

HFW1V28xxH

High current flat wire inductor



Product features

- Flat wire construction, high current capability
- 27.9 mm x 27.94 mm surface mount package in 15.36 mm and 17.78 mm height
- Self-leaded terminals
- Third mounting pad enhances stability and board adhesion
- Inductance range: 2.2 μ H to 33 μ H
- Current range: 5.1 A to 100 A
- 200 Vdc isolation voltage (winding to core)
- Termination finish: Tin
- Ferrite core material
- Moisture Sensitivity Level (MSL) 1

Applications

- Computing (POL/VRMs)
- Distributed power architectures
- Servers and workstations
- LAN /WAN applications
- Game consoles
- Industrial IoT equipment
- Motion controls
- Battery backup
- LED lighting
- Renewable energy product
- Solar/wind generators, inverters, charger controllers
- Medical equipment, displays

Environmental compliance and general specifications

- Storage temperature range (Component): -40 °C to +125 °C
- Operating temperature range: -40 °C to +125 °C (ambient plus self-temperature rise)



Product specifications

Part number ⁴	OCL ¹ (μ H) \pm 10% (Pin 1-2)	I_{rms} ² (A) typical	I_{sat} ³ (A) (Pin 1-2)	DCR (m Ω) maximum (Pin 1-2) @ +25 °C	SRF (MHz)
HFV1V2815					
HFV1V2815H2R2K	2.2	30	100	2.05	35.5
HFV1V2815H3R3K	3.3	30	66.9	2.05	27
HFV1V2815H4R7K	4.7	30	48	2.05	22.5
HFV1V2815H6R8K	6.8	30	34.5	2.05	17
HFV1V2815H100K	10	30	21.5	2.05	12
HFV1V2815H150K	15	30	14	2.05	10.5
HFV1V2815H220K	22	30	8.6	2.05	8.8
HFV1V2815H330K	33	30	5.1	2.05	7.2
HFV1V2818					
HFV1V2818H3R3K	3.3	28	92.5	2.86	35
HFV1V2818H4R7K	4.7	28	61.2	2.86	26.5
HFV1V2818H6R8K	6.8	28	45	2.86	22.5
HFV1V2818H100K	10	28	31.2	2.86	17
HFV1V2818H150K	15	28	21.2	2.86	14
HFV1V2818H220K	22	28	14	2.86	11.5
HFV1V2818H330K	33	28	8.7	2.86	8.7

1. Open circuit inductance (OCL) Test parameters: 500 kHz, 0.1 V_{rms}, 0.0 Adc, +25 °C

2. I_{rms} : DC current for an approximate temperature rise of 40 °C without core loss. Derating is necessary for AC currents. PCB layout, trace thickness and width, air-flow, and proximity of other heat generating components will affect the temperature rise. It is recommended that the temperature of the part not exceed +125 °C under worst case operating conditions verified in the end application.

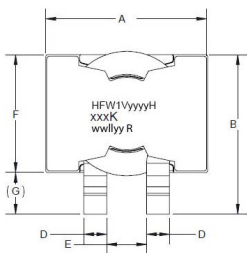
3. I_{sat} : Peak current for approximately 20% rolloff @ +25 °C

4. Part Number Definition: HFV1V2815HxxxK

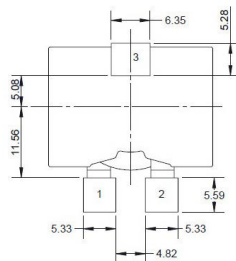
HFV1V2815H = Product code and size,

xxx= inductance value in μ H, R = decimal point, if no R is present then third digit equals number of zeros, K = tolerance \pm 10%

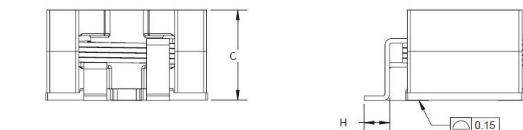
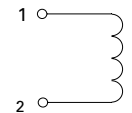
Mechanical parameters, schematic, pad layout (mm)



