SDCL1V20

Semi-shielded power inductors

Product features

- High current carrying capacity
- High power density, low core losses
- Magnetically semi-shielded
- 2.3 mm x 1.9 mm surface mount package in 1.05 mm height
- NiZn ferrite magnetic material
- Moisture sensitivity level (MSL): 1

Applications

- DC-DC converters
- Switching controllers
- Industrial IoT equipment
- Game consoles
- Portable electronics
- Laptops, notebooks, and netbooks
- Desktops and workstations
- Battery backup
- LED lighting
- HD televisions and 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)
- Solder reflow temperature: J-STD-020 (latest revision) compliant

Pb HALOGEN HF FREE RoHS

Powering Business Worldwide

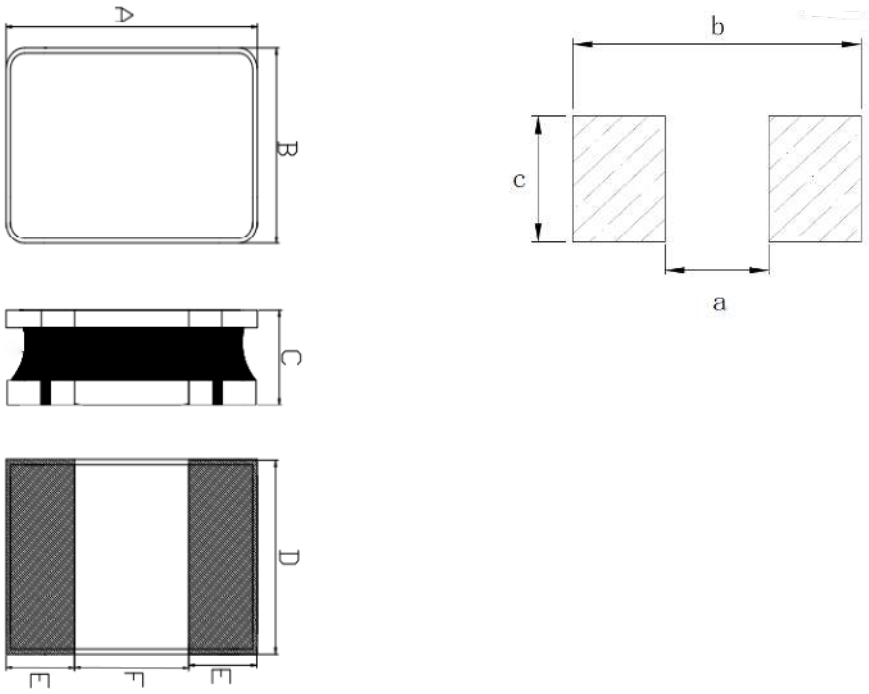
Product specifications

Part number[5]	OCL[1] (µH)	FLL[2] (µH) minimum	I_{rms}[3] (A)	I_{sat}[4] (A)	DCR (mΩ) @ +20 °C nominal	DCR (mΩ) @ +20 °C maximum
SDCL1V2010-R47N-R	0.47±30%	0.21	2.3	2.4	47	53
SDCL1V2010-R68N-R	0.68±30%	0.30	1.9	2.0	74	82
SDCL1V2010-1R0N-R	1.0±30%	0.46	1.55	1.8	95	110
SDCL1V2010-1R5N-R	1.5±30%	0.68	1.3	1.5	135	156
SDCL1V2010-2R2M-R	2.2±20%	1.14	1.1	1.26	155	174
SDCL1V2010-3R3M-R	3.3±20%	1.72	0.95	1.1	245	280
SDCL1V2010-4R7M-R	4.7±20%	2.44	0.8	0.9	350	405
SDCL1V2010-6R8M-R	6.8±20%	3.54	0.65	0.75	550	620
SDCL1V2010-100M-R	10±20%	5.2	0.5	0.6	700	810
SDCL1V2010-150M-R	15±20%	7.8	0.4	0.45	1150	1350

