



# Speedofer Components Pvt. Ltd

## Speedofer Components Pvt. Ltd.

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 **+91 120 4752457**



**Product  
Catalogue**



**What We Do :** Speedofer Components manufactures Soft Ferrite Cores in forms and shapes of Drum, EDR, EE, EER, EFD, EI, ELP, EP, EPC, ER,ET, ETD, EV, I, Planer, Pot, PQ, Ring (Toroidal), RM, UT, UU & etc. geometries that composed of FeMnZn (Iron, Manganese & Zinc). These Ferrites are used in making Transformers, Inductors, Chokes and Ferrite Beads that apply in powering any electronics circuits.

**What We Believe :** Speedofer Components Believing that Research & Development is the only way forward for the products we manufacture and substantially invested in state-of-the-art Swiss made equipment lines.

**Who We Are :** Speedofer Components was found in 2007 by the most experienced professionals in Soft Ferrite Cores in India. Speedofer also has high skilled manpower with more than THREE DECADES of experience in the field of Ferrite Cores. Our organization work to the standards of Business Excellence and are fully committed to the principle of consistent and continuous improvement at all levels of our organization. This involves everyone, including our Suppliers and forms the basis for successful relationships.

**Customized Products:** Speedofer Components also sells NiZn (Nickel Zinc), Iron Powder, MPP (Molypermalloy Powder), Sendust composed and customized Ferrite Cores for special applications. Exports: Speedofer Components generates about 5% of total revenues from exports.

**Employees :** 50~100

**Application :** Consumer Electronics, EMI, EV (Electric Vehicle) , LED Lighting, Conventional Lighting, Solar Energy, Telecommunications and Power Distribution.

**Plant Capacity :** 150 Tons (60 Million pieces per month).

**Why Speedofer :** Best Quality, Competitive Price, Product Customization, Quick Delivery & Aftersales Service.

**System Certifications :** QMS ISO 9001:2015, EMS ISO14001:2015, OHSAS ISO 18001:2007

**System Certifications :** RoHS Directive 2011/65/EU, REACH

**D&B D-U-N-S Number :** 67-738-4917

Speedofer Components Pvt. Ltd.	
System Compliance	ISO 9001:2015 Quality Management System
Clause & Description	4.2.1, Quality Policy
Document No	SCPL-QMS-MR-QP-02
Date	21 <sup>st</sup> September 2021
Revision:	01

**Quality Policy**

**We, at Speedofer Components Pvt. Ltd. are committed to manufacture products as per the requirements of our Customers and are also committed to give the best after sales service through continual improvement in Quality Management Systems.**

  
B S Randhawa  
The Managing Director



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# Material Characteristics

Material Properties	Symbol	Unit	Measuring Conditions			SFP4	SFP97
			Freq.	Flux den.	Temp.		
Initial Permeability	$\mu_i$		$\leq 10\text{kHz}$	0.25mT	25°C	2300 $\pm$ 25%	2500 $\pm$ 25%
Power Loss	Pv	kW/m <sup>3</sup>	25kHz	200mT	25 °C	105	125
					100°C	55	50
			100kHz	200mT	25 °C	600	600
					100°C	410	250
			300kHz	100mT	25 °C	660	820
					100°C	430	500
			500kHz	50mT	25 °C	380	400
					100°C	330	300
Saturation Flux Density	Bms	mT	10KHz	H=1200A/m	25°C	510	530
					100°C	390	420
Remanence	Brms	mT	10KHz	H=1200A/m	25°C	95	180
					100°C	55	60
Coercivity	Hc	A/m	10kHz	H=1200A/m	25°C	14	13
					100°C	8.8	6
Relative Loss Factor	tan $\delta$ / $\mu_i$	10 <sup>-6</sup>	10KHz	<0.25mT	25°C	-	-
			100kHz		25°C	-	-
Hysteresis Material Constant	$\eta_B$	10 <sup>-6</sup> mT	10KHz	1.5-3.0mT	25°C	<1.2	<1
Disaccommodation Factor	D <sub>F</sub>	10 <sup>-6</sup>	10KHz	< 0.25mT	25°C	<2.0	<2.0
Curie Temperature	T <sub>c</sub>	°C	-	-	-	$\geq$ 220	>230
Resistivity	$\rho$	$\Omega\text{m}$	-	-	-	6.5	4
Density	d	g/cm <sup>3</sup>	-	-	-	4.8	4.9



# Material Characteristics

SFP95	SFP92	SFP33	SFP48	SFP49	SFA05	SFA07	SFA10	SFA12
3300 $\pm$ 25%	1700 $\pm$ 25%	750 $\pm$ 25%	2500 $\pm$ 25%	1500 $\pm$ 25%	5000 $\pm$ 25%	7000 $\pm$ 25%	10000 $\pm$ 30%	12000 $\pm$ 30%
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
350	750	-	-	-	-	-	-	-
300	400	-	-	-	-	-	-	-
-	-	-	-	410	-	-	-	-
410	-	-	-	370	-	-	-	-
-	450	-	-	200	-	-	-	-
250	230	-	-	100	-	-	-	-
530	540	500	450	490	440	400	410	380
410	460	410	320	400	300	200	210	180
85	280	400	180	215	80	150	140	130
60	50	330	150	125	90	110	110	110
9.5	14	25	18	35	-	-	-	-
6.5	8	20	12	30	-	-	-	-
-	-	<60	<7	-	<4	<8	<10	<10
-	-	<20	<3	-	<15	<30	<60	<60
<1.2	<1.0	<2.5 (100kHz)	<0.6	<1.0	<0.8	<1.2	<0.5	<0.5
<2.0	<2.0	8	-	<2.0	<2.0	<2.0	<2.0	<2.0
$\geq$ 215	$\geq$ 280	$\geq$ 250	$\geq$ 170	$\geq$ 250	$\geq$ 140	$\geq$ 130	$\geq$ 130	$\geq$ 110
6	3	2	7.5	12	0.2	0.35	0.15	0.12
4.9	4.9	4.7	4.7	4.85	4.85	4.9	4.9	4.9



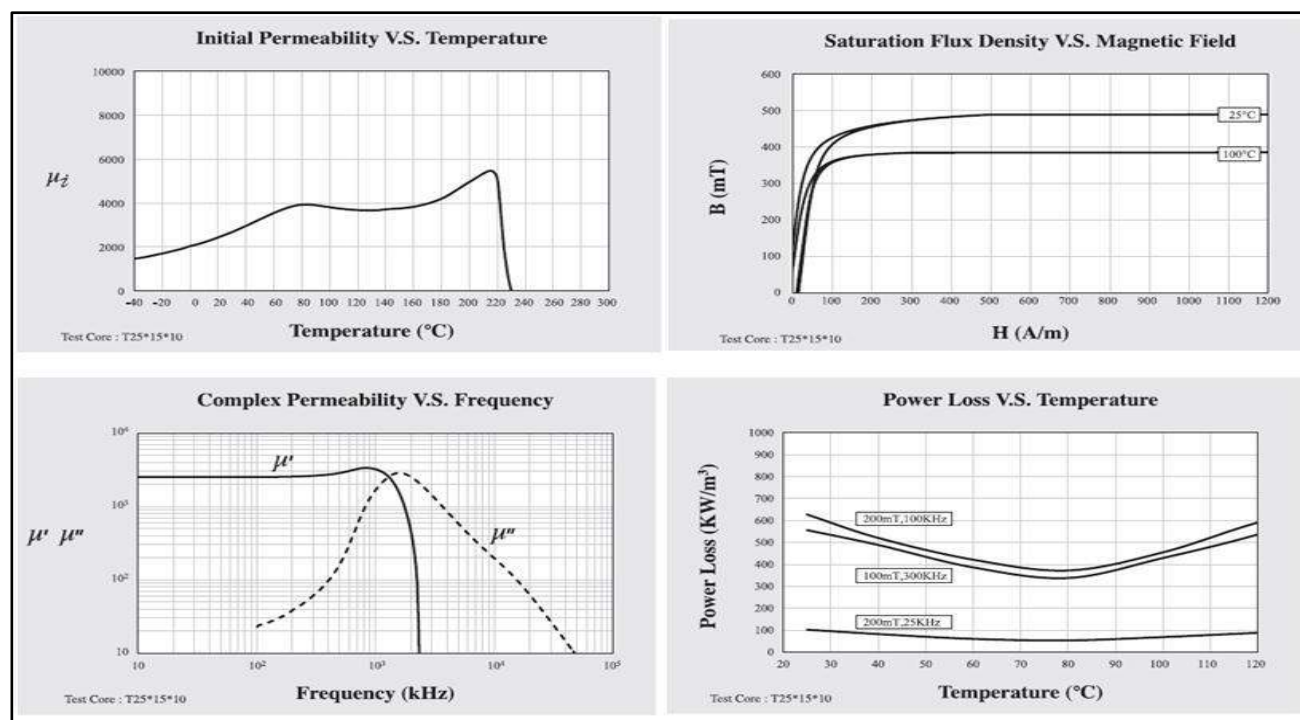
# Material Characteristics - SFP4



# Material Characteristics - SFP97

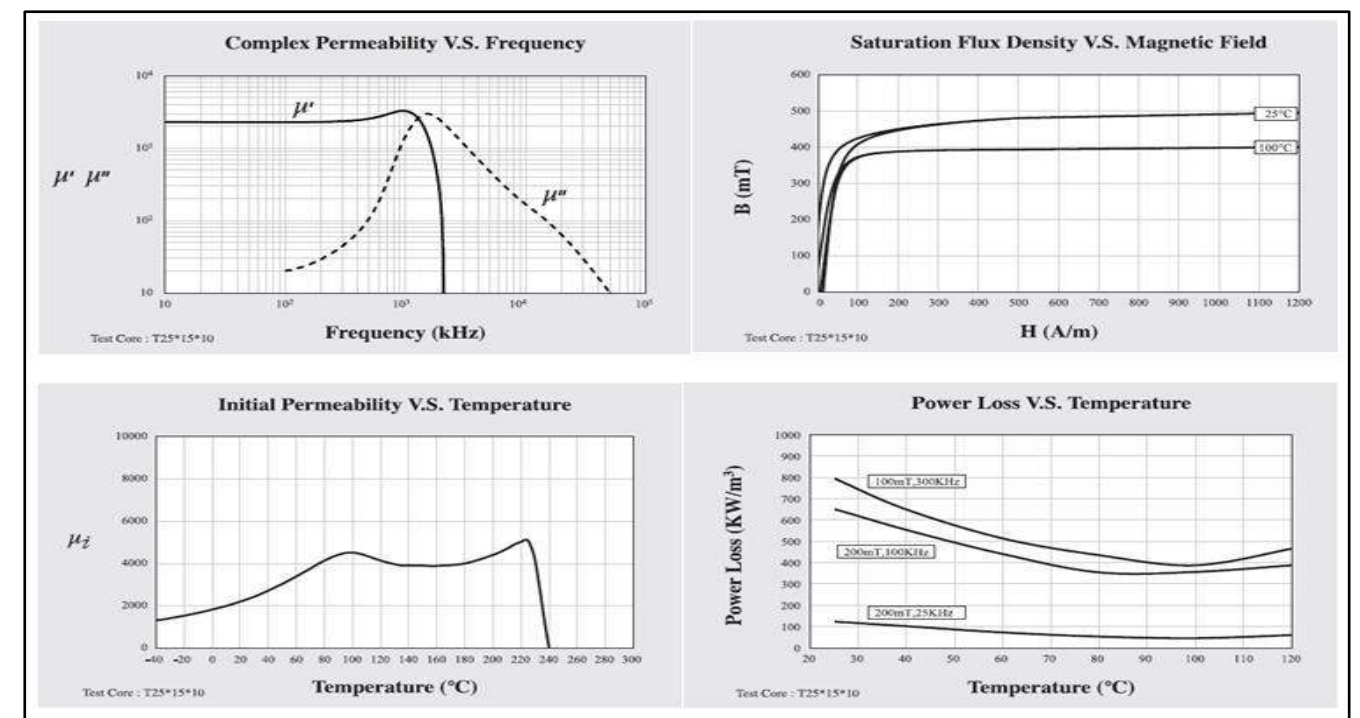
Material Properties	Symbol	Unit	Measuring Conditions			SFP4
			Freq.	Flux den.	Temp.	
Initial Permeability	$\mu_i$		$\leq 10\text{kHz}$	0.25mT	25°C	2300±25%
Power Loss	Pv	kW/m <sup>3</sup>	25kHz	200mT	25 °C	105
					100°C	55
			100kHz	200mT	25 °C	600
					100°C	410
			300kHz	100mT	25 °C	660
					100°C	430
500kHz	50mT	25 °C	380			
		100°C	330			
Saturation Flux Density	Bms	mT	10KHz	H=1200A/m	25°C	490
Remanence	Brms	mT	10KHz	H=1200A/m	25°C	95
					100°C	55
Coercivity	Hc	A/m	10kHz	H=1200A/m	25°C	14
					100°C	8.8
Hysteresis Material Constant	$\eta_B$	10 <sup>-6</sup> mT	10KHz	1.5-3.0mT	25°C	<1.2
Disaccommodation Factor	D <sub>F</sub>	10 <sup>-6</sup>	10KHz	< 0.25mT	25°C	<2.0
Curie Temperature	T <sub>c</sub>	°C				≥220
Resistivity	$\rho$	$\Omega\text{m}$				6.5
Density	d	g/cm <sup>3</sup>				4.8

Note: Material characteristics are typical for a toroid core.  
Product specification will differ from these data due to the influence of geometry and size.



Material Properties	Symbol	Unit	Measuring Conditions			SFP97
			Freq.	Flux den.	Temp.	
Initial Permeability	$\mu_i$		$\leq 10\text{kHz}$	0.25mT	25°C	2500±25%
Power Loss	Pv	kW/m <sup>3</sup>	25kHz	200mT	25 °C	125
					100°C	50
			100kHz	200mT	25 °C	600
					100°C	250
			300kHz	100mT	25 °C	820
					100°C	500
500kHz	50mT	25 °C	400			
		100°C	300			
Saturation Flux Density	Bms	mT	10KHz	H=1200A/m	25°C	530
Remanence	Brms	mT	10KHz	H=1200A/m	25°C	180
					100°C	60
Coercivity	Hc	A/m	10kHz	H=1200A/m	25°C	13
					100°C	6
Hysteresis Material Constant	$\eta_B$	10 <sup>-6</sup> mT	10KHz	1.5-3.0mT	25°C	<1
Disaccommodation Factor	D <sub>F</sub>	10 <sup>-6</sup>	10KHz	< 0.25mT	25°C	<2.0
Curie Temperature	T <sub>c</sub>	°C				>230
Resistivity	$\rho$	$\Omega\text{m}$				4
Density	d	g/cm <sup>3</sup>				4.9

Note: Material characteristics are typical for a toroid core.  
Product specification will differ from these data due to the influence of geometry and size.