Recommended pad layout



Schematic



Part number	A	B	C	D	E	F	G	H
HFV1V2815HxxxK	27.9 maximum	27.94 maximum	15.36 maximum	3.8 \pm 0.3	6.63 \pm 0.5	19.8 maximum	6.9 \pm 0.5	3.8 minimum
HFV1V2818HxxxK	27.9 maximum	27.94 maximum	17.78 maximum	3.8 \pm 0.3	6.63 \pm 0.5	19.8 maximum	6.9 \pm 0.5	3.8 minimum

Part marking: HFV1VyyyyH: yyyy= 2815 or 2818

xxxK= inductance value in μ H, R= decimal point, If no R is present, third character equals numbers of zeros, K= tolerance \pm 10%

willyy R= lot code

All soldering surfaces to be coplanar within 0.15 millimeters

Tolerances are \pm 0.15 millimeters unless stated otherwise

Pad layout tolerances are \pm 0.1 millimeters unless stated otherwise

Pin 3 is for mounting purposes. No connection.

Traces or vias underneath the inductor is not recommended

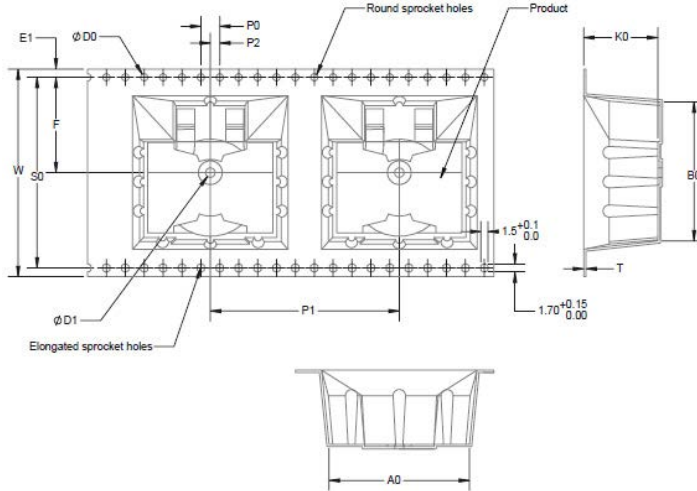
Packaging information (mm)

Drawing not to scale

Supplied in tape and reel packaging,

HCF1V2815H 60 parts per 13" diameter reel (EIA-481 compliant)

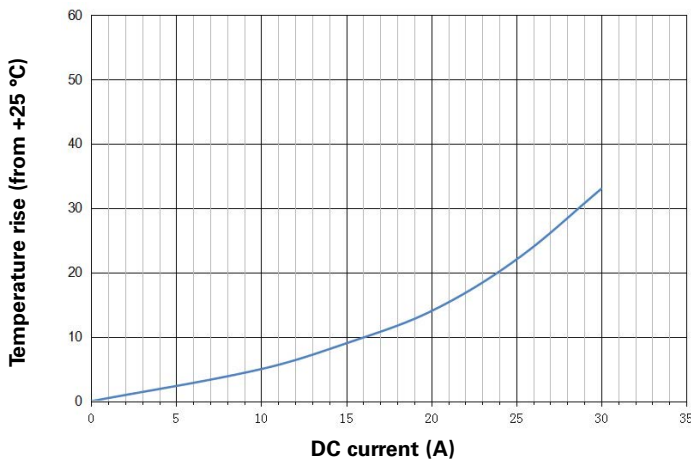
HCF1V2818H 55 parts per 13" diameter reel (EIA-481 compliant)



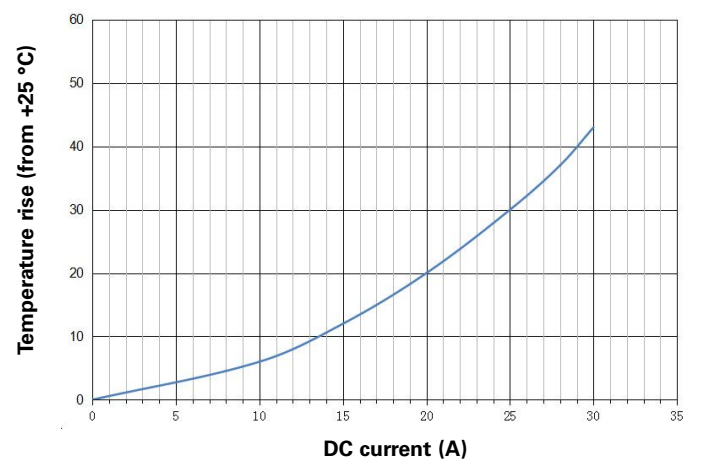
Dimension	HFW1V2815H	HFW1V2818H
W ± 0.30	44	44
F ± 0.10	20.2	20.2
E1 ± 0.10	1.75	1.75
S0 ± 0.10	40.4	40.4
P0 ± 0.10	4.0	4.0
P1 ± 0.10	40	40
P2 ± 0.1	2.0	2.0
D0 $\pm 0.10/-0$	1.5	1.5
D1 $\pm 0.10/-0$	2.0	2.0
A0 ± 0.15	28.2	28.2
B0 ± 0.15	28.4	28.4
K0 ± 0.15	16.2	18.7
T ± 0.05	0.5	0.5

