

# ACE2V3225

## Automotive grade common-mode chip inductor



### Product features

- AEC-Q200 qualified
- Compliant to OPEN Alliance 2.0
- 1210 (3225 metric) package
- Moisture sensitivity level (MSL): 1

### Applications

- Ethernet architectures
- Advanced driver assistance systems (ADAS)
- Infotainment, safety cameras, sensors,
- Electric vehicle (xEV)
- Powertrain

### Environmental compliance and general specifications

- Storage temperature rang (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



**Product specifications**

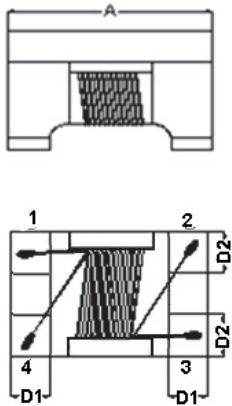
Part number	Common-mode impedance Z (Ω) at 10 MHz (1,4) - (2,3)	Common-mode inductance (μH) at 100 kHz, 0.1 Vrms (1-2), (3-4)	DCR <sup>1</sup> (Ω) @ +25 °C maximum	I <sub>rated</sub> <sup>2</sup> (mA) maximum	Rated voltage (Vdc) maximum	Insulation resistance (MΩ) minimum	Hipot <sup>3</sup> (Vdc)
ACE2V3225-201-R	6500 minimum 9500 typical	200 -10%/+30%	5.5	70	50	10	125

- 1. Direct current resistance (DCR) test parameters: (1-2), (3-4), 4-wire method, +25 °C
- 2. I<sub>rated</sub>: Maximum DC current for an approximate temperature rise of 40 °C: (1-2), (3-4)
- 3. Hi-pot test parameters: Winding - Winding, 5 s, Leakage current <1 mA

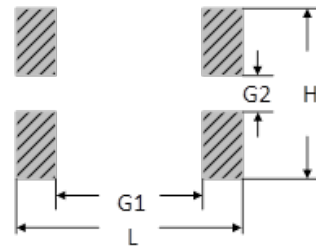
- 4. Part Number Definition: ACE2V3225-xxx-R  
ACE2V3225 = Product code and size  
xxx= inductance value in μH, last character equals number of zeros  
-R suffix = RoHS compliant

**Mechanical parameters, schematic, pad layout (mm)**

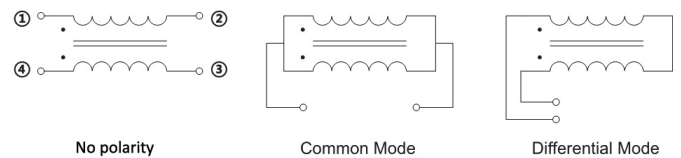
Drawing not to scale--(Pin numbers and dots are reference only-no polarity)



**Recommended pad layout**



**Schematic**



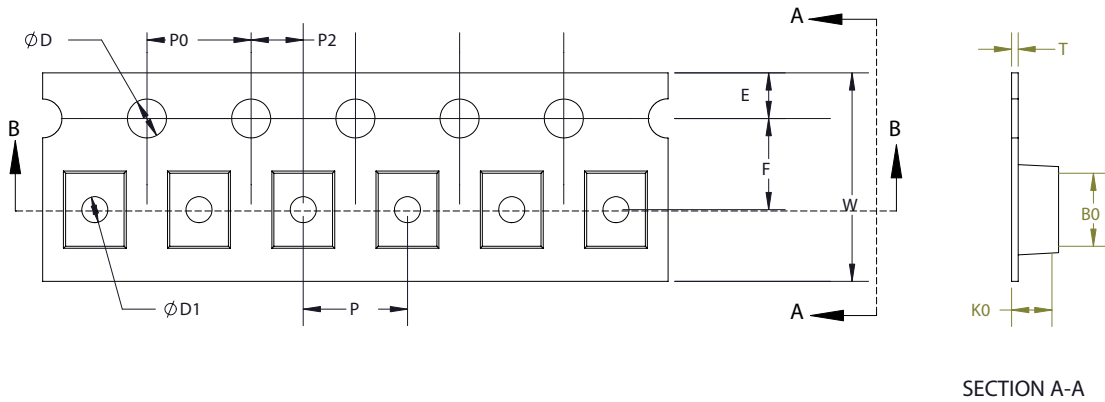
Part number	A	B	C	D1	D2	L	H	G1	G2
ACE2V3225-xxx-R	3.3 ±0.2	2.5 ±0.2	2.5 max	0.55 ±0.15	1.0 ±0.2	3.7	2.8	2.4	0.6

