

## A FEATURES

- Shielded Construction with low DCR
- Saturation current rating up to 13.5 Amps
- Inductance ratings from 0.8 to 1000  $\mu\text{H}$
- Widely applications, highly recommend to use as Buck, Boost, or Forward inductor
- Operating Temperature range from  $-40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$  (Including Self-heating)
- $260^{\circ}\text{C}$  reflow peak temperature qualified



## B PART NUMBER SYSTEM

HMSF    105    -    100    M    F  
 ①        ②        ③        ④        ⑤

<b>①</b>	Series	<b>②</b>	Dimension Code (L*W*H) (mm)	
HMSF	Series Code		103 (10.0×10.2×3.0)	104 (10.0×10.2×4.0)
			105 (10.0×10.2×5.0)	
<b>③</b>	Inductance Code	<b>④</b>	Inductance Tolerance	
e.g.	Calculation	K	$\pm 10\%$	
2R2	2.2 $\mu\text{H}$	M	$\pm 20\%$	
100	$10 \times 10^0 \mu\text{H} = 10 \mu\text{H}$	N	$\pm 30\%$	
101	$10 \times 10^1 \mu\text{H} = 100 \mu\text{H}$			
<b>⑤</b>	RoHS Compliant			

## C DRAWINGS AND DIMENSIONS

<AG 103	<AG 104
<p style="text-align: center;">Land Pattern</p>	<p style="text-align: center;">Land Pattern</p>
<AG 105	Schematic
<p style="text-align: center;">Land Pattern</p>	