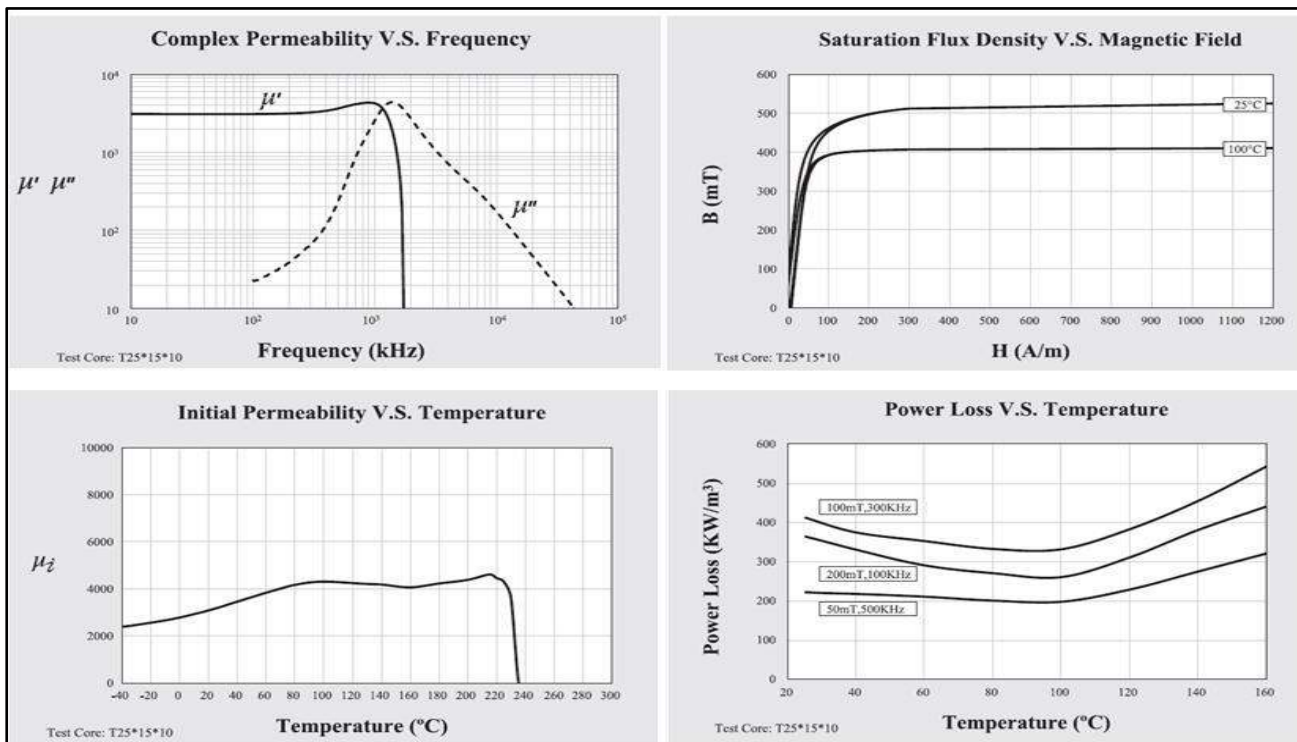
# Material Characteristics - SFP95



# Material Characteristics - SFP92

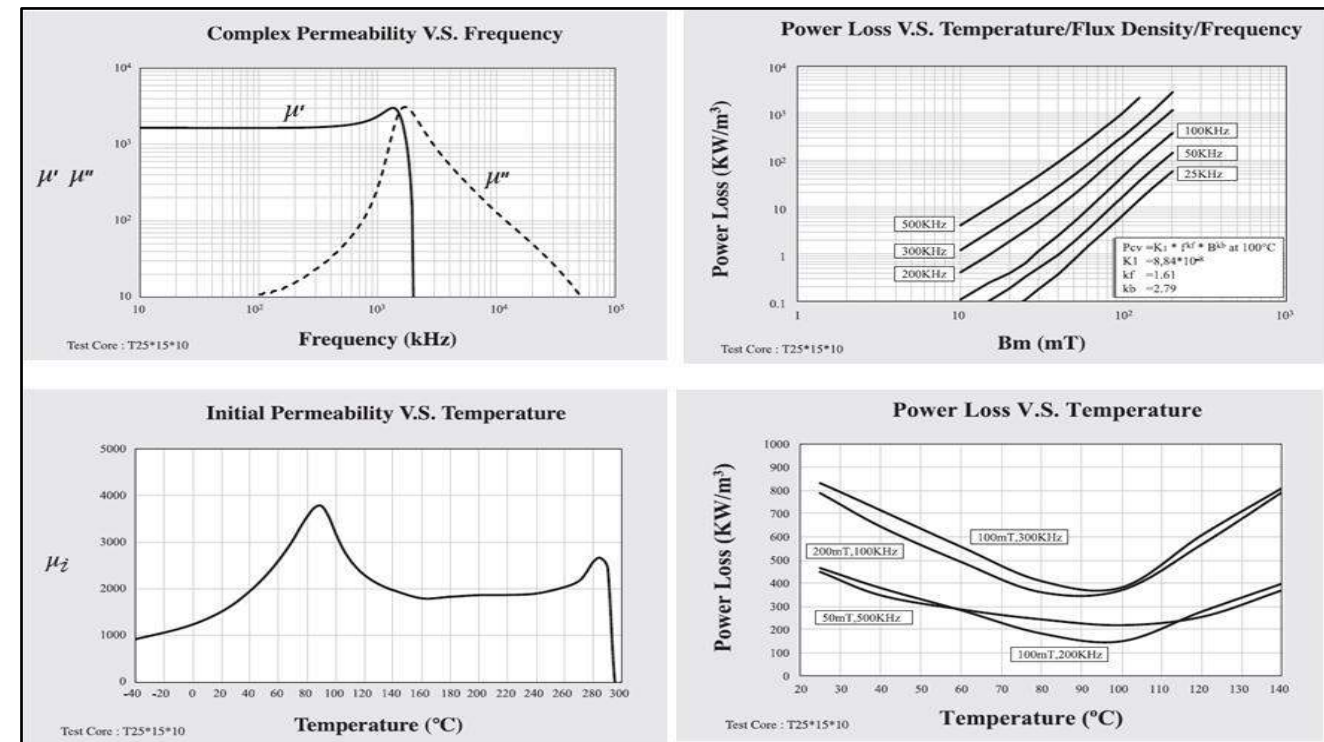
Material Properties	Symbol	Unit	Measuring Conditions			SFP95
			Freq.	Flux den.	Temp.	
Initial Permeability	$\mu_i$		$\leq 10\text{kHz}$	0.25mT	25°C	3300 $\pm$ 25%
Power Loss	Pv	kW/m <sup>3</sup>	25kHz	200mT	25 °C	-
					100°C	-
			100kHz	200mT	25 °C	350
					100°C	300
			300kHz	100mT	25 °C	440
					100°C	400
500kHz	50mT	25 °C	-			
		100°C	250			
Saturation Flux Density	Bms	mT	10KHz	H=1200A/m	25°C	530
Remanence	Brms	mT	10KHz	H=1200A/m	25°C	85
					100°C	60
Coercivity	Hc	A/m	10kHz	H=1200A/m	25°C	9.5
					100°C	6.5
Hysteresis Material Constant	$\eta_B$	10 <sup>-6</sup> /mT	10KHz	1.5-3.0mT	25°C	<0.6
Disaccommodation Factor	D <sub>F</sub>	10 <sup>-6</sup>	10KHz	< 0.25mT	25°C	<1
Curie Temperature	T <sub>c</sub>	°C				$\geq 215$
Resistivity	$\rho$	$\Omega\text{m}$				6
Density	d	g/cm <sup>3</sup>				4.9

Note: Material characteristics are typical for a toroid core.  
Product specification will differ from these data due to the influence of geometry and size.



Material Properties	Symbol	Unit	Measuring Conditions			SFP92
			Freq.	Flux den.	Temp.	
Initial Permeability	$\mu_i$		$\leq 10\text{kHz}$	0.25mT	25°C	1700 $\pm$ 25%
Power Loss	Pv	kW/m <sup>3</sup>	25kHz	200mT	25 °C	-
					100°C	-
			100kHz	200mT	25 °C	750
					100°C	400
			300kHz	100mT	25 °C	-
					100°C	-
500kHz	50mT	25 °C	450			
		100°C	230			
Saturation Flux Density	Bms	mT	10KHz	H=1200A/m	25°C	540
Remanence	Brms	mT	10KHz	H=1200A/m	25°C	280
					100°C	50
Coercivity	Hc	A/m	10kHz	H=1200A/m	25°C	14
					100°C	8
Relative Loss Factor	$\tan\delta / \mu_i$	10 <sup>-6</sup>	10KHz	<0.25mT	25°C	-
			100kHz		25°C	-
Hysteresis Material Constant	$\eta_B$	10 <sup>-6</sup> /mT	10KHz	1.5-3.0mT	25°C	<1.0
Disaccommodation Factor	D <sub>F</sub>	10 <sup>-6</sup>	10KHz	< 0.25mT	25°C	<2.0
Curie Temperature	T <sub>c</sub>	°C	-	-	-	$\geq 280$
Resistivity	$\rho$	$\Omega\text{m}$	-	-	-	3
Density	d	g/cm <sup>3</sup>	-	-	-	4.9

Note: Material characteristics are typical for a toroid core.  
Product specification will differ from these data due to the influence of geometry and size.





# Material Characteristics - SFP33



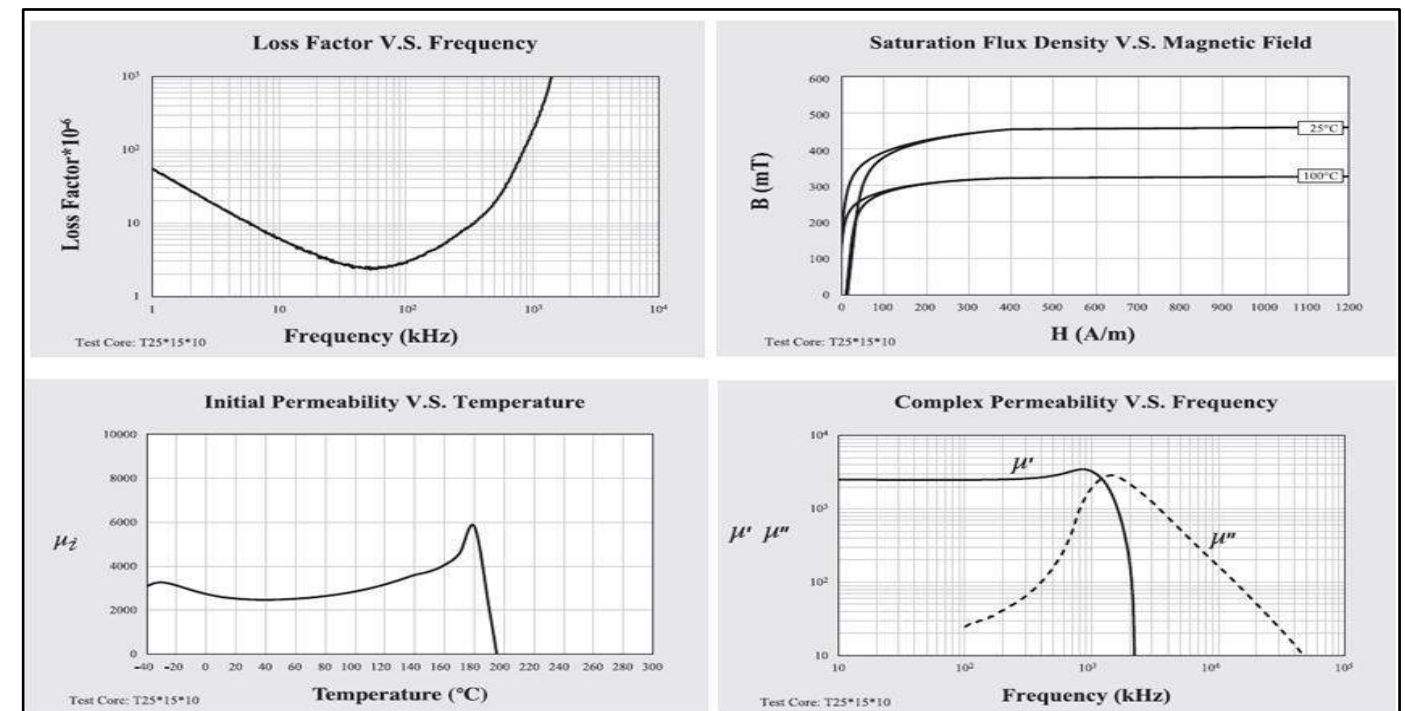
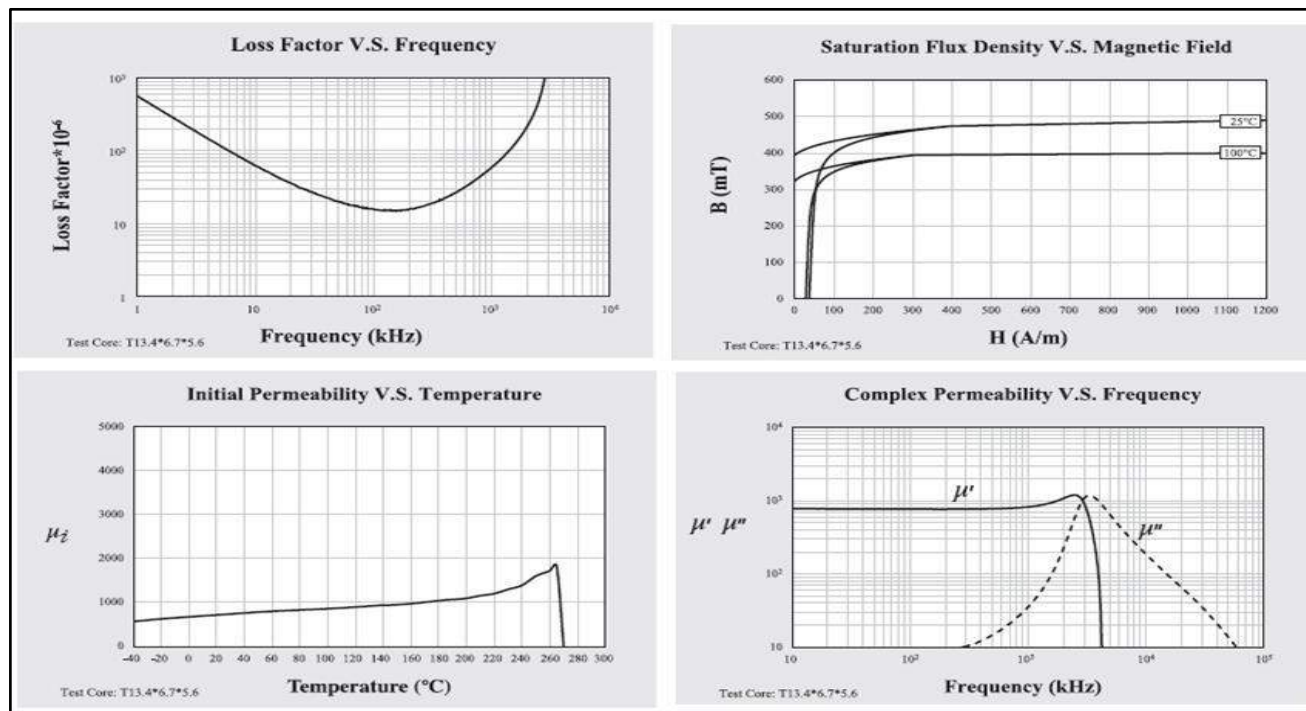
# Material Characteristics - SFP48

Material Properties	Symbol	Unit	Measuring Conditions			SFP33
			Freq.	Flux den.	Temp.	
Initial Permeability	$\mu_i$		$\leq 10\text{kHz}$	0.25mT	25°C	750 $\pm$ 25%
Power Loss	Pv	kW/m <sup>3</sup>	25kHz	200mT	25 °C	-
					100°C	-
			100kHz	200mT	25 °C	-
					100°C	-
			300kHz	100mT	25 °C	-
					100°C	-
500kHz	50mT	25 °C	-			
		100°C	-			
Saturation Flux Density	Bms	mT	10KHz	H=1200A/m	25°C	500
					100°C	410
Remanence	Brms	mT	10KHz	H=1200A/m	25°C	400
					100°C	330
Coercivity	Hc	A/m	10kHz	H=1200A/m	25°C	25
					100°C	20
Relative Loss Factor	tan $\delta$ / $\mu_i$	10 <sup>-6</sup>	10KHz	<0.25mT	25°C	<60
			100kHz		25°C	<20
Hysteresis Material Constant	$\eta_B$	10 <sup>-6</sup> /mT	10KHz	1.5-3.0mT	25°C	<2.5 (100kHz)
Disaccommodation Factor	D <sub>F</sub>	10 <sup>-6</sup>	10KHz	< 0.25mT	25°C	8
Curie Temperature	T <sub>c</sub>	°C				$\geq 250$
Resistivity	$\rho$	$\Omega\text{m}$				2
Density	d	g/cm <sup>3</sup>				4.7

Note: Material characteristics are typical for a toroid core.  
Product specification will differ from these data due to the influence of geometry and size.

Material Properties	Symbol	Unit	Measuring Conditions			SFP48
			Freq.	Flux den.	Temp.	
Initial Permeability	$\mu_i$		$\leq 10\text{kHz}$	0.25mT	25°C	2500 $\pm$ 25%
Power Loss	Pv	kW/m <sup>3</sup>	25kHz	200mT	25 °C	-
					100°C	-
			100kHz	200mT	25 °C	-
					100°C	-
			300kHz	100mT	25 °C	-
					100°C	-
500kHz	50mT	25 °C	-			
		100°C	-			
Saturation Flux Density	Bms	mT	10KHz	H=1200A/m	25°C	450
					100°C	320
Remanence	Brms	mT	10KHz	H=1200A/m	25°C	180
					100°C	150
Coercivity	Hc	A/m	10kHz	H=1200A/m	25°C	18
					100°C	12
Relative Loss Factor	tan $\delta$ / $\mu_i$	10 <sup>-6</sup>	10KHz	<0.25mT	25°C	<7
			100kHz		25°C	<3
Hysteresis Material Constant	$\eta_B$	10 <sup>-6</sup> /mT	10KHz	1.5-3.0mT	25°C	<0.6
Disaccommodation Factor	D <sub>F</sub>	10 <sup>-6</sup>	10KHz	< 0.25mT	25°C	-
Curie Temperature	T <sub>c</sub>	°C				$\geq 170$
Resistivity	$\rho$	$\Omega\text{m}$				7.5
Density	d	g/cm <sup>3</sup>				4.7

Note: Material characteristics are typical for a toroid core.  
Product specification will differ from these data due to the influence of geometry and size.





