



MegaFlux Powder Core Material

March 2007



New Material - Mega Flux

(CK series)

- ❑ B_{sat} : 1.6 Tesla
- ❑ High energy storage capacity
- ❑ Low core losses (Similar to HF)
- ❑ Low relative cost
- ❑ Block assembly available
- ❑ Good candidate for high-end applications
 - DC•AC reactor for renewable & alternative energy
 - DC•AC reactor for industrial & military demands
 - Replace HF cores with Low Cost CK Material

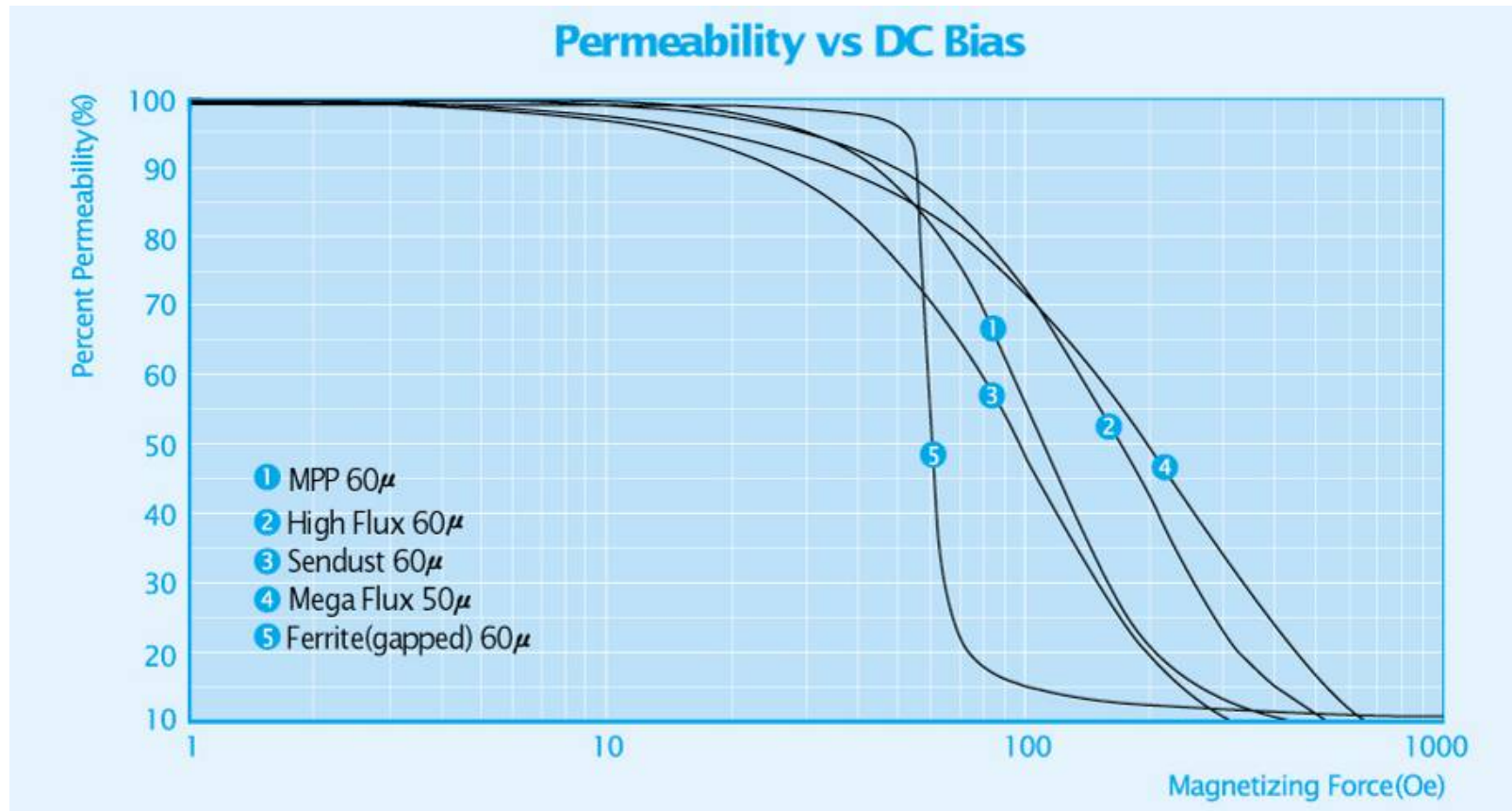
General Material Property

Material grade	CK
Composition	Fe-Si alloy
Permeability	26, 50, 60, 75, 90
B_{max}	1,600 mT
Core Loss	600mW/cc @50kHz, 100mT
Curie Temp.	725°C
Operating Temp.	-30°C ~ 200°C