Temperature rise vs. current

HFW1V2815

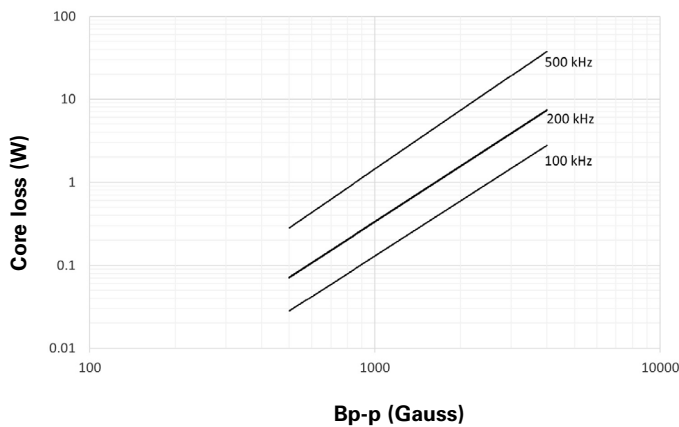


HFW1V2818

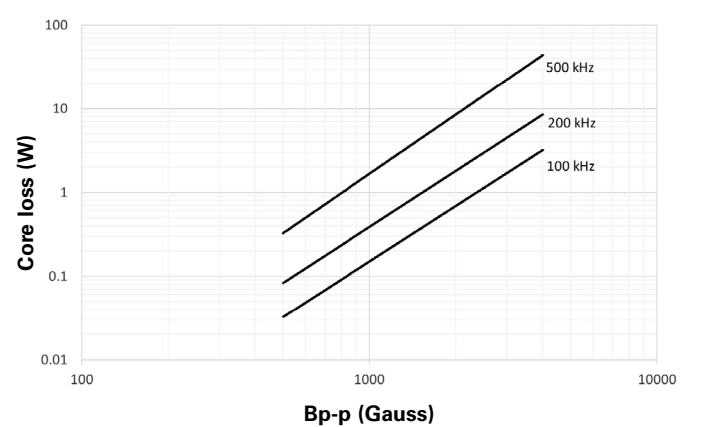


Core loss vs. Bp-p

HFW1V2815

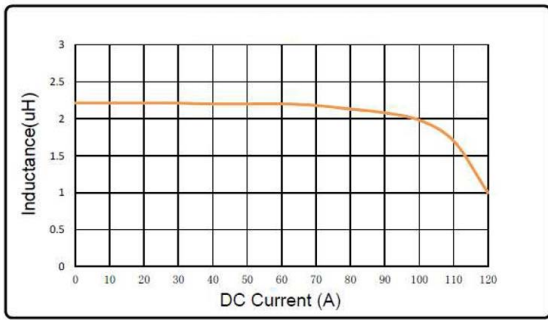


HFW1V2818

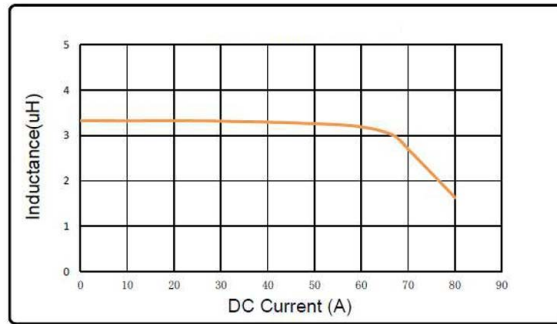


Inductance characteristics (+25 °C)

