

HP Series

Powder Core for High Efficiency Power Supply

1. General Information
2. Material Comparison in CSC products
3. DCB
4. Core loss
5. Part List

-CSC-

1. General Information

(1) General Information

HP Series

Permeability(μ)	60
Coating Color	Dark blue
Bmax(G)	12,000
Curie Temp[$^{\circ}$ C]	500
Operating temp[$^{\circ}$ C]	-40 to 150
OD BF [mm]	16.6~37.8



(2) Identification

HP 270 060

Permeability : 60 μ

OD Size : 27.0mm Available Size : 16.6 ~ 37.8mm

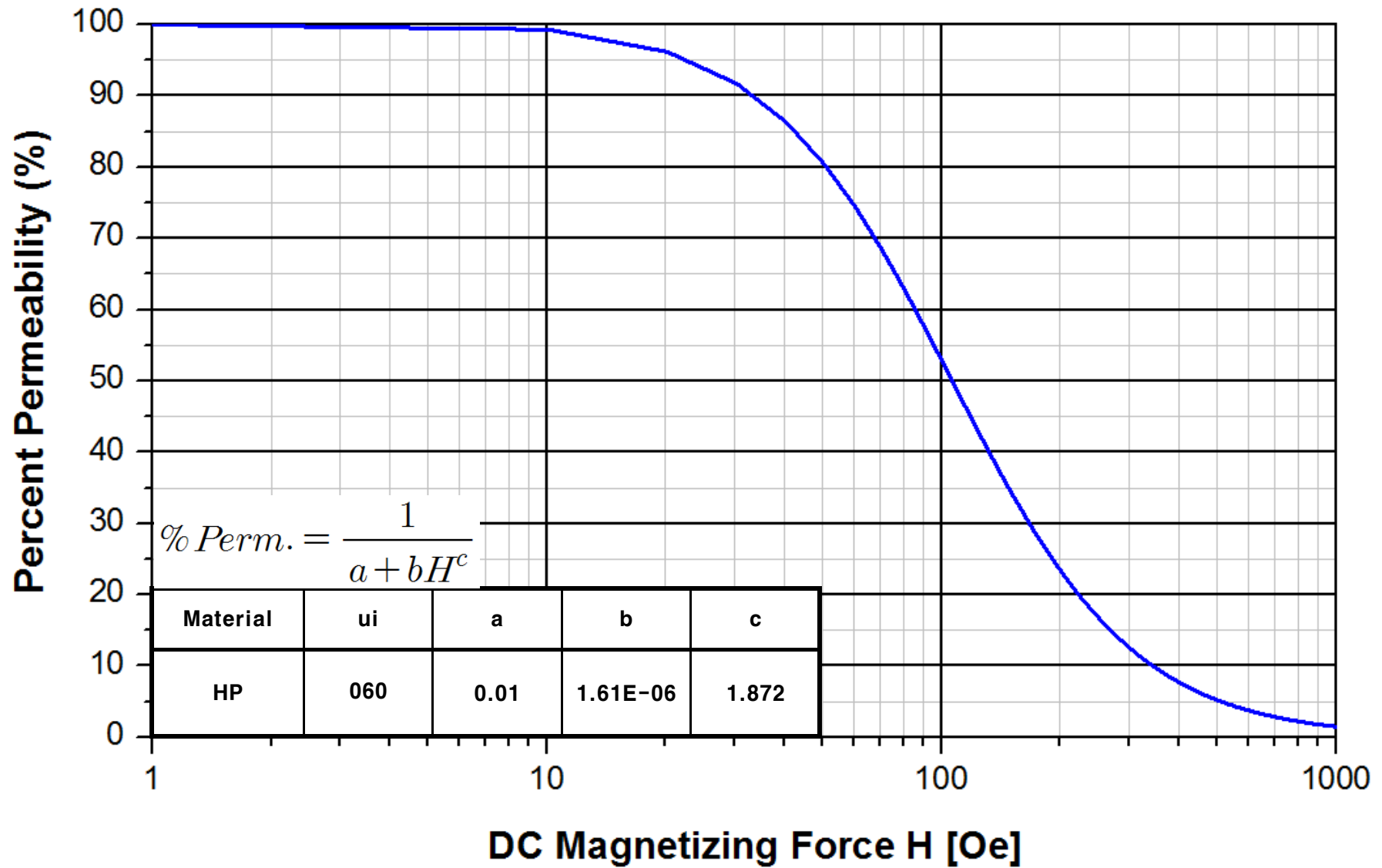
HP Core

2. Material Comparison in CSC products

★★★ → ★ → ◎ → ○ → △

Materials	HP	HS	High Flux	Sendust	MPP
Main Application	Server Power	UPS Server Power Automotive	Server Power Automotive	PC Power Solar	Military Aerospace Medical
Perm. (μ_i)	60	19-90	26-160	26-125	26-200
Bs (kG)	12	14	15	10	7
Curie Temp [°C]	500	500	500	500	450
Core Loss	★★★	★	★	◎	★
DC Bias	○	◎	★	△	○
Temp. Stability	◎	◎	★	△	★
Relative Cost	○	◎	○	★	△

