

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, 0.0Aac, @ +25°C
2. Irms: DC current for an approximately 4T 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% Vus rating is equivalent to a ripple current I_{p-p} of 20% of Isat (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

TOP VIEW

HC9-xxx-R
wwllyy R

13.1

B Max

FRONT VIEW

7.5 Max

A

TABLE

PN	A mm	B mm
R20	3.4 ±0.30	13.4 max
R47	3.4 ±0.30	13.4 max
1R0	3.4 ±0.30	13.4 max
1R5	3.4 ±0.30	13.4 max
2F2 thru 470	3.7 ±0.30	14.1 max

RECOMMENDED PAD LAYOUT

4.0 typ
2plcs

4.0 typ
2plcs

10.0 typ

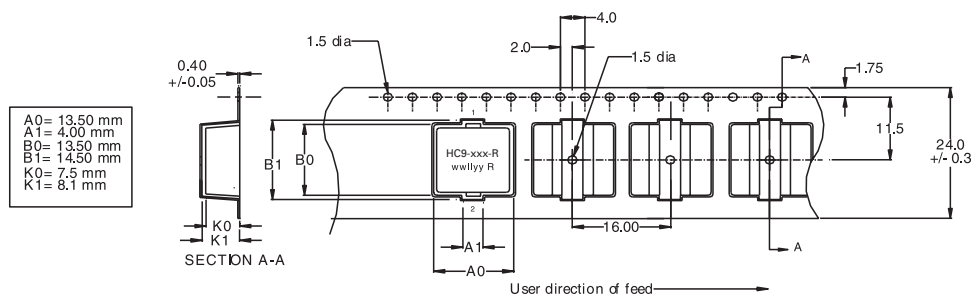
SCHEMATIC

1

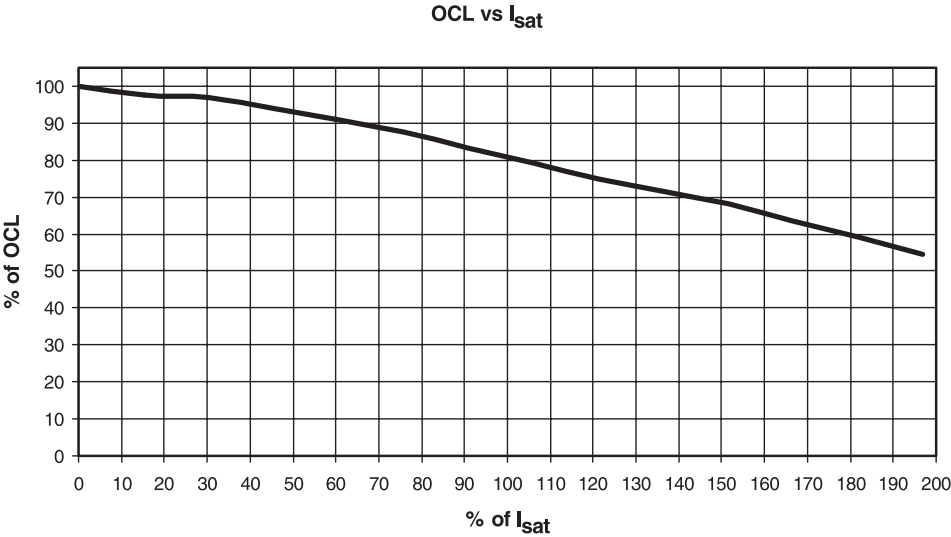
2

Do not route traces or vias underneath the inductor

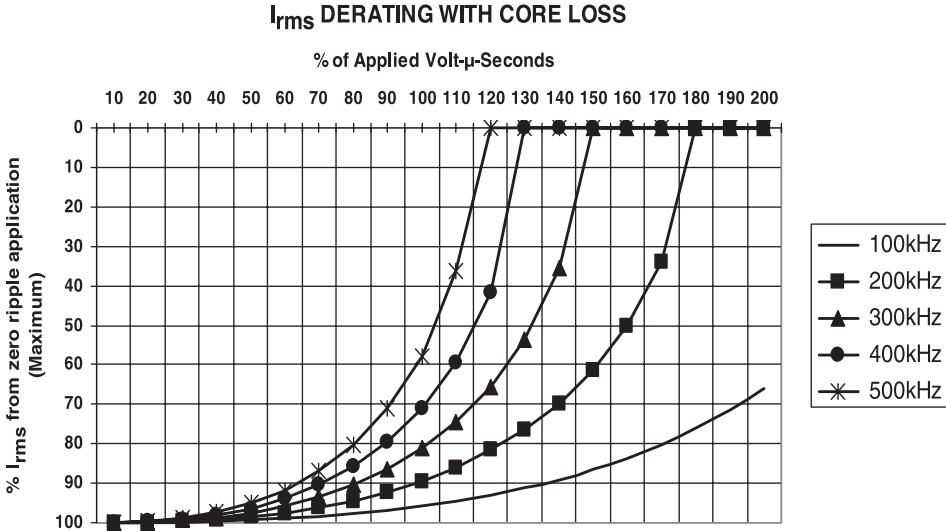
Supplied in tape and reel packaging, 450 parts per reel, 13" diameter reel.



Rolloff



Core loss



Solder reflow profile

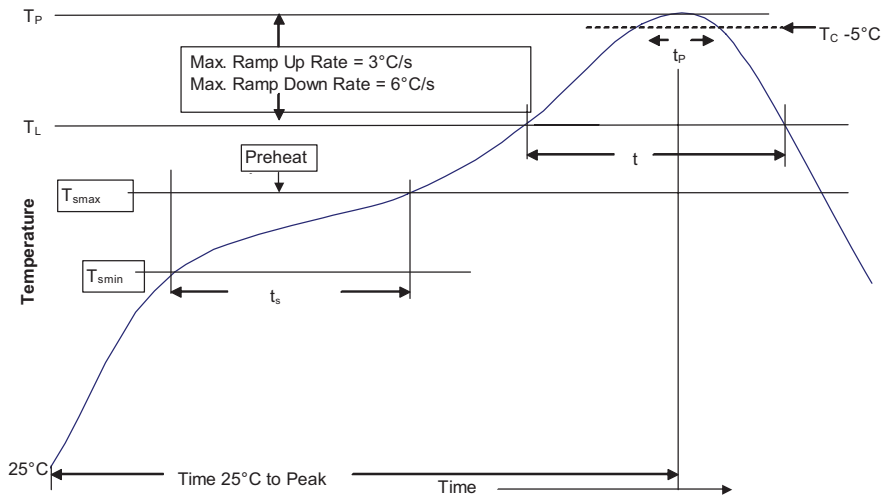


Table 1 - Standard SnPb Solder (T_C)

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.

Life Support Policy: Eaton does not authorize the use of any of its products for use in life support devices or systems without the express written approval of an officer of the Company. Life support systems are devices which support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.

Eaton reserves the right, without notice, to change design or construction of any products and to discontinue or limit distribution of any products. Eaton also reserves the right to change or update, without notice, any technical information contained in this bulletin.

Eaton
Electronics Division
1000 Eaton Boulevard
Cleveland, OH 44122
United States
www.eaton.com/elx

© 2015 Eaton
All Rights Reserved
Printed in USA
Publication No. DS4312
December 2015



Eaton is a registered trademark.

All other trademarks are property of their respective owners.