XXX = Inductance value

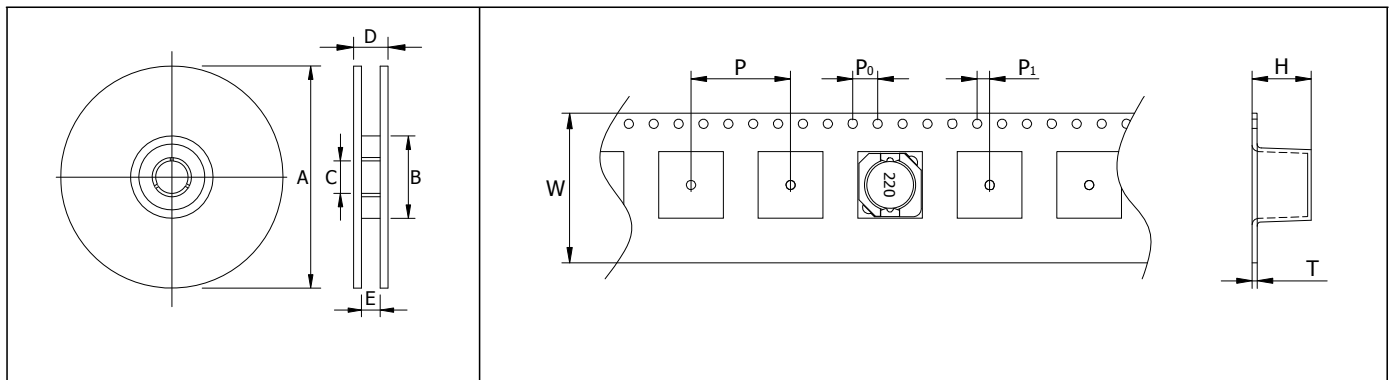
## D SPECIFICATIONS

Part Number	Inductance <sup>1</sup>		DCR		Irms <sup>3</sup>	Isat <sup>4</sup>
	$\mu\text{H}$	Toleranc	Typ.( $\Omega$ )	Max.( $\Omega$ )	A	A
HMSF103-0R8NF	0.8	$\pm 30\%$	0.0044	0.0057	8.30	11.20
HMSF103-1R5NF	1.5	$\pm 30\%$	0.0085	0.0110	5.80	8.00
HMSF103-2R2NF	2.2	$\pm 30\%$	0.0130	0.0169	5.10	6.70
HMSF103-3R3NF	3.3	$\pm 30\%$	0.016	0.021	4.70	5.56
HMSF103-4R7NF	4.7	$\pm 30\%$	0.023	0.030	4.00	4.65
HMSF103-6R8NF	6.8	$\pm 30\%$	0.027	0.035	3.60	3.84
HMSF103-8R2NF	8.2	$\pm 30\%$	0.038	0.050	3.00	3.54
HMSF103-100MF	10	$\pm 20\%$	0.045	0.059	2.80	3.18
HMSF103-150MF	15	$\pm 20\%$	0.070	0.091	2.05	2.60
HMSF103-220MF	22	$\pm 20\%$	0.110	0.143	1.60	2.16
HMSF103-330MF	33	$\pm 20\%$	0.155	0.202	1.35	1.74
HMSF103-470MF	47	$\pm 20\%$	0.230	0.299	1.20	1.40
HMSF103-560MF	56	$\pm 20\%$	0.250	0.325	1.15	1.36
HMSF103-680MF	68	$\pm 20\%$	0.330	0.429	0.95	1.22
HMSF103-820MF	82	$\pm 20\%$	0.380	0.494	0.80	1.14
HMSF103-10HMSF	100	$\pm 20\%$	0.525	0.683	0.70	1.02
HMSF103-12HMSF	120	$\pm 20\%$	0.580	0.754	0.65	0.89
HMSF103-15HMSF	150	$\pm 20\%$	0.670	0.871	0.51	0.84
HMSF104-1R5NF	1.5	$\pm 30\%$	0.0060	0.0081	6.50	10.00
HMSF104-2R5NF	2.5	$\pm 30\%$	0.0078	0.0105	6.10	7.50
HMSF104-3R8NF	3.8	$\pm 30\%$	0.0096	0.013	5.50	6.00
HMSF104-5R2NF	5.2	$\pm 30\%$	0.016	0.022	5.40	5.50
HMSF104-7R0NF	7.0	$\pm 30\%$	0.020	0.027	4.50	4.80
HMSF104-100MF	10	$\pm 20\%$	0.026	0.035	3.80	4.40
HMSF104-120MF	12	$\pm 20\%$	0.034	0.046	3.40	3.70
HMSF104-150MF	15	$\pm 20\%$	0.037	0.050	3.10	3.60
HMSF104-180MF	18	$\pm 20\%$	0.051	0.069	2.60	3.10
HMSF104-220MF	22	$\pm 20\%$	0.054	0.073	2.50	2.90
HMSF104-270MF	27	$\pm 20\%$	0.065	0.088	2.30	2.60
HMSF104-330MF	33	$\pm 20\%$	0.069	0.093	2.20	2.30
HMSF104-390MF	39	$\pm 20\%$	0.094	0.127	2.00	2.20
HMSF104-470MF	47	$\pm 20\%$	0.095	0.128	1.90	2.10
HMSF104-560MF	56	$\pm 20\%$	0.139	0.188	1.50	1.65
HMSF104-680MF	68	$\pm 20\%$	0.158	0.213	1.42	1.50
HMSF104-820MF	82	$\pm 20\%$	0.218	0.283	1.30	1.45
HMSF104-10HMSF	100	$\pm 20\%$	0.225	0.304	1.25	1.35
HMSF104-12HMSF	120	$\pm 20\%$	0.278	0.375	1.08	1.20
HMSF104-15HMSF	150	$\pm 20\%$	0.375	0.506	0.85	1.15
HMSF104-18HMSF	180	$\pm 20\%$	0.421	0.568	0.75	1.00
HMSF104-22HMSF	220	$\pm 20\%$	0.560	0.756	0.70	0.92
HMSF104-27HMSF	270	$\pm 20\%$	0.632	0.853	0.55	0.84
HMSF104-33HMSF	330	$\pm 20\%$	0.810	1.090	0.52	0.70
HMSF104-47HMSF	470	$\pm 20\%$	0.924	1.243	0.45	0.65
HMSF105-0R8NF	0.8	$\pm 30\%$	0.0033	0.0043	9.50	13.50
HMSF105-1R5NF	1.5	$\pm 30\%$	0.0045	0.0058	8.30	10.50
HMSF105-2R2NF	2.2	$\pm 30\%$	0.0056	0.0072	7.50	9.25
HMSF105-3R3NF	3.3	$\pm 30\%$	0.0080	0.0104	6.50	7.80
HMSF105-4R7NF	4.7	$\pm 30\%$	0.0095	0.0123	6.10	6.40
HMSF105-6R8NF	6.8	$\pm 30\%$	0.014	0.018	5.40	5.40
HMSF105-8R2NF	8.2	$\pm 30\%$	0.016	0.020	5.00	4.85
HMSF105-100MF	10	$\pm 20\%$	0.020	0.026	4.50	4.45
HMSF105-120MF	12	$\pm 20\%$	0.025	0.033	3.80	4.00
HMSF105-150MF	15	$\pm 20\%$	0.032	0.041	3.40	3.60
HMSF105-180MF	18	$\pm 20\%$	0.035	0.046	3.10	3.20

