

# HIMAG

## Material Characteristics (Low Loss/Wire Temp.)

Optimal frequency						<200KHz	<300KHz	<300KHz
ITEM	Symbol	Unit	Measure Condition			MZ43	MZ95	MZ97
			Frequency	Other condition	Temperature			
Initial Permeability	ui		100KHz	0.5mA	25°C	2600±25%	3100±25%	3300±25%
Core Loss	Pcv	mW/C.C	100K	200mT	25°C	540	350	330
					60°C	350	300	285
					100°C	370	310	270
					120°C	470	370	320
					140°C		430	370
			300K	100mT	25°C		310	300
					100°C		250	230
			500K	50mT	25°C		165	
					100°C		150	
Saturation Flux Density	Bms	mT	DC	H=1194 A/m	25°C	480	530	530
					100°C	375	420	420
Remanence	Brms	mT	DC	H=1194 A/m	25°C			
					100°C			
Coercivity	Hc	Oe	DC	H=1194 A/m	25°C			
Curie Temperature	Tc	°C				>220	>215	>215
Density	d	g/cm3				>4.90	>4.90	>4.90

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## Material Characteristics (Low Loss/Wire Temp.)

Optimal frequency						<400KHz
ITEM	Symbol	Unit	Measure Condition			MZ97B
			Frequency	Other condition	Temperature	NEW
Initial Permeability	ui		100KHz	0.5mA	25°C	3300±25%
Core Loss	Pcv	mW/C.C	100K	200mT	25°C	295
					60°C	270
					100°C	280
					120°C	320
					140°C	370
			300K	100mT	25°C	250
					100°C	250
			500K	50mT	25°C	130
					100°C	150
Saturation Flux Density	Bms	mT	DC	H=1194 A/m	25°C	530
					100°C	420
Remanence	Brms	mT	DC	H=1194 A/m	25°C	
					100°C	
Coercivity	Hc	Oe	DC	H=1194 A/m	25°C	
Curie Temperature	Tc	°C				>215
Density	d	g/cm3				>4.90

## Material Characteristics (High Freq.)

Optimal frequency						0.5~0.8MHz	0.5~1MHz	0.8~3MHz
ITEM	Symbol	Unit	Measure Condition			MF37	MF91	MF91S
			Frequency	Other condition	Temperature			
Initial Permeability	ui		100KHz	0.5mA	25°C	2300±25%	1100±25%	1000±25%
Core Loss	Pcv	mW/C.C	500K	50mT	25°C	95	275	55
					60°C	85	200	35
					100°C	90	230	40
			500K	100mT	25°C	590		
					60°C	530		
					100°C	630		
			1000K	30mT	25°C	160		
					100°C	190		
			1000K	50mT	25°C		780	190
					100°C		860	160
			3000K	10mT	25°C		270	55
					100°C		355	50
Saturation Flux Density	Bms	mT	DC	H=1194 A/m	25°C	520	460	520
					100°C	420	380	430
Remanence	Brms	mT	DC	H=1194 A/m	25°C	105		133
Coercivity	Hc	Oe	DC	H=1194 A/m	25°C	0.22		0.45
Curie Temperature	Tc	°C				>250	>280	>290
Density	d	g/cm3				>4.80	>4.80	>4.80

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## Material Characteristics (High Freq.)

Optimal frequency						0.5~5MHz
ITEM	Symbol	Unit	Measure Condition			MF93S
			Frequency	Other condition	Temperature	NEW
Initial Permeability	ui		100KHz	0.5mA	25°C	600±25%
Core Loss	Pcv	mW/C.C	500K	100mT	25°C	20
					60°C	20
					100°C	30
			1000K	50mT	25°C	80
					60°C	95
					100°C	135
			2000K	50mT	25°C	325
					100°C	580
			3000K	30mT	25°C	245
					100°C	410
			5000K	9mT	25°C	85
					100°C	130
Saturation Flux Density	Bms	mT	DC	H=1194 A/m	25°C	520
					100°C	430
Remanence	Brms	mT	DC	H=1194 A/m	25°C	
Coercivity	Hc	Oe	DC	H=1194 A/m	25°C	
Curie Temperature	Tc	°C				>290
Density	d	g/cm3				>4.80

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## ***Material Characteristics (High Bs)***

