

Product Brief

Toshiba “DY” Series of Amorphous Cores

Highlights

- Low noise: When placed in series with a diode, the “DY” series of amorphous cores effectively suppress noise-causing transient current change.
- Low loss: There is low hysteresis loss and almost no resistive loss through the components.
- Diode protection: The products suppress current and voltage spikes within the circuit, which protects the diode.
- Space savings: The Toshiba AMOBEADS® noise suppression devices can be mounted directly onto the leads of diodes and do not require additional circuit board space. They are also available in a surface mount configuration.

Description

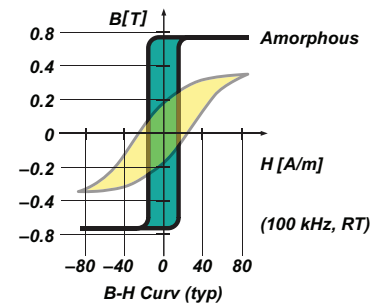
Toshiba pioneered the development of Cobalt (Co)-based amorphous (non-crystalline) magnetic alloys for electronic applications and now offers amorphous magnetic cores for noise suppression, mag-amps, snubbers and pulse transformers. These devices are used predominately in switching power supplies, noise sensitive equipment, medical instruments and telecommunications.

The DY series were developed as the next generation of AMOBEADS noise suppression devices. Improvement in device design captured the same magnetic properties as the current familiar AMOBEADS family, but with pricing competitive to ferrite beads. As a result of this new design, applications have expanded into consumer electronics because of the excellent advantages in cost and noise suppression. Toshiba continues its R&D programs to further improve the properties of the amorphous alloys and magnetic components.

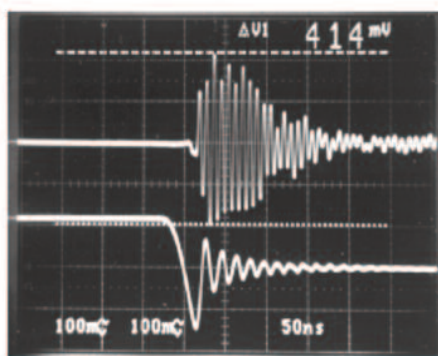
Features

- Effective noise suppression: Minimize directly the rapid change of current or voltage.
- Low loss and temperature rise: Cobalt based amorphous material has low loss at high frequency.
- Low influence against circuit parts: High rectangular ratio means low influences such as surge voltage.

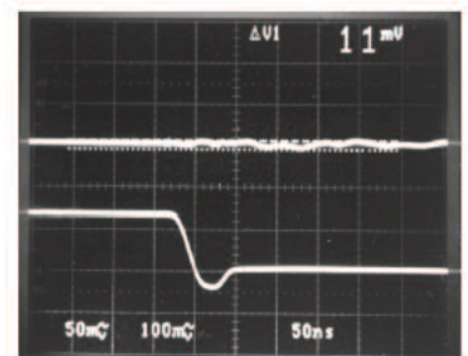
Magnetic Characteristics (B-H curve)



Effect of noise suppression (Chopper Converter)



Output Noise



Diode Current
1A/div

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Amobeads DY Series

Type No.	Finished Dimensions [mm]			Total Flux*3 $\Phi_c[\mu\text{Wb}]\text{min}$	Insulating Cover *4	Packing Unit pcs/bag
	O.D	I.D	Height			
AB 2.8x4.5DY	4.0±0.2	*1	5.7±0.3	0.9	Case Black	10,000
AB 3x2x3DY	4.0±0.2		4.2±0.3	0.9	Case Black	
AB 3x2x4.5DY	4.0±0.2		5.7±0.3	1.3	Case Gray	
AB 4x2x4.5DY	5.0±0.2		5.7±0.3	2.7	Case Black	
AB 4x2x6DY	5.0±0.2		7.2±0.3	3.6	Case Black	
AB 5x4x3DY *5)	5.95±0.2	*2	4.2±0.3	0.45	Case Black	

* I.D can pass through a *1, *2 lead.

*1. 1.2x0.7 mm

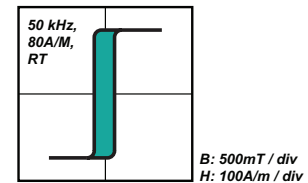
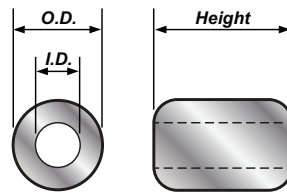
*2. 2.5x0.7 mm

*3. Converted from Inductance Value L1 at 1 kHz, 100 mA (sine wave), R.T. $\Phi_c[\mu\text{Wb}]=0.282 \times L1[\mu\text{H}]$

*4. UL94V-0 approved material

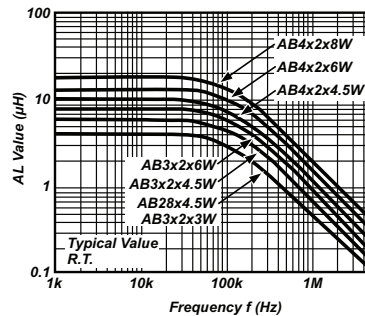
*5. Mass production being planned. (Samples available).

Maximum Operating temperature: 120 °C (Include temperature rising by self-heating)

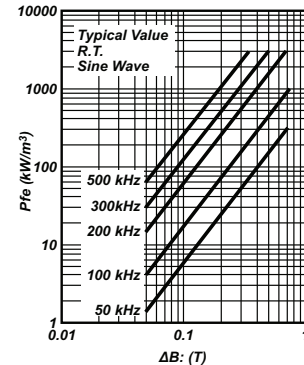


AC-BH Curve (Typical)

Frequency Characteristics of Inductance



Coreless Characteristic AMOBEAD



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