Changsung Corp.

Fine Flux Core (CF Series)

-CSC-

1. Introduction

Chang Sung Corporation (CSC) releases new Fine Flux (CF series) powder core which have higher DCB characteristics and similar core losses compare to SENDSUT cores.

High permeability Fine Flux cores 40μ, 60μ will be a economic solution for the applications which require high efficiency such as high power desktop PC, Server PC, Automotive, Solar power.

Fine Flux cores with low permeability below 26μ are applied to various large current applications which lower losses and excellent DC bias characteristics are critical. They are applied to various applications such as UPS, ESS including industrial use.

It offers OD size from 9.6mm(0.38”) to 132mm(5.2”) with permeability of 26μ, 40u, 60μ. Custom designs are also available.

2. General Information

(1) General Information

Composition	Fe-Si-Al
Available Permeability(μ)	26, 40, 60
Coating Color	Dark Blue
B max(Gauss)	12,000
Curie Temp[℃]	500
Available Shape	Toroidal
CF270060→	CSC Fine Flux OD=27mm Perm=60μ

(2) Feature

Advantage	Disadvantage
High DCB ← Good Saturation	Low DCB MegaFlux
Low Core Losses like Sendust	
Moderate Cost → Nickel is not included	
Good Temp. Stability	

3. Material Comparison in CSC products

◆ Material Comparison Table

★ → ◎ → ○ → △

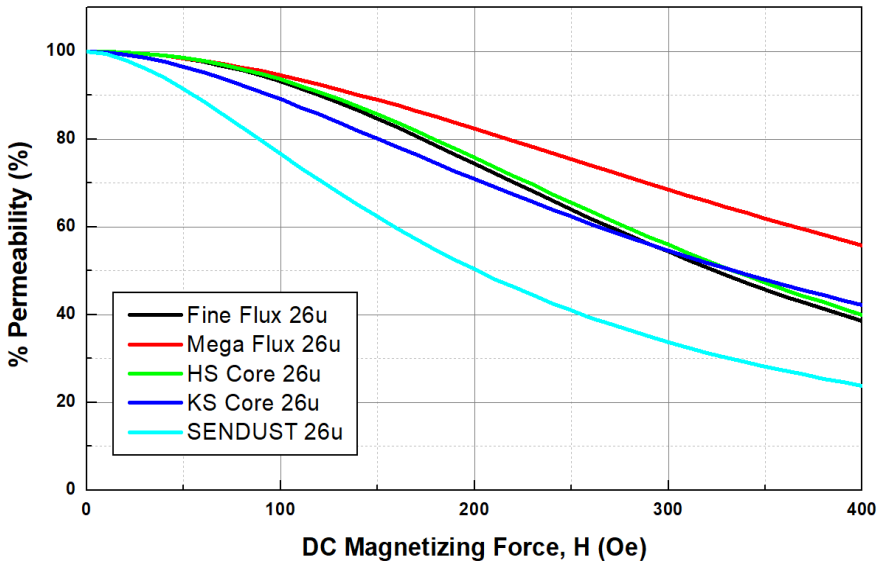
Materials	CSC New Materials					CSC Traditional Materials			
	HS (HS)	KS (KS)	KH (KH)	Fine Flux (CF)	HP (HP)	High Flux (CH)	Mega Flux® (CK)	Sendust (CS)	MPP (CM)
Main Application	UPS Server Power Solar	Solar Ups	UPS Automotive	UPS Solar	Server Power UPS	Server Power Automotive Solar	Solar UPS Automotive	PC Power Solar UPS	Military Aerospace, Medical
Perm. (μ_i)	19-90	26-60	26-90	26-60	60	26-160	19-90	26-125	26-200
Bs (kG)	14	14	15	12	11	15	16	10	7
Curie Temp [℃]	500	500	600	500	500	500	700	500	450
Core Loss	★	○	○	◎	★★	★	△	◎	★
DC Bias	◎	◎	★	○	○	★	★	△	○
Temp. Stability	◎	○	◎	○	○	★	◎	△	★
Relative Cost	○	◎	○	◎	○	○	◎	★	△

