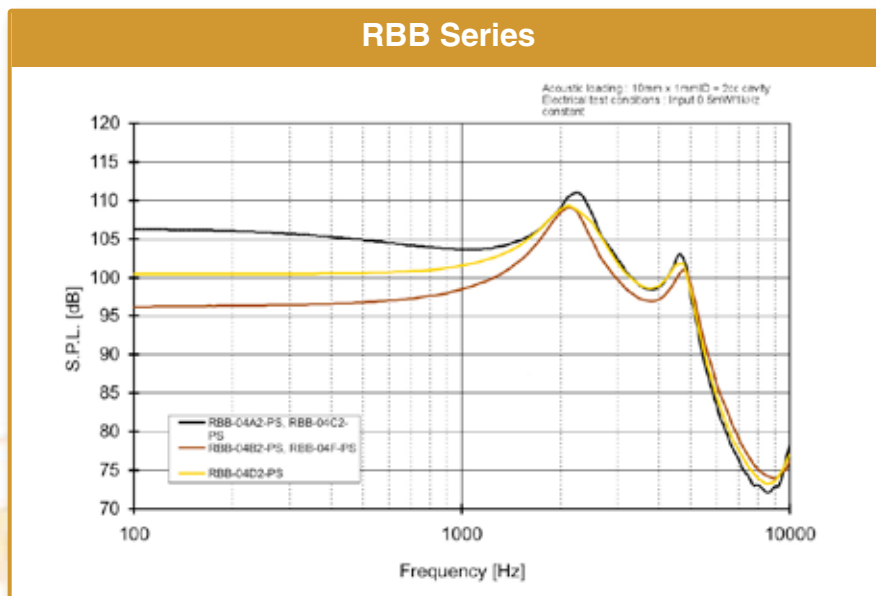
| Model Picture                                                                       | Model Name    | Dimensions (mm) | Directionality | Connection Type | Rated Input (V) | Operating Voltage (V) | Sensitivity (dB) | Current Consumption (µA) | Operating Temperature (°C) | Mass (g) |
|-------------------------------------------------------------------------------------|---------------|-----------------|----------------|-----------------|-----------------|-----------------------|------------------|--------------------------|----------------------------|----------|
|  | MAA-03A-L60-B | Ø 3.0 x 1.5     | Omni           | Wire Leads      | 2 V             | 1-10 V                | -44              | 500 µA                   | -30 to 70                  | < 0.5    |
|  | MAA-03D-L19   | Ø 3.0 x 1.5     | Bi             | Wire Leads      | 2 V             | 1-10 V                | -44              | 500 µA                   | -30 to 70                  | < 0.2    |
|  | MAC-04B-L30-1 | Ø 4.8 x 3.0     | Omni           | Wire Leads      | 2 V             | 1-10 V                | -42              | 500 µA                   | -30 to 70                  | < 0.2    |
|  | MAC-04B-SA    | Ø 5 x 2.7       | Omni           | Coil Springs    | 2 V             | 1.1 -10 V             | -42              | 500 µA                   | -30 to 70                  | < 0.3    |
|  | EBA-06G-L18-2 | Ø 6 x 2         | Uni            | Wire Leads      | 4.4 V           | 1-10 V                | -48              | 500 µA                   | -30 to 75                  | < 0.5    |

## Balanced Armature Receivers

Star Micronics is one of the only companies in the world producing balanced armature receivers. Star Micronics uses our experience in automation and acoustic design to engineer extremely high fidelity balanced armature receivers which are ideal for applications such as high end in-ear headphones and hearing aids where sound quality is critical.

| Model Name                                                                        | Model Name  | Dimensions (mm) | Sound Spout (Yes/No) | Sensitivity (dB)<br>(2cc coupler [HA-1]) | Impedance ( $\Omega$ ) | Operating Temperature ( $^{\circ}\text{C}$ ) | Mass (g) |
|-----------------------------------------------------------------------------------|-------------|-----------------|----------------------|------------------------------------------|------------------------|----------------------------------------------|----------|
|  | RBB-04A2-PS | 4.3 x 5.6 x 2.8 | No                   | 104                                      | 400                    | 10 to 40                                     | < 0.3    |
|  | RBB-04B2-PS | 4.3 x 5.6 x 2.8 | No                   | 102.5                                    | 33                     | -10 to 60                                    | < 0.3    |
|  | RBB-04C2-PS | 4.3 x 5.6 x 2.8 | Yes                  | 104                                      | 400                    | 10 to 40                                     | < 0.3    |
|  | RBB-04D2-PS | 4.3 x 5.6 x 2.8 | No                   | 103.5                                    | 15.5                   | 10 to 40                                     | < 0.3    |
|  | RBB-04F-PS  | 4.3 x 5.6 x 2.8 | Yes                  | 98.5                                     | 33                     | 10 to 40                                     | < 0.3    |