1. Open circuit inductance (OCL) test parameters: 1.0 MHz, 0.1 Vrms, 0.0 Adc, +25 °C
2. Full load inductance (FLL) test parameters: 100 kHz, 0.1 Vrms, I_{sat}, +25 °C
3. 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.
4. I_{sat} : Peak current for approximately 35% maximum rolloff @ +25 °C
5. Part number definition: SDCL1Vxxxx-yyyz-R
   SDCL1V = Product code
   xxxx= size code
   yyy= Inductance value in µH, R=decimal point
   z= Inductance tolerance
   -R suffix = RoHS compliant

Dimensions-mm

SDCL1V2010



Dimension	Value
A	2.1 + 0.2/-0.2
B	1.7 + 0.2/-0.2
C	1.05 MAX
D	1.7 ± 0.2
E	0.7 ± 0.3
F	0.7 ± 0.3
a	0.4 TYP
b	2.4 TYP
c	2.0 TYP

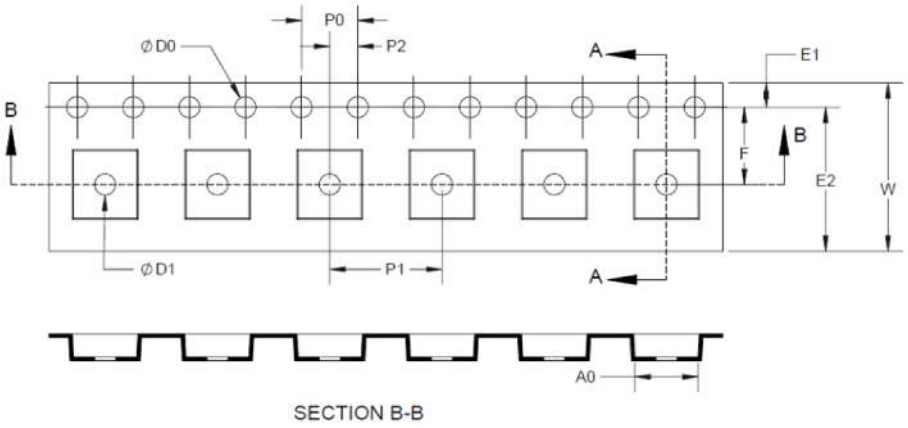
Part marking: none
Tolerances are ±0.3 millimeters unless stated otherwise
All soldering surfaces to be coplanar within 0.1 millimeters
Pad layout tolerances are ±0.1 millimeters unless stated otherwise
Traces or vias underneath the inductor is not recommended

Packaging information- mm

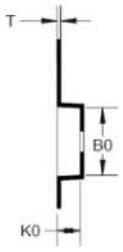
SDCL1V2010

Supplied in tape and reel packaging, 2000 parts per 7" diameter reel (EIA-481 compliant)

