ACE1V3225

Automotive grade common-mode chip inductor

Product features

- AEC-Q200 qualified
- 1210 (3225 metric) package
- Impedance range from 500 ohms to 15000 ohms
- Inductance range from 11 uH to 200 uH
- Moisture sensitivity level (MSL): 1

Applications

- Controller area network (CAN)
- Ethernet architectures
- Automotive signal line filter
- Advanced driver assistance systems (ADAS)
- Infotainment, safety cameras, sensors, xEV, Powertrain
- Engine control unit (ECU)
- Electric power steering system (EPS)
- Battery management systems (BMS)

Environmental data

- 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

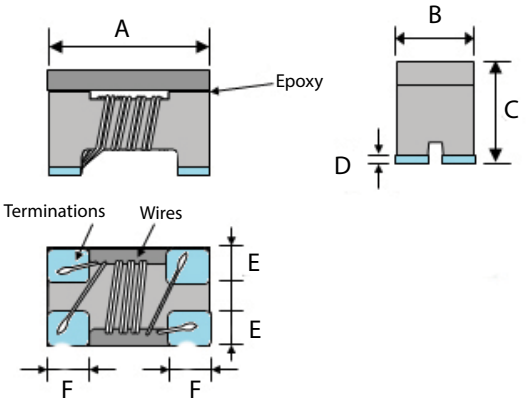
Powering Business Worldwide

Product specifications

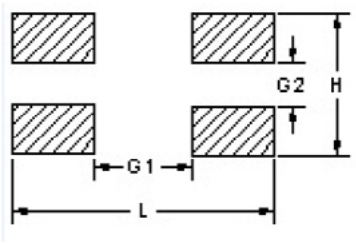
Part number	Common-mode impedance Z (Ω) at 10 MHz	Common-mode inductance (µH) at 100 kHz	DCR (Ω) @ +25 ° maximum	Idc (mA) maximum	Rated voltage (Vdc) typical	Insulation resistance (MΩ) minimum
ACE1V3225-110-R	300 minimum 500 typical	11+50%/-30%	0.40	300	80	10
ACE1V3225-220-R	500 minimum 1000 typical	22+50%/-30%	0.50	250	80	10
ACE1V3225-510-R	1000 minimum 2600 typical	51+50%/-30%	0.70	200	80	10
ACE1V3225-101-R	2200 minimum 5100 typical	100+50%/-30%	1.50	150	80	10
ACE1V3225-201-R	NA	200+30%/-20%	4.80	70	80	10

1. Part Number Definition: ACE1V3225-xxn-R
   ACE1V3225 = Product code and size
   xx= inductance value in uH,
   n= multiplication factor: 10^n (i.e. 110 = 11 * 10^0 = 11 uH)
   -R suffix = RoHS compliant

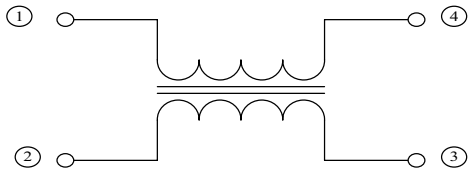
Mechanical parameters, schematic, pad layout (mm)