# Material Characteristics - SFP49



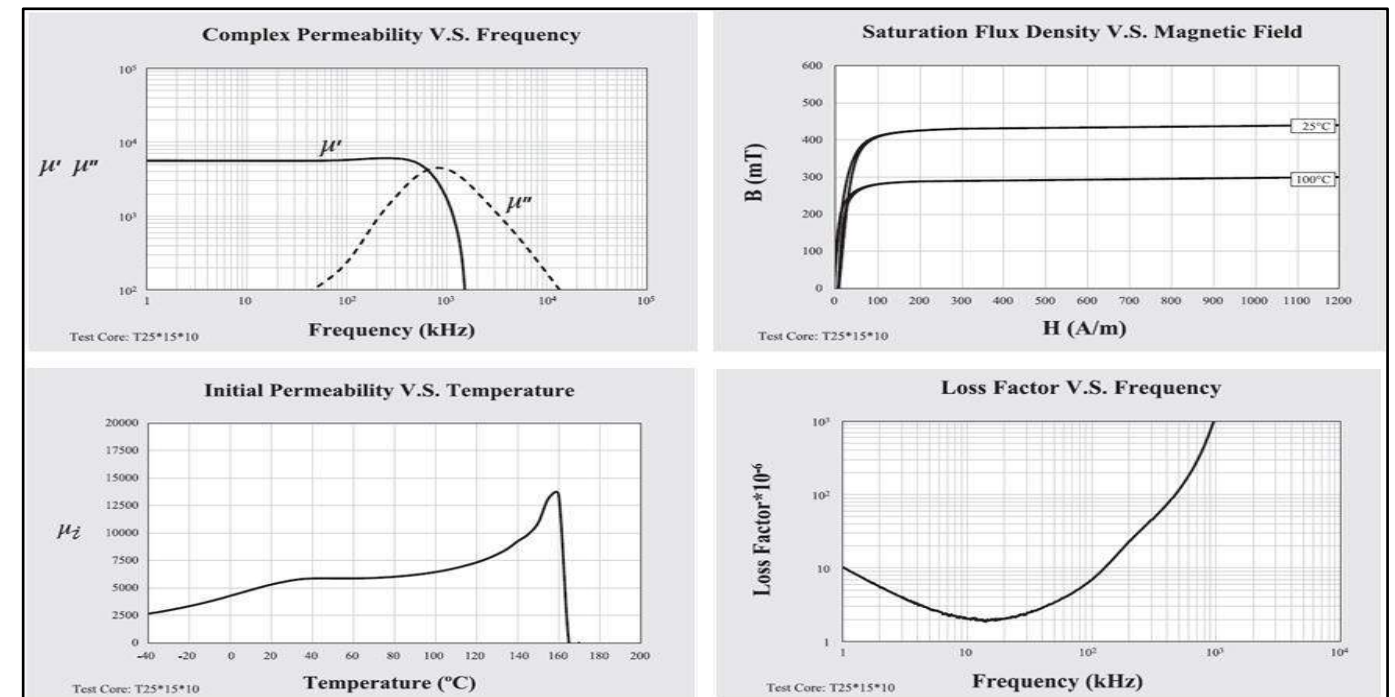
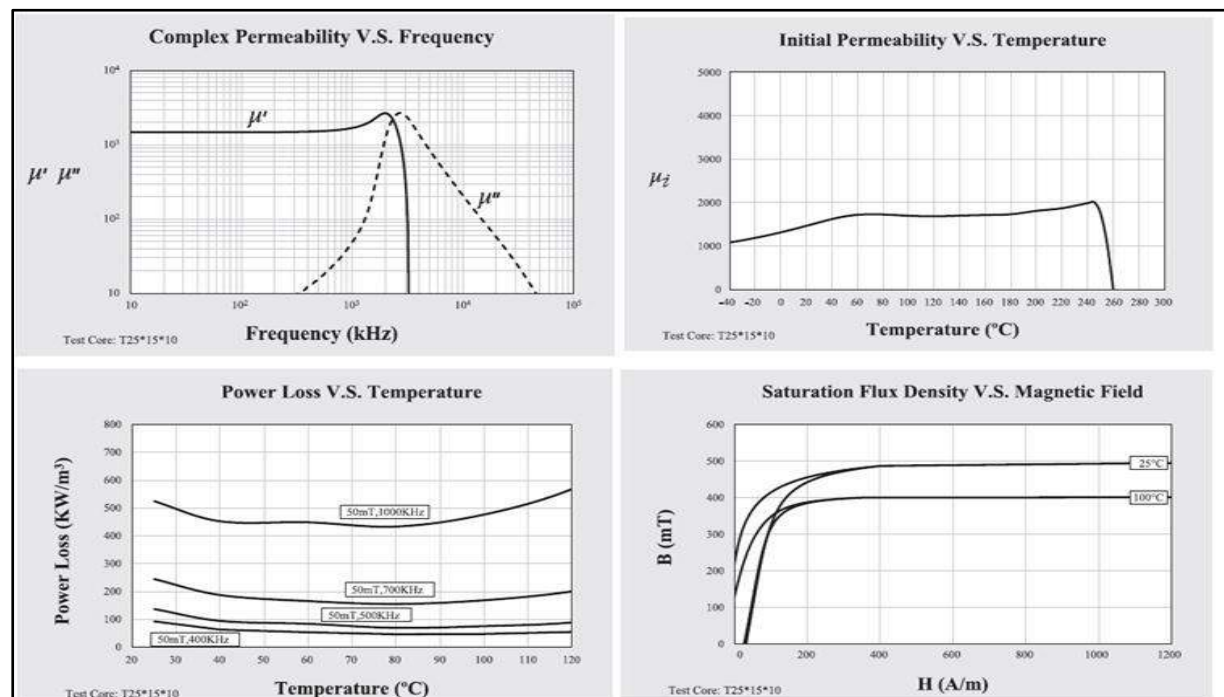
# Material Characteristics - SFA05

Material Properties	Symbol	Unit	Measuring Conditions			SFP49
			Freq.	Flux den.	Temp.	
Initial Permeability	$\mu_i$		$\leq 10\text{kHz}$	0.25mT	25°C	1500±25%
Power Loss	Pv	kW/m <sup>3</sup>	25kHz	200mT	25 °C	-
					100°C	-
			100kHz	200mT	25 °C	-
					100°C	-
			300kHz	100mT	25 °C	410
					100°C	370
			500kHz	50mT	25 °C	200
					100°C	100
1000kHz	50mT	25 °C	-			
		100°C	550			
Saturation Flux Density	Bms	mT	10KHz	H=1200A/m	25°C	490
					100°C	400
Remanence	Brms	mT	10KHz	H=1200A/m	25°C	215
					100°C	125
Coercivity	Hc	A/m	10kHz	H=1200A/m	25°C	35
					100°C	30
Hysteresis Material Constant	$\eta_B$	10 <sup>-6</sup> /mT	10KHz	1.5-3.0mT	25°C	<1.0
Disaccommodation Factor	D <sub>F</sub>	10 <sup>-6</sup>	10KHz	< 0.25mT	25°C	<2.0
Curie Temperature	T <sub>c</sub>	°C				≥250
Resistivity	$\rho$	$\Omega\text{m}$				12
Density	d	g/cm <sup>3</sup>				4.85

Material Properties	Symbol	Unit	Measuring Conditions			SFA05
			Freq.	Flux den.	Temp.	
Initial Permeability	$\mu_i$	-	$\leq 10\text{kHz}$	0.25mT	25°C	5000±25%
Power Loss	Pv	kW/m <sup>3</sup>	25kHz	200mT	25 °C	-
					100°C	-
			100kHz	200mT	25 °C	-
					100°C	-
			300kHz	100mT	25 °C	-
					100°C	-
			500kHz	50mT	25 °C	-
					100°C	-
Saturation Flux Density	Bms	mT	10KHz	H=1200A/m	25°C	440
					100°C	300
Remanence	Brms	mT	10KHz	H=1200A/m	25°C	80
					100°C	90
Coercivity	Hc	A/m	10kHz	H=1200A/m	25°C	-
					100°C	-
Relative Loss Factor	tan $\delta$ / $\mu_i$	10 <sup>-6</sup>	10KHz	<0.25mT	25°C	<4
			100kHz		25°C	<15
Hysteresis Material Constant	$\eta_B$	10 <sup>-6</sup> /mT	10KHz	1.5-3.0mT	25°C	<0.8
Disaccommodation Factor	D <sub>F</sub>	10 <sup>-6</sup>	10KHz	< 0.25mT	25°C	<3
Curie Temperature	T <sub>c</sub>	°C	-	-	-	≥140
Resistivity	$\rho$	$\Omega\text{m}$	-	-	-	0.2
Density	d	g/cm <sup>3</sup>	-	-	-	4.85

Note: Material characteristics are typical for a toroid core.  
Product specification will differ from these data due to the influence of geometry and size.

Note: Material characteristics are typical for a toroid core.  
Product specification will differ from these data due to the influence of geometry and size.





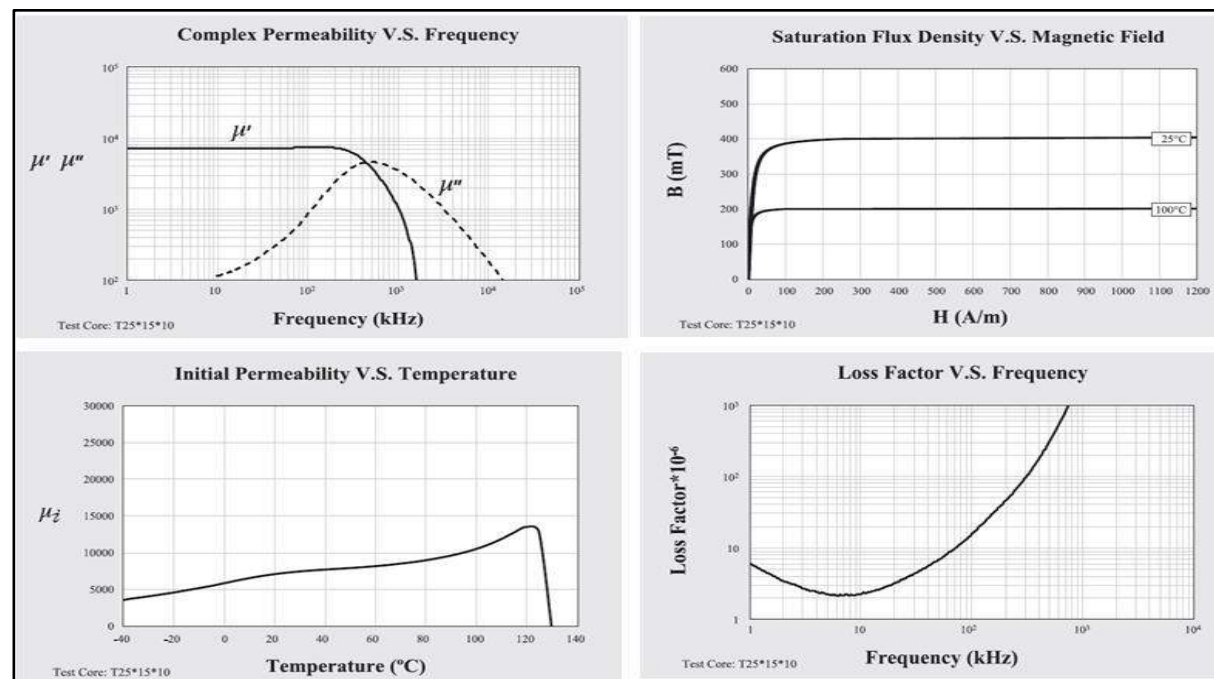
# Material Characteristics - SFA07



# Material Characteristics - SFA10

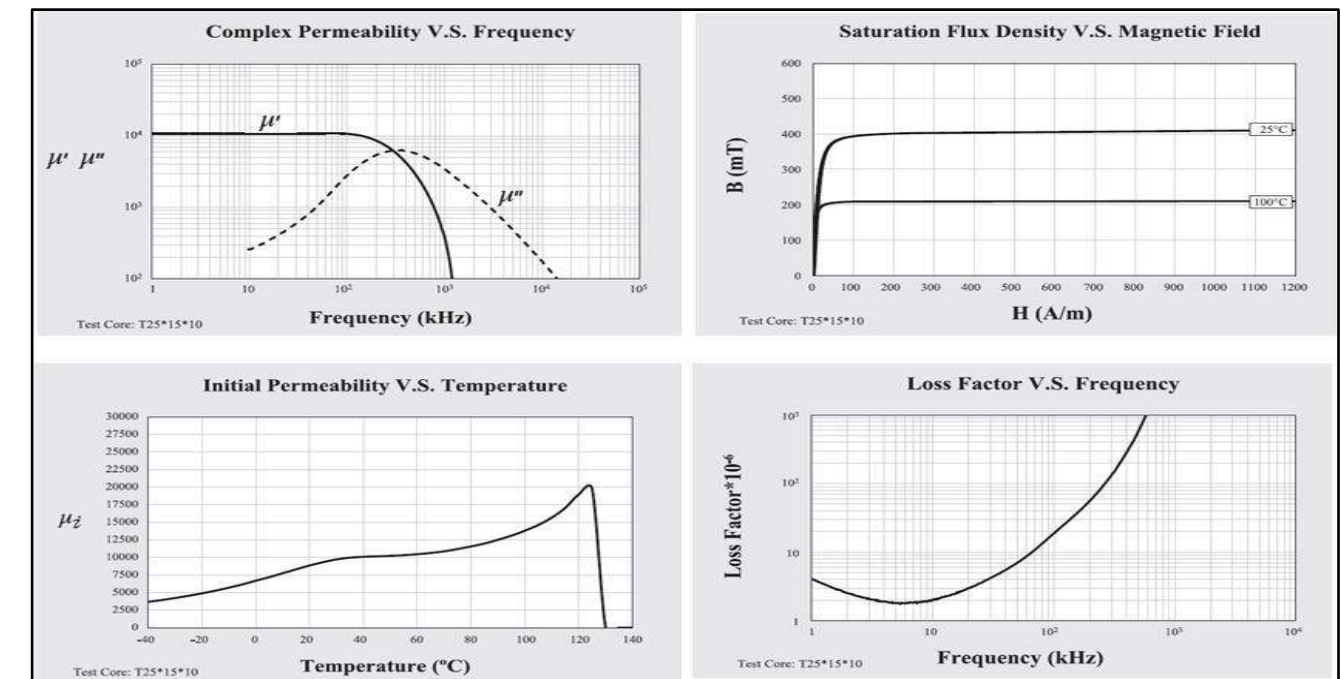
Material Properties	Symbol	Unit	Measuring Conditions			SFA07
			Freq.	Flux den.	Temp.	
Initial Permeability	$\mu_i$	-	$\leq 10\text{kHz}$	0.25mT	25°C	7000 $\pm$ 25%
Power Loss	Pv	kW/m <sup>3</sup>	25kHz	200mT	25 °C	-
					100°C	-
			100kHz	200mT	25 °C	-
					100°C	-
			300kHz	100mT	25 °C	-
					100°C	-
500kHz	50mT	25 °C	-			
		100°C	-			
Saturation Flux Density	Bms	mT	10KHz	H=1200A/m	25°C	400
					100°C	200
Remanence	Brms	mT	10KHz	H=1200A/m	25°C	150
					100°C	110
Coercivity	Hc	A/m	10kHz	H=1200A/m	25°C	-
					100°C	-
Relative Loss Factor	tan $\delta$ / $\mu_i$	10 <sup>-6</sup>	10KHz	<0.25mT	25°C	<8
			100kHz		25°C	<30
Hysteresis Material Constant	$\eta_B$	10 <sup>-6</sup> /mT	10KHz	1.5-3.0mT	25°C	<1.2
Disaccommodation Factor	D <sub>F</sub>	10 <sup>-6</sup>	10KHz	< 0.25mT	25°C	<2
Curie Temperature	T <sub>c</sub>	°C	-	-	-	$\geq 130$
Resistivity	$\rho$	$\Omega\text{m}$	-	-	-	0.35
Density	d	g/cm <sup>3</sup>	-	-	-	4.9

Note: Material characteristics are typical for a toroid core.  
Product specification will differ from these data due to the influence of geometry and size.



Material Properties	Symbol	Unit	Measuring Conditions			SFA10
			Freq.	Flux den.	Temp.	
Initial Permeability	$\mu_i$	-	$\leq 10\text{kHz}$	0.25mT	25°C	10000 $\pm$ 30%
Power Loss	Pv	kW/m <sup>3</sup>	25kHz	200mT	25 °C	-
					100°C	-
			100kHz	200mT	25 °C	-
					100°C	-
			300kHz	100mT	25 °C	-
					100°C	-
500kHz	50mT	25 °C	-			
		100°C	-			
Saturation Flux Density	Bms	mT	10KHz	H=1200A/m	25°C	410
					100°C	210
Remanence	Brms	mT	10KHz	H=1200A/m	25°C	140
					100°C	110
Coercivity	Hc	A/m	10kHz	H=1200A/m	25°C	-
					100°C	-
Relative Loss Factor	tan $\delta$ / $\mu_i$	10 <sup>-6</sup>	10KHz	<0.25mT	25°C	<10
			100kHz		25°C	<60
Hysteresis Material Constant	$\eta_B$	10 <sup>-6</sup> /mT	10KHz	1.5-3.0mT	25°C	<0.5
Disaccommodation Factor	D <sub>F</sub>	10 <sup>-6</sup>	10KHz	< 0.25mT	25°C	<2
Curie Temperature	T <sub>c</sub>	°C	-	-	-	$\geq 130$
Resistivity	$\rho$	$\Omega\text{m}$	-	-	-	0.15
Density	d	g/cm <sup>3</sup>	-	-	-	4.9

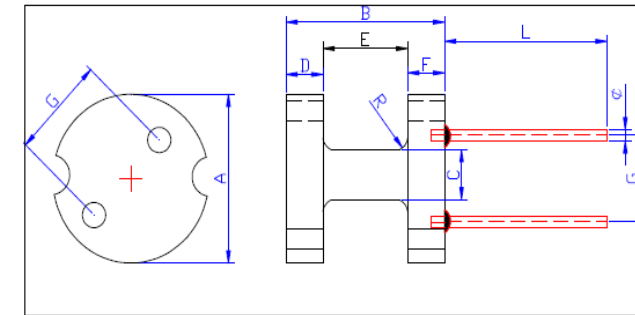
Note: Material characteristics are typical for a toroid core.  
Product specification will differ from these data due to the influence of geometry and size.