Drawing not to scale



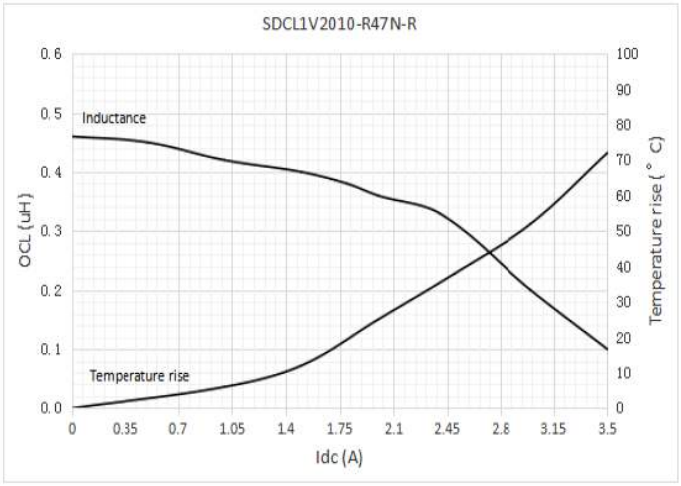
SECTION B-B

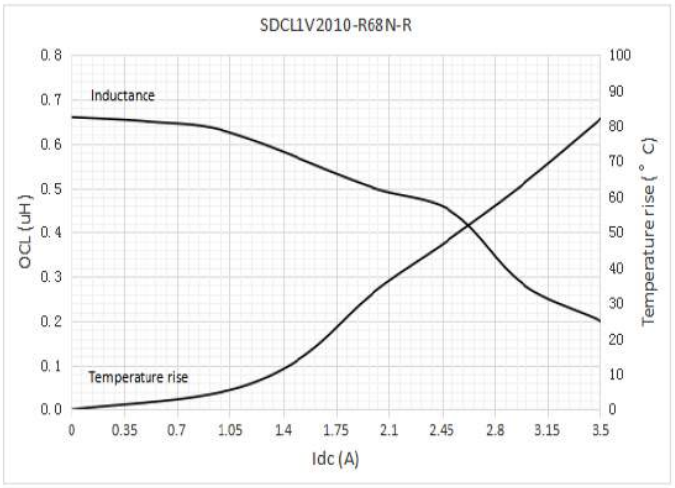


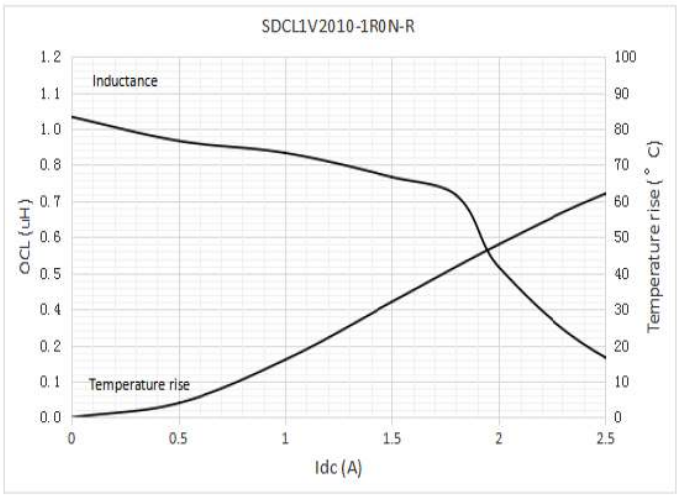
SECTION A-A

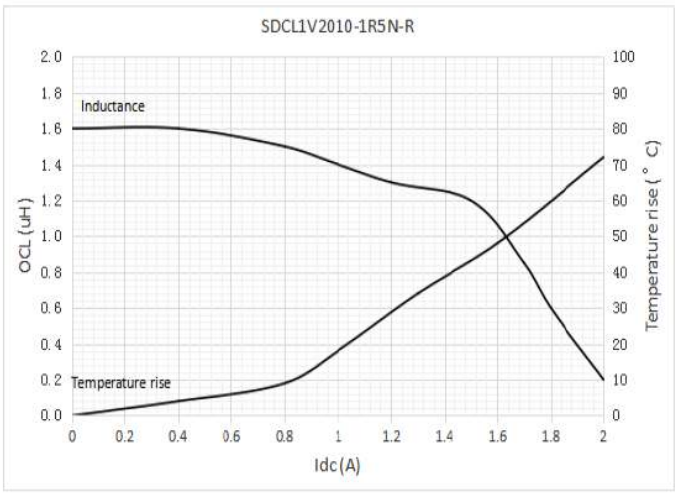
Dimension	Value
W	8.00 ± 0.10
F	3.50 ± 0.05
E1	1.75 ± 0.10
E2	N/A
P0	4.00 ± 0.10
P1	4.00 ± 0.10
P2	2.00 ± 0.05
ØD0	1.55 ± 0.05
ØD1	1.00 ± 0.05
A0	1.95 ± 0.1/-0.05
B0	2.35 ± 0.1/-0.05
K0	1.10 ± 0.1/-0.05
T	0.20 ± 0.05