3. HP 60 μ DCB Graph

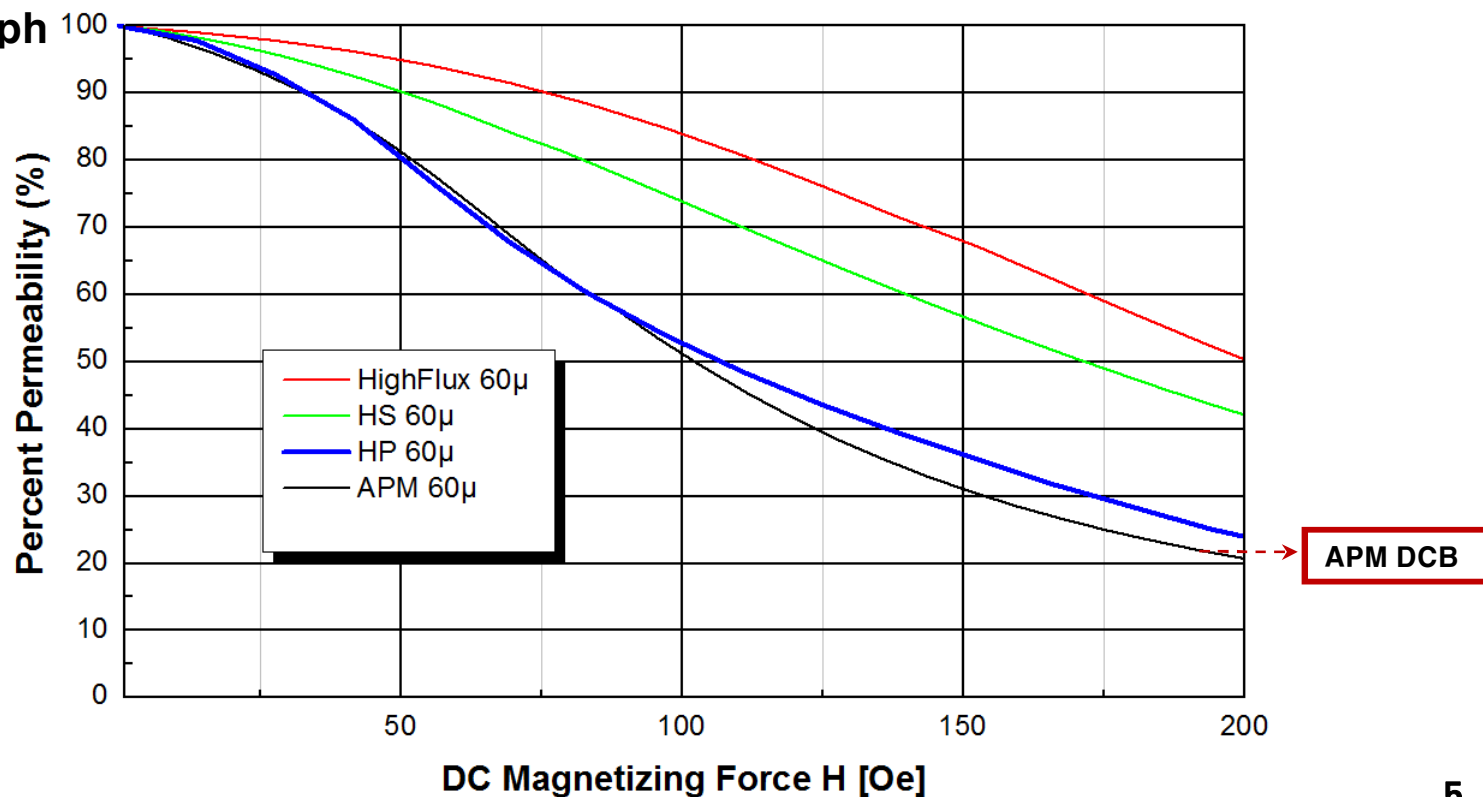


3. DCB – 60 μ

(1) Material Comparison

Material	60 μ DCB%		
	@100 Oe	@150 Oe	@200 Oe
High Flux	83%	68%	50%