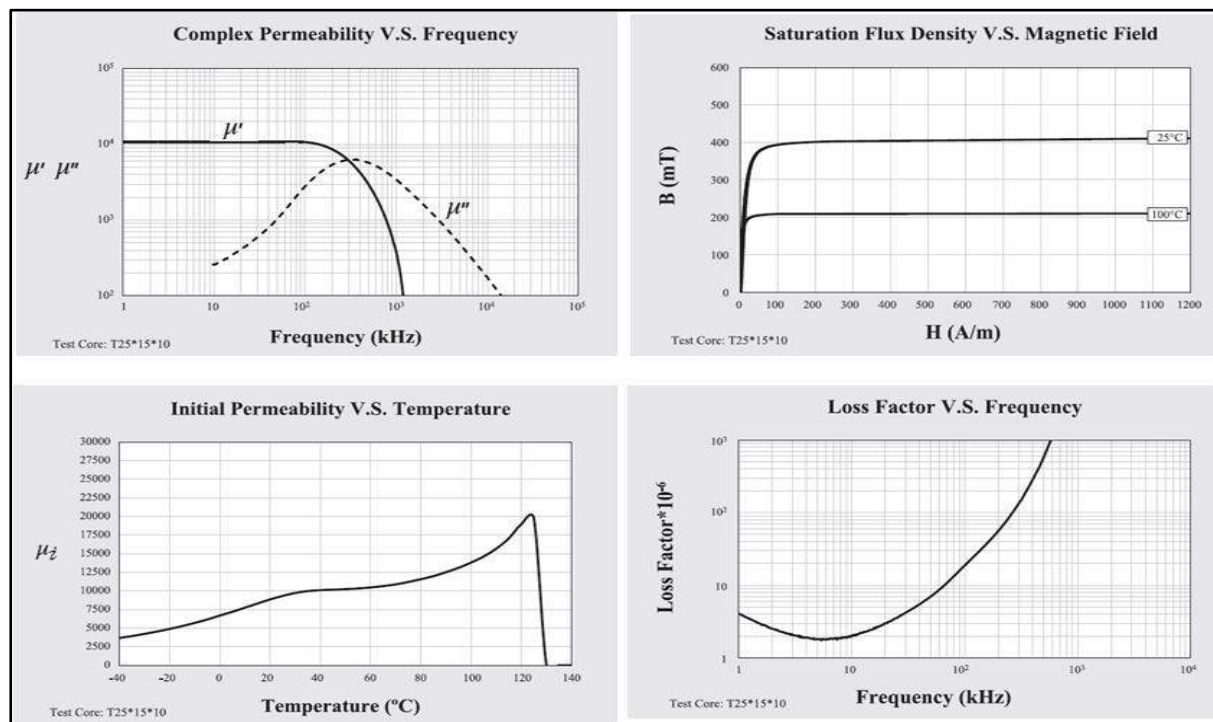


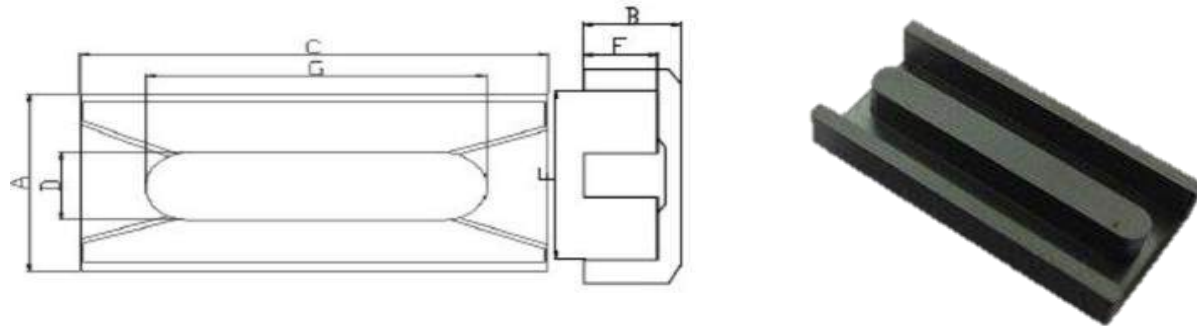
Material Properties	Symbol	Unit	Measuring Conditions			SFA12
			Freq.	Flux den.	Temp.	
Initial Permeability	$\mu_i$	-	$\leq 10\text{kHz}$	0.25mT	25°C	12000 $\pm$ 30%
Power Loss	Pv	kW/m <sup>3</sup>	25kHz	200mT	25 °C	-
					100°C	-
			100kHz	200mT	25 °C	-
					100°C	-
			300kHz	100mT	25 °C	-
500kHz	50mT	25 °C	-			
Saturation Flux Density	Bms	mT	10KHz	H=1200A/m	25°C	380
Remanence	Brms	mT	10KHz	H=1200A/m	25°C	130
					100°C	110
Coercivity	Hc	A/m	10kHz	H=1200A/m	25°C	-
					100°C	-
Relative Loss Factor	$\tan\delta / \mu_i$	10 <sup>-6</sup>	10KHz	<0.25mT	25°C	<10
			100kHz		25°C	<60
Hysteresis Material Constant	$\eta_B$	10 <sup>-6</sup> /mT	10KHz	1.5-3.0mT	25°C	<0.5
Disaccommodation Factor	D <sub>F</sub>	10 <sup>-6</sup>	10KHz	< 0.25mT	25°C	<2
Curie Temperature	T <sub>c</sub>	°C	-	-	-	$\geq 110$
Resistivity	$\rho$	$\Omega\text{m}$	-	-	-	0.12
Density	d	g/cm <sup>3</sup>	-	-	-	4.9



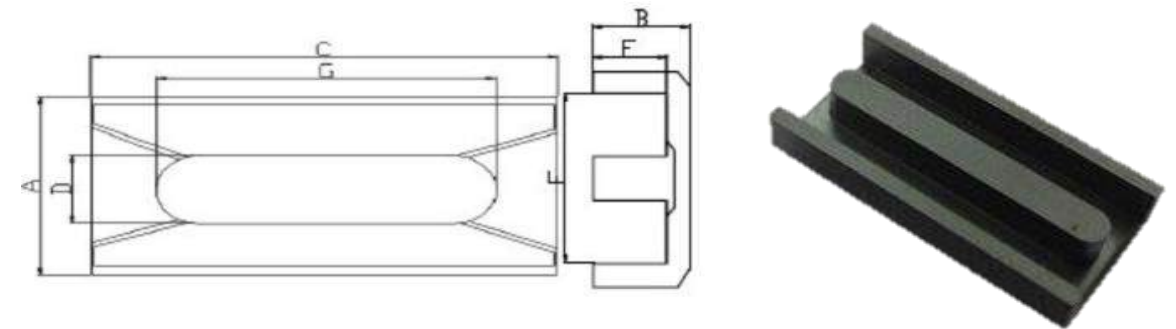
Geometry	Dimensions								Material Grade
Type	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	L (mm)	AL Value in nH
DR6*8 with pin with cut	6.0 $\pm$ 0.25	8.3 $\pm$ 0.3	2.5 $\pm$ 0.20	2.0 $\pm$ 0.15	4.3 $\pm$ 0.2	2.0 $\pm$ 0.15	3.0 $\pm$ 0.5	10.5 $\pm$ 0.5	26.3 $\pm$ 15%
DR8*10 with pin with cut	8.0 $\pm$ 0.20	10 $\pm$ 0.3	3.5 $\pm$ 0.15	2.0 $\pm$ 0.15	5.8 $\pm$ 0.2	2.0 $\pm$ 0.15	5.0 $\pm$ 0.5	10.5 $\pm$ 0.5	26.3 $\pm$ 15%
DR8*12 with pin with cut	8.0 $\pm$ 0.25	12.0 $\pm$ 0.3	3.5 $\pm$ 0.2	2.0 $\pm$ 0.20	7.0 $\pm$ 0.25	2.5 $\pm$ 0.20	5.0 $\pm$ 0.3	10.5 $\pm$ 0.5	38.8 $\pm$ 15%
DR10*12 with pin with cut	10.0 $\pm$ 0.25	12 $\pm$ 0.3	5.0 $\pm$ 0.25	2.5 $\pm$ 0.15	4.0 $\pm$ 0.4	2.5 $\pm$ 0.15	5.0 $\pm$ 0.3	10.5 $\pm$ 0.5	38.8 $\pm$ 15%
DR12*15 with pin with cut	12.0 $\pm$ 0.30	15.0 $\pm$ 0.3	5.0 $\pm$ 0.25	2.5 $\pm$ 0.15	10.0 $\pm$ 0.25	2.5 $\pm$ 0.15	7.0 $\pm$ 0.3	10.5 $\pm$ 0.5	47.6 $\pm$ 15%

Note: Material characteristics are typical for a toroid core.  
Product specification will differ from these data due to the influence of geometry and size.





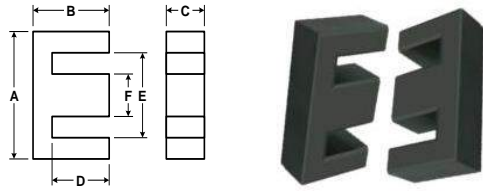
Geometry	Dimensions				
Type	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
EDR2009	13.5±0.5	4.6±0.2	20.2±0.5	2.70±0.2	10.4 min
EDR2609	13.5±0.5	4.6±0.2	26.0±0.5	2.70±0.2	10.4 min
EDR2809	13.5±0.5	5.0±0.2	28.0±0.5	3.2±0.2	10.0 min
EDR3909	13.5±0.5	4.5±0.2	39.4±0.2	2.70±0.2	10.4 min



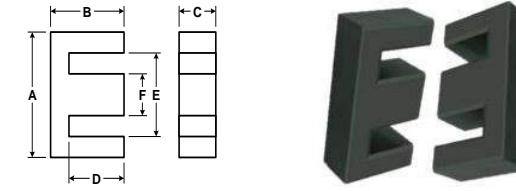
Dimensions		Electrical Characteristics			Material Grades
F (mm)	G (mm)	Le	Ae	Ve	AL Values in nH
		mm	mm <sup>2</sup>	mm <sup>3</sup>	SFP95
2.90±0.20	15.75±0.30	20.6	56.3	1159.0	4000±25%
2.70±0.20	21.75±0.30	23.6	71.0	1677.8	6500 ±25%
3.40±0.20	25.3±0.30	26.7	77.1	2060.0	6500 ±25%
2.80±0.20	35.0±0.20	24.8	102.3	2537.5	7500 ±25%



# EE Cores



# EE Cores

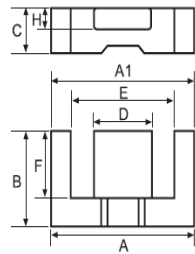


Geometry	Dimensions					
Type	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
EE8.3/4/4	8.60±0.20	4.4±0.20	3.80±0.20	3.3±0.20	5.90 min	2.00±0.20
EE10/5.5/5	10.20±0.20	5.8±0.20	4.80+0.0/-0.3	4.55±0.20	7.70 min	2.40±0.20
EE10.8/5.8/5	10.80±0.20	5.8±0.20	4.80±0.20	4.55±0.20	7.80 min	2.50±0.20
EE11/5.8/05	11.20±0.20	5.8±0.20	5.00±0.20	4.55±0.20	7.90min	2.50±0.20
EE12.6/6.5/6.3	12.65+/-0.30	6.55±0.30	6.15+/-0.15	4.9±0.30	8.90 min	3.70+0.0/-0.3
EE13/06/06	13.20±0.30	6.5±0.30	6.00±0.20	4.9±0.30	9.70 min	2.75±0.20
EE14.2/5/7.2	14.20±0.30	5±0.30	7.20±0.20	3.1±0.30	10.20 min	3.45±0.20
EE14.2/4.7/7.2	14.20±0.30	4.65±0.30	7.20±0.20	3±0.30	10.20 min	3.45±0.20
EE14.5/06/10	14.50±0.30	6.6±0.30	9.80±0.20	4.95±0.30	10.50 min	3.50±0.20
EE16/06/05	16.10+/-0.30	6.1±0.30	4.7+0.0/-0.3	4.1±0.30	11.30 min	4.55±0.20
EE16/06/07	16.10+/-0.30	6.2±0.30	7.10±0.20	4.2±0.30	11.30 min	4.55±0.20
EE16/07/05	16.20±0.30	7.45±0.30	4.80±0.20	5.45±0.30	11.70 min	4.00±0.30
EE16/08/05	16.10+/-0.30	8.2±0.30	4.70+0.0/-0.4	6.1±0.30	11.30 min	4.70+0.0/-0.3
EE16/08/10	16.10±0.30	7.7±0.30	10.0±0.20	5.7±0.30	11.30 min	4.40±0.30
EE17/08/10	17.10±0.30	7.7±0.30	9.80±0.20	5.7±0.30	12.15 min	3.90±0.20
EE16/08/07	16.10+/-0.30	8.25±0.30	7.00±0.20	6.25±0.30	11.20 min	4.60±0.20
EE17/06/08	17.20±0.30	6.35±0.30	8.00±0.20	4±0.30	12.60 min	4.0±0.30
EE19/08/05	19.20±0.30	8.2±0.30	4.80±0.20	6.1±0.30	14.00 min	4.70±0.20
EE19/08/07	19.20±0.30	8.25±0.30	6.70±0.20	6.1±0.30	14.30 min	4.70±0.20
EE19/08/10	19.20±0.30	8.1±0.30	9.70±0.20	5.8±0.30	14.00 min	4.40±0.20
EE20/10/06	20.20±0.30	10.4±0.30	5.70±0.25	7.4±0.30	14.10 min	5.60±0.20
EE20/10/09	20.20±0.30	10.4±0.30	9.00±0.25	7.4±0.30	14.10 min	5.70±0.20
EE21/10/09	21.20±0.30	10.4±0.30	8.90±0.25	7.4±0.30	15.10 min	5.70±0.20
EE20/10/11	20.10+/-0.30	10.1±0.30	10.60±0.30	7.2±0.30	14.50 min	5.70±0.20
EE21/10/11	21.10+/-0.30	10.1±0.30	10.60±0.25	7.2±0.30	15.30 min	5.70±0.20
EE22/08/13	22.3+/-0.3	8.3±0.30	12.90±0.25	5.4±0.30	15.50 min	5.60±0.20
EE25/09/06	25.40±0.30	9.75±0.30	6.25±0.25	6.95±0.30	18.60 min	6.30±0.30
EE25/13/07	25.10+/-0.30	12.6±0.30	7.20±0.25	9.1±0.30	17.50 min	7.20±0.30
EE25/13/11	25.10+/-0.30	12.6±0.30	10.90±0.25	9.1±0.30	17.50 min	7.20±0.30
EE28/10/11	28.10±0.30	10.6±0.30	10.70±0.25	6.8±0.30	20.40 min	7.20±0.30
EE30/15/07	30.10±0.40	15.1±0.30	7.05±0.25	10.1±0.30	19.50 min	6.95±0.25
EE32/16/09	32.10±0.40	16.1±0.30	9.15±0.25	11.6±0.30	22.70 min	9.20±0.25
EE42/21/15	42.20+/-0.40	21.1±0.40	14.95±0.30	15.15±0.40	29.50 min	12.10±0.20
EE42/21/20	42.20+/-0.40	21.1±0.40	20.00+0/-0.6	15.15±0.40	29.50 min	12.20+0/-0.5
EE55/28/21	55.20+/-0.40	27.5±0.40	20.70±0.30	18.9±0.40	37.50 min	16.95±0.25
EE55/28/25	55.20+/-0.40	27.5±0.40	24.80±0.30	18.9±0.40	37.50 min	16.95±0.25
EE65/32/27	65.20+/-0.50	32.5±0.40	27.20+/-0.4	22.6±0.40	44.20 min	19.70+/-0.50
EE65/32/13	65.20+/-0.50	32.5±0.40	13.70-0.60	22.6±0.40	44.20 min	20.00+/-0.50
EE100/60/28	100.3+/-1.00	59.4±0.50	27.5+/-0.5	45.85±0.50	72.00 min	27.50+/-0.50

