PCA2V3223

Automotive power-over-coax inductors for decoupling circuits

Product features

- AEC-Q200
- High reliability
- Ferrite core wire wound construction
- 1210 (3225 metric) package in 2.5 mm height
- Weight: 0.079 grams typical
- Moisture sensitivity level (MSL): 1

Applications

- ADAS camera
- SRR (Short range radar)
- LiDAR (Light detection and ranging)
- Vehicle communications
- Autonomous driving (3D mapping)
- Transmitting signal and power over single cable
- Decoupling circuits

Environmental compliance and general specifications

- Operating temperature range: -55 °C to +150 °C (ambient plus self-temperature rise)
- Storage temperature (component): -55 °C to +150 °C

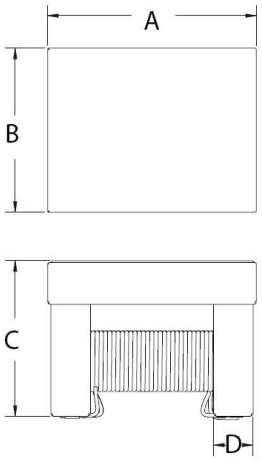
Powering Business Worldwide

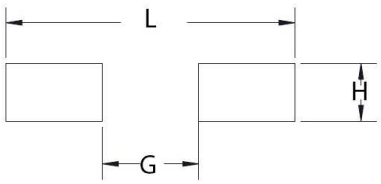
Product specifications

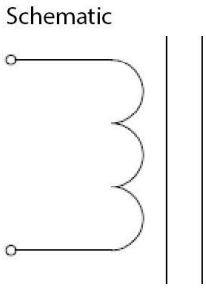
Part number[4]	OCL[1] (µH)	DCR (Ω) maximum @ +25 °C	I_{sat}[2] (mA) typical +25 °C	+105 °C	+125 °C	I_{rms}[3] (mA) typical +25 °C	+105 °C	+125 °C
PCA2V3223-2R2-R	2.2±20%	0.18	1100	1000	950	1350	1220	1045
PCA2V3223-4R7-R	4.7±20%	0.10	720	650	600	1500	1400	1300
PCA2V3223-100-R	10±20%	0.15	450	400	350	1300	1200	1100
PCA2V3223-150-R	15±20%	0.40	400	350	310	825	725	625

1. Open Circuit Inductance (OCL): Test frequency parameters: 100 kHz, 0.1 V @ 25 °C
2. I_{sat}: DC current that causes ≤ 30% inductance drop from its initial value.
3. I_{rms}: Rated current that will cause an approximate temperature rise of 40 °C. The part temperature (ambient + temp rise) should not exceed +150 °C
4. Part number definition: PCA2V3223-xxx-R
   PCA2V3223= Product code and size
   xxx= inductance value in ,µH, R= decimal point, if no R is present then last character equals number of zeros
   -R suffix = RoHS compliant

Mechanical parameters (mm)







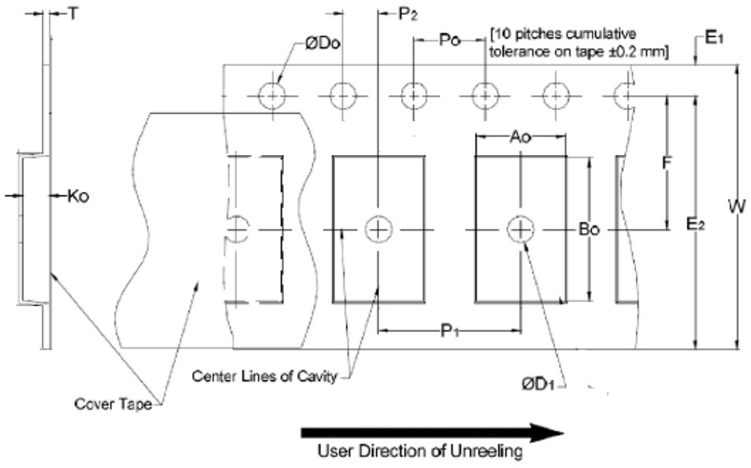
Part number	A	B	C	D	L	G	H
PCA2V3223-XXX-R	3.20 ± 0.20	2.50 ± 0.20	2.30 ± 0.20	0.58 ± 0.10	3.80 ref	2.20 ref	2.80 ref

Part marking: No marking
All soldering surfaces to be coplanar within 0.1 millimeters
Pad layout dimensions are reference only
Traces or vias underneath the inductor is not recommended

