Product Summary

❯❯ Description

AMCA series amorphous choke cores are the ideal solutions for implementing noise suppression chokes that is generating from alternator, engine and ignition in car audio and car navigation systems. The AMCA series chokes are manufactured with thin gauge iron-based amorphous alloy. This thin gauge ribbon offers a better frequency characteristics up to 1 MHz than conventional materials like EI type silicon steel. Overall the audible frequency ranges, the inductance shows a nearly constant. This type of iron-based amorphous alloys offer several properties and/or property combinations that are not paralleled by other competing material such as silicon steel.

The geometrical shape of toroid offers a lowest spatial magnetic leakage flux densities around the choke core. Therefore, it can be easily mounted on car audio and/or car navigation circuit boards since these type of amorphous chokes are available in pin-type configurations. When the audio system is under the state of low output power and low sound density, the inductance of the choke is too low, the signal-to-noise ratio goes small. In this case it can be easily hear the unwanted sound noise from the system.

AMOSENSE new launched AMCA series chokes shows high inductances even at high DC biasing current. So, it can be offer a good design solutions to eliminate the alternator noise in car audio and car navigation systems. Significant component size reduction is achieved using AMCA series noise suppression chokes for automobile audio/navigation systems.

❯❯ Feature

- *Toroidal shape without gap, therefore it have a lowest magnetic leakage flux density.*
- *Designable smaller/lighter component size/weight than EI choke core*
- *Designable in pin-type SMD components*
- *Higher inductance at low alternator speed*
- *Lower inductance at medium/high alternator speed*
- *Optimized S/N ratio in all power ranges*
- *Superior frequency characteristics than EI choke*
- *Offer a good solutions for high frequency harmonic noises*
- *Higher impulse attenuation properties*
- *Lower DC resistance*
- *UL94-V0 compliant & UL746-B compliant*

❯❯ Application

- *Noise preventive use for alternator superposed to automobile mounting equipment such as car audio/navigation system*
- *LC filter choke for reduction of engine noise*
- *Normal mode choke for anti-EMI measurement*
- *Radio power system*
- *Smoothing chokes for switch-mode power supplies*
- *Impulse noise preventive use in DC power line of automobile*
- *Impulse noise preventive use in general purpose power supplies*

Standard Core Dimensions & Specifications

Part No.	Finished Core (mm)[1]			L_{eff} [2] (mm)	A_{eff} [3] (mm^2)	V_{eff} [4] (mm^3)	W_a [5] (mm^2)	A_L [6] (μH)	μ [7]
	OD	ID	HT						
AMCA-11S-N	12.4	5.5	6.7	27.8	8.5	240	24	0.142	370
AMCA-12S-N	14.0	6.6	6.3	31.0	8.1	255	34	0.092	300
AMCA-15B-N	16.7	7.7	6.6	36.9	13.5	509	47	0.118	260
AMCA-16C-N*	17.2	6.8	4.2	36.3	10.2	385	36	0.250	740
AMCA-18B-N	20.0	8.7	12.0	44.7	31.5	1435	59	0.280	320
AMCA-18C-N	19.7	9.4	9.5	44.7	25.2	1148	69	0.602	850
AMCA-18A-N**	20.0	8.7	12.0	44.7	31.5	1435	59	0.785	890
AMCA-19B-N***	20.8	8.3	6.6	44.1	16.6	892	54	0.340	630
AMCA-20S-N	22.0	10.7	11.8	49.2	36.0	1810	90	0.960	1050

Notes :

1) The finished core dimentions shows a nominal ones. Tolerance is ±0.2mm.

2) Nominal values of magnetic path length.

3) Nominal values of cross-section area.

4) Nominal values of volume.

5) Nominal values of window area.

6) Typical value. Tolerance is ±25% of its initial A_L value of each. Initial nominal inductance at 1kHz, 1V_{OSC} and room temperature.