Core Materials	Core Loss	Perm. Vs DC Bias	Relative Cost	Frequency Range	Flux Density(Sat.)	Temp. Stability
MPP	Lowest	Better	High	1 MHz	8,000 G	Best
High Flux	Low	Best	Medium	1 MHz	15,000 G	Better
SENDUST	Low	Good	Low	2 MHz	10,000 G	Good
Mega Flux	Medium	Best	Low	1 MHz	16,000 G	Best

Material Comparison

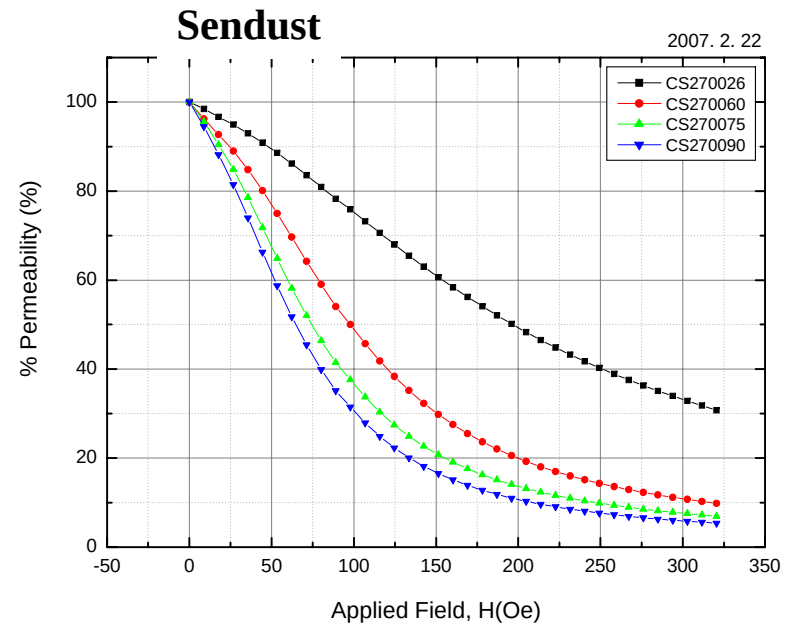
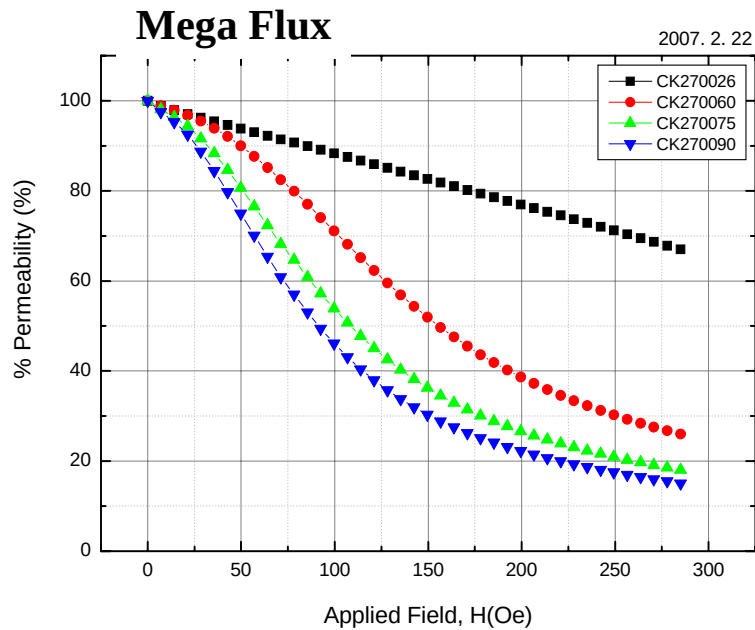
□ Percent Permeability vs. DC Bias property