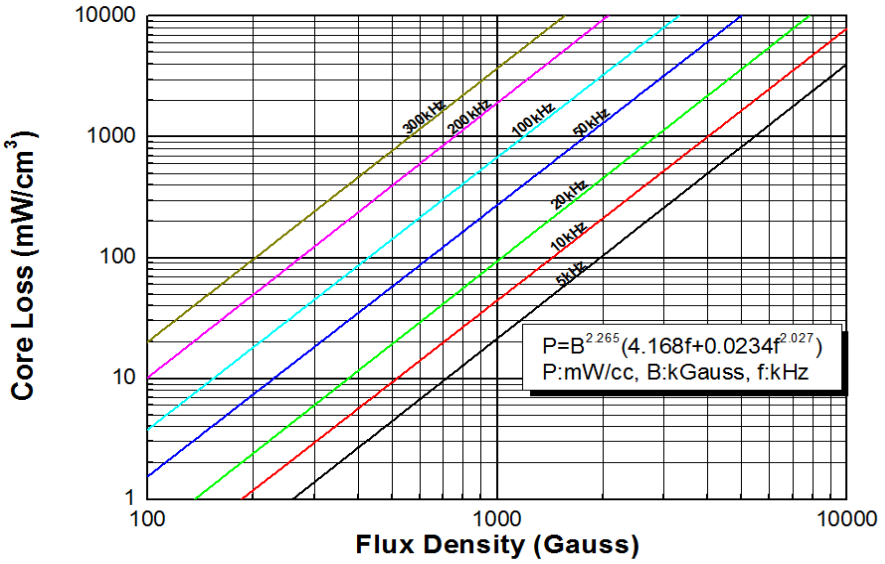
4. Fine Flux 26μ

(1) Material Comparison

Material	26μ DCB%			26μ Core Loss	
	@200 Oe	@300 Oe	@400 Oe	@20kHz,1000G	@50kHz,1,000G
Fine Flux	**74%**	**54%**	**38%**	**93**	**273**
Mega Flux	82%	68%	56%	223	661
HS	74%	51%	33%	49	136
KS	71%	55%	42%	190	564
Sendust	53%	35%	25%	93	264