HS Core	72%	56%	41%
HP Core	53%	36%	24%

(2) DCB Graph



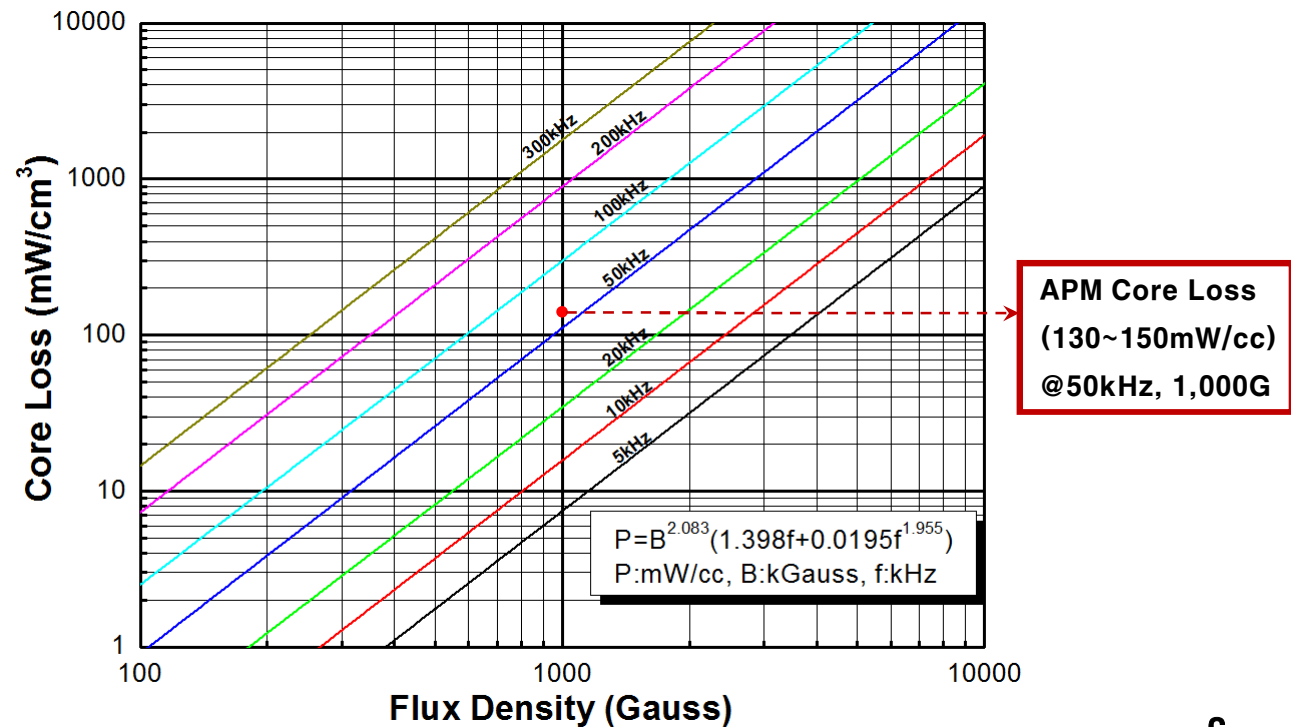
4. Core loss -60 μ

(1) Material Comparison

Unit : [mW/cc]