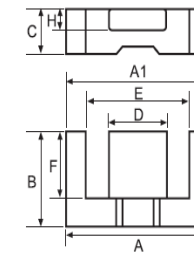
Electrical Characteristics			Material Grades		SFP4, P <sub>v</sub> (100kHz, 200mT,100°C ) (W/Set)	SFP95, P <sub>v</sub> (100kHz, 200mT,100°C ) (W/Set)
Le	Ae	Ve	AL Values in nH			
mm	mm <sup>2</sup>	mm <sup>3</sup>	SFP4	SFP95		
19.5	7.0	136.6	600±25%	750±25%	≤0.094	≤0.092
27.1	11.1	302.7	800±25%	920±25%	≤0.15	≤0.08
27.0	12.1	326.7	800±25%	920±25%	≤0.15	≤0.08
27.7	13.3	366.7	950±25%	1200±25%	≤0.24	≤0.22
29.6	22.4	663.0	1380+30%-20%	-	≤0.29	-
30.2	17.2	520.0	1100±25%	1200±25%	≤0.38	≤0.235
25.0	26.0	647.9	1700±25%	2800±25%	≤0.47	≤0.40
25.2	25.4	641.2	1700±25%	2800±25%	≤0.47	≤0.40
32.0	34.2	1094.1	2100±25%	-	≤0.76	-
28.6	19.2	549.0	1200±25%	1250±25%	≤0.30	0.24
28.9	32.7	945.2	1800+30%-20%	2400±25%	≤0.49	≤0.40
35.1	19.2	675.0	1000+30%-20%	1400±25%	≤0.40	≤0.35
37.6	20.1	756.0	1100±25%	1350±25%	≤0.38	≤0.32
37.5	40.3	1546.9	1720±25%	3200±25%	≤1.00	≤0.95
37.7	37.7	1491.8	2400±25%	3200±25%	≤1.00	≤0.95
40.5	31.9	1292.8	1900+30%-20%	-	≤0.93	-
31.7	33.7	1068.3	1900nH±25%	2800±25%	≤0.65	-
39.6	22.5	891.0	1150+30%-20%	-	≤0.50	≤0.45
40.6	31.0	1254.3	1600±25%	-	≤0.75	-
40.5	44.8	1811.6	2400+30%-20%	-	≤1.00	≤0.90
46.3	32.1	1490.0	1570+30%-20%	2000±25%	≤0.75	-
46.2	51.1	2357.0	2200±25%	-	≤1.40	-
47.5	47.5	2257.9	2200±25%	-	≤1.40	-
46.5	56.8	2640.3	2730±25%	3000+30/-20%	≤1.40	≤1.38
46.0	60.1	2787.0	2730±25%	3000+30/-20%	≤1.40	≤1.38
40.6	78.6	3191.4	2800±25%	-	≤1.40	-
49.2	38.8	1910.0	1670+30%-20%	-	≤1.20	-
57.5	52.5	3020.0	1850+30%-20%	2300±25%	≤1.60	≤1.45
57.8	77.0	4440.0	2700+30%-20%	-	≤2.15	-
51.6	81.7	4215.0	3500±25%	-	≤2.40	-
66.1	59.0	5900.3	1900+30%-20%	-	≤2.20	-
74.0	83.1	6140.0	2300+30%-20%	-	≤3.00	-
97.0	178.0	17300.0	3950+30%-20%	5100+30/-20%	≤9.00	≤8.70
97.0	234.0	22700.0	5200+30%-20%	6700+30/-20%	≤2.40 @ 100mT	≤2.2 @ 100mT
124.0	354.0	43900.0	6400+30%-20%	8300±25%	≤3.80 @ 100mT	≤3.60 @ 100mT
124.0	420.0	52100.0	7300+30%-20%	8300+30%-20%	≤4.80 @ 100mT	-
147.0	535.0	78600.0	7900+30%-20%	8500+30%-20%	≤6.70 @ 100mT	≤6.50 @ 100mT
147.0	267.0	39200.0	3950+25%-25%	-	-	-
274.0	735.0	201390.0	6500+30%-20%	-	≤4.70 @ 100mT/25kHz	≤4.80 @ 100mT/25kHz



# EFD Cores



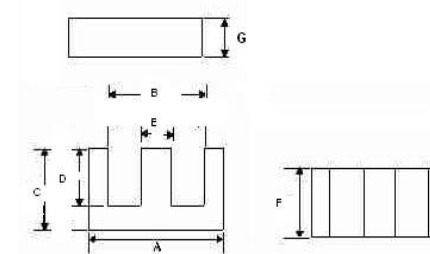
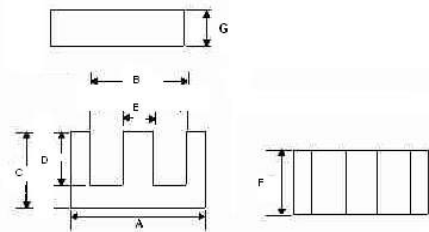
# EFD Cores



Geometry	Dimensions						
Type	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	H (mm)
EFD15.8/8/5	15.80±0.30	7.8±0.30	4.60±0.20	5.25±0.30	11.60±0.35	5.75±0.30	2.30±0.15
EFD20/10/7	20.5±0.30	10.6±0.30	6.65±0.15	8.90±0.20	15.60 min	8.1±0.30	3.60±0.15
EFD21/10/7	21.3±0.30	10.6±0.30	6.65±0.15	8.90±0.20	16.10 min	8.1±0.30	3.60±0.15
EFD25/13/9	25.20±0.30	12.7±0.30	9.10±0.20	11.30±0.20	18.50 Min	9.6±0.30	5.20±0.15
EFD25.8/13/9	25.80±0.30	12.7±0.30	9.10±0.20	11.30±0.20	19.50 min	9.6±0.30	5.10±0.15
EFD31/15/09	31.60±0.30	15.2±0.30	9.25±0.25	14.50±0.25	23.60 min	11.3±0.30	4.75±0.20

Electrical Characteristics			Material Grades		SFP4, P <sub>v</sub> (100kHz, 200mT,100°C ) (W/Set)	SFP95, P <sub>v</sub> (100kHz, 200mT,100°C ) (W/Set)
Le	Ae	Ve	AL Values in nH			
mm	mm <sup>2</sup>	mm <sup>3</sup>	SFP4	SFP95		
36.1	14.86	536.5	780+30%-20%	1050+/-25%	≤0.28	
47	31	1460	1200+30/-20%	1800+/-25%	≤1.05	≤0.86
48.73	30.65	1482.8	1200+30/-20%	1800+/-25%	≤1.05	≤0.86
59.18	53.28	3153	2000+30%-20%	2800+/-25%	≤1.80	
60.73	54.65	3325.8	2000+30%-20%	2800+/-25%	≤1.80	
68	69	4690	2050±25%	-	≤2.60	

# EI Cores

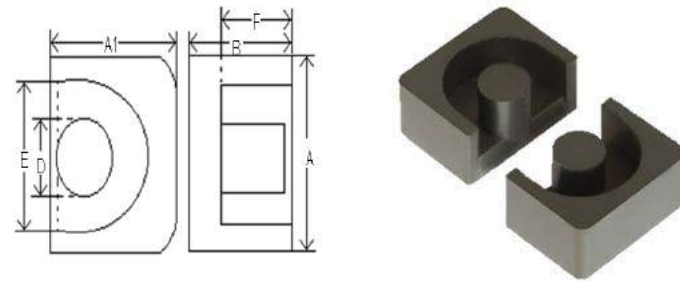


Geometry	Dimensions				
Type	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
EI28/11	28.00±0.4	18.6+0.8	17.3±0.3	12.8±0.2	7.5-0.8
EI30/11	30.0+0.7/-0.20	20.7+0.7	21.0+0.6	16.0+0.6	11.0-0.7
EI33/13	33.0±0.50	23.2+0.8	23.30±0.3	19.05±0.35	9.7±0.3
EI35/12	35.0+0.8/-0.5	25.0+0.8	23.80±0.7	18.0+0.6	10.3-0.6
EI40/12	40.0±0.50	27.2+1.0	27.20±0.5	20.0±0.5	12.0-0.7

Dimensions		Electrical Characteristics			Material Grades
F (mm)	G (mm)	Le	Ae	Ve	AL Values in nH
		mm	mm <sup>2</sup>	mm <sup>3</sup>	SFP4
11.0-0.6	3.5±0.2	49.5	84.4	4177.8	3600+30/-20%
11.0-0.7	5.5±0.2	58.5	110.4	6458.4	3700+30/-20%
12.70±0.3	5.0±0.2	66.9	118.8	7948	3600+30/-20%
11.70±0.6	5.5±0.2	67.3	120	8076	3600+30/-20%
12.0-0.7	7.5±0.3	76.8	148	11366.4	3950+30/-20%



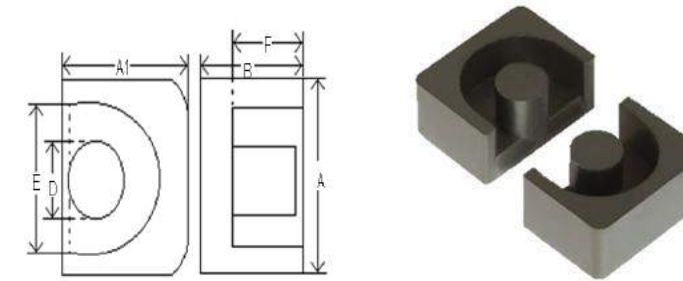
# EP Cores



Geometry	Dimensions					
Type	A (mm)	A1 (mm)	B (mm)	D (mm)	E (mm)	F (mm)
EP5/3/4	6.00±0.15	3.80±0.10	2.80±0.05	1.70±0.10	4.40±0.15	2.00±0.10
EP7/3.5/6	9.20±0.20	6.35±0.15	3.75±0.10	3.30±0.10	7.40±0.20	2.60±0.10
EP10/5/7	11.50±0.30	7.65±0.20	5.20±0.10	3.30±0.15	9.40±0.20	3.70±0.10
EP13/6.5/9	12.50±0.30	8.80±0.20	6.50±0.10	4.35±0.15	10.10±0.20	4.60±0.10
EP13/6.5/9 Laker	12.60±0.30	8.80±0.20	6.62±0.15	4.35±0.15	10.10±0.30	4.80±0.15
EP17/8.5/11	18.00±0.40	11.00±0.20	8.40±0.20	5.70±0.20	12.00±0.40	5.65±0.15

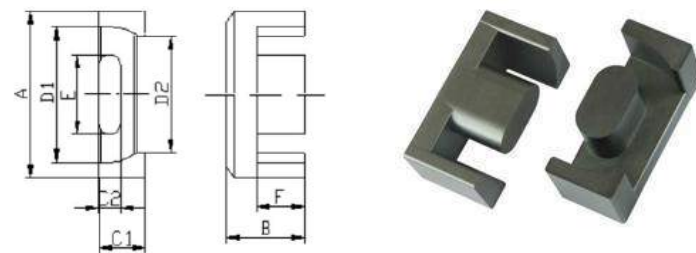


# EP Cores



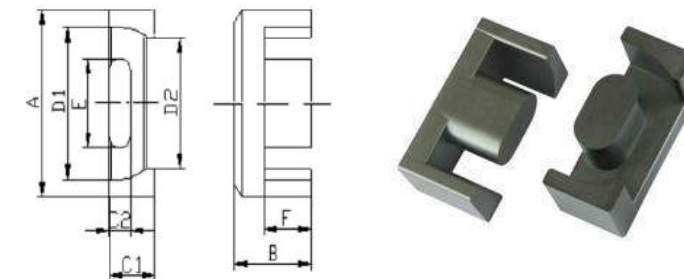
Electrical Characteristics			Material Grades	
Le	Ae	Ve	AL Values in nH	
mm	mm <sup>2</sup>	mm <sup>3</sup>	SFP4	SFA05
9.7	3.0	28.7	400±25%	-
15.7	10.3	162.0	1100+30/-20%	2000+30/-20%
19.2	11.3	217.0	1000+30/-20%	2000+30/-20%
24.2	19.5	472.0	1600+30/-20%	2800+30/-20%
24.2	19.5	472.0	1600+30/-20%	2800+30/-20%
28.7	34.0	970.0	2500+30/-20%	-

# EPC Cores



Geometry	Dimensions							
Type	A (mm)	B (mm)	C1 (mm)	C2 (mm)	D1 (mm)	D2 (mm)	E (mm)	F (mm)
EPC13/6.5/4.7	13.60±0.30	6.7±0.20	4.70±0.15	2.00±0.10	10.30 min	8.10 min	5.30 Min	4.8±0.20
EPC14/6.5/4.7	14.30±0.30	6.7±0.20	4.70±0.15	2.00±0.10	11.40 min	9.40 min	5.40±0.10	4.8±0.20
EPC17/8.50/6	17.80±0.40	8.55±0.20	6.00±0.20	2.60±0.20	14.60 min	11.80 min	7.50±0.20	6.1±0.20

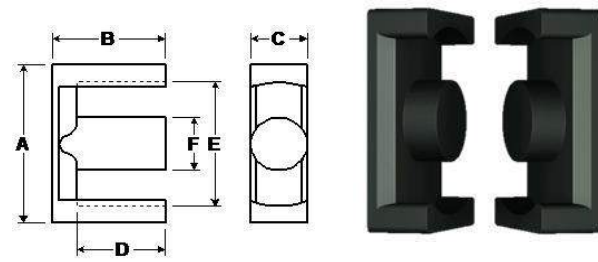
# EPC Cores



Electrical Characteristics			Material Grades	SFP4, Pv (100kHz, 200mT, 100°C) (W/Set)
Le	Ae	Ve	AL Values in nH	
mm	mm <sup>2</sup>	mm <sup>3</sup>	SFP4	
29.4	13.7	402.1	850±25%	≤0.25
30.8	13.0	386.0	850±25%	≤0.30
40.8	20.0	817.0	1150±25%	≤0.25



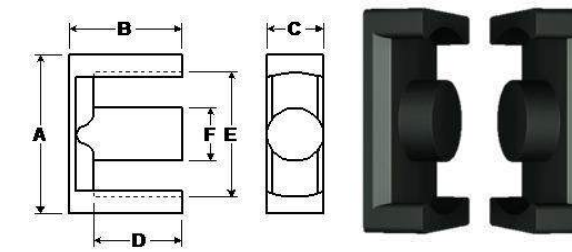
# ER Cores



Geometry	Dimensions					
Type	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
ER28/14/11	28.55±0.55	14.2±0.40	11.40±0.25	9.9±0.40	21.80 min	9.90±0.25
ER29/17/11	29.50±0.60	17±0.40	11.40±0.25	12.7±0.40	22.40 min	9.90±0.25
ER35/20/11	35.0±0.6	20.7±0.4	11.3±0.25	14.7±0.40	25.6min	11.3±0.25
ER35/22/11	35.0±0.6	21.4±0.4	11.3±0.25	15.4±0.40	25.6min	11.3±0.25
ER42/22/15	42.0±1.0/-0.7	21.6±0.4	14.7±0.30	15.95±0.40	30.4min	14.7±0.3

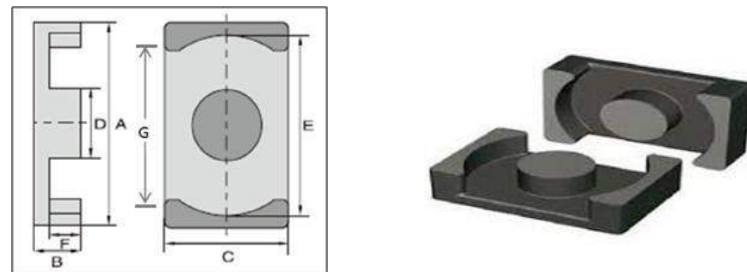


# ER Cores



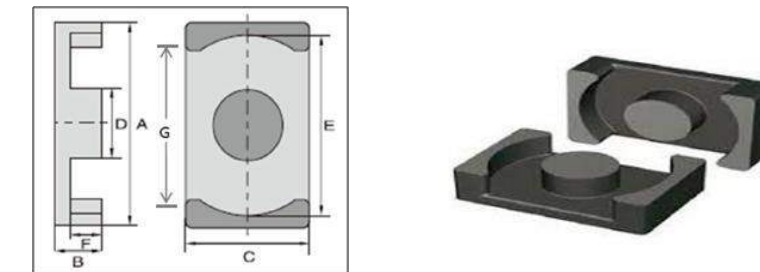
Electrical Characteristics			Material Grades	SFP4, P <sub>v</sub> (100kHz, 200mT, 100°C) (W/Set)
Le	Ae	Ve	AL Values in nH	
mm	mm <sup>2</sup>	mm <sup>3</sup>	SFP4	
63.4	86.0	5460	2700±25%	≤1.80
77.27	84.0	6478	2450±25%	≤1.90
89.6	111.0	9930	2700±25%	≤2.50
90.8	111.0	10800	2650±25%	≤2.50
99.0	170.0	16800	3700±25%	≤3.80

# EQ Cores



Geometry	Dimensions						
Type	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
EQ25/14	25.10±0.30	7.3±0.20	18.00±0.30	10.80±0.20	21.50 Min	5.1±0.20	16.00 min
EQ25/15	25.10±0.30	7.5±0.20	18.00±0.30	10.80±0.20	21.50 Min	5.4±0.20	16.00 min
EQ30/16	30.0 ±0.40	8±0.15	20.0 ±0.30	11.0 ±0.20	25.60 min	5.3±0.20	19.0 min
EQ31/17	31.5 ±0.50	8.5±0.20	20.30 ±0.40	13.20 ±0.25	26.30 min	5.35±0.20	21.8 min