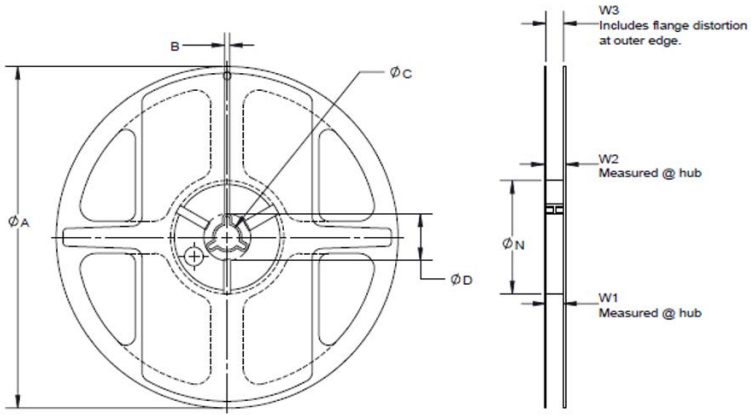
Packaging information (mm)

Drawing not to scale

Supplied in tape and reel packaging, 1500 parts per 7" diameter reel (EIA-481 compliant)



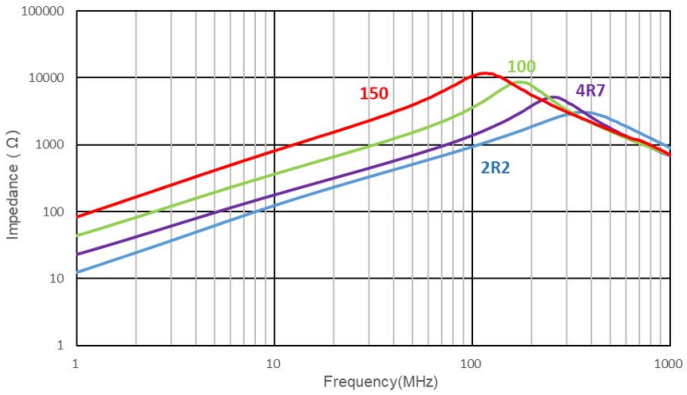
Ao	2.7 ± 0.1
Bo	3.5 ± 0.1
Ko	2.75 ± 0.1
T	0.3 ± 0.05
W	8 ± 0.1
F	3.5 ± 0.05
E1	1.75 ± 0.1
E2	N/A
P0	4 ± 0.1
P1	4 ± 0.1
P2	2 ± 0.05
D0	1.5 + 0.1/-0
D1	1 ± 0.1



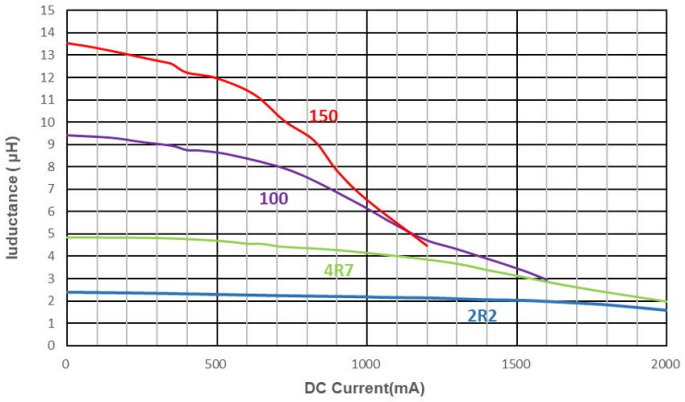
Shape & Appearance For Reference Only

Type	7"*8
A	178 ± 2
B	2 ± 0.5
C	13.5 ± 0.5
D	21
N	60 ± 2
W1	9 ± 0.5
W2	N/A
W3	N/A

Impedance vs frequency



Inductance vs DC current



Solder reflow profile

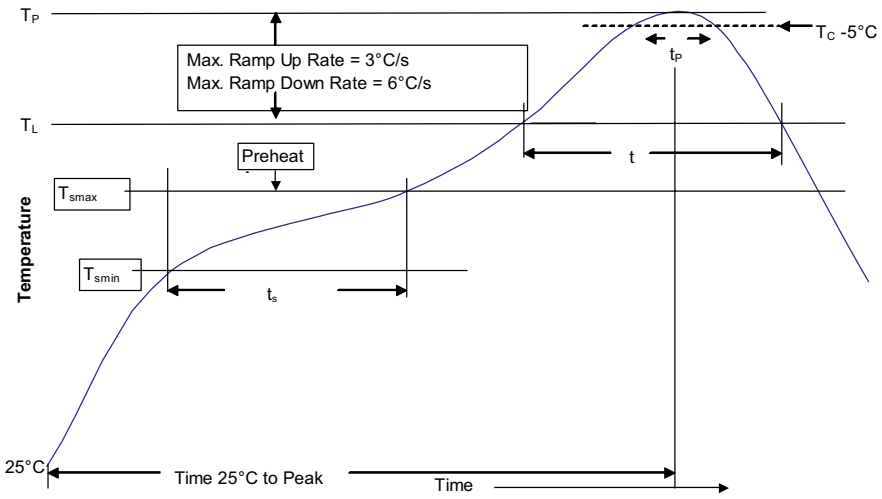


Table 1 - Standard SnPb solder (T_C)

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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