HFW1V22xxH

High current flat wire inductor

Product features

- Flat wire construction, high current capability
- 22.3 mm x 22 mm surface mount package in 10.2, 10.8, 12.5 and 14.5 mm height
- Third mounting pad enhances stability and board adhesion
- Inductance range: 4.7 µH to 20 µH
- Current range: 14.3 A to 28 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)

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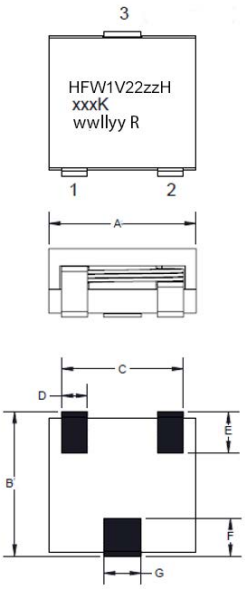
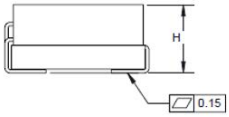
Product specifications

Part number[4]	OCL[1] (µH) ± 10% (Pin 1-2)	I_{rms}[2] (A) typical	I_{sat}[3] (A) (Pin 1-2)	DCR (mΩ) maximum (Pin 1-2) @ +25 °C	SRF (MHz) (Pin 1-2)
HFW1V2210H4R7K	4.7	28	22.0	2.4	17
HFW1V2210H6R8K	6.8	26.5	19.0	2.9	15
HFW1V2211H8R2K	8.2	24	18.5	3.4	15
HFW1V2213H100K	10	22	21.0	3.9	14
HFW1V2213H150K	15	22	15.3	3.9	12
HFW1V2215H200K	20	19	14.3	6.4	9.0

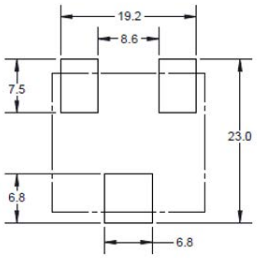
1. Open circuit inductance (OCL) Test parameters: 100 kHz, 1.0 V_{rms}, 0.0 Adc, +25 °C
2. I_{rms}: DC current for an approximate temperature rise of 40 °C without core loss. Derating is necessary for AC currents. PCB layout, trace thickness and width, air-flow, and proximity of other heat generating 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: HFWxVxxxxHxxxK
HFW1V2210H = Product code and size,
xxx= inductance value in uH , R = decimal point, if no R is present then third digit equals number of zeros,
K = tolerance 10%

Mechanical parameters, schematic, pad layout (mm)

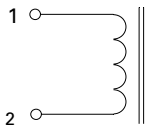




Recommended pad layout



Schematic



Part number	A	B	C	D	E	F	G	H
HFW1V2210H4R7K	22.3 maximum	22 maximum	17.8 ± 0.5	3.8 ± 0.3	6.0 ± 0.5	5.5 ± 0.3	5.5 ± 0.3	10.2
HFW1V2210H6R8K	22.3 maximum	22 maximum	17.8 ± 0.5	3.8 ± 0.3	6.0 ± 0.5	5.5 ± 0.3	5.5 ± 0.3	10.2
HFW1V2211H8R2K	22.3 maximum	22 maximum	17.8 ± 0.5	3.8 ± 0.3	6.0 ± 0.5	5.5 ± 0.3	5.5 ± 0.3	10.8
HFW1V2213H100K	22.3 maximum	22 maximum	17.8 ± 0.5	3.8 ± 0.3	6.0 ± 0.5	5.5 ± 0.3	5.5 ± 0.3	12.5
HFW1V2213H150K	22.3 maximum	22 maximum	17.8 ± 0.5	3.8 ± 0.3	6.0 ± 0.5	5.5 ± 0.3	5.5 ± 0.3	12.5
HFW1V2215H200K	22.3 maximum	22 maximum	17.8 ± 0.5	3.8 ± 0.3	6.0 ± 0.5	5.5 ± 0.3	5.5 ± 0.3	14.5