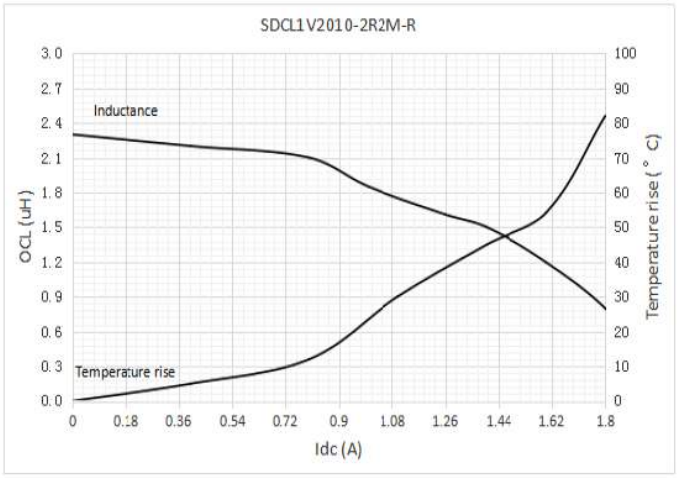
Inductance and temperature rise vs current

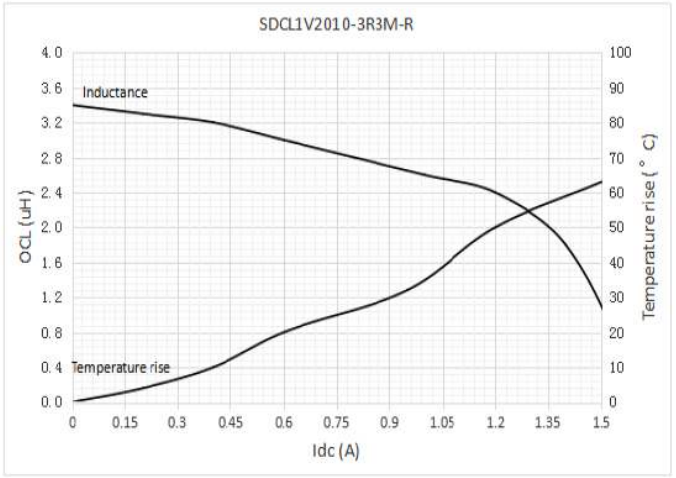




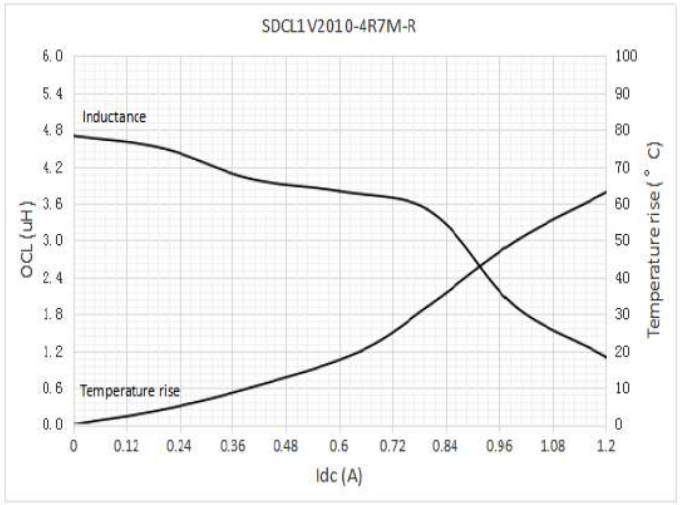


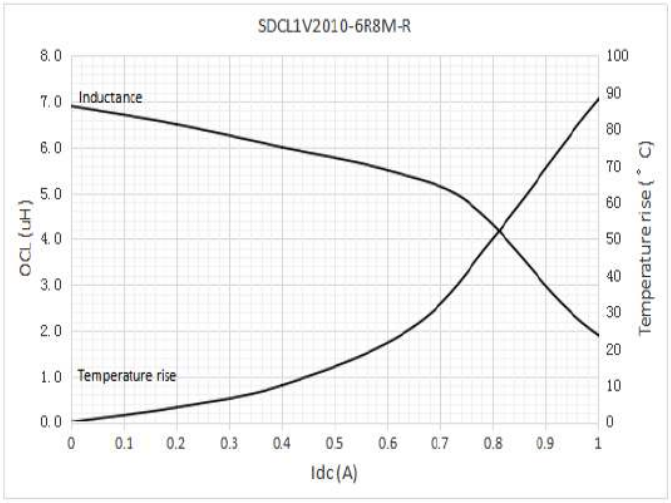


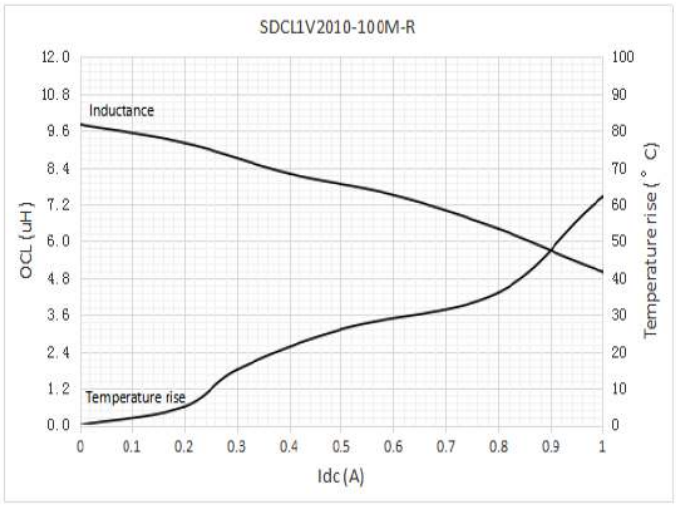


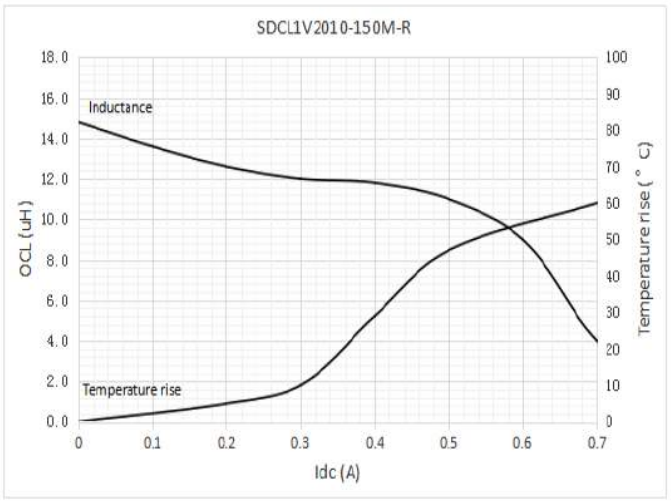


Inductance and temperature rise vs current









