Ferrite for Telecommunication
Materials for LAN Pulse Transformers DNW45

With the growing popularity of high-speed Ethernet, the demand for ferrite material that is optimally suited for pulse transformers in LAN systems is rising. In particular, LAN systems that are subjected to the harsh operating environments found in industrial applications are required to operate at wider temperature ranges compared to existing materials.
To meet such demands, TDK has developed the DNW45, a product dedicated to small toroidal forms used in high-speed LANs, which delivers high inductance and excellent DC superposition characteristics at a wide temperature range (–40 to +85°C).

FEATURES

- Delivers high inductance over a wide temperature range (–40 to +85°C).
- This ferrite material delivers excellent DC superposition characteristics and was designed for small toroidal cores.
- DC superposition characteristics in the –40 to +85°C temperature range has been improved by 23% compared to DN45, one of previous materials.

APPLICATIONS

Ferrite core for pulse transformers in Ethernet (100Base-T) LAN systems.

• Please consult us for on-vehicle applications.

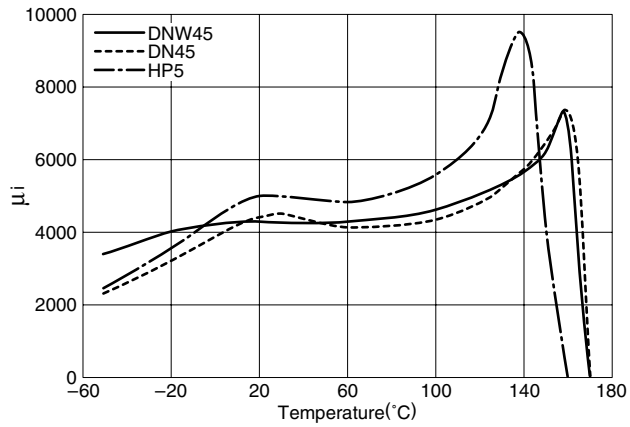
MATERIAL CHARACTERISTICS

COMPARISON TO PREVIOUS MATERIAL

Material				**DNW45**	**HP5**
Initial permeability	μi		25°C	4200±25%	5000±25%
Relative loss factor	tanδ/μi	$\times 10^{-6}$	25°C, 10kHz	<3.5	<3.5
Saturation magnetic flux density	Bs	mT	25°C, 1000A/m	450	400
Curie temperature	Tc	°C	min.	150	140
Density	db	kg/m^3		4.85×10^3	4.8×10^3
Electrical resistivity	ρv	Ω • m	25°C	0.65	0.15

• Measured with toroidal core(OD10× ID5× T2.5mm).
• Various toroidal cores of small sizes are available. Please contact us for details.

μi vs. TEMPERATURE CHARACTERISTICS



μΔ vs. TEMPERATURE CHARACTERISTICS