Material	60 μ Core Loss		
	Core Loss Equation (P:mW/cc, B:kGauss, f:kHz)	@50kHz,500G	@50kHz,1,000G
HP Core	$P=B^{2.083}(1.398f+0.0195f^{1.955})$	26	110
High Flux	$P=B^{2.284}(3.050f+0.0023f^{2.397})$	37	180
HS Core	$P=B^{2.275}(2.830f+0.0312f^{1.953})$	43	206
MPP Core	$P=B^{2.183}(2.485f+0.0125f^{2.099})$	38	170

(2) Core Loss Graph



5. Real Efficiency Test Result

Maker	Material	Efficiency
CSC	HP	96.117
K Company	KAM	96.076
	KAM DC70	96.062

1KW Server Power
 Input Voltage = 230V
 50% load

80 PLUS Test Type	115V Internal Non-Redundant				230V Internal Redundant			
	10%	20%	50%	100%	10%	20%	50%	100%
80 PLUS		80%	80%	80%				
80 PLUS Bronze		82%	85%	82%		81%	85%	81%
80 PLUS Silver		85%	88%	85%		85%	89%	85%
80 PLUS Gold		87%	90%	87%		88%	92%	88%
80 PLUS Platinum		90%	92%	89%		90%	94%	91%
80 PLUS Titanium					90%	94%	96%	91%

6. Part List – Toroidal Core

PN	Before Finish Dimensions			After Finish Dimensions			Path length (cm)	Cross Section Area (cm ²)	Window Area (cm ²)	AL Value (mH)
	OD(mm) MAX	ID(mm) MIN	HT(mm) MAX	OD(mm) MAX	ID(mm) MIN	HT(mm) MAX				
HP166060	16.51	10.16	6.35	17.4	9.53	7.11	4.11	0.192	0.713	35
HP172060	17.27	9.65	6.35	18.03	9.02	7.11	4.14	0.232	0.638	43
HP203060	20.32	12.7	6.35	21.1	12.07	7.11	5.09	0.226	1.14	32
HP229060	22.86	13.97	7.62	23.62	13.39	8.38	5.67	0.331	1.41	43
HP234060	23.57	14.4	8.89	24.3	13.77	9.7	5.88	0.388	1.49	51
HP234060E14	23.57	14.4	14	24.3	13.77	14.81	5.88	0.611	1.49	80
HP252060	25.2	14.6	10	26	13.9	10.8	6.1	0.504	1.52	62
HP270060	26.92	14.73	11.18	27.7	14.1	11.99	6.35	0.654	1.56	75
HP270060E14	26.92	14.73	14	27.7	14.1	15	6.35	0.819	1.56	94
HP270060E18	26.92	14.73	18	27.7	14.1	19	6.35	1.052	1.56	120
HP300060	30	17.4	10.9	30.8	16.7	11.8	7.27	0.652	2.19	68
HP330060	33.02	19.94	10.67	33.83	19.3	11.61	8.15	0.672	2.93	61
HP330060E14	33.02	19.94	14	33.83	19.3	15	8.15	0.8817	2.93	80
HP330060E18	33.02	19.94	18	33.83	19.3	19	8.15	1.133	2.93	103
HP343060	34.29	23.37	8.89	35.2	22.6	9.83	8.95	0.454	4.01	38
HP358060	35.81	22.35	10.46	36.7	21.5	11.28	8.98	0.678	3.64	56
HP358060E14	35.81	22.35	14	36.7	21.5	15	8.98	0.9074	3.64	75
HP378060	37.8	23.2	12.5	38.7	22.3	13.4	9.4	0.867	3.91	70



Thank You !