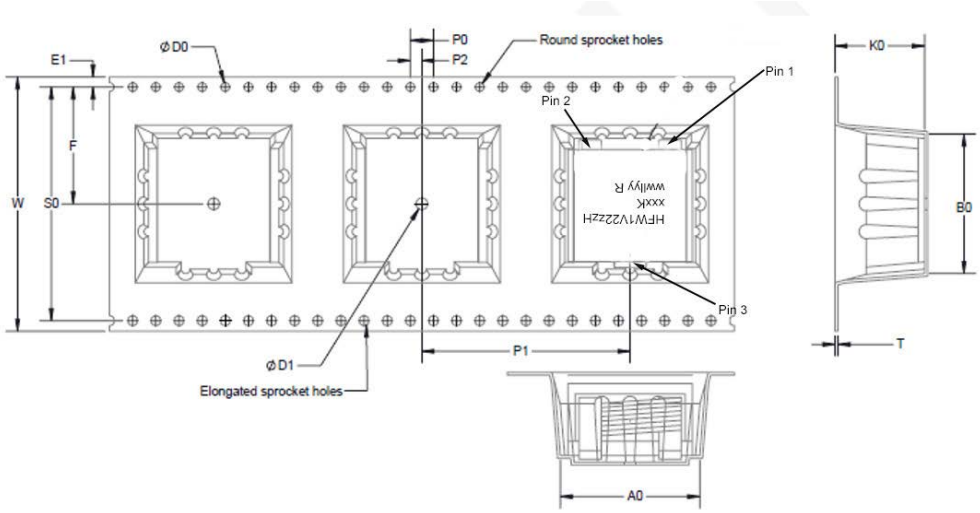
Part marking: HFW1V22zzH: zz= 10, 11, 13 or 15
xxxK= inductance value in uH, R= decimal point, If no R is present, third character equals numbers of zeros, K= tolerance ±10%
wwllyy R= lot code
All soldering surfaces to be coplanar within 0.15 millimeters
Pad layout tolerances are ±0.1 millimeters unless 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 in a 13" diameter reel (EIA-481 compliant)

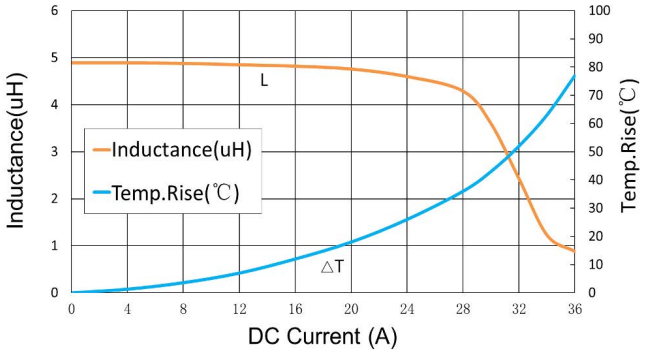
HFW1V2210H4R7K	90 part per reel
HFW1V2210H6R8K	90 parts per reel
HFW1V2211H8R2K	90 parts per reel
HFW1V2213H100K	80 parts per reel
HFW1V2213H150K	80 parts per reel
HFW1V2215H200K	70 parts per reel



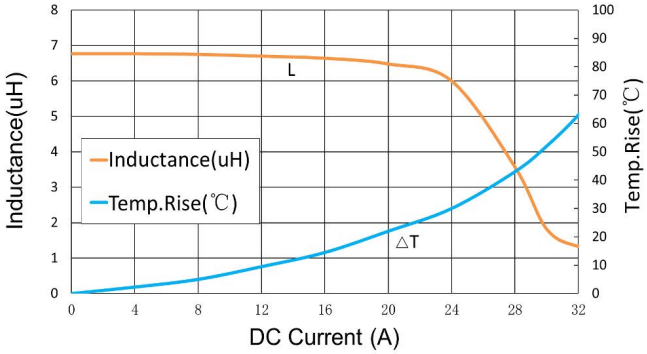
Dimension	HFW1V2210	HFW1V2211	HFW1V2213	HFW1V2215
W ± 0.30	44.0	44.0	44.0	44.0
F ± 0.10	20.2	20.2	20.2	20.2
E1 ± 0.10	1.75	1.75	1.75	1.75
S0 ± 0.10	40.4	40.4	40.4	40.4
P0 ± 0.10	4.0	4.0	4.0	4.0
P1 ± 0.10	32.0	32.0	36.0	36.0
P2 ± 0.10	2.0	2.0	2.0	2.0
D0 + 0.10/-0	1.5	1.5	1.5	1.5
D1 + 0.10/-0	2.0	2.0	2.0	2.0
A0 ± 0.15	22.6	22.6	22.6	22.6
B0 ± 0.15	22.6	22.6	22.6	22.6
K0 ± 0.15	11.2	11.8	13.8	15.5
T ± 0.05	0.5	0.5	0.5	0.5

Inductance characteristics (+25 °C)