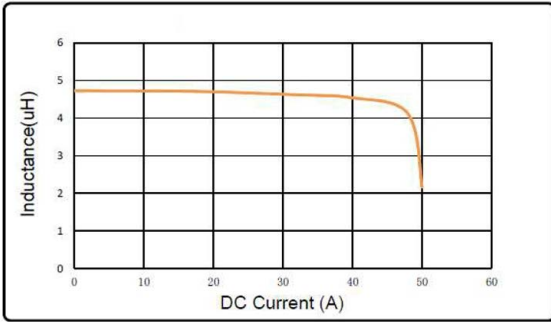
HFV1V2815H2R2K



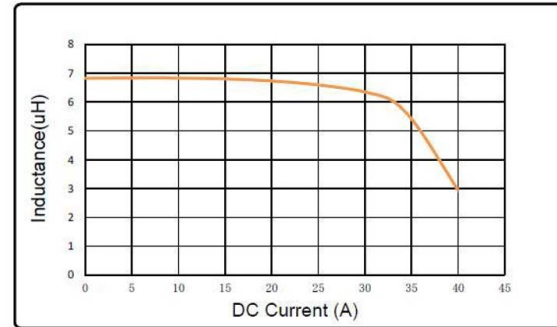
HFV1V2815H3R3K



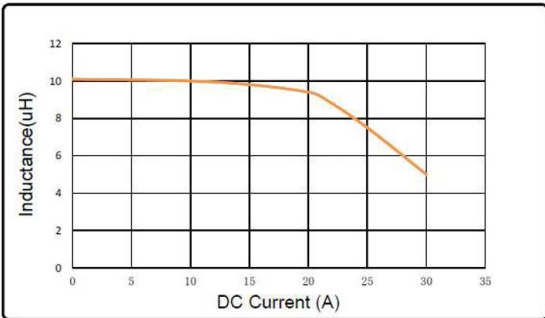
HFV1V2815H4R7K



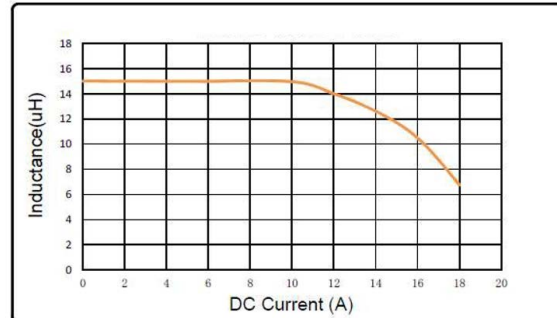
HFV1V2815H6R8K



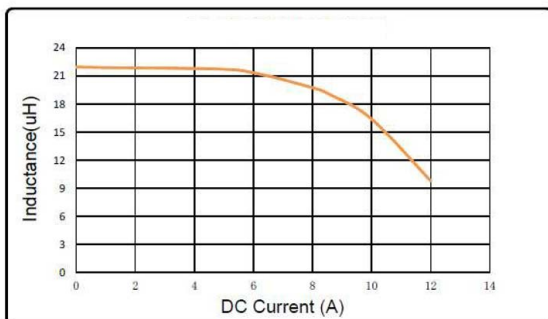
HFV1V2815H100K



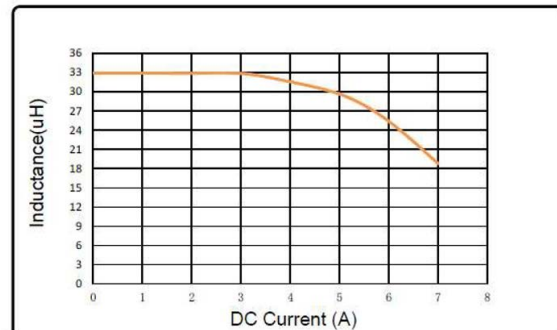
HFV1V2815H150K



HFV1V2815H220K

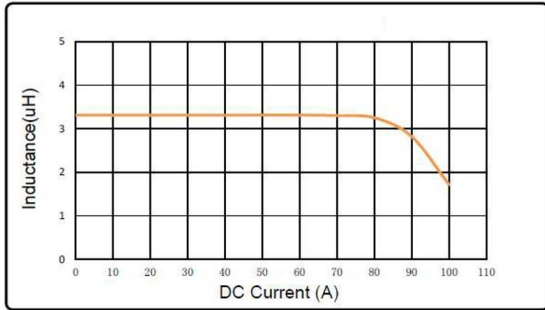


HFV1V2815H330K

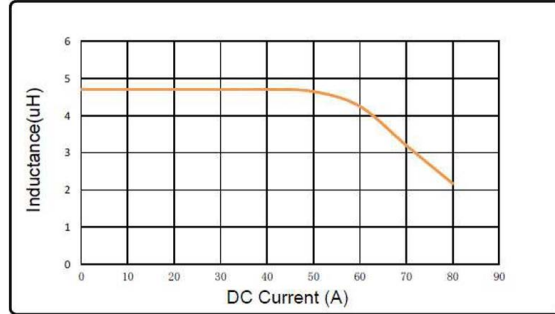


Inductance characteristics (+25 °C)