**AMCA-16C-N have a tolerance of +39% and -25% of its typical A_L value.*

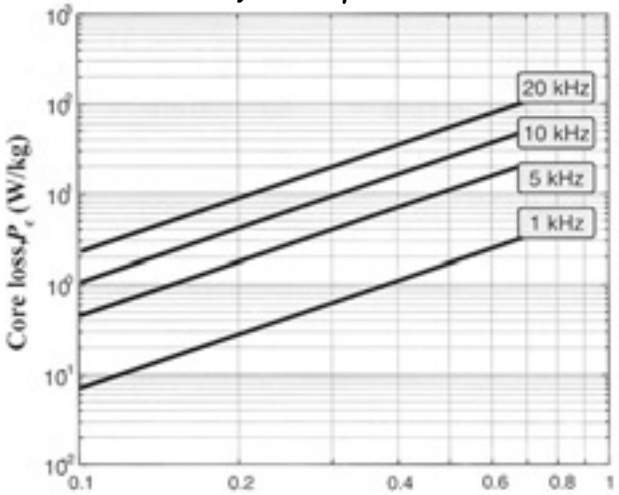
***AMCA-18A-N have a tolerance of +30% and -20% of its typical A_L value.*

****AMCA-19B-N have a tolerance of +35% and -20% of its typical A_L value.*

7) Typical permeability of each part number. The permeability can change to improve the characteristics without notice.

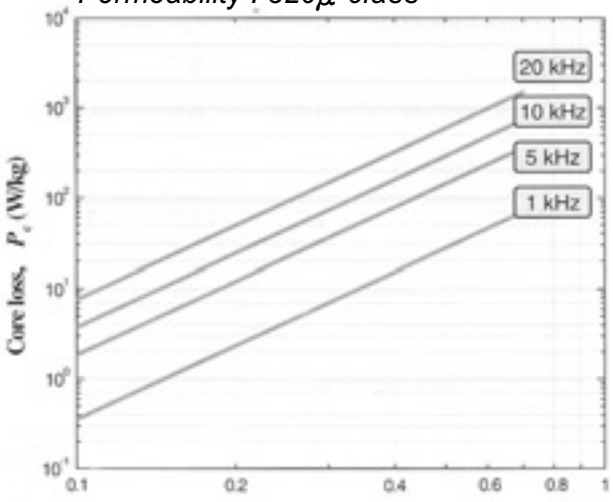
Typical Hysteresis Loss with Permeability, P_c (f, μ)

Permeability : 1000μ class



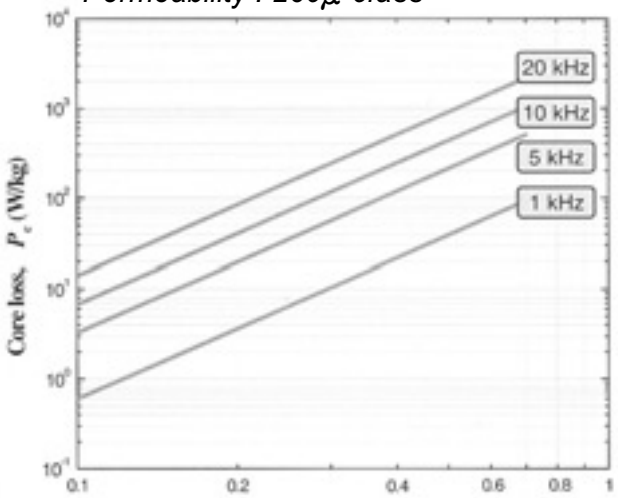
Magnetic flux density swing, B (T)

Permeability : 320μ class



Magnetic flux density swing, B (T)

Permeability : 260μ class



Magnetic flux density swing, B (T)

Notes :

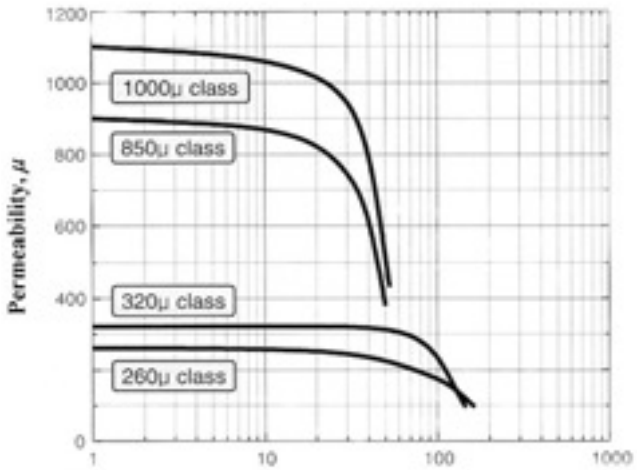
** Hysteresis losses are measured at room temperature, 25℃ ± 3℃.*

