

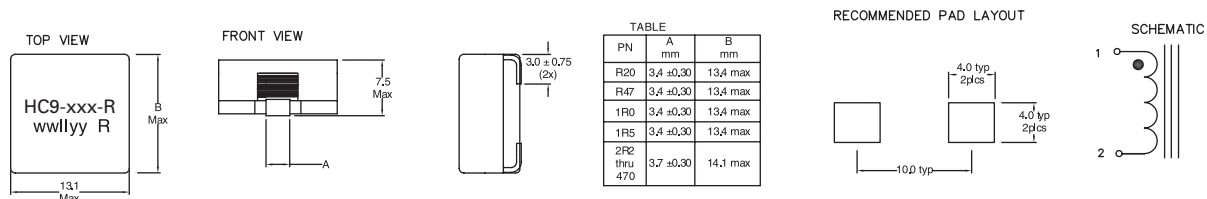
Product specifications

Part number ⁶	OCL ¹ (μH) ±15%	I _{rms} ² (amps)	I _{sat} ³ (amps) 20% rolloff	I _{sat} ⁴ (amps) 30% rolloff	DCR (mΩ) maximum @ 20°C	Volt-μsec ⁵ (V-μs)
HC9-R20-R	0.218	46.7	65	95	0.50	2.87
HC9-R47-R	0.544	33.7	40	57	0.88	4.78
HC9-1R0-R	1.04	23.7	28	41	1.87	6.70
HC9-1R5-R	1.70	21.0	22	32	2.27	8.46
HC9-2R2-R	2.53	17.2	18	26	3.37	10.4
HC9-3R3-R	3.52	14.3	15	22	4.87	12.4
HC9-4R3-R	4.67	13.0	13.2	19.1	5.90	14.4
HC9-6R8-R	7.45	10.3	11.4	15.1	9.40	18.1
HC9-100-R	10.9	8.50	8.6	12.5	14.0	22.0
HC9-220-R	22.4	6.30	6.0	8.7	25.7	31.5
HC9-330-R	34.5	4.42	4.8	7.0	48.8	37.3
HC9-470-R	49.2	3.65	3.9	5.7	72.3	44.8

1. Open Circuit Inductance (OCL) Test Parameters: 100kHz, 1.0Vrms, 0.0A_{dc}, @ +25°C
2. I_{rms}: DC current for an approximately ΔT of 40°C without core loss. Derating is necessary for AC currents. Pad layout, trace thickness and width, airflow, and proximity of other heat generating components will affect the temperature rise. It is recommended that the temperature of the part not exceed 155°C under worst case conditions verified in the end application.
3. Peak current for approximately 20% rolloff @20°C
4. Peak current for approximately 30% rolloff @20°C
5. Applied Volt-Time product (V-μs) across the inductor. This value represents the applied V-μs at operating frequency necessary to generate additional core loss which contributes to the 40°C temperature rise. De-rating of the I_{rms} is required to prevent excessive temperature rise. The 100% V_{ps} rating is equivalent to a ripple current I_{p-p} of 20% of I_{sat} (30% rolloff option).

6. Part number definition: HC9-xxx-R
HC9= Product code and size
xxx = Inductance in μH. R = decimal point. If no R is present last character equals number of zeros.
-R suffix = RoHS compliant

Dimensions—mm



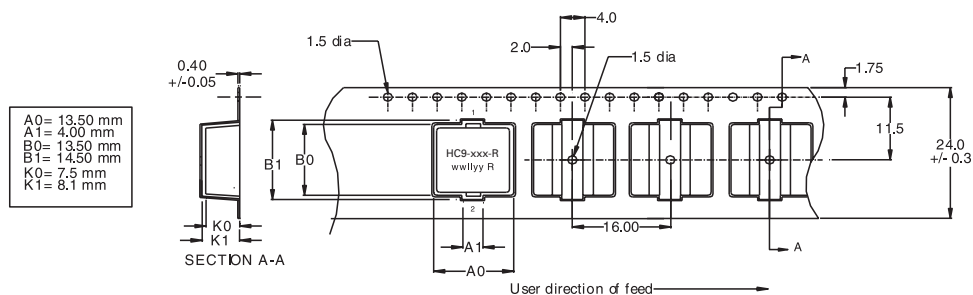
Part marking: HC9= (Product code and size)-xxx=(inductance value in uH, R= decimal point. If no R is present then last character equals number of zeros. wwlyy=date code, R=revision level