Toroidal Specification

Part No.	Dimension(After Coating)			Magnetic Dimension		Window Area (cm ²)	A _L Value [nH/T ²]				
	OD(mm)	ID(mm)	HT(mm)	ℓ(cm)	A(cm ²)		026	050	060	075	090
CK078 xxx	8.51	3.43	3.81	1.787	0.0615	0.0922	11	21	25	31	37
CK112 xxx	11.90	5.89	4.72	2.69	0.0906	0.273	11	22	26	32	38
CK166 xxx	17.40	9.53	7.11	4.11	0.192	0.713	12	29	35	43	52
CK172 xxx	18.03	9.02	7.11	4.14	0.232	0.638	15	35	43	53	64
CK203 xxx	21.1	12.07	7.11	5.09	0.226	1.14	19	26	32	41	49
CK229 xxx	23.62	13.39	8.38	5.67	0.331	1.41	19	35	43	54	65
CK234 xxx	24.30	13.77	9.70	5.88	0.388	1.49	22	42	51	63	76
CK270 xxx	27.70	14.10	11.99	6.35	0.654	1.56	32	62	75	94	113
CK270 xxx E14	27.70	14.10	14.7	6.35	0.819	1.56	40	78	94	117	141
CK330 xxx	33.83	19.30	11.61	8.15	0.672	2.93	28	50	61	76	91
CK330 xxx E14	33.83	19.30	14.7	8.15	0.882	2.93	37	66	80	100	119
CK358 xxx	36.70	21.50	11.28	8.98	0.678	3.64	24	47	56	70	84
CK400 xxx	40.70	23.30	15.37	9.84	1.072	4.27	35	67	81	101	121
CK467 xxx	47.60	23.30	18.92	10.74	1.990	4.27	59	112	135	169	202
CK508 xxx	51.70	30.90	14.35	12.73	1.250	7.50	32	60	73	91	109
CK571 xxx	58.00	25.60	16.10	12.50	2.29	5.14	60	115	138	172	206
CK572 xxx	58.00	34.70	14.86	14.30	1.444	9.48	33	62	75	94	112
CK610 xxx E20	63.1	31.37	21.0	14.37	2.94	7.73	66	128	153	192	-
CK777 xxx	78.9	48.0	13.97	20.00	5.040	15.25	30	57	68	85	-
CK778 xxx	78.9	48.0	16.9	20.00	6.310	15.25	38	71	85	106	-