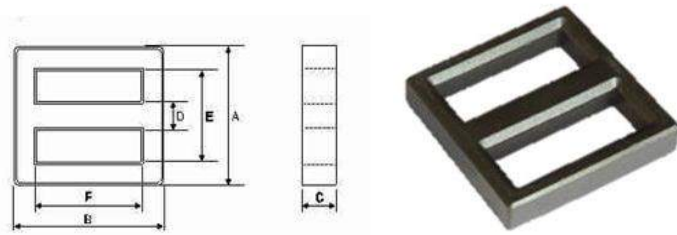
# EQ Cores



Electrical Characteristics			Material Grades	SFP4, P <sub>v</sub> (100kHz, 200mT, 100°C) (W/Set)
Le	Ae	Ve	AL Values in nH	
mm	mm <sup>2</sup>	mm <sup>3</sup>	SFP4	
38.2	89.0	3461.2	4800±25%	≤2.45
38.2	89.0	3461.2	4500±25%	≤1.98
46.00	108.0	4970	4900 ±25%	≤ 2.70
43.8	136.2	5961.5	6200 ±25%	≤ 4.25



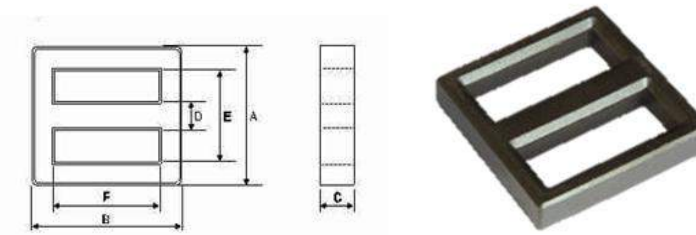
# ET Cores



Geometry	Dimensions					
Type	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
ET20/20/04	20.10±0.40	20.10±0.40	4.40±0.20	4.00±0.20	15.70min	15.70min
ET24/24/08	24.20±0.50	24.20±0.50	4.00±0.30	4.00±0.20	19.00min	19.00min
ET28/28/05	28.40±0.50	28.40±0.50	5.00±0.30	5.00±0.30	22.20min	22.20min
ET29/29/05	28.70±0.50	28.70±0.50	5.00±0.30	5.00±0.30	22.20min	22.20min
ET35/35/07	35.30±0.60	35.30±0.60	7.40±0.25	7.40±0.25	26.80min	26.80min

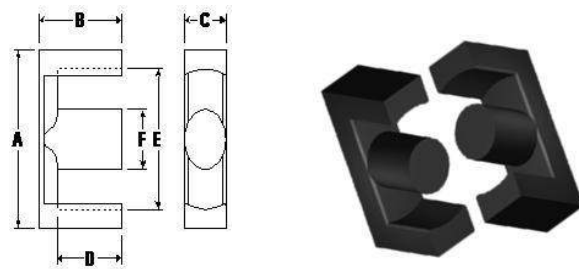


# ET Cores



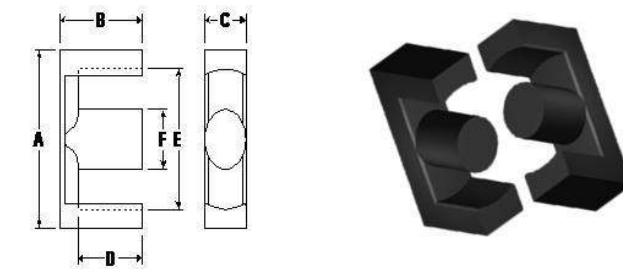
Electrical Characteristics			Material Grades		
Le	Ae	Ve	AL Values in nH		
mm	mm <sup>2</sup>	mm <sup>3</sup>	SFA07	SFA10	SFA12
52.1	17.6	917.0	3100±25%	4400±25%	4850±25%
60.0	18.0	1098.0	2800±25%	≥3500	4300±25%
70.0	27.0	1972.0	3500±25%	4500±25%	5800±25%
71.4	28.02	2000.7	3600±25%	-	-
86.9	57.1	4962.0	5750+30%/-20%	-	-

# ETD Cores



Geometry	Dimensions					
Type	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
ETD29/16/10	29.80±0.40	16±0.40	9.50±0.30	11.3±0.40	22.00 min	9.50±0.30
ETD34/17/11	34.50±0.40	17.5±0.40	10.80±0.30	12.6±0.40	25.60 min	10.80±0.30
ETD39/20/13	39.00±0.40	20±0.40	12.50±0.30	14.5±0.40	29.30 min	12.50±0.30
ETD39/21/13	39.00±0.40	21.1±0.40	12.50±0.30	15.9±0.40	29.30 min	12.50±0.30
ETD44/22/15	44.00±0.40	22.4±0.40	14.80±0.40	16.6±0.40	32.50 min	14.80±0.40
ETD49/25/16	48.70±0.40	24.8±0.40	16.30±0.40	18.2±0.40	36.10 min	16.70+0/-0.8

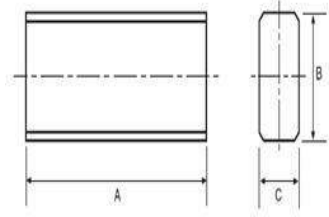
# ETD Cores



Electrical Characteristics			Material Grades		SFP4, P <sub>v</sub> (100kHz, 200mT, 100°C) (W/Set)
Le	Ae	Ve	AL Values in nH		
mm	mm <sup>2</sup>	mm <sup>3</sup>	SFP4	SFP95	
70.4	76.0	5350.0	2200+30/-20%	3000+/-25%	≤2.80
78.6	97.1	7630.0	2600+/-25%	3300+30/-20%	≤4.00
92.3	125.0	11500.0	2700+30%/-20%	-	≤6.00
97.1	128.7	12499.2	2650+/-25%	-	≤6.00
103.0	173.0	17800.0	3500+/-25%	4400+30/-20%	≤9.40
114.6	212.3	24317.7	3800+30/-20%	-	≤12.40



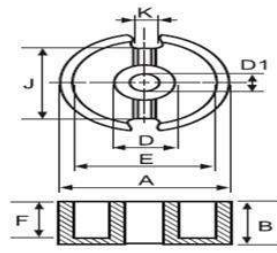
# I Cores



Geometry Type	Dimensions			Material Grade
	A (mm)	B (mm)	C (mm)	
I48/48/2.7	48.0±0.50	48.0±0.50	2.70±0.20	SFP95
I53.3/53.3/2.7	53.30±0.80	53.30±0.80	2.70±0.20	SFP95
I60/15/06	60.0±1.0	15.0±0.80	6.0±0.50	SFP95
I70/15/06	70.0±1.0	15.0±0.80	6.0±0.50	SFP95
I100/40/06	100.0±2.0	40.0±1.0	6.0±0.50	SFP95
I100/52.5/06 (Special)	100.0±2.0	52.50±1.0	6.0±0.50	SFP95
I100/100/06	100.0±2.0	100.0±2.0	6.0±0.50	SFP95

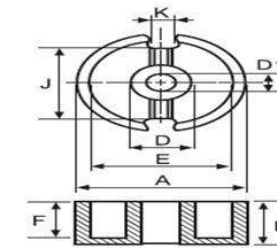


# Pot Cores



Geometry Type	Dimensions					
	A (mm)	B (mm)	D (mm)	E (mm)	F (mm)	J (mm)
POT9x5	9.15±0.15	2.65±0.05	3.80±0.10	7.62±0.15	1.87 ± 0.10	5.65±0.15
POT11x7	11.10±0.20	3.30±0.10	4.60±0.10	9.20±0.20	2.3±0.10	6.80±0.25
POT14x8	14.00±0.25	4.20±0.10	5.99max	11.60min	2.79min	9.50±0.60
POT18x11CH	17.90±0.30	5.3±0.10	7.40±0.15	15.25±0.25	3.80±0.10	11.55±0.30
POT24.3x17.6CH	24.30±0.50	8.90+0/-0.45	10.88±0.30	20.83±0.5	5.90+0.4/-0.00	16.80±0.35
POT35.5x22CH	35.50±0.50	10.90±0.20	15.95±0.25	30.30±0.40	7.50±0.20	26.80±0.50
POT69x28CH	69.00±1.20	14.00±0.20	29.00±0.50	58.4+1.00/-0.80	9.30±0.30	48.20±0.80

# Pot Cores

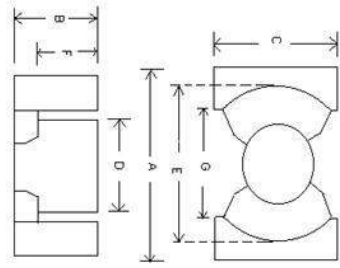


Dimensions		Electrical Characteristics			Material Grades		
K (mm)	D1 (mm)	Le	Ae	Ve	AL Values (±25%) in nH		
		mm	mm <sup>2</sup>	mm <sup>3</sup>	SFP4	SFP33	SFP48
2.10±0.30	-	13.52	12.76	172.52	1300	-	-
2.20±0.30	-	16.3	19	309	2000	800	2000
3.30±0.60	-	21	29.9	628	2500	1010	2400
3.20±0.30	3.00±0.1	25.8	43.3	1120	2850	-	2850
3.95±0.25	5.51±0.20	52.73	103.34	5448.97	4200	-	-
4.00±0.30	5.65±0.15	70.47	237.15	16712	7500	-	7500
10.50±0.50	8.50±0.50	78.49	624.89	49045.32	15000	-	-

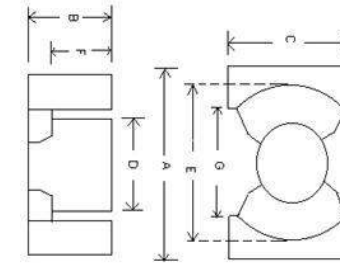




# PQ Cores



# PQ Cores

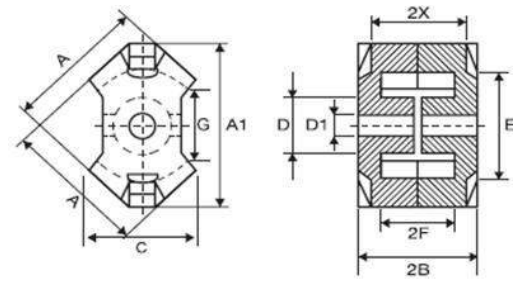


Geometry	Dimensions						
	Type	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
PQ21/14	21.30±0.30	7±0.30	14.00±0.30	8.80±0.20	18.00 Min	4.5±0.30	13.00 min
PQ21/16	21.30±0.30	8.1±0.30	14.00±0.30	8.80±0.20	18.00 Min	5.15±0.30	13.00 min
PQ20/16	20.50±0.30	8.1±0.30	14.00±0.30	8.80±0.20	17.50 Min	5.15±0.30	12.00 min
PQ20/12	20.50±0.30	6.25±0.30	14.00±0.30	8.80±0.20	17.50 Min	3.75±0.30	12.00 min
PQ21/12	21.30±0.30	6.25±0.30	14.00±0.30	8.80±0.20	18.00 Min	3.75±0.30	13.00 min
PQ20/12.5	20.50±0.30	6.5±0.30	14.00±0.30	8.80±0.20	17.50 Min	4±0.30	12.00 min
PQ20/20	20.50±0.30	10.3±0.30	14.00±0.30	8.80±0.20	17.50 Min	7.3±0.30	12.00 min
PQ21/20	21.30±0.30	10.3±0.30	14.00±0.30	8.80±0.20	18.50 Min	7.3±0.30	13.00 min
PQ26/25	26.50±0.40	12.6±0.30	19.00±0.30	12.00±0.25	22.00 min	8.45±0.30	15.80 min
PQ26/20	26.50±0.40	10.4±0.30	19.00±0.30	12.00±0.25	22.00 min	6.5±0.30	15.80 min
PQ27/16	27.0±0.40	8.1±0.30	19.00±0.30	12.00±0.25	22.20 min	5±0.30	16.50 min
PQ27/20	27.0±0.40	10.4±0.30	19.00±0.30	12.00±0.25	22.20 min	6.5±0.30	16.50 min
PQ27.5/20	27.50±0.40	10.4±0.30	19.00±0.30	12.00±0.25	23.00 min	6.5±0.30	16.80 min
PQ27/25	27.00±0.40	12.6±0.30	19.00±0.30	12.00±0.30	22.20 min	8.45±0.30	16.50 min
PQ27.5/25	27.50±0.40	12.6±0.30	19.00±0.30	12.00±0.30	23.00 min	8.45±0.30	16.80 min
PQ32/20	32.00±0.40	10.45±0.30	22.00±0.40	13.45±0.30	27.00 min	6.3±0.30	19.00 min
PQ32/25	32.00±0.40	12.8±0.30	22.00±0.40	13.45±0.30	27.00 min	8.7±0.30	19.00 min
PQ32/30	32.00±0.40	15.4±0.30	22.00±0.40	13.45±0.30	27.00 min	11±0.30	19.00 min
PQ32.7/30	32.70±0.40	15.4±0.30	22.00±0.40	13.45±0.30	28.0 min	11±0.30	19.50 min
PQ33/20	33.30±0.40	10.45±0.30	22.00±0.40	13.45±0.30	28.00 min	6.3±0.30	20.00 min
PQ33/25	33.30±0.40	12.8±0.30	22.00±0.40	13.45±0.30	28.00 min	8.7±0.30	20.00 min
PQ33/30	33.30±0.40	15.4±0.30	22.00±0.40	13.45±0.30	28.00 min	11±0.30	20.00 min
PQ35/35	35.10±0.40	17.6±0.40	26.00±0.40	14.35±0.30	31.50 min	12.7±0.40	23.50 min
PQ35/20	35.10±0.40	10.4±0.40	26.00±0.40	14.35±0.30	31.50 min	5.9±0.30	23.50 min
PQ40/20	40.50±0.40	10.2±0.40	28.00±0.40	14.90±0.30	36.00 min	5.4±0.40	27.30 min
PQ40/25	40.5±0.40	13.5±0.30	28.10±0.40	14.90±0.30	36.30 min	8.5±0.40	27.50 min
PQ40/27	40.5±0.40	13.5±0.30	28.10±0.40	14.90±0.30	36.30 min	8.5±0.30	27.50 min
PQ40/30	40.50±0.40	15.15±0.40	28.00±0.40	14.90±0.30	36.00 min	10±0.40	27.30 min
PQ40/40	40.50±0.40	20.1±0.40	28.00±0.40	14.90±0.30	36.00 min	14.95±0.40	27.30 min
PQ41/20	41.8±0.40	10.2±0.40	28.00±0.40	14.90±0.30	37.00 min	5.4±0.40	29.00 min
PQ50/50	50.50±0.50	25.2±0.40	32.00±0.40	20.00±0.30	43.50 Min	18.25±0.40	31.50 min

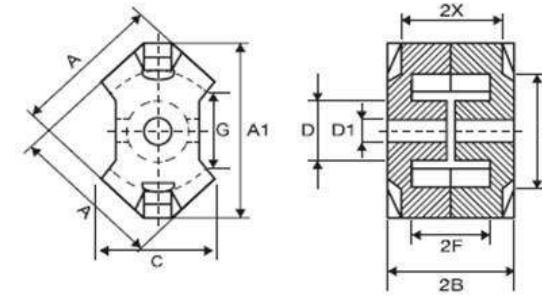
Electrical Characteristics			Material Grades		SFP4, P <sub>v</sub> (100kHz, 200mT, 100°C) (W/Set)	SFP95, P <sub>v</sub> (100kHz, 200mT, 100°C) (W/Set)
Le	Ae	Ve	AL Values in nH			
mm	mm <sup>2</sup>	mm <sup>3</sup>	SFP4	SFP95		
34.57	57.60	2017.70	3100±25%	-	≤0.89	-
46.52	62.21	2894.10	3100±25%	3750+30/-20%	≤1.40	≤1.35
38.57	58.60	2251.70	3100±25%	3750+30/-20%	≤1.40	≤1.35
31.36	57.69	1809.00	3100±25%	-	≤0.98	-
30.56	60.84	1859.16	3100±25%	-	≤0.98	-
31.36	57.69	1809.00	3100±25%	-	≤0.98	-
45.20	62.90	2843.00	2650±25%	3300+/-25%	≤1.65	≤1.60
48.30	59.80	2888.40	2650±25%	3300+/-25%	≤1.65	≤1.60
54.70	120.70	6603.90	4500±25%	5700+30/-20%	≤3.75	≤3.60
44.40	122.60	5440.00	5000±25%	6300+/-25%	≤3.20	≤3.00
46.13	111.67	5196.50	5000±25%	-	-	-
46.13	111.67	5196.50	5000±25%	6300+/-25%	≤3.00	-
53.90	113.04	6092.80	5000±25%	6300+/-25%	≤3.00	-
57.90	125.30	7260.00	5000nH±25%	5700+30/-20%	≤3.80	≤3.70
58.65	129.80	7398.00	5000nH±25%	5700+30/-20%	≤3.80	≤3.70
49.15	156.14	7674.50	5400±25%	7600+30/-20%	≤5.50	≤4.70
63.63	161.00	10243.50	5000±25%	7000+/-25%	≤5.20	≤5.00
67.80	153.80	10440.00	4500±25%	6100+30/-20%	≤7.0	≤6.30
73.36	154.00	11298.30	4500±25%	6100+30/-20%	≤6.80	≤6.40
49.15	156.14	7674.50	5400±25%	7600+30/-20%	≤5.50	≤4.70
63.63	161.00	10243.50	5000±25%	7000+/-25%	≤5.80	-
74.60	161.00	11970.00	4500±25%	6100+30/-20%	≤6.80	≤6.40
79.20	169.70	13440.00	4500+30/-20%	5700+30/-20%	≤8.75	≤7.92
57.70	179.30	10351.20	6500±25%	-	≤5.60	-
61.60	203.31	12850.30	6000+/-25%	-	≤6.70	-
70.93	209.46	14857.60	5600+/-25%	-	≤8.74	-
75.28	204.46	15425.60	5600+/-25%	-	≤8.74	-
74.10	190.40	14120.00	5200 +30%/-20%	6500 +30%/-20%	≤ 1.50	≤ 1.45
103.96	191.90	19952.00	4300+30/-20%	5500+30/-20%	≤1.80 @ 100mT	≤1.75 @ 100mT
61.60	203.31	12850.30	6000+/-25%	-	≤6.70	-
115.53	314.40	36356.10	6500+30%-20%	8200+30/-20%	≤3.8 @ 100mT	≤3.6 @ 100mT