ITEM	Symbol	Unit	Measure Condition			MB46	MB92
			Frequency	Other condition	Temperature		
Initial Permeability	ui		100KHz	0.5mA	25°C	1600±25%	1000±25%
Core Loss	Pcv	mW/C.C	100K	200mT	25°C	920	1360
					60°C	660	1000
					100°C	470	1400
					120°C	690	1570
					140°C		
Saturation Flux Density	Bms	mT	DC	H=1194 A/m	25°C	500	600
					100°C	430	510
					140°C		
Remanence	Brms	mT	DC	H=1194 A/m	25°C		
					100°C		
Coercivity	Hc	Oe	DC	H=1194 A/m	25°C		
Curie Temperature	Tc	°C				>290	>280
Density	d	g/cm3				>4.80	>4.90

## Material Characteristics (High Bs)

ITEM	Symbol	Unit	Measure Condition			MB35	MB50
			Frequency	Other condition	Temperature	NEW	NEW
Initial Permeability	$\mu_i$		$\leq 10\text{KHz}$	0.25mT	25°C	3500± 25%	5000± 25%
Relative Loss Factor	$\tan\delta/\mu_i(10^{-6})$		10KHz	<0.25mT	25°C	<8	<2
			100KHz			<8	<4.5
Temp. factor of permeability	$\alpha F$	$10^{-6}/^\circ\text{C}$	10KHz	<0.25mT	0~20°C	-1~1	-1~1
					20~70°C	-1~1	-1~1
Hysteresis Material Constant	$\eta B$	$10^{-6}/\text{mT}$	10KHz	1.5-3.0mT	25°C	<0.5	<0.5
Saturation Flux Density	$B_{ms}$	mT	DC	H=1194 A/m	25°C	470	480
					100°C	340	345
Remanence	$B_{rms}$	mT	DC	H=1194 A/m	25°C	63	71
Curie Temperature	$T_c$	°C				>190	>190
Density	$d$	g/cm <sup>3</sup>				>4.90	>4.90

## Material Characteristics (High Permeability and wide Temperature Materials)

ITEM	Symbol	Unit	Measure Condition			M02	M04A	M06A	M10B
			Frequency	Other condition	Temperature	NEW	NEW	NEW	NEW
Initial Permeability	ui		100KHz	0.5mA	25°C	2500± 25%	4000± 25%	6000± 25%	10000± 25%
Temp. factor of permeability	$\alpha F$	10 <sup>-6</sup> /°C	10KHz	<0.25mT	0~20°C	-1~1	-1~1	-1~1	-1~0
					20~70°C	-1~1	-1~1	-1~1	-1~1
Hysteresis Material Constant	$\eta B$	10 <sup>-6</sup> /mT	10KHz	1.5-3.0mT	25°C	0.5	0.5	0.5	0.5
Relative Loss Factor	tan $\delta$ /ui	(10 <sup>-6</sup> )	10KHz	0.5mA	25°C	<9	<7	<7	<5
			100KHz	0.5mA		<4	<25	<35	<30
Saturation Flux Density	Bms	mT	DC	H=1194 A/m	25°C	430	480	470	380
					100°C	340	345	300	160
Remanence	Brms	mT	DC	H=1194 A/m	25°C	86	71	125	80
					100°C	75	65	100	
Coercivity	Hc	Oe	DC	H=1194 A/m	25°C				
Curie Temperature	Tc	°C				>180	>170	>180	>100
Density	d	g/cm <sup>3</sup>				>4.85	>4.90	>4.90	>5.00

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## Material Characteristics (High Perm.)

ITEM	Symbol	Unit	Measure Condition			MZ55	M07	M10FH	M12	M15
			Frequency	Other condition	Temperature					
Initial Permeability	ui		100KHz	0.5mA	25°C	5000± 25%	7000± 25%	10000± 25%	12000± 25%	15000± 25%
Core Loss	Pcv	mW/C.C	100KHz	200mT	25°C					
					60°C					
					100°C					
					120°C					
					140°C					
Relative Loss Factor	tanδ /ui(10 <sup>-6</sup> )		10KHz	0.5mA	25°C	<3	<3	<5	<10	<10
			100KHz	0.5mA		<10	<20	<25	<95	<100
Saturation Flux Density	Bms	mT	DC	H=1194 A/m	25°C	470	420	420	400	370
					100°C				210	
Remanence	Brms	mT	DC	H=1194 A/m	25°C		130	70		
					100°C					
Coercivity	Hc	Oe	DC	H=1194 A/m	25°C		0.10	0.04		
Curie Temperature	Tc	°C				>200	>140	>140	>130	>95
Density	d	g/cm3				>4.90	>4.90	>4.95	>4.95	>4.95