(2) Graph



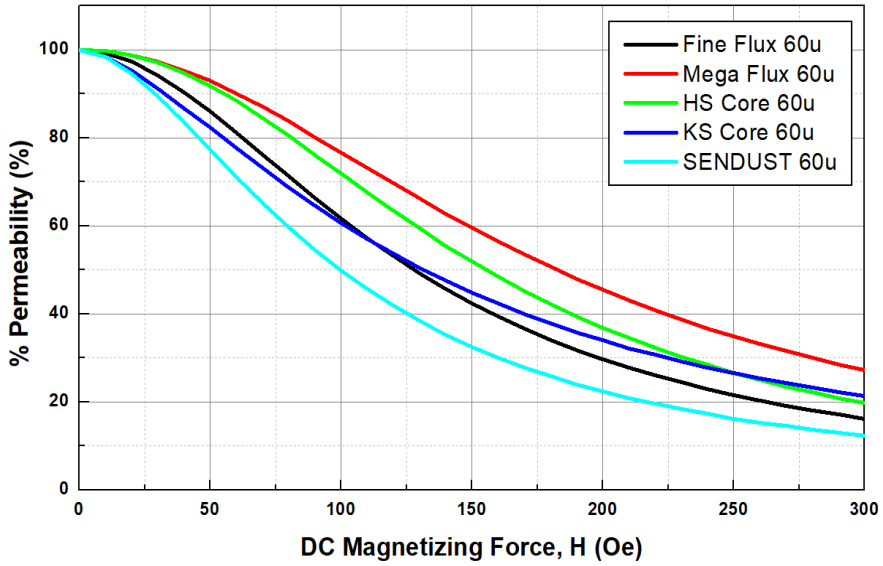


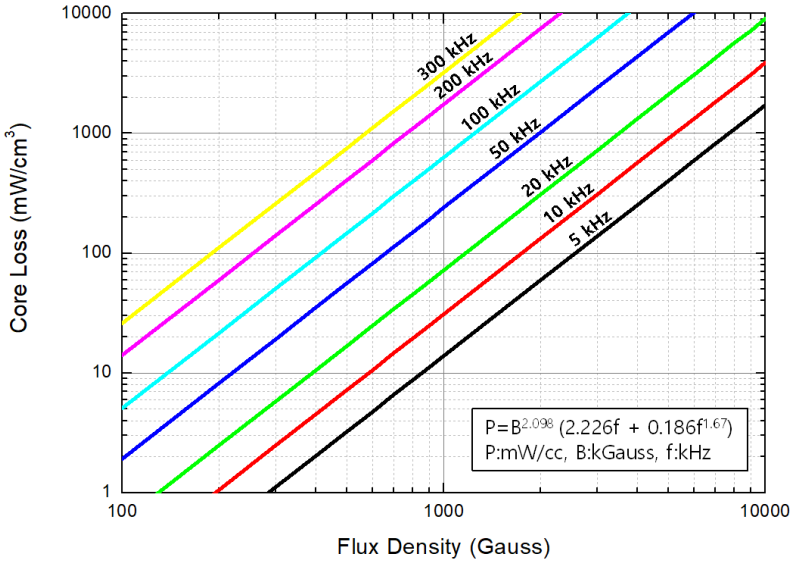
5. Fine Flux 60μ

(1) Material Comparison

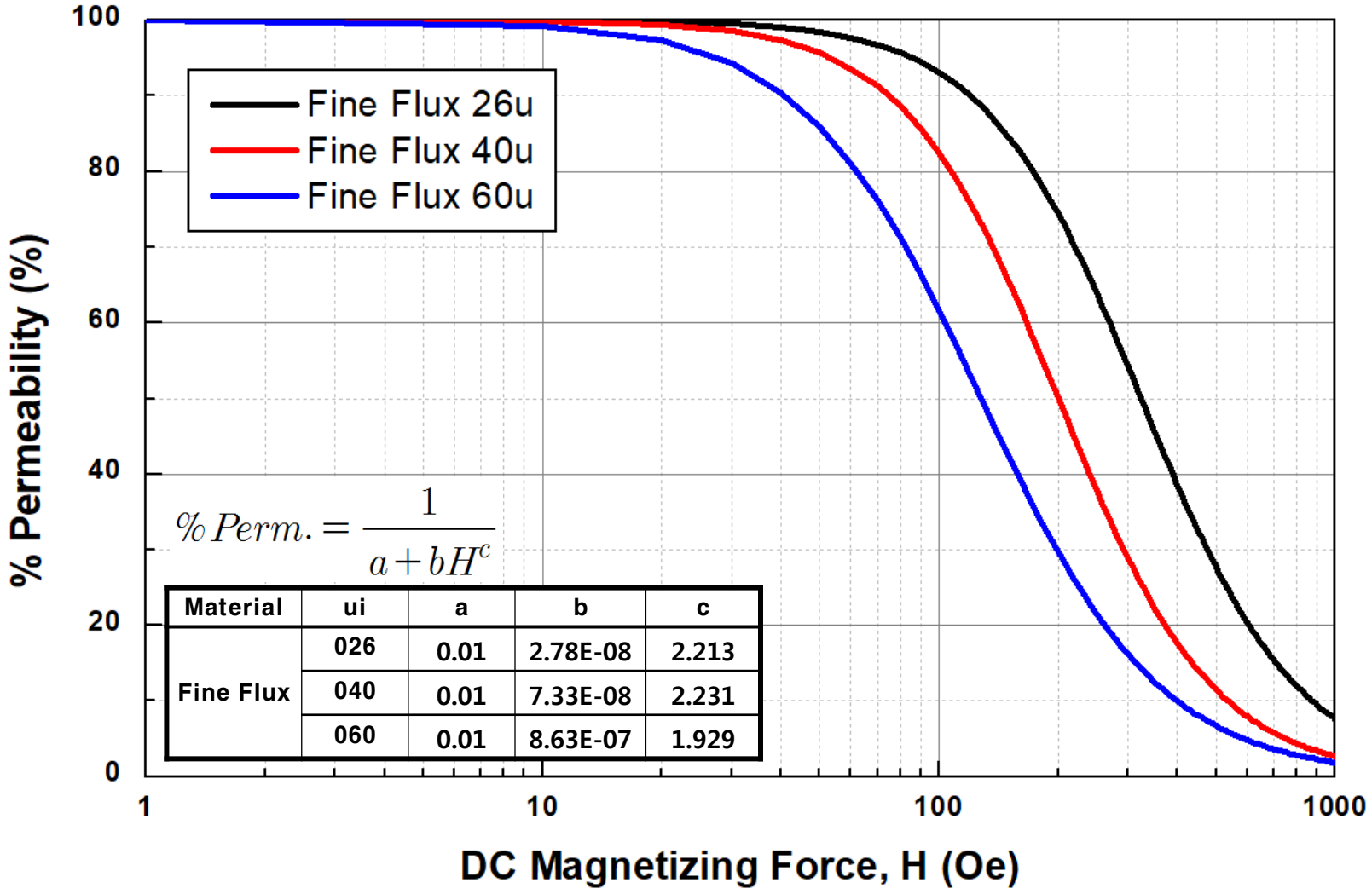
Material	60μ DCB%			60μ Core Loss	
	@100 Oe	@150 Oe	@200 Oe	@20kHz,1000G	@50kHz,1,000G
Fine Flux	62%	42%	29%	70	240
Mega Flux	78%	59%	44%	201	590
HS	71%	52%	37%	67	206
KS	61%	45%	34%	164	480
SENDUST	50%	32%	22%	99	279