# RM Cores

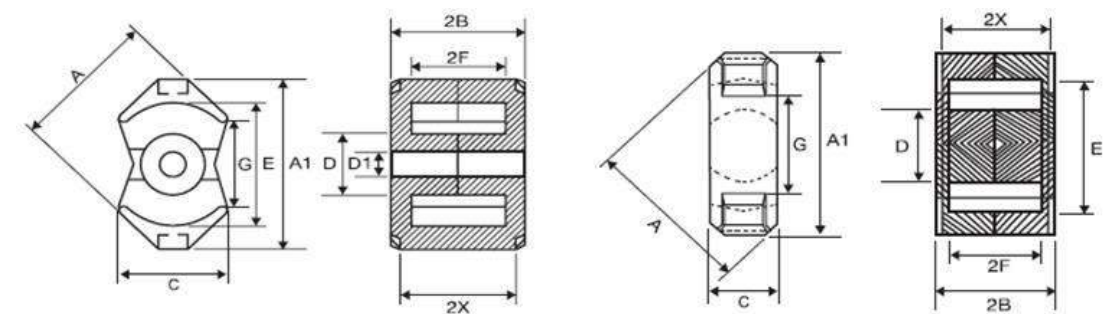
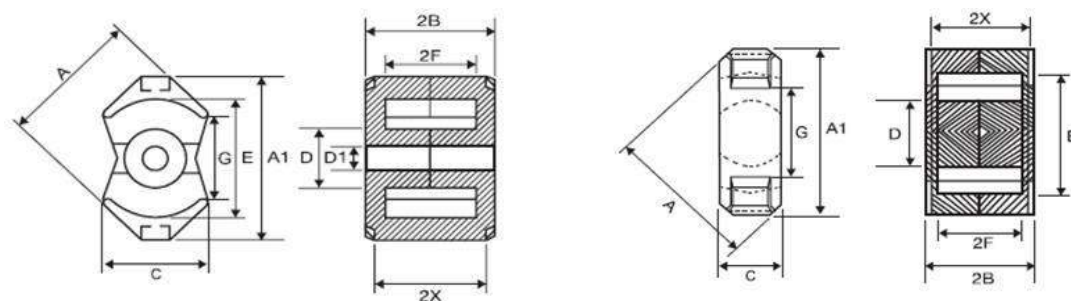


# RM Cores



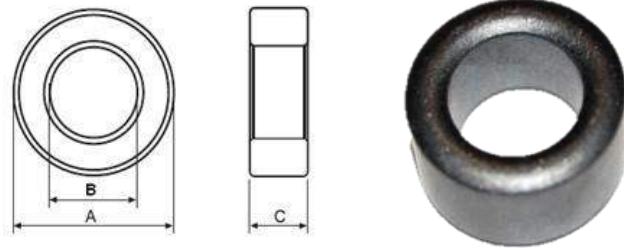
Geometry	Dimensions							
Type	A (mm)	A1 (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
RM4	9.60±0.20	10.80±0.20	5.20±0.05	6.40±0.20	3.80±0.10	8.15±0.15	3.60±0.10	-
RM5	12.05±0.25	14.30±0.30	5.20±0.10	9.55±0.25	4.80±0.10	10.40±0.20	3.35±0.20	-
RM6	14.40±0.30	17.60±0.30	6.20±0.10	10.47±0.25	6.30±0.10	12.64±0.25	4.20±0.20	-
RM8	19.35±0.35	22.76±0.45	8.20±0.15	15.45±0.30	8.40±0.15	17.30±0.30	5.60±0.20	-
RM10	24.15±0.55	27.80±0.65	9.30±0.15	19.85±0.30	10.65±0.20	21.65±0.45	6.40±0.20	-
RM12	29.20±0.60	36.85±0.75	12.25±0.10	24.50±0.10	12.60±0.20	25.45±0.55	8.55±0.15	13.40min
RM14	34.80+0/-1.3	42.2+0/-1.2	15.10+0/-0.2	26.80±0.30	15.0+0/-0.5	29.00+1.0/-0	10.4+0.6/-0	17.00min

Dimensions		Electrical Characteristics			Material Grades			Reference
H (mm)	2X (mm)	Le	Ae	Ve	AL Values (+30/-25%) in nH			Type
		mm	mm <sup>2</sup>	mm <sup>3</sup>	SFP4	SFA05	SFA12	
-	9.00±0.25	22.0	13.0	286.0	1100	1700	-	1.0
-	9.10±0.25	22.1	23.8	526.0	2000	3500	7500min	1.0
-	10.40±0.25	28.6	36.6	1050.0	2400	4300	7490min	2.0
-	14.40±0.25	38.0	64.0	2430.0	3300	5700	-	1.0
-	16.30±0.25	44.6	96.6	4310.0	4200	7600	-	2.0
15.85±0.25	22.10±0.25	60.6	144.0	8752.0	5550±25%	-	-	3.0
-	27.20±0.25	70.0	200.0	14000.0	6000	-	-	3.0

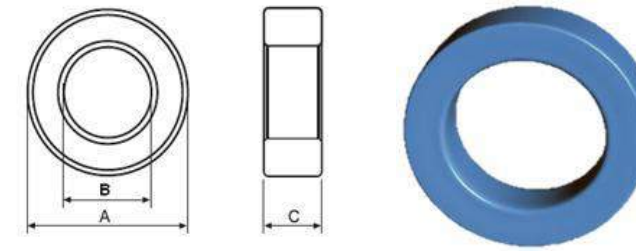




## Toroidal Cores



## Toroidal Cores



Geometry	Dimensions		
Type	A (mm)	B (mm)	C (mm)
T6/3/3C	6.0±0.3	3.0±0.3	3.0±0.2
T6/3/3	6.0±0.3	3.0±0.3	3.0±0.2
T6.35/3.81/3.18	6.35±0.3	3.81±0.3	3.18±0.2
T6.35/3.81/3.18	6.35±0.3	3.81±0.3	3.18±0.2
T9/5/3	9.10±0.3	5.10±0.3	3.00±0.3
T9/5/3C	10.0max	4.20min	3.90max
T9.53/4.75/4.8	9.53±0.25	4.75±0.15	4.80±0.15
T9.53/4.75/4.8C	10.38max	4.03min	5.53max
T10/6/4	10.1±0.3	6.1±0.3	4.0±0.3
T10/6/4C	11.00max	5.20min	4.90max
T10/6/5	10.1±0.3	6.1±0.3	5.0±0.3
T10/6/5C	11.00max	5.20min	5.90max
T11.5x7.5x3.6	11.50 ± 0.30	7.50±0.3	3.6±0.3
T11.5x7.5x3.6C	12.40max	6.6min	4.5max
T12.5/7.5/5	12.5±0.3	7.5±0.3	5.0±0.3
T12.5/7.5/5C	13.40max	6.60min	5.90max
T13.3/8.3/5	13.3±0.3	8.3±0.3	5.0±0.3
T13.3/8.3/5C	14.20max	7.40min	5.90max
T14/8/7	14.0±0.4	8.0±0.3	7.0±0.3
T14/8/7C	15.00max	7.10min	7.90max
T16/9.6/6.1	16.0±0.3	9.6±0.3	6.10±0.3
T16/9.6/6.1C	16.90max	8.70min	7.00max
T18/10/7	18.0±0.3	10.0±0.3	7.0±0.3
T18/10/7C	18.90max	9.10min	7.90max
T20/10/7	20.0±0.4	10.0±0.4	7.00±0.3
T20/10/7C	21.0max	9.00min	7.90max
T22/14/6.5	22.0±0.40	14.0±0.40	6.5±0.30
T22/14/6.5C	23.0max	13.00min	7.40max
T22/14/10	22.0±0.40	14.0±0.40	10.0±0.30
T22/14/10C	23.0max	13.00min	10.90max

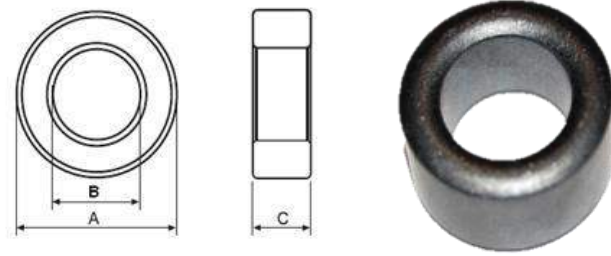
\*C= Coated.

\*Customized Dimensions are available.

Electrical Characteristics			Material Grades				
Le	Ae	Ve	AL Values (±25%) in nH			AL Values (±30%) in nH	
mm	mm <sup>2</sup>	mm <sup>3</sup>	SFP4	SFA05	SFA07	SFA10	SFA12
13.1	4.32	56.5	1000	2200	2800	4000	4800
15.3	3.95	60.4	790	1590	2220	3180	3820
20.77	5.83	121.12	880	1760	2470	3520	4060
20.72	11.02	228.28	1670	3340	4680	6680	7720
24.07	7.83	188.44	1020	2040	2850	4080	4900
24.07	9.79	235.55	1270	2550	3570	5100	5820
28.96	7.09	205.33	758	1510	2120	3030	3635
30.09	12.23	368.05	1250	2500	3500	5000	6000
32.70	12.27	401.31	1150	2300	3200	4600	5500
32.82	20.46	671.46	1956	3920	5480	7840	9170
38.52	19.10	735.68	1520	3050	4270	6100	7320
41.55	27.21	1130.43	2054	4110	5760	8230	9600
43.55	33.63	1464.72	2335	4670	6540	9300	11200
54.67	25.56	1397.42	1473	2940	4110	5870	6930
54.67	39.33	2149.88	2259	4520	6330	9040	10670



## Toroidal Cores



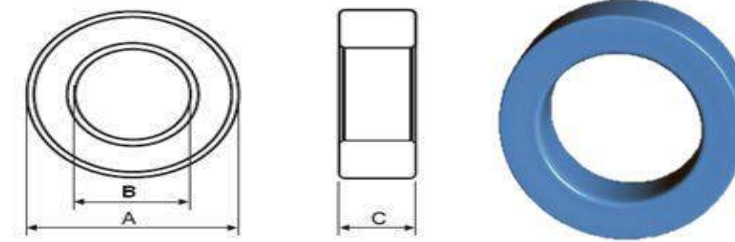
Geometry	Dimensions		
Type	A (mm)	B (mm)	C (mm)
T25/15/10	25.0±0.4	15.00±0.4	10.0±0.30
T25/15/10C	26.0max	14.00min	10.90max
T25/15/13	25.0±0.4	15.00±0.4	13.0±0.3
T25/15/13C	26.0max	14.00min	13.90max
T25/15/15	25.0±0.4	15.0±0.4	15.0±0.3
T25/15/15C	26.0max	14.00min	15.90max
T28/18/16	28.0±0.5	18.0±0.4	16.0±0.3
T28/18/16C	29.1max	17.00min	17.90max
T31/19/13	31.0±0.5	19.0±0.5	13.0±0.4
T31/19/13C	32.10max	17.90min	14.00max
T31/19/16	31.0±0.5	19.0±0.5	16.0±0.4
T31/19/16C	32.10max	17.90min	17.00max
T36/23/15	36.0±0.6	23.45±0.5	15.0±0.4
T36/23/15C	37.20max	22.35min	16.00max
T50/30/20	50.0±1.0	30.0±1.0	20.0±0.50
T50/30/20C	51.6max	28.40min	21max
T55.5/32.6/18	55.5±1.10	32.6±1.10	18.0±0.5
T55.5/32.6/18	57.20max	30.90min	19.10max
T63/38/25	62.80±1.6	37.60±1.20	25.0±0.6
T63/38/25C	65.00max	35.80min	26.20max
T80/40/15	80.0±1.50	40.0±1.30	15.0±0.6
T80/40/15C	82.10max	38.10min	16.20max
T140/106/25	140.0±3.0	106.0±2.0	25.0±1.0
T140/106/25C	143.80max	103.20min	26.80max

\*C= Coated.

\*Customized Dimensions are available.



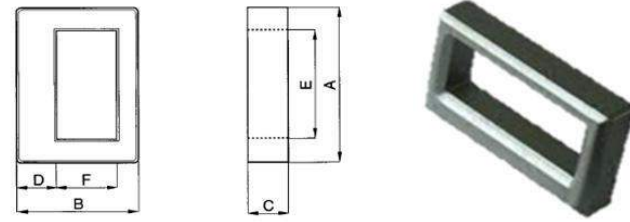
## Toroidal Cores



Electrical Characteristics			Material Grades				
Le	Ae	Ve	AL Values (±25%) in nH			AL Values (±30%) in nH	
mm	mm <sup>2</sup>	mm <sup>3</sup>	SFP4	SFA05	SFA07	SFA10	SFA12
60.18	48.93	2944.42	2550	5110	7150	10220	11000
60.18	63.60	3827.75	3322	6640	9300	13270	15600
60.18	73.30	4416.64	3830	7660	10730	15330	17500
69.96	78.71	5506.49	-	6960	-	-	-
75.49	76.46	5771.89	3180	6360	8910	12730	14500
75.49	94.11	7103.86	3840	7685	10760	15200	18400
89.65	95.89	8595.89	3210	6430	9000	12860	14500
120.36	195.71	23555.40	5000	10000	12250	17300	-
132.07	201.31	26585.86	4683	9365	13100	18730	-
152.09	305.93	46528.26	6200	12500	17700	24770	-
174.21	288.70	50218.93	5200	-	-	-	-
381.00	422.00	160782.00	2750	5550	8750	-	-



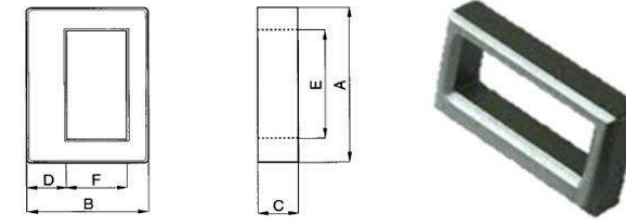
# UT Cores



Geometry	Dimensions					
Type	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
UT20	20.60±0.30	14.10±0.25	4.60±0.20	4.10±0.20	15.70min	7.35min
UT25	25.60±0.40	17.60±0.30	5.20±0.25	5.20±0.15	19.30min	8.70min
UT30	30.00±0.40	19.80±0.30	6.40±0.25	6.40±0.15	22.40min	8.90min

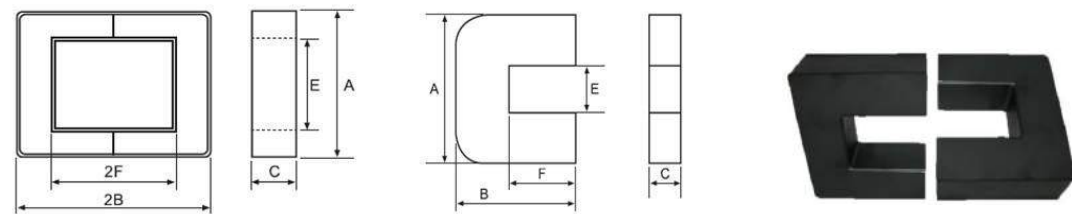


# UT Cores



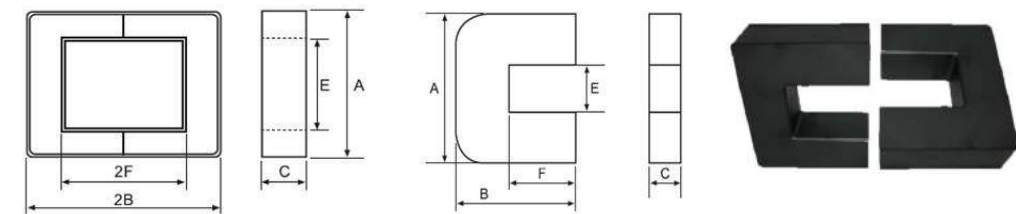
Electrical Characteristics			Material Grades		
Le	Ae	Ve	AL Values	AL Values in nH	
mm	mm <sup>2</sup>	mm <sup>3</sup>	SFA07	SFA10	SFA121
53	13	688	2140±30%	3000±30%	3700±30%
68	18	1203	2350+40%-20%	3350±30%	-
77	27	2068	3150+40%-20%	4500±30%	-