Recommended pad layout



Equivalent circuit



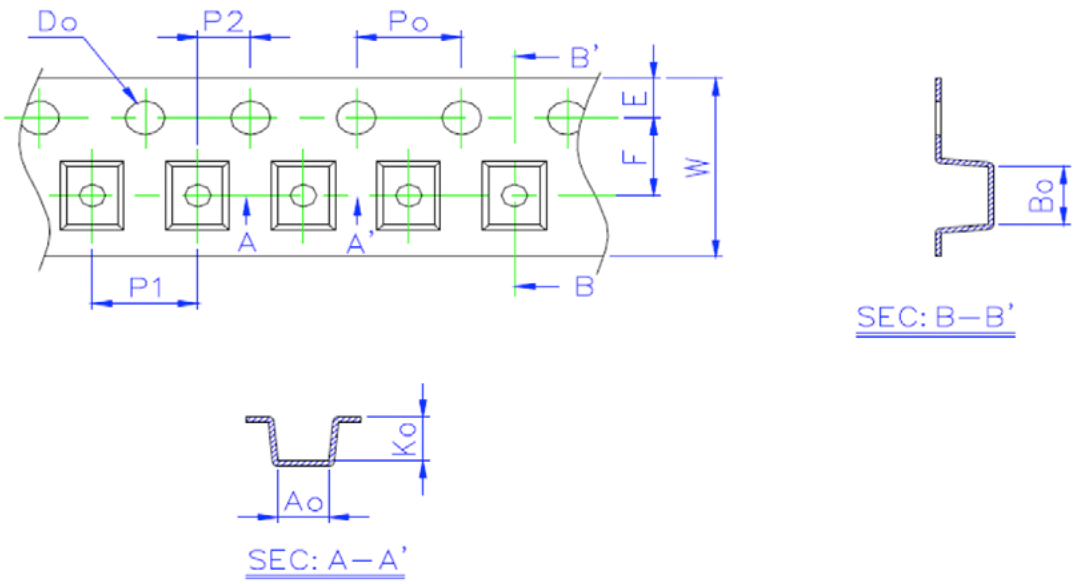
No polarity

Part Number	A	B	C	D	E	F	L	H	G1	G2
ACE1V3225-xxn-R	3.2±0.2	2.5±0.2	2.5 max	0.2±0.1	0.9 typ	08 typ	3.7 typ	2.8 typ	2.4 typ	1.2 typ

All soldering surfaces to be coplanar within 0.1 millimeters
Tolerances are ±0.1 millimeters unless stated otherwise
Pad layout dimensions are reference only
Traces or vias underneath the inductor is not recommended

Packaging information (mm)

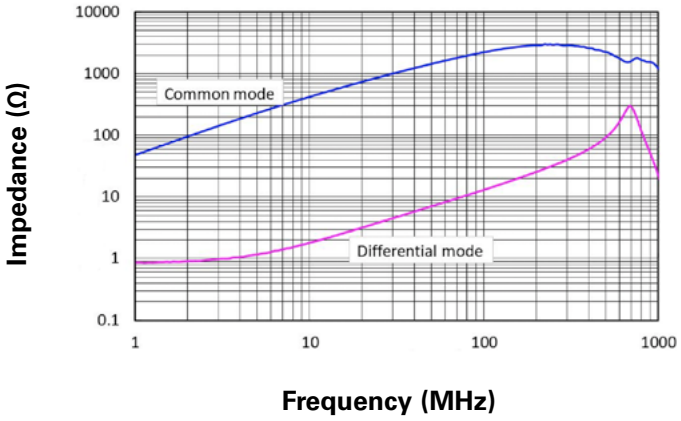
Supplied in tape and reel packaging, 1000 parts per 7″ diameter reel



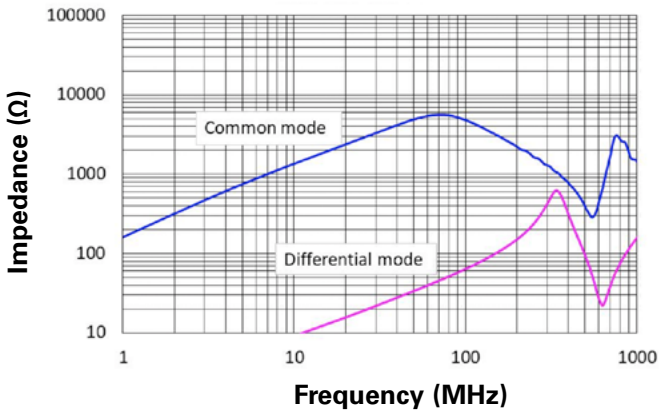
Ao	2.80±0.10
Bo	3.60±0.10
Ko	2.20±0.10
W	8.00±0.20
E	1.75±0.10
F	3.50±0.05
Po	4.0±0.05
P1	4.0±0.10
Do	1.0±0.1

