

# Nanocrystalline

## Nanocrystalline and Amorphous

### Toroidal Iron Core For Switch Mode Power Supply

#### Performance characteristics:

Low loss at high frequency, high magnetic permeability, small-sized, energy saving, remarkable thermal stability

#### Use:

Use for switching power supply; DC-DC converter, power supply and power transformer for UPS; control transformer, magnetic amplifier, pulse transformer, choke, filter inductance, resonant inductance, common-mode inductance and peak suppressor.

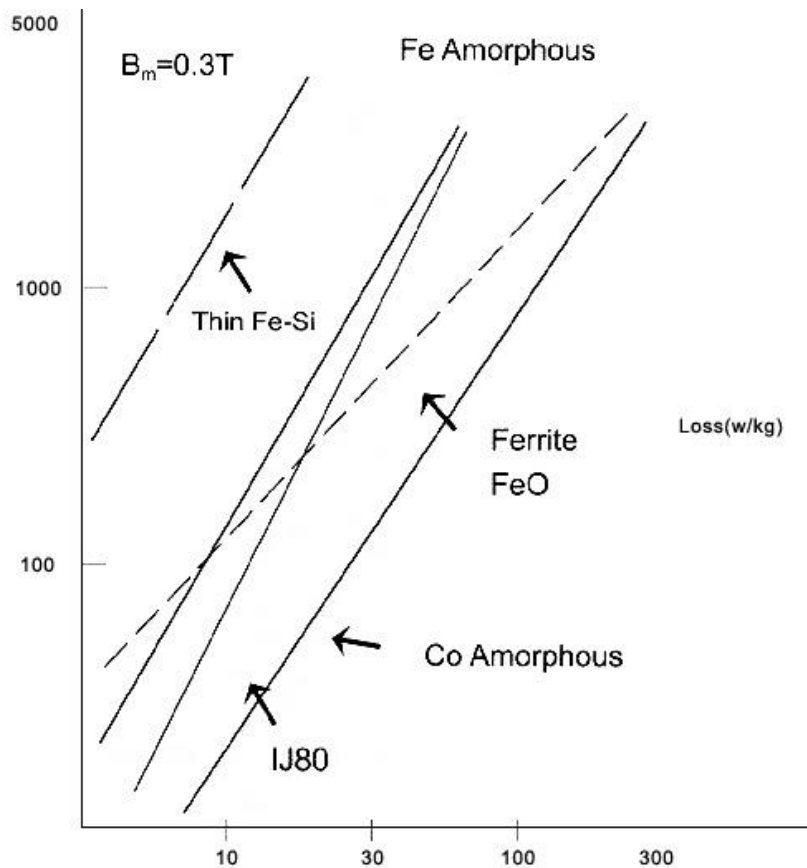
#### Specification and size of iron core:

Model	Size(mm)			Average Magnetic Pathlength(cm)	Effective Section Area Ae (cm <sup>2</sup> )	Weight w (g)
	D1	D2	D3			
TIE-C-AN180	8.5	12	4.5	3.22	0.05	1.50
TIE-C-AN181	10	14	6.5	3.77	0.09	2.30
TIE-C-AN182	14	19	6.5	5.18	0.11	3.98
TIE-C-AN183	17	25	6.5	6.59	0.17	8.10
TIE-C-AN184	25	32	6.5	8.95	0.15	9.60
TIE-C-AN185	14	19	10	5.18	0.16	6.00
TIE-C-AN186	12.5	20	10	5.10	0.24	9.10
TIE-C-AN187	13.2	21.5	10	5.45	0.27	10.50
TIE-C-AN188	18	28	10	7.22	0.33	17.00
TIE-C-AN189	17	25	10	6.59	0.26	12.50
TIE-C-AN190	20	30	10	7.85	0.33	18.50
TIE-C-AN191	25	32	10	8.95	0.23	14.80
TIE-C-AN192	20	40	10	9.42	0.65	44.39

TIE-C-AN193	40	50	10	14.13	0.33	33.30
TIE-C-AN194	15	22	15	5.81	0.32	13.50
TIE-C-AN195	18	28	15	7.22	0.49	25.60
TIE-C-AN196	20	30	15	7.85	0.49	27.80
TIE-C-AN197	23	33	15	8.79	0.49	31.10
TIE-C-AN198	30	50	15	12.56	0.98	88.80
TIE-C-AN199	14	24	20	5.97	0.65	28.00
TIE-C-AN200	29	45	20	11.62	1.04	90.00
TIE-C-AN201	23	33	25	8.79	0.82	51.90
TIE-C-AN202	29	46	25	11.77	1.38	118.60

## Performance of iron core for switching power supply

Material	Bs (T)	LOW Br		Middle Br		High Br	
		Br/Bs	P(w/kg)	Br/Bs	P(w/kg)	Br/Bs	P(w/kg)
Fe-based amorphous	1.55	≤0.2	$P_{0.35/10k} \leq 18$	≈0.6	$P_{0.35/10k} \leq 20$	≤0.9	$P_{0.35/10k} \leq 30$
Co-based amorphous	0.65	≤0.2	$P_{0.3/200k} \leq 400$	≈0.6	$P_{0.35/10k} \leq 20$	≤0.9	$P_{0.35/10k} \leq 30$
Ultracrystallite	1.25	≤0.2	$P_{0.3/100k} \leq 120$	≈0.6	$P_{0.35/10k} \leq 20$	≤0.85	$P_{0.35/10k} \leq 30$



Comparison of High Frequency Losses of Various Soft Magnetic Materials