Tolerances are ±0.2 millimeters unless stated otherwise

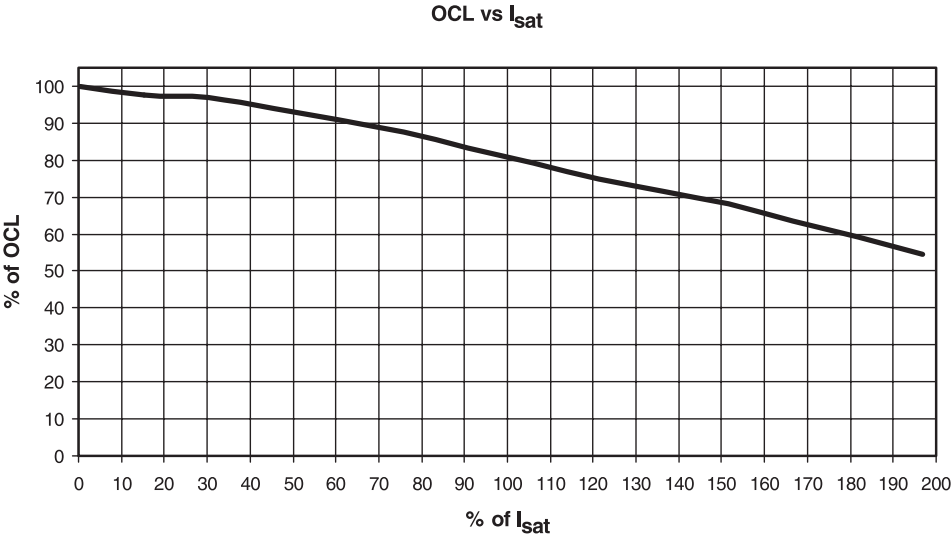
Do not route traces or vias underneath the inductor

Packaging information—mm

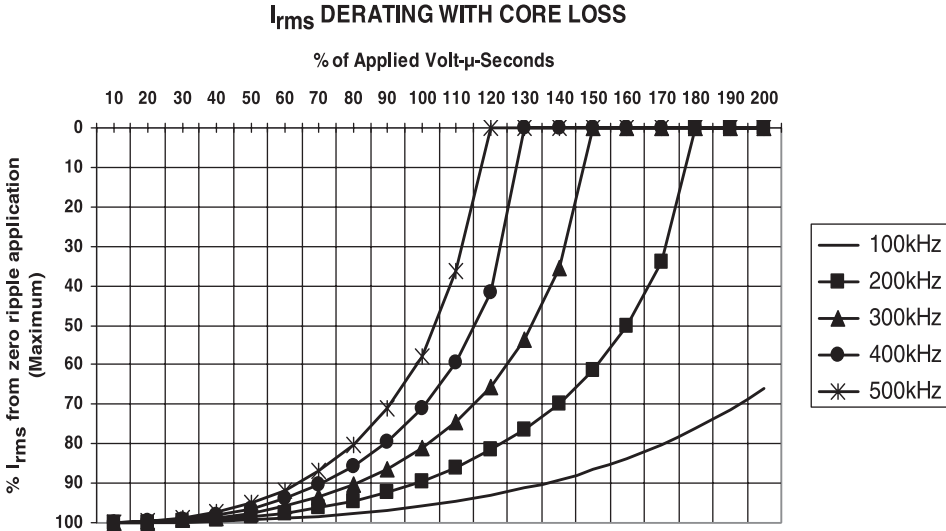
Supplied in tape and reel packaging, 450 parts per reel, 13" diameter reel.



Rolloff



Core loss



Solder reflow profile

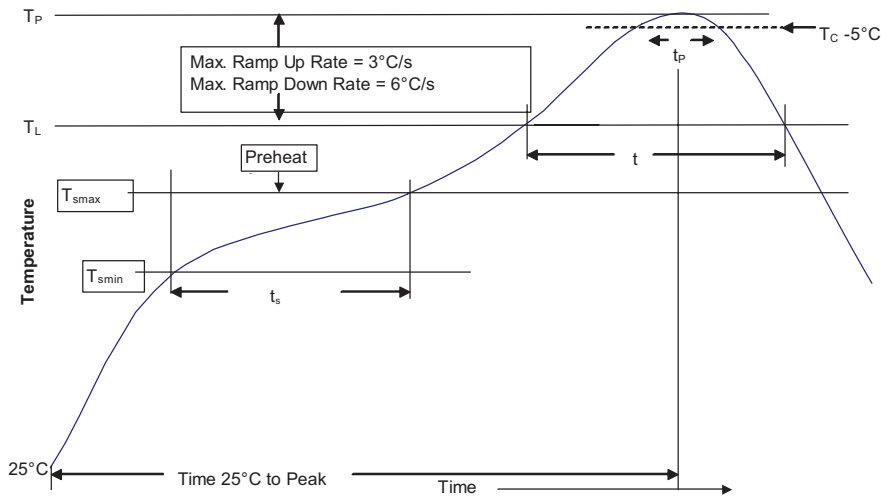


Table 1 - Standard SnPb Solder (T_C)

Package Thickness	Volume mm ³ <350	Volume mm ³ ≥350
<2.5mm)	235°C	220°C
≥2.5mm	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
<1.6mm	260°C	260°C	260°C
1.6 – 2.5mm	260°C	250°C	245°C
>2.5mm	250°C	245°C	245°C

Reference JEDEC J-STD-020D

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
Average ramp up rate T_{smax} to T_P	3°C/ Second Max.	3°C/ Second Max.
Liquidous temperature (T_L)	183°C	217°C
Time at liquidous (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**
Average ramp-down rate (T_P to T_{smax})	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.

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

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