Part Number	Inductance <sup>1</sup>		DCR <sup>2</sup>		I <sub>rms</sub> <sup>3</sup>	I <sub>sat</sub> <sup>4</sup>
	μH	Tolerance	Typ.(Ω)	Max.(Ω)	A	A
HMSF105-220MF	22	±20%	0.047	0.061	2.90	2.95
HMSF105-270MF	27	±20%	0.053	0.069	2.60	2.70
HMSF105-330MF	33	±20%	0.065	0.084	2.50	2.40
HMSF105-390MF	39	±20%	0.082	0.106	2.25	2.30
HMSF105-470MF	47	±20%	0.100	0.130	2.00	2.00
HMSF105-560MF	56	±20%	0.115	0.149	1.90	1.90
HMSF105-680MF	68	±20%	0.155	0.201	1.60	1.65
HMSF105-820MF	82	±20%	0.175	0.227	1.45	1.50
HMSF105-10HMSF	100	±20%	0.195	0.253	1.35	1.35
HMSF105-12HMSF	120	±20%	0.233	0.303	1.18	1.28
HMSF105-15HMSF	150	±20%	0.285	0.370	1.10	1.12
HMSF105-18HMSF	180	±20%	0.322	0.419	1.00	1.04
HMSF105-22HMSF	220	±20%	0.385	0.500	0.94	0.94
HMSF105-27HMSF	270	±20%	0.512	0.672	0.80	0.84
HMSF105-33HMSF	330	±20%	0.625	0.812	0.73	0.75
HMSF105-39HMSF	390	±20%	0.733	0.953	0.70	0.70
HMSF105-47HMSF	470	±20%	0.992	1.289	0.54	0.60
HMSF105-56HMSF	560	±20%	1.100	1.430	0.52	0.54
HMSF105-68HMSF	680	±20%	1.230	1.599	0.51	0.52
HMSF105-82HMSF	820	±20%	1.360	1.768	0.48	0.50
HMSF105-102MF	1000	±20%	1.530	1.989	0.42	0.48

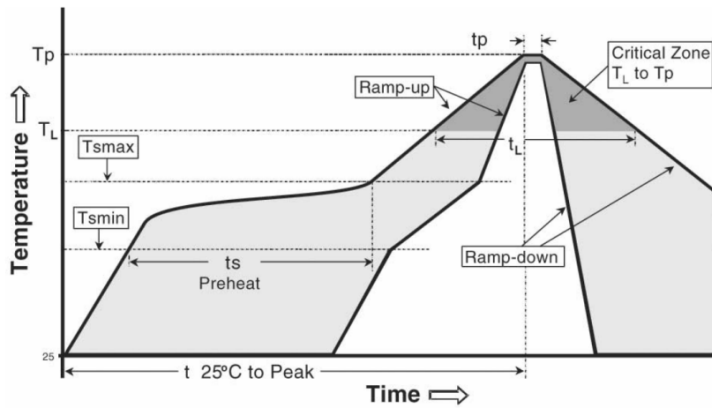
1. Inductance measured @ 100KHz, 0.3V at 25°C temperature.
2. DCR measured @ 25°C.
3. I<sub>rms</sub> for an approximate 40°C rise from 20°C ambient temperature.
4. I<sub>sat</sub> for approximate 35% roll off at 25°C.
5. Specifications subject to change without notice please check our website for latest information.

## E TAPE AND REEL SPECIFICATIONS



Case Size	Parts per Reel	Reel Dimensions(REF)					Tape Dimensions(REF)					
		A	B	C	D	E	W	P	P <sub>0</sub>	P <sub>1</sub>	H	T
HMSF103	1000	330	100	13	30	24.5	24	16	4	2	3.2	0.4
HMSF104	1000	330	100	13	30	24.5	24	16	4	2	4.2	0.4
HMSF105	500	330	100	13	30	24.5	24	16	4	2	5.2	0.4

## F RECOMMENDED SOLDERING PROFILE



Profile Feature	Recommended Conditions
Average ramp-up rate (Tsmmax to Tp)	3°C/second max.
Preheat	
Temperature Min (Tsmmin)	100°C
Temperature Max (Tsmmax)	150°C
Time (Tsmmin to Tsmmax)(ts)	60-180 seconds
Time maintained above:	
Temperature (TL)	217°C
Time (tL)	60-150 seconds
Peak Temperature (Tp)	See Table2
Time within 5°C of actual Peak Temperature (tp) <sup>2</sup>	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max

Table 1

Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350 - 2000	Volume mm <sup>3</sup> >2000
< 1.6mm	260°C	260°C	260°C
1.6mm - 2.5mm	260°C	250°C	245°C
>2.5mm	250°C	245°C	245°C

Table 2

1. The above profiles are based on IPC/JEDEC J-STD-020C.
2. Exceeding these conditions may cause lowered product reliability.