(2) Graph





6. DCB – Various permeability



Material	ui	a	b	c
Fine Flux	026	0.01	2.78E-08	2.213
	040	0.01	7.33E-08	2.231
	060	0.01	8.63E-07	1.929

7. Part List – Toroidal Core

P/N	Before Finish Dimensions			After Finish Dimensions			Path length (㎝)	Cross Section Area (㎠)	AL value (nH/n^2)±8%		
	OD(mm) MAX	ID(mm) MIN	HT(mm) MAX	OD(mm) MAX	ID(mm) MIN	HT(mm) MAX			026u	040u	060u
CF096	9.65	4.78	3.18	10.29	4.27	3.81	2.18	0.0752	11	16	25
CF097	9.65	4.78	3.96	10.29	4.27	4.57	2.18	0.0945	14	21	32
CF102	10.16	5.08	3.96	10.80	4.57	4.57	2.38	0.1000	14	21	32
CF112	11.18	6.35	3.96	11.90	5.89	4.72	2.69	0.0906	11	17	26
CF127	12.70	7.62	4.75	13.46	6.99	5.51	3.12	0.114	12	18	27
CF166	16.51	10.16	6.35	17.4	9.53	7.11	4.11	0.192	15	23	35
CF172	17.27	9.65	6.35	18.03	9.02	7.11	4.14	0.232	19	28	43
CF203	20.32	12.7	6.35	21.1	12.07	7.11	5.09	0.226	14	21	32
CF229	22.86	13.97	7.62	23.62	13.39	8.38	5.67	0.331	19	28	43
CF234	23.57	14.4	8.89	24.3	13.77	9.7	5.88	0.388	22	34	51
CF270	26.92	14.73	11.18	27.7	14.1	11.99	6.35	0.654	32	50	75
CF330	33.02	19.94	10.67	33.83	19.3	11.61	8.15	0.672	28	40	61
CF343	34.29	23.37	8.89	35.2	22.6	9.83	8.95	0.454	16	25	38
CF358	35.81	22.35	10.46	36.7	21.5	11.28	8.98	0.678	24	37	56
CF400	39.88	24.13	14.48	40.7	23.3	15.37	9.84	1.072	35	54	81
CF467	46.74	24.13	18.03	47.6	23.3	18.92	10.74	1.99	59	90	135
CF468	46.74	28.7	15.24	47.6	27.9	16.13	11.63	1.34	37	57	86
CF508	50.8	31.75	13.46	51.7	30.9	14.35	12.73	1.25	32	48	73
CF571	57.15	26.39	15.24	58	25.6	16.1	12.5	2.29	60	92	138
CF572	57.15	35.56	13.97	58	34.7	14.86	14.3	1.444	33	50	75
CF610	62	32.6	25	63.1	31.37	26.27	14.37	3.675	83	128	192
CF740	74.1	45.3	35	75.2	44.07	36.27	18.38	5.04	89	137	206
CF777	77.8	49.23	12.7	78.9	48	13.97	20	1.77	30	45	68
CF778	77.8	49.23	15.9	78.9	48	17.02	20	2.27	37	56	85

8. Part List – Big Toroidal Core

P/N	Before Finish Dimensions			After Finish Dimensions			Path length (㎝)	Cross Section Area (㎠)	AL value (nH/n^2)±8%	
	OD(mm) MAX	ID(mm) MIN	HT(mm) MAX	OD(mm) MAX	ID(mm) MIN	HT(mm) MAX			026u	040u
CF1013	101.6	57.2	13.6	103.1	55.7	14.9	24.27	2.972	40	61
CF1016	101.6	57.2	16.5	103.1	55.7	17.8	24.27	3.522	48	74
CF1027	101.6	57.2	27.2	103.1	55.7	28.5	24.27	5.944	80	122
CF1033	101.6	57.2	33.0	103.1	55.7	34.3	24.27	7.044	96	149
CF1320	132.5	78.6	20.3	134.2	77.0	21.7	32.42	5.347	54	82
CF1325	132.5	78.6	25.4	134.2	77.0	26.8	32.42	6.710	68	104
CF1333	132.5	78.6	33.0	134.2	77.0	34.4	32.42	8.717	88	134
CF1340	132.5	78.6	40.6	134.2	77.0	42.0	32.42	10.694	108	165

Thank You !