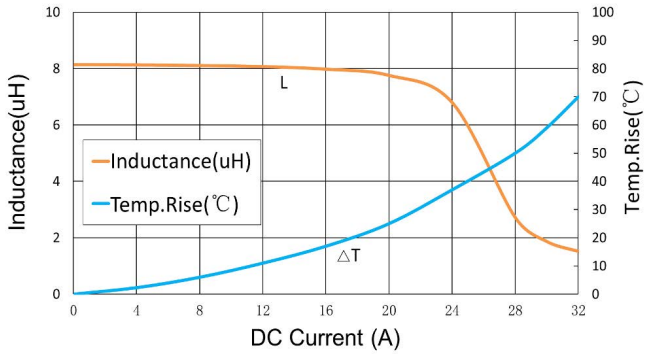
HFW1V2210H4R7K



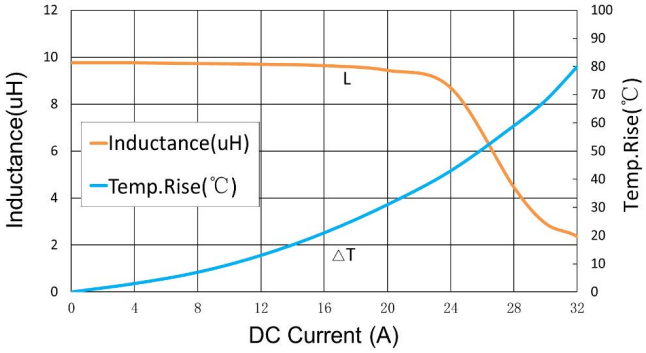
HFW1V2210H6R8K



HFW1V2211H8R2K



HFW1V2213H100K



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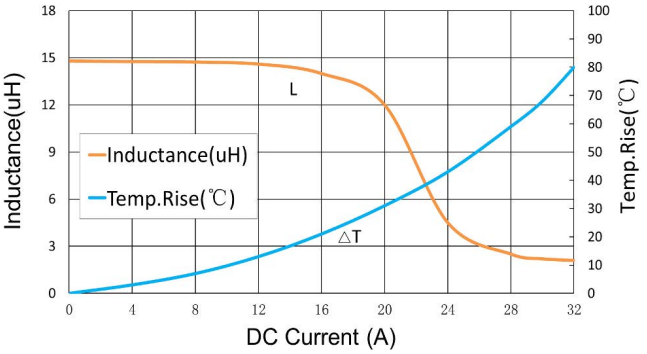
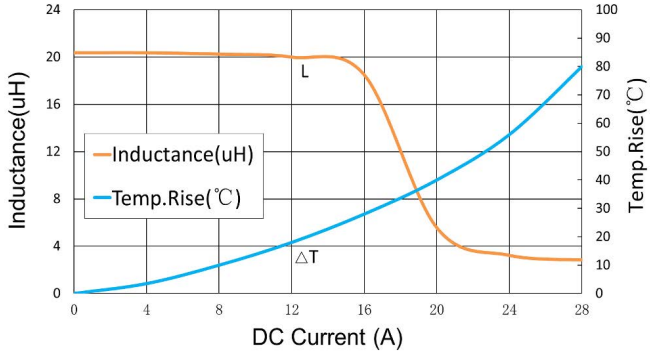
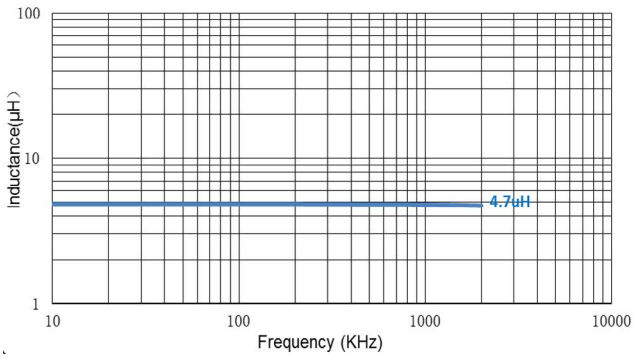


HFW1V2215H200K



Inductance vs. frequency curve

HFW1V2210H4R7K



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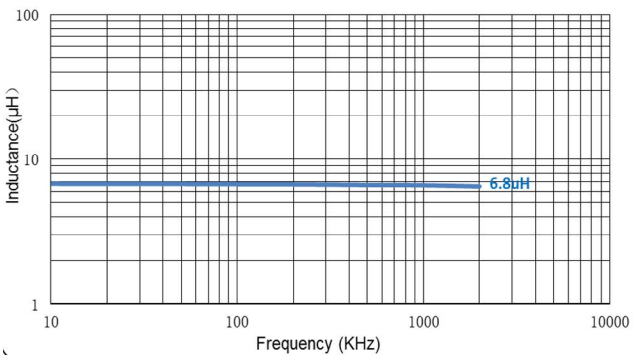