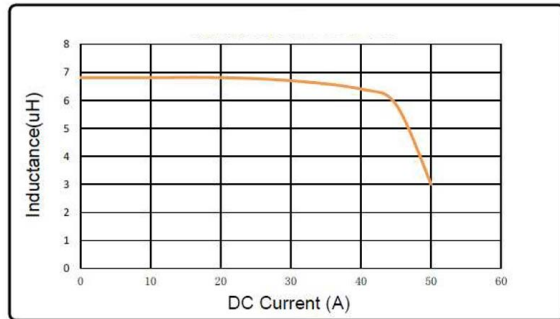
HFW1V2818H3R3K



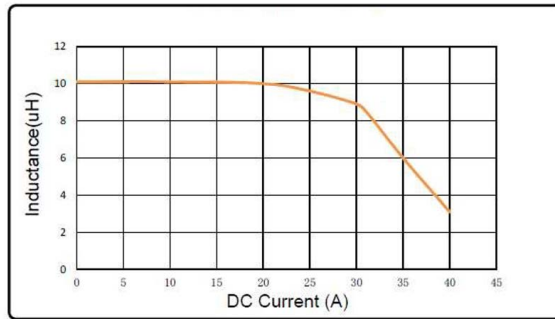
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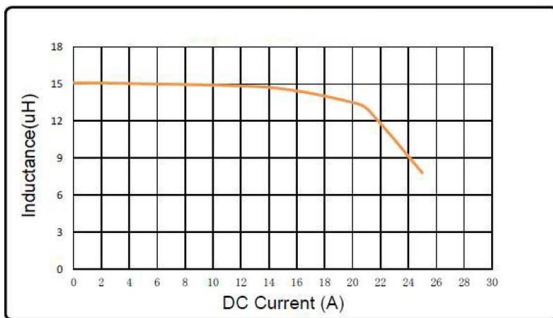
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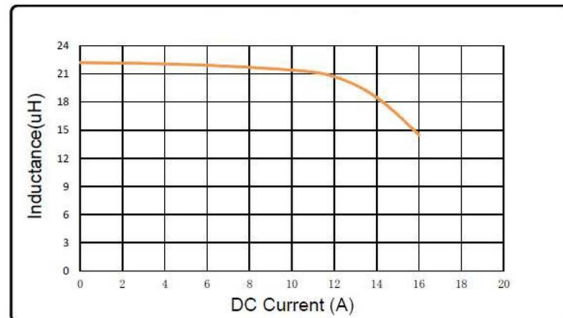
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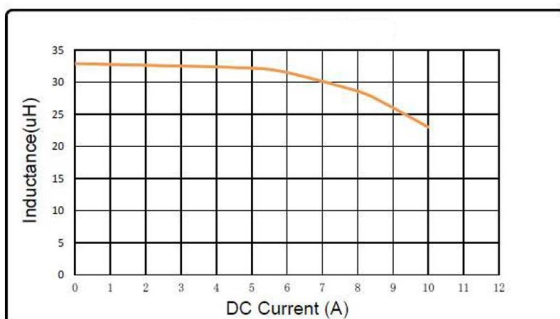
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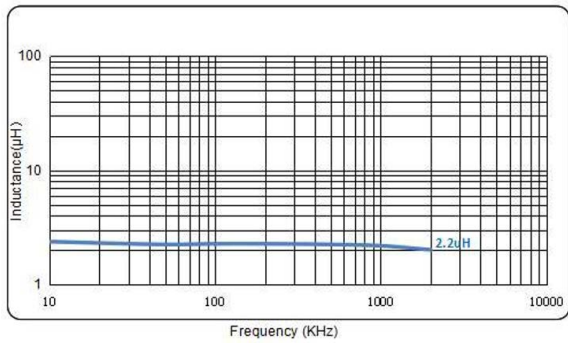