Solder reflow profile

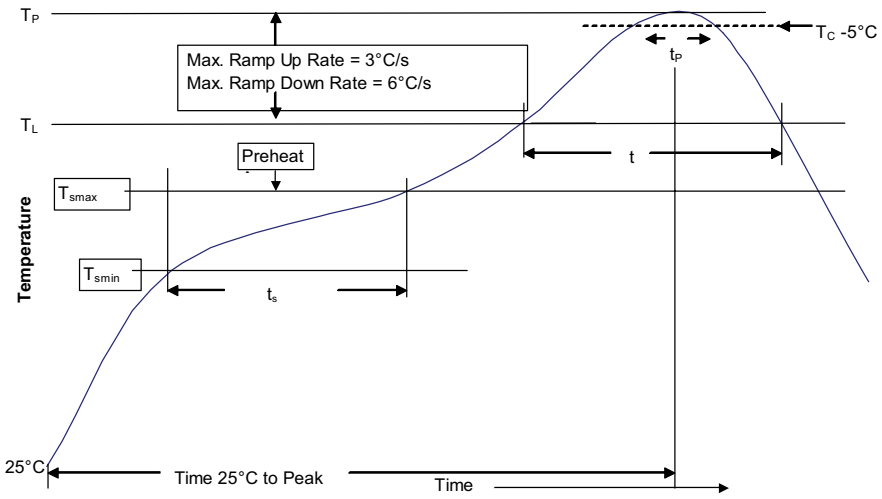


Table 1 - Standard SnPb solder (T_C)

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 mm³ <350	Volume mm³ 350 - 2000	Volume mm³ >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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Printed in USA
Publication No. ELX1029 BU-ELX21028
April 2021