SPL Curve - Balanced Armature Receiver



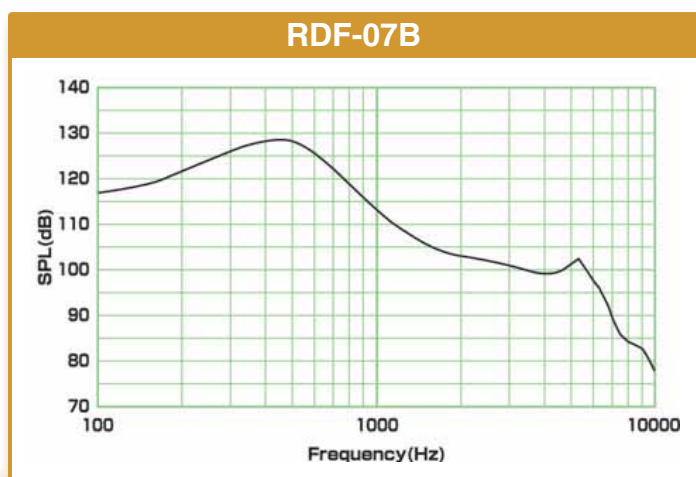


## Dynamic Receivers

Star Micronics manufactures small-sized, high performance dynamic receivers demanded by today's handheld devices. Similar to a dynamic speaker but designed to be placed close to the ear Star's dynamic receivers can be found in millions of mobile phones all over the world. Our RDF-07B dynamic receiver is the latest in Star's receiver line-up and features a multiple material, soft side diaphragm which delivers unparalleled frequency response.

| Model Picture                                                                     | Model Name | Dimensions (mm)    | Connection Type | Rated Input (mW) | Max Input (mW) | Resonance Frequency (Hz) | Min SPL (dB) (B&K4185 Coupler) | Impedance ( $\Omega$ ) | Operating Temperature ( $^{\circ}\text{C}$ ) | Mass (g) |
|-----------------------------------------------------------------------------------|------------|--------------------|-----------------|------------------|----------------|--------------------------|--------------------------------|------------------------|----------------------------------------------|----------|
|  | RDF-07B    | 7.4 x 10.86 x 2.25 | Coil Springs    | 5 mW             | 10 mW          | 487                      | 113.5                          | 32                     | -30 to 70                                    | 0.4      |

SPL Curves - Dynamic Receivers



## Dynamic Speakers

Star Micronics continuously defines the cutting edge of small sized speaker design and performance. Whether it is Star's small sized speakers for automotive applications or the even smaller sized speakers for the mobile phone industry Star Micronics is recognized worldwide as a leader in speaker quality and performance. Our SAC-30 series is the leading 30 millimeter speaker used by the automotive industry for instrument clusters and other alert applications. With our broad dynamic speaker portfolio Star Micronics offers products that are ideal for a wide array of applications such as medical equipment, computers, portable test equipment and many others.

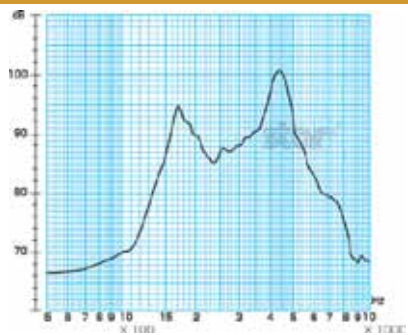
| Model Picture                                                                       | Model Name         | Dimensions (mm)        | Connection Type           | Rated Input (W) | Max Input (W) | Resonance Frequency (Hz) | Min SPL (dB) (at 10cm) | Impedance ( $\Omega$ ) | Operating Temperature ( $^{\circ}\text{C}$ ) | Mass (g) |
|-------------------------------------------------------------------------------------|--------------------|------------------------|---------------------------|-----------------|---------------|--------------------------|------------------------|------------------------|----------------------------------------------|----------|
|    | NCT-03B            | 15 x 15 x 4            | Surface Mount             | 0.2 W           | 0.4 W         | 1800                     | 95                     | 8                      | -30 to 70                                    | 1.6      |
|    | NDT-03C            | 15 x 15 x 4            | Surface Mount             | 0.5 W           | 0.8 W         | 800                      | 90                     | 8                      | -30 to 85                                    | 1.6      |
|    | SAE-20A*           | 20 x 20 x 4.5          | Surface Mount             | 0.5 W           | 0.8 W         | 850                      | 93                     | 8                      | -40 to 85                                    | 3.0      |
|    | SAC-30A-45-MC-3.7* | $\varnothing$ 32 x 15  | Pins w/ Snap Mount        | 0.2 W           | 0.4 W         | 500                      | 86                     | 45                     | -40 to 105                                   | 8.3      |
|    | SAC-30C-45-L70*    | $\varnothing$ 34 x 7   | Lead Wires with Connector | 0.2 W           | 0.4 W         | 500                      | 86                     | 45                     | -40 to 105                                   | 8.3      |
|   | SCB-13A            | $\varnothing$ 13 x 2.5 | Leaf Spring               | 0.15 W          | 0.4 W         | 1050                     | 85                     | 8                      | -30 to 70                                    | 0.9      |
|  | SCG-16A            | $\varnothing$ 16 x 3   | Solder Pads               | 0.3 W           | 0.5 W         | 780                      | 92.5                   | 8                      | -30 to 70                                    | 1.2      |
|  | SCG-16B-LS         | $\varnothing$ 16 x 3   | Leaf Spring               | 0.3 W           | 0.5 W         | 780                      | 92.5                   | 8                      | -30 to 70                                    | 1.3      |
|  | SCM-09C-J          | 9 x 18 x 3.4           | Solder Pads               | 0.4 W           | 0.6 W         | 950                      | 91.5                   | 8                      | -30 to 70                                    | 0.9      |