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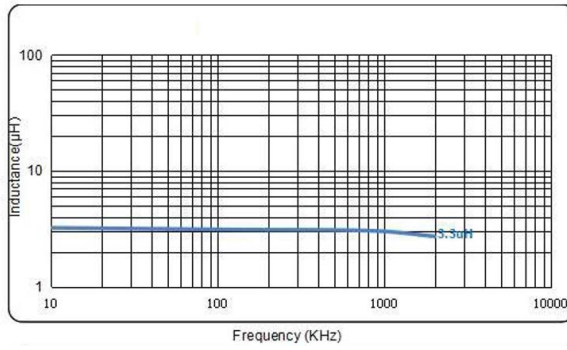


Inductance vs. frequency curve

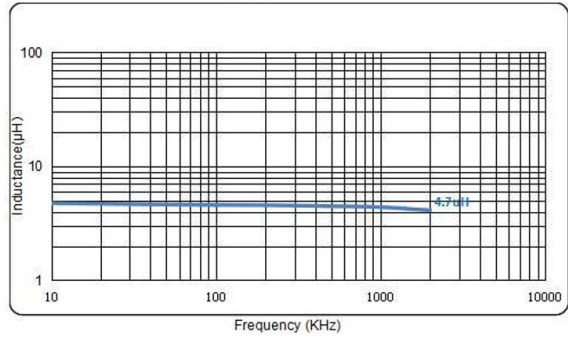
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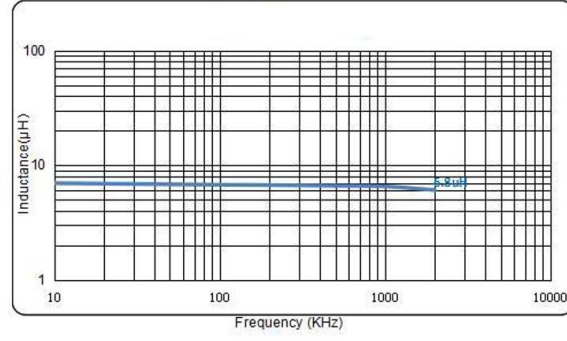
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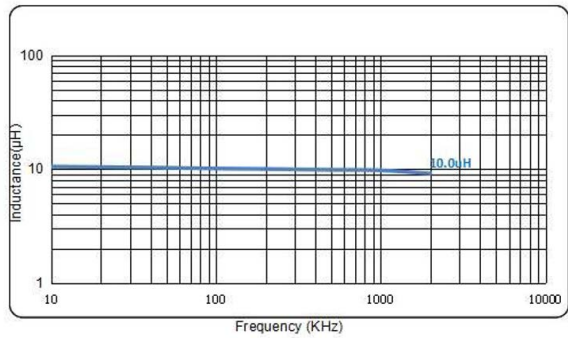
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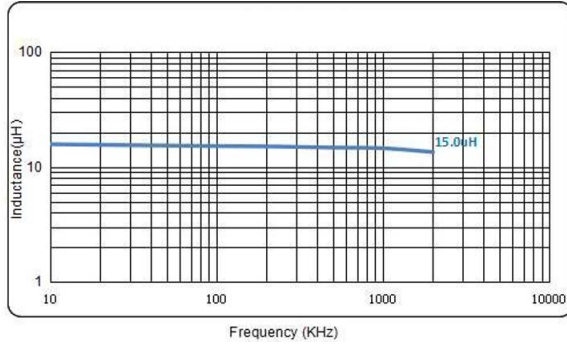
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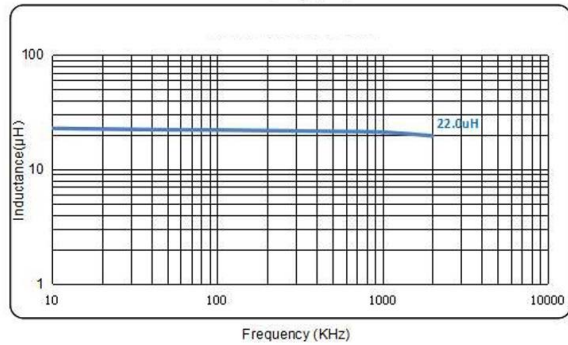
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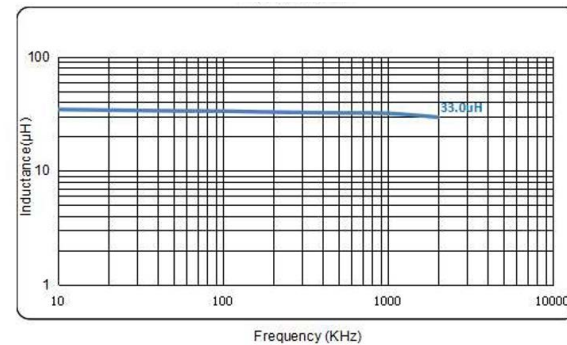
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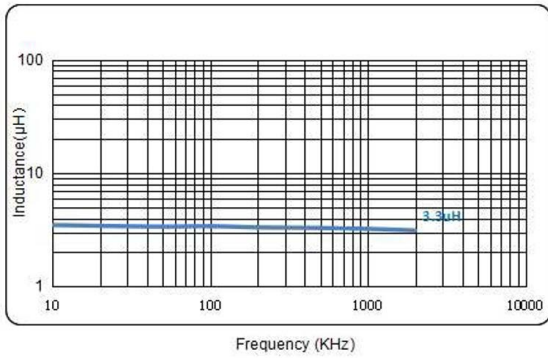