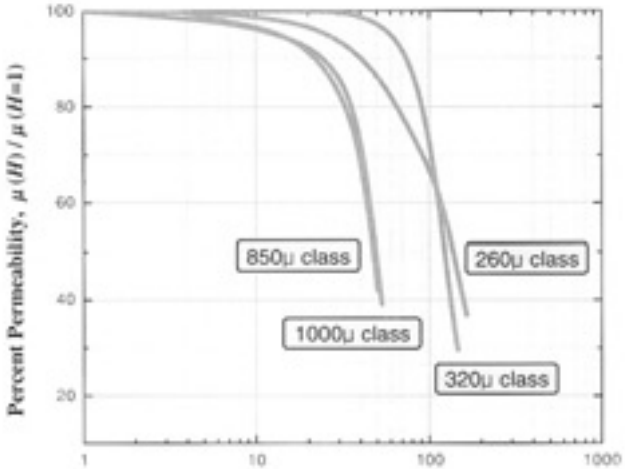
*** These curves were determined from AC magnetizing frequency with sinusoidal wavefroms.*

**** Products generally do not fully comply with material characteristics : deviations may occur due to shape and size factor even if the core has the same class of permeability.*

Typical Magnetic & Electric Characteristics

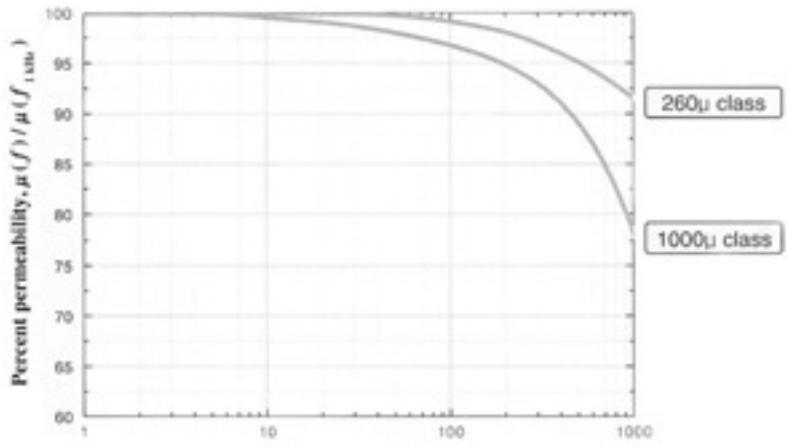
❯❯ *Typical DC Bias characteristics of AMCA series choke with permeability*





** The deviations of DC bias characteristics, even if the permeability has the same, might be occur due to shape and size factor.*

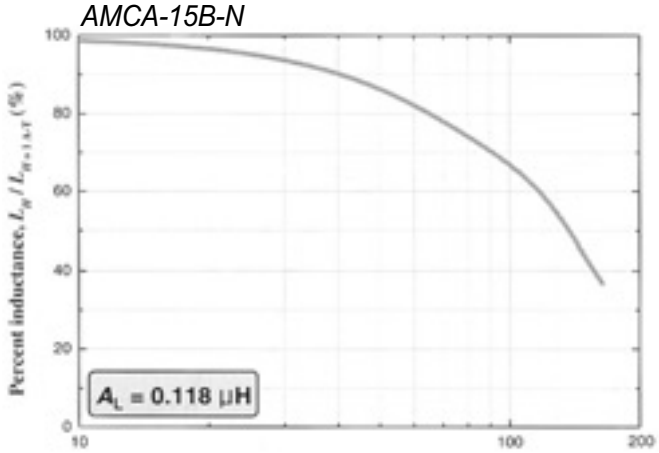
❯❯ *Typical percent permeability of 260μ & 1000μ class choke cores with frequency*



** The roll-off of percent permeability of 260u/1100u classes at 1MHz are around 10/20% of its 1kHz value, respectively.*