DC Bias Characteristics Comparison with Sendust



**Mega Flux Dc-Bias is about 15%~20% Higher
than Sendust Dc-Bias**

MegaFlux verses Sendust

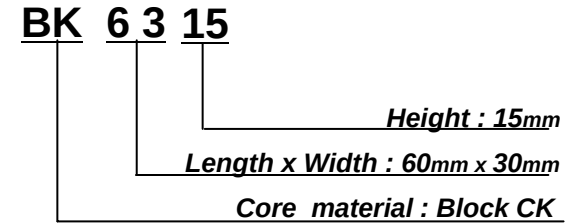
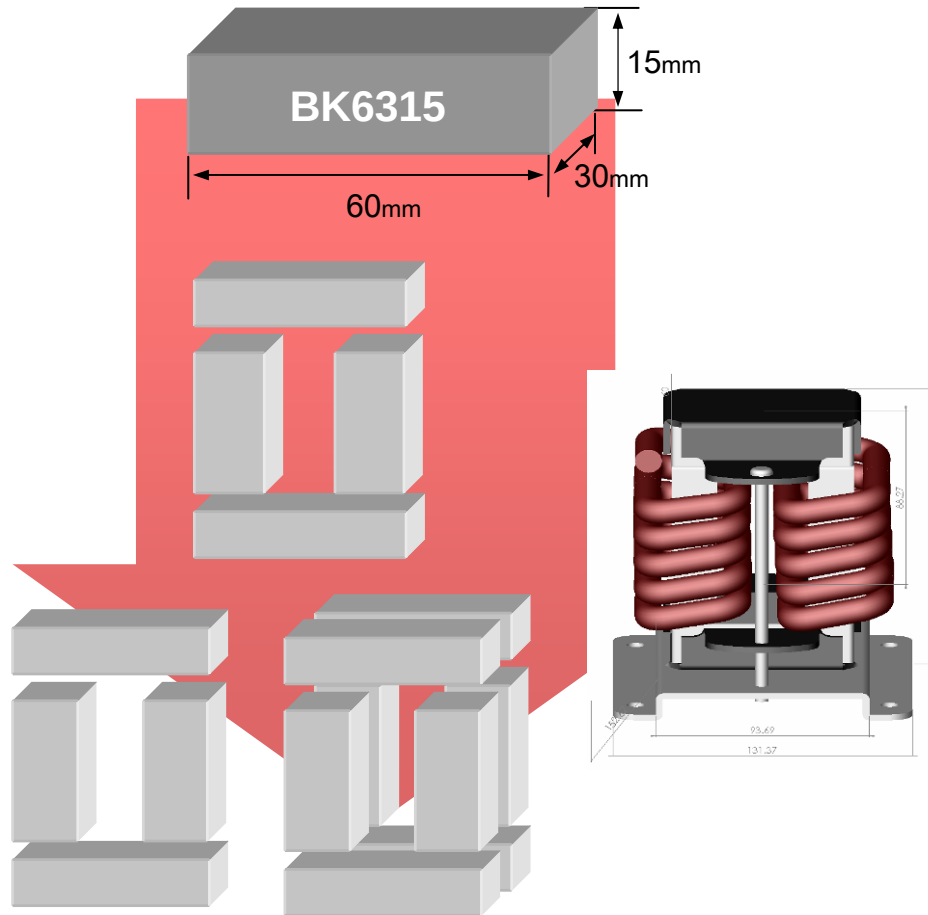
See following Page

- 26u Sendust -> 60u MegaFlux
- Copper price is high – changing to 60u MegaFlux reduces amount of copper which reduces Copper price and Copper Loss
- Total Transformer Losses remains the same
- Transformer overall cost decreases
- DC Bias increases
- Could reduce the size of the transformer and use the 26u Megaflux, reducing the overall transformer cost and increasing the DC Bias

Demanded L :	117.0uH @30A	117.0uH @30A	117.0uH @30A	uH
Core Part Number	CK571050	CS571026	CK508060	
Path Length :	12.50	12.50	12.73	cm
A (Cross section area) :	2.290	2.290	1.250	cm ²
L ₁₀₀₀ :	138	60	60	mH
L ₁₀₀₀ (-8%) :	126.96	55.20	55.20	uH
L(0A) :	195.54	235.22	235.22	uH
L(30A) :	138.84	117.61	122.31	uH
Window Area :	5.14	5.14	7.50	cm ²
Winding condition:	Ø2.0 x 38 Ts	Ø2.0 x 63 Ts	Ø2.0 x 63 Ts	
Winding Factor	23.23	38.51	26.39	%
Frequency :	20	20	20	kHz
Copper length :	477.89	791.28	579.22	cm
R (mΩ) :	25.85981	42.81829	31.34326	mΩ
Copper Loss (Watt) :	23.27	38.54	28.21	Watt
ΔI :	15.0	15	15	A
B :	1,196.58	611.41	1,164.90	Gauss
Core Loss (mW/cc) :	255.4	36	136	mW/cc
Volume (cc) :	28.6	28.6	15.9	cc
Core Loss (Watt) :	7.31	1.03	2.17	W
Total Loss:	30.59	39.57	30.38	W

Block Series of Mega Flux

CK Block Cores Designation



Block Basic unit

<i>Part No.</i>	<i>Dimensions (mm)</i>
BK5310	50 x 30 x 10
BK6310	60 x 30 x 10
BK6315	60 x 30 x 15
BK6320	60 x 30 x 20
BK7315	70 x 30 x 15
BK7320	70 x 30 x 20
BK8315	80 x 30 x 15
BK8320	80 x 30 x 20