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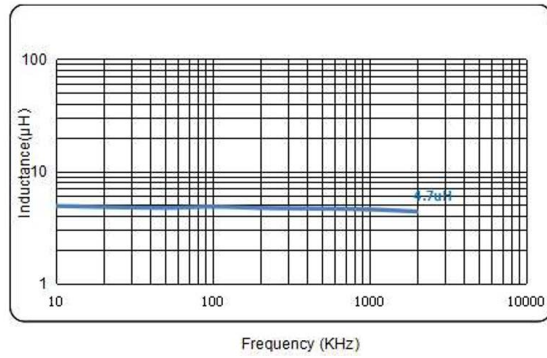


Inductance vs. frequency curve

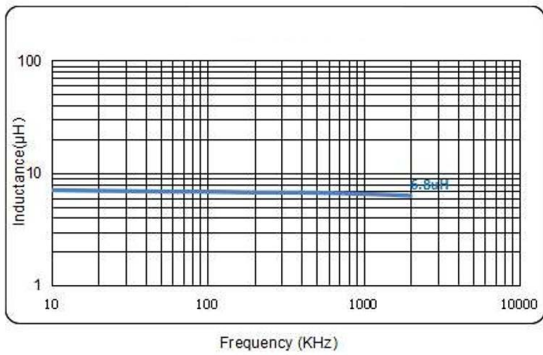
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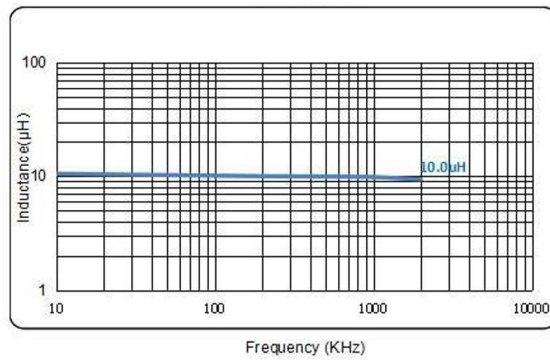
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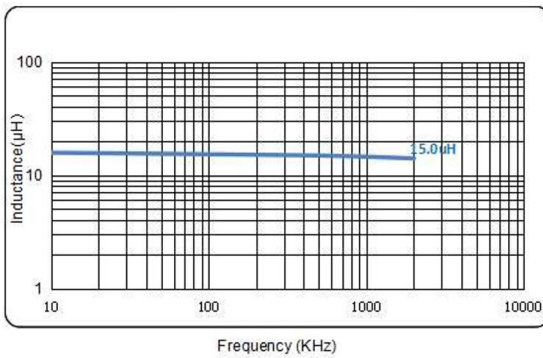
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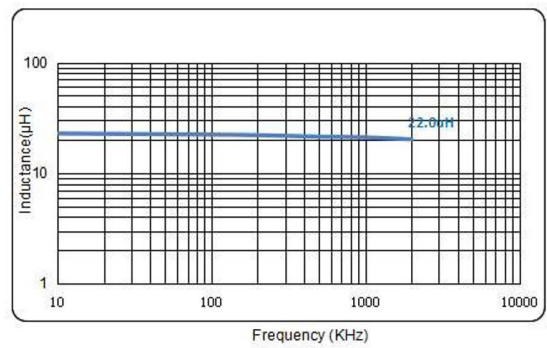
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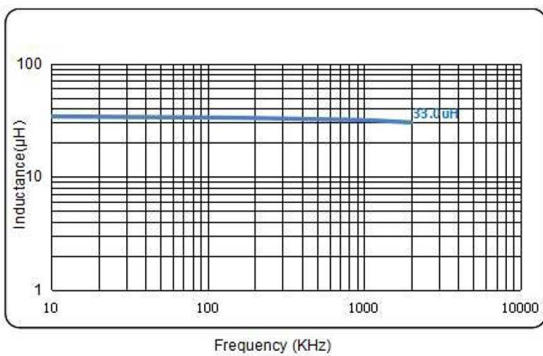
HFW1V2818H150K