Performance curves

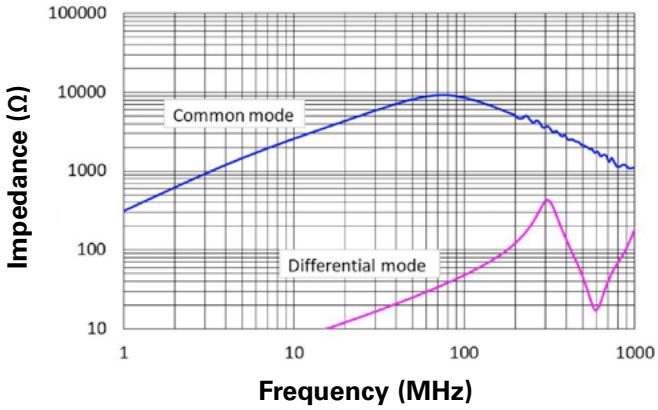
ACE1V3225-110-R



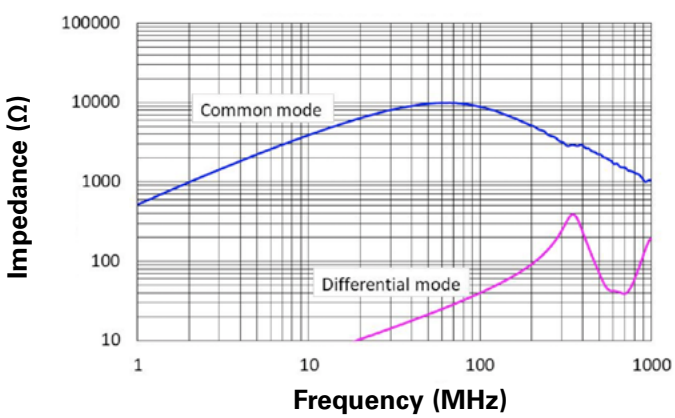
ACE1V3225-220-R



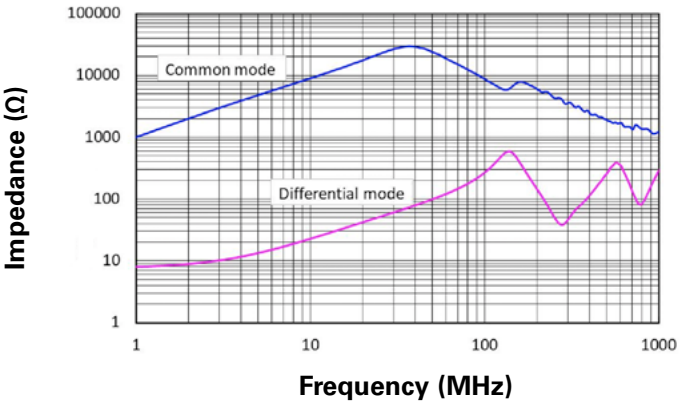
ACE1V3225-510-R



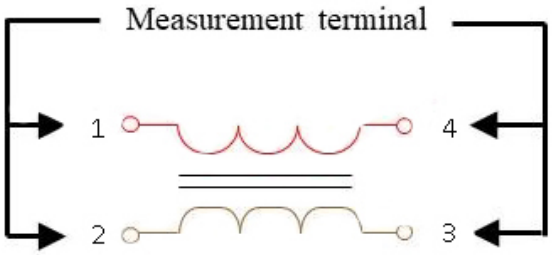
ACE1V3225-101-R



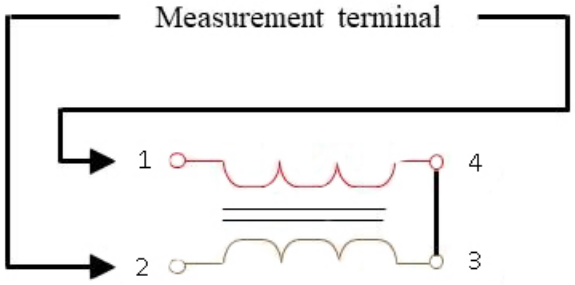
ACE1V3225-201-R



Common mode measurement method:



Differential mode measurement method:



Solder reflow profile

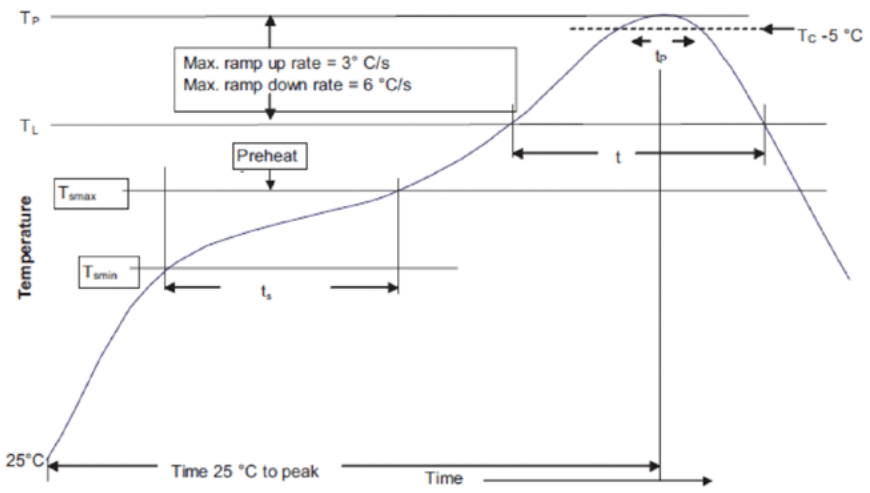


Table 1 - Standard SnPb solder (T_C)

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.

Eaton
Electronics Division
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com/electronics