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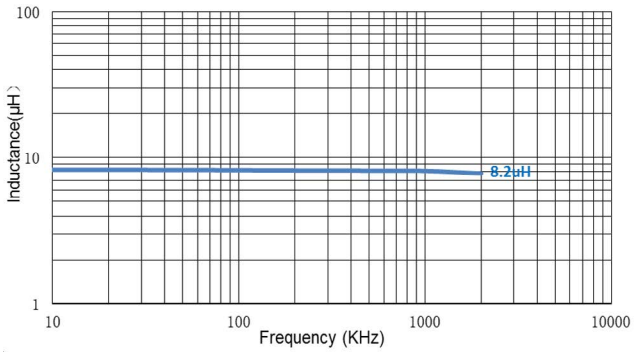

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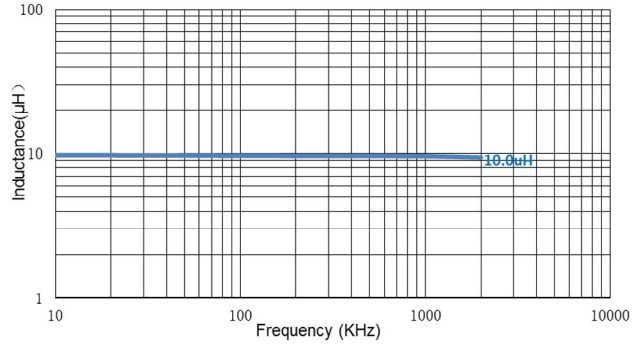

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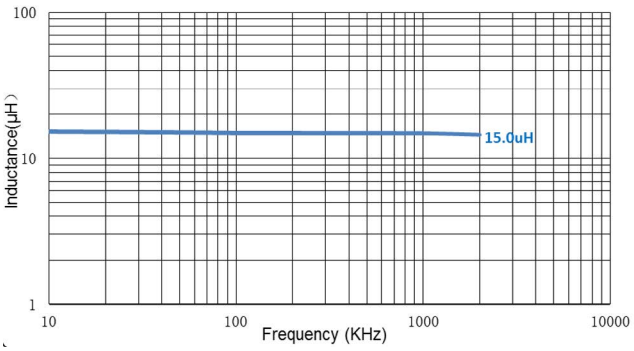
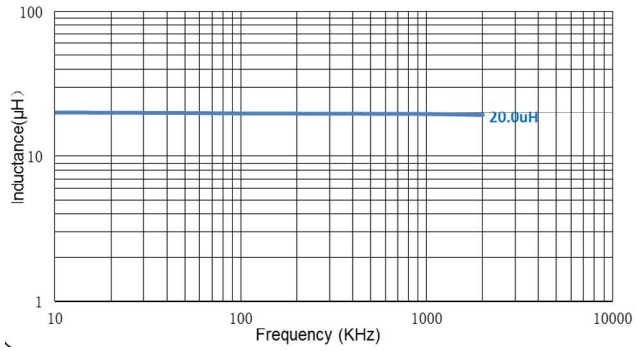


HFW1V2215H200K



Solder reflow profile

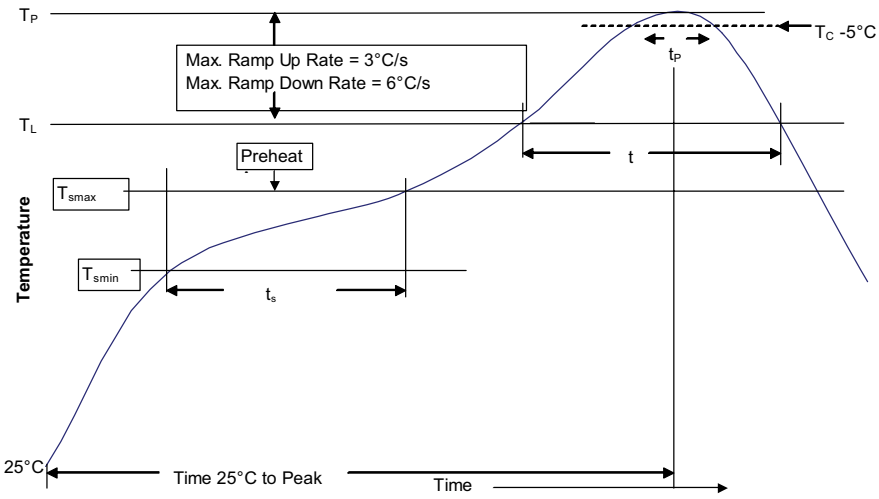


Table 1 - Standard SnPb solder (T_C)

Package thickness	Volume mm3 <350	Volume mm3 ≥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) Time (t_L) maintained above T_L		183 °C 60-150 seconds	217 °C 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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