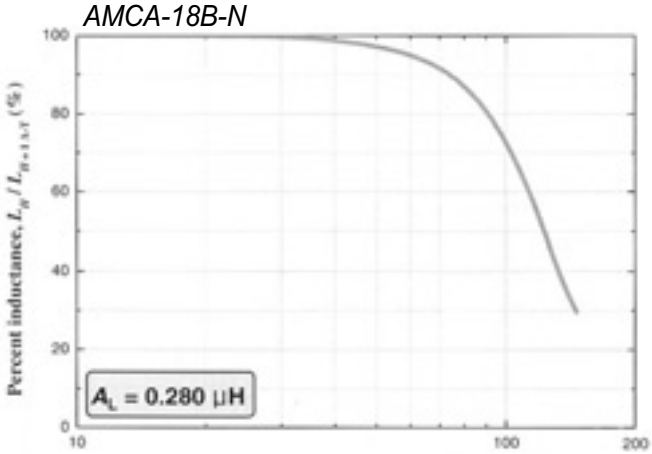
Typical DC bias Characteristics of AMCA series @ 1kHz

AMCA-15B-N



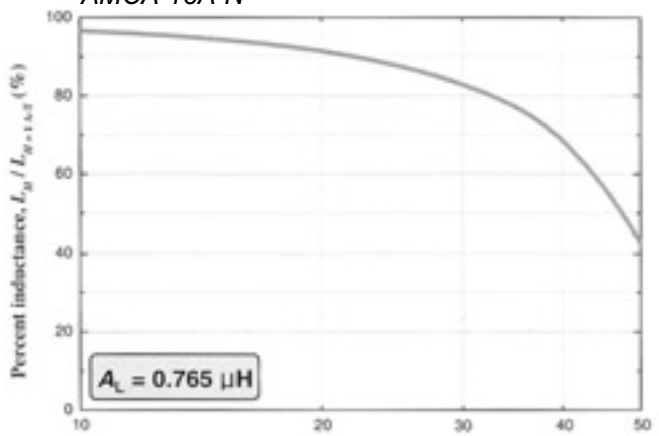
Magnetizing force, H [Ampere-Turns]

AMCA-18B-N



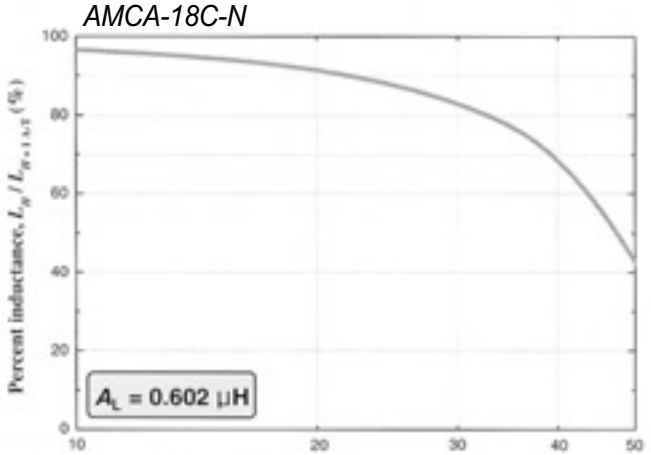
Magnetizing force, H [Ampere-Turns]

AMCA-18A-N



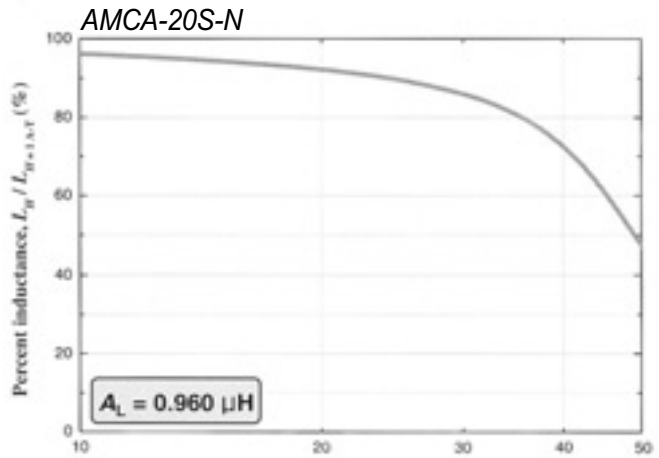
Magnetizing force, H [Ampere-Turns]

AMCA-18C-N



Magnetizing force, H [Ampere-Turns]

AMCA-20S-N



Magnetizing force, H [Ampere-Turns]