# UU Cores



Geometry	Dimensions					Electrical Characteristics		
	Type	A (mm)	B (mm)	C (mm)	E (mm)	F (mm)	Le (mm)	Ae (mm <sup>2</sup> )
UU9.8 (L)	9.80±0.30	7.10±0.30	2.70±0.30	4.20min	4.30±0.30	34	8	271.11
UU10.5 (L)	10.50±0.30	8.00±0.30	5.00±0.15	5.50min	5.50±0.30	40	13	518
UU93/76/16	93±1.8	76±0.5	16±0.5	34.6min.	48±0.9	354	448	159000
UU93/76/20	93±1.8	76±0.5	20±0.5	34.6min.	48±0.9	354	560	198000
UU93/76/30	93±1.8	76±0.5	30±0.6	34.6min.	48±0.9	354	840	297000
U101/76/30	101±1.8	76±0.5	30±0.6	44.0min.	48±0.9	368	840	310800
U141/78/30	141±4	78.5±0.5	30±1	50min.	33.5±1	377	1350	508950

# UU Cores



Material Grades					SFP4, P <sub>v</sub> (25kHz, 200mT, 100°C) (W/Set)	SFP95, P <sub>v</sub> (25kHz, 200mT, 100°C) (W/Set)
AL Values in nH						
SFP4	SFP95	SFA07	SFA10	SFA12		
-	-	≥2500	≥3000	≥3500	-	-
-	-	≥2500	≥3000	≥3500	-	-
3250±25%	4300±25%	-	-	-	≤14	≤9.5
4050±25%	-	-	-	-	≤12	-
6000±25%	-	-	-	-	≤14	-
6000±25%	-	-	-	-	≤14	-
9300±25%	-	-	-	-	≤18	-



- 1) Initial Permeability,  $\mu_i$
- 2) Effective Permeability,  $\mu_e$
- 3) Saturation Flux Density,  $B_s$  (T)
- 4) Residual Magnetic Flux Density,  $B_r$  (T)
- 5) Coercivity,  $H_c$  (A/m)
- 6) Loss Factor,  $\tan\delta$
- 7) Relative Loss Factor,  $\tan\delta/\mu$
- 8) Hysteresis Material Constant,  $\eta B$  ( $10^{-6}/mT$ )
- 9) Temperature Coefficient,  $\alpha_{\mu}$  ( $K^{-1}$ )
- 10) Relative Temperature Coefficient,  $\alpha_{\mu r}$  ( $K^{-1}$ )
- 11) Curie Temperature,  $T_c$  ( $^{\circ}C$ )
- 12) Resistivity,  $\rho$  ( $\Omega m$ )
- 13) Density,  $d$  ( $kg/m^3$ )
- 14) Power Loss density,  $P_c$  ( $kW/m^3$ )
- 15) Inductance Factor,  $A_L$  ( $nH/N^2$ )

- 1)  $\mu_i$  (Initial Permeability)
- 2) Toroidal Permeability
- 3)  $\mu_e$  Effective permeability
- 4)  $A_L$  Inductance Factor
- 5)  $H$  Magnetic Field Strength
- 6) Peak AC Flux Density
- 7)  $L_e$  Effective Magnetic Path Length of Toroidal Cores
- 8)  $A_e$  Effective Cross-sectional Area
- 9)  $Q$  Quality Factor

## Definitions

### 1) Initial Permeability, $\mu_i$

This is the limit value of  $B/H$  where  $H$  is indefinitely close to zero at the initial magnetization curve of a ferromagnetic substance.

$$\mu_i = \frac{1}{\mu_0} \lim_{(H \rightarrow 0)} \frac{B}{H}$$

Where	$\mu_0$	Permeability in Vacuum ( $4\pi \times 10^{-7} H/m$ )
	$H$	Magnetic Field Strength (A/m)
	$B$	Magnetic Flux Density (T)

### 2) Effective Permeability, $\mu_e$

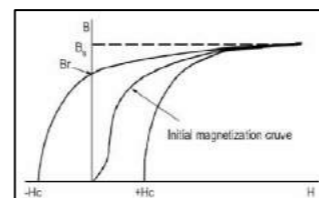
Effective Permeability of a core forming a closed circuit where leakage flux is negligibly small.

$$\mu_e = \frac{L_e}{\mu_0 A_e N^2}$$

Where	$L$	Self Inductance of Coil with Core (H)
	$N$	Number of Turns in Coil
	$L_e$	Effective Magnetic Path Length of Core (m)
	$A_e$	Effective cross sectional area of Core ( $m^2$ )

### 3) Saturation Flux Density, $B_s$ (T)

Saturation flux density is the maximum attainable flux density when a very high magnetic field is applied to a soft magnetic material as shown in the figure below.



### 4) Residual Magnetic Flux Density, $B_r$ (T)

This is the amount of residual magnetic flux density retained by the core after the magnetic field is weakened and finally removed, as shown in the figure above.

### 5) Coercivity, $H_c$ (A/m)

This is the strength of the magnetic field whereby the residual flux density becomes zero under the intensification in the opposite direction of the magnetic field, as shown in the figure above.

### 6) Loss Factor, $\tan\delta$

The loss factor can be split up into three parts as  $\tan\delta = \tan\delta_h + \tan\delta_e + \tan\delta_r$

Where	$\tan\delta_h$	Hysteresis loss
	$\tan\delta_e$	Eddy-current loss
	$\tan\delta_r$	Residual loss

### 7) Relative Loss Factor, $\tan\delta/\mu$

This is the amount of loss per unit permeability and is defined as below.

$\tan\delta/\mu_i$  (for magnetic material)

$\tan\delta/\mu_e$  (where gaps are added to the magnetic circuit)

### 8) Hysteresis Material Constant, $\eta B$ ( $10^{-6}/mT$ )

Hysteresis material constant characterizes the change of the hysteresis loss of the material when the flux density is increased.

$$\eta B = \frac{\Delta \tan\delta}{\mu_e \Delta B}$$

Where	$\tan\delta$	Loss factor
	$\mu_e$	Effective Permeability
	$B$	Magnetic Flux Density (mT)

### 9) Temperature Coefficient, $\alpha_{\mu}$ ( $K^{-1}$ )

This is the fractional difference of permeability per  $^{\circ}K$  in a temperature range from  $T_1$  to  $T_2$  ( $T_2 > T_1$ )

$$\alpha_{\mu} = \frac{(\mu_2 - \mu_1)/\mu_1}{T_2 - T_1}$$

Where	$\mu_1$	Permeability at temperature $T_1$
	$\mu_2$	permeability at temperature $T_2$

### 10) Relative Temperature Coefficient, $\alpha_{\mu r}$ ( $K^{-1}$ )

This is the temperature coefficient per unit permeability

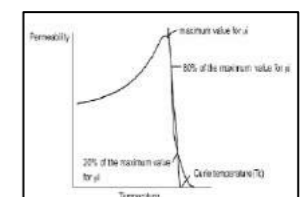
$$\alpha_{\mu r} = \frac{(\mu_2 - \mu_1)/\mu_1^2}{T_2 - T_1}$$

The temperature coefficient of an actual core is obtained from below

$$\alpha_{\mu} = \alpha_{\mu r} \times \mu_e$$

### 11) Curie Temperature, $T_c$ ( $^{\circ}C$ )

The Curie temperature  $T_c$  is defined as the temperature at which the magnetic core changes from the ferromagnetic to the paramagnetic state.





# Definitions

## 12) Resistivity, $\rho$ ( $\Omega m$ )

This is the electrical resistance per unit length and cross-sectional area of a magnetic core.

## 13) Density, $d$ ( $kg/m^3$ )

This is the weight per unit volume of a magnetic core.

$$d = W/V$$

Where :  
W Weight of magnetic core (kg)  
V Volume of magnetic core ( $m^3$ )

## 14) Power Loss density, $P_c$ ( $kW/m^3$ )

Power loss denotes the loss under a magnetization condition featuring a high frequency and a large amplitude. Operating magnetic flux density is generally expressed for a sinusoidal wave as below.

$$B_m = E/(4.44f NA_e)$$

Where  
 $B_m$  Peak value of magnetic flux density (T)  
E Voltage effective value applied to test coil (V)  
f Frequency (Hz)  
N Number of coil turns  
 $A_e$  Effective cross-sectional area of core ( $m^2$ )

## 15) Inductance Factor, $A_L$ ( $nH/N^2$ )

$$A_L = L/N^2$$

Where  
 $A_L$  Self-inductance of coil with core (H)  
N Number of coil turns

The inductance factor is generally united by  $10^{-9}H/N^2$  ( $nH/N^2$ )

# Equations

## 1) $\mu_i$ (Initial Permeability)

$$\mu_i = \frac{1}{\mu_0} \lim_{\Delta H \rightarrow 0} \left( \frac{\Delta B}{\Delta H} \right)$$

$$\mu_0: \frac{4\pi \times 10^{-7}}{H/m}$$

## 2) Toroidal Permeability

$$\mu = \frac{1000L \cdot l_e}{4\pi N^2 A_e}$$

Where  
L Inductance ( $\mu H$ )  
 $\mu$  Permeability  
N No of Turns  
 $A_e$  Effective Cross-Sectional Area ( $cm^2$ )  
 $l_e$  Effective Magnetic Path Length (cm)



# Equations

## 3) $\mu_e$ Effective Permeability

$$\mu_e = \frac{1000L}{4\pi N^2} \sum \frac{l}{A}$$

Where  
L Inductance ( $\mu H$ )  
 $\mu$  Permeability  
N No of Turns  
l Effective Magnetic Path Length (cm)  
A Effective Cross-Sectional Area ( $cm^2$ )

## 4) $A_L$ Inductance Factor

$$A_L = L/N^2$$

$A_L$ :  $nH/N^2$  Inductance Factor

Where  
L Inductance  
N No of Turns

## 5) Magnetic Field Strength

$$H = \frac{0.4\pi NI}{l_e}$$

Where  
H Magnetic Force (Oe)  
N No of Turns  
I Current (A)  
 $l_e$  Effective Magnetic Path Length (cm)

## 6) Peak AC Flux Density

$$B_{max} = \frac{E_{rms} 10^8}{4.44f A_e N}$$

Where  
B Peak AC Flux Density (Gauss)  
F Frequency (Hz)  
 $A_e$  Effective Cross-Sectional Area  $cm^2$   
 $E_{rms}$  RMS Voltage (V)

## 7) $l_e$ Effective Magnetic Path Length of Toroidal Cores

$$l_e = \frac{\pi(OD-ID)}{\ln\left(\frac{OD}{ID}\right)}$$

Where  
OD Outer Diameter (cm)  
ID Inner Diameter (cm)  
 $l_e$  Effective Magnetic Path Length (cm)

## 8) $A_e$ Effective Cross-sectional Area

$$A_e = \frac{(OD-ID)}{2} \times Ht \times K$$

Where  
OD Outer Diameter (cm)  
ID Inner Diameter (cm)  
Ht Height (cm)  
K Coefficient Relative to the shape of the edges

## 9) Quality Factor (Q)

$$Q = \frac{\omega L}{R_{dc} + R_{ac} + R_{cd}}$$

Where  
Q Quality Factor  
L Inductance (H)  
 $\omega = 2\pi f$   $2\pi$  Frequency (Hz)  
 $R_{dc}$  DC Winding Resistance ( $\Omega$ )  
 $R_{ac}$  Resistance due to core loss ( $\Omega$ )  
 $R_{cd}$  Resistance due to dielectric loss of winding ( $\Omega$ )



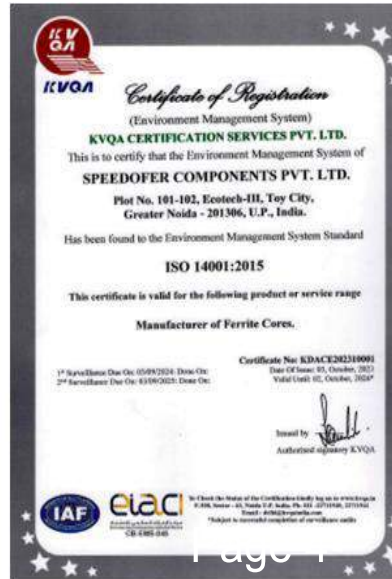
## QMS



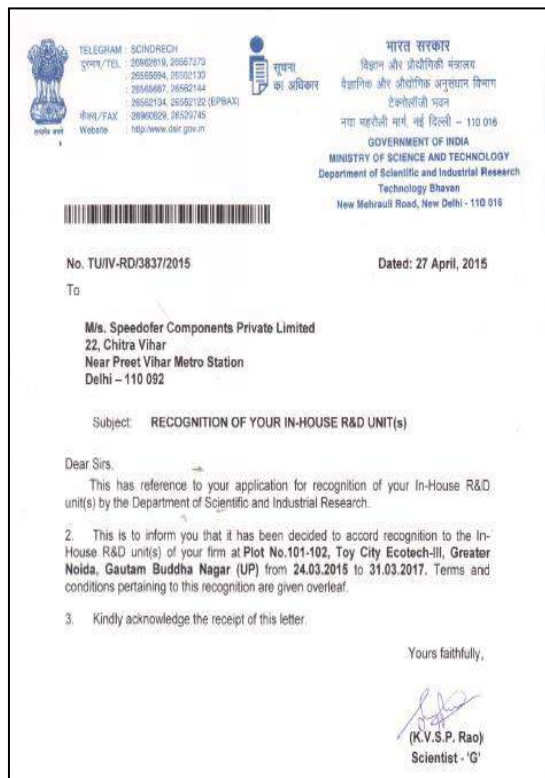
## EMS



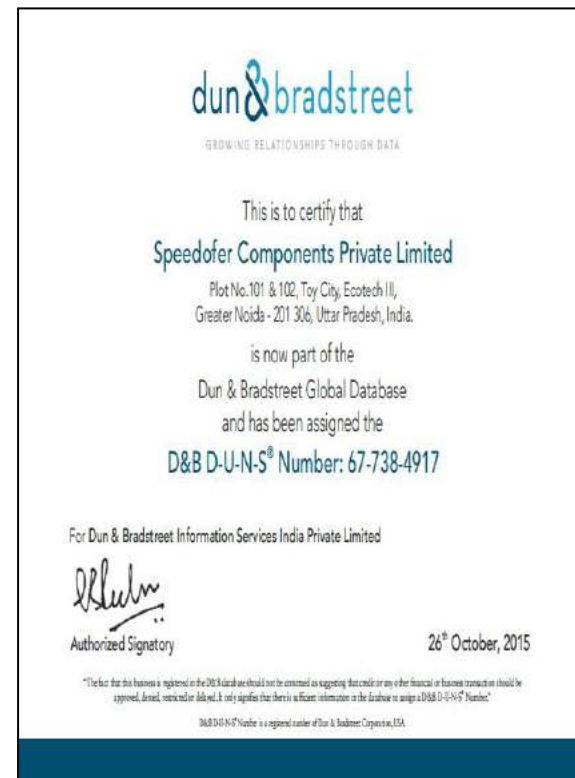
## OHSAS



## DSIR R&D Recognition



## DUNS Number



### Mr. Randhawa B Singh:



Chairman & Managing Director of Speedofer Components Pvt. Ltd., Bramhajeet Singh Randhawa is an entrepreneur who has over 3 decades of experience in Soft Ferrite Cores Industry.

Forayed into Soft Ferrite Cores manufacturing by setting up Speedofer Components Pvt. Ltd. in 2007 which has an expanded unit and a factory in Greater Noida, India.

Has a vision to grow together with the Clients and take Employees, Business Partners and Suppliers along to make Speedofer most reliable global supplier.

Found Hob-Nob Electronics Pvt. Ltd. in New Delhi in 1994 as an authorized Distributor to EPCOS Ferrite Cores in India.

An Executive Committee member of ELCINA that represents Electronics Industry.

Reachable at [bsr@speedofer.com](mailto:bsr@speedofer.com)

### Mr. Ambar N Sinha:



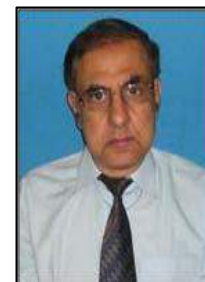
Former Executive Director of Speedofer Components Pvt. Ltd., Ambar N Sinha was the Managing Director of EPCOS, India. Over 15 years association with EPCOS and built up the company from scratch into a world class manufacturing facility for Soft Ferrites Cores. It is because of the rapid growth of EPCOS that the Indian Ferrite Industry is thriving today.

Graduated from IIT - Kharagpur, has techno-commercial backgrounds and evolved Six Sigma, TPM, Lean Manufacturing processes across the Organizations he served.

Motivates his colleagues by extending his expertise in Business Excellence & Strategies and ever helpful in systematic operations.

Reachable at [ssb@speedofer.com](mailto:ssb@speedofer.com)

### Mr. Probal Mukherjee:



Former Technical Head of Speedofer Components Pvt. Ltd., Mr. Mukherjee was General Manager, R&D in EPCOS, India.

Actively associated with Speedofer Components Pvt. Ltd. in the field of Quality, Customer Support and customized instruments for testing different applicable characteristics of Ferrites Cores.

Graduated from IIT - Kharagpur, who also has wide global experience with having worked in Far East, Europe and the Americas.

Member and Convenor of IEC for

standardisation.

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