HFW1V2818H220K



HFW1V2818H330K



Solder reflow profile

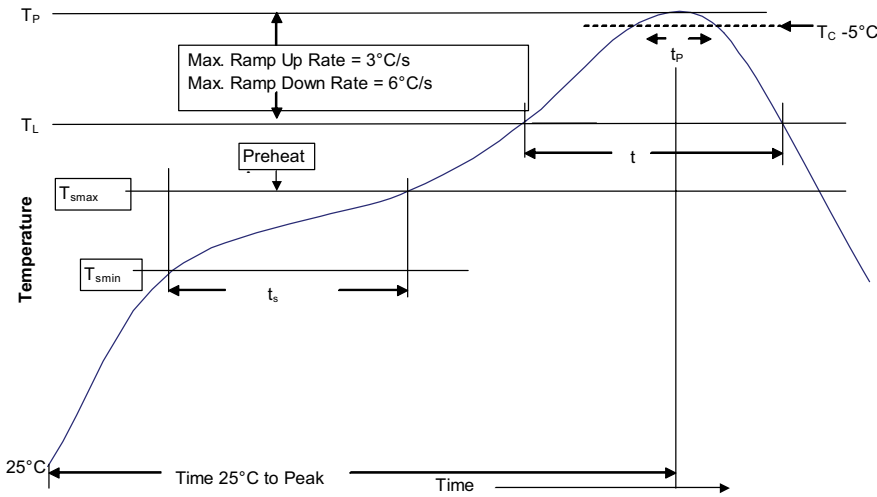


Table 1 - Standard SnPb solder (T_C)

Package thickness	Volume mm ³ <350	Volume mm ³ ≥350
<2.5 mm	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2 - Lead (Pb) free solder (T_C)

Package thickness	Volume mm ³ <350	Volume mm ³ 350 - 2000	Volume mm ³ >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 – 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

Reference J-STD-020

Profile feature	Standard SnPb solder	Lead (Pb) free solder
Preheat and soak		
• Temperature min. (T _{smin})	100 °C	150 °C
• Temperature max. (T _{smax})	150 °C	200 °C
• Time (T _{smin} to T _{smax}) (t _s)	60-120 seconds	60-120 seconds
Ramp up rate T _L to T _p	3 °C/ second max.	3 °C/ second max.
Liquidous temperature (T _L)	183 °C	217 °C
Time (t _L) maintained above T _L	60-150 seconds	60-150 seconds
Peak package body temperature (T _p)*	Table 1	Table 2
Time (t _p)* within 5 °C of the specified classification temperature (T _C)	20 seconds*	30 seconds*
Ramp-down rate (T _p to T _L)	6 °C/ second max.	6 °C/ second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

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