\* automotive grade speakers

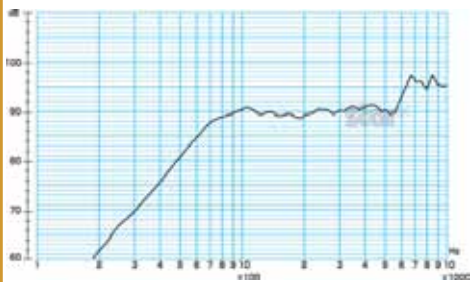


## SPL Curves - Dynamic Speakers

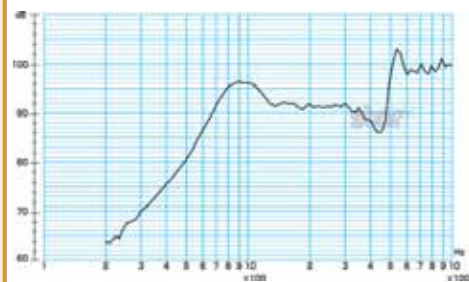
**NCT-03B**



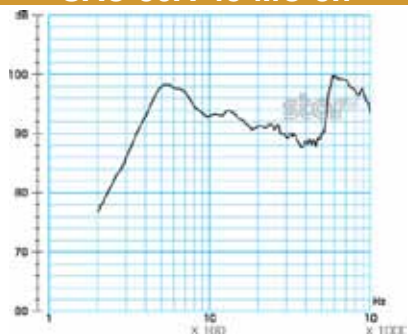
**NDT-03C**



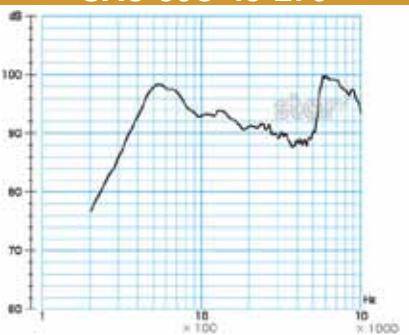
**SAE-20A**



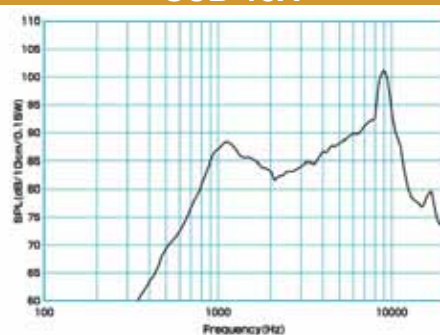
**SAC-30A-45-MC-3.7**



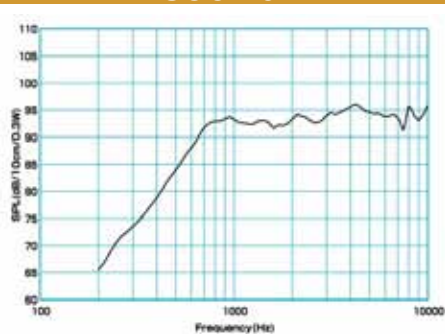
**SAC-30C-45-L70**



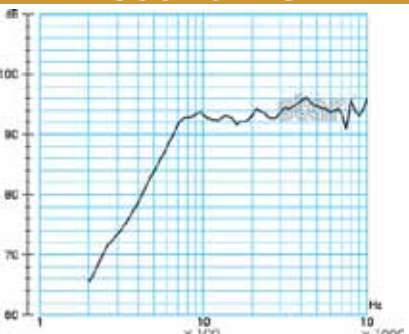
**SCB-13A**



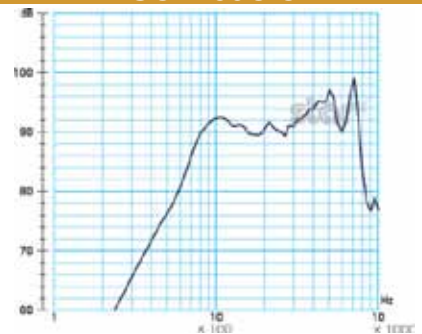
**SCG-16A**



**SCG-16B-LS**



**SCM-09C-J**





Star Micronics America, Inc.  
1150 King Georges Post Road  
Edison, NJ 08837  
Phone: 1-800-782-7636  
Fax: 732-623-5590

Star Micronics America, Inc.  
10 North Martingale Road, Suite 400  
Schaumburg, IL 60173  
Phone: 1-800-782-7636  
audiosales@starmicronics.com