Part marking: No marking  
All soldering surfaces to be coplanar within 0.1 millimeters  
Tolerances are ±0.5 millimeters unless stated otherwise  
Pad layout dimensions are reference only  
Traces or vias underneath the inductor is not recommended

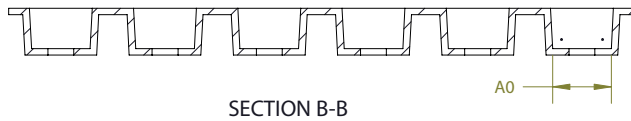
**Packaging information (mm)**

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

Drawing not to scale



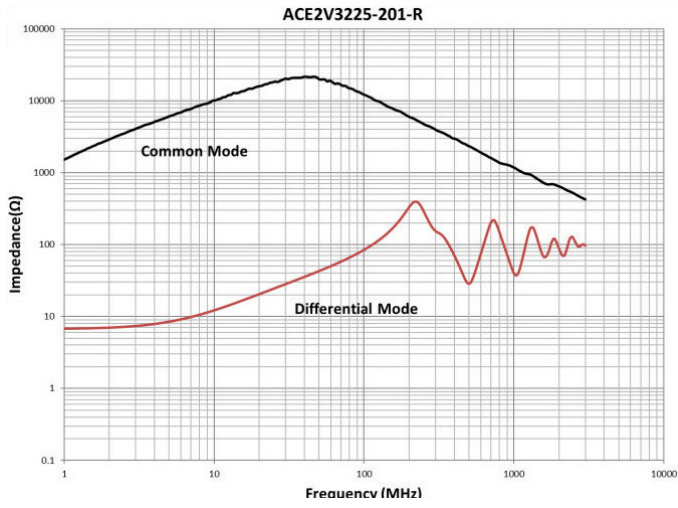
SECTION A-A



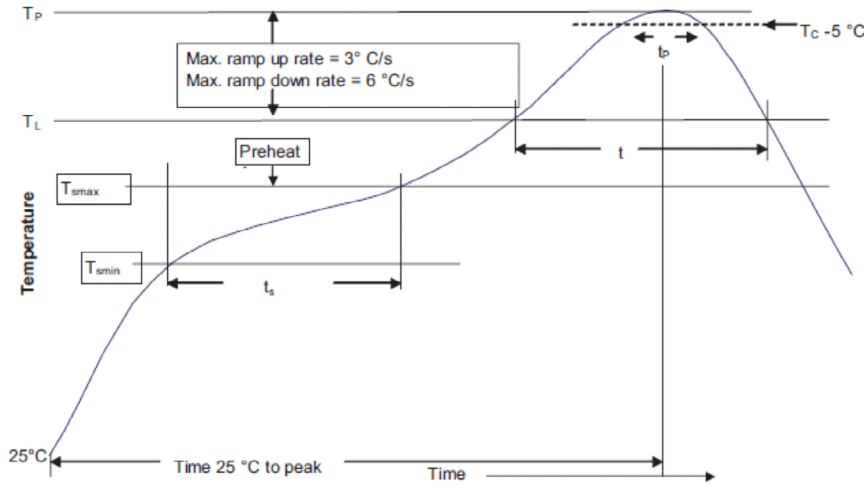
SECTION B-B

$W \pm 0.1$	8.0
$F \pm 0.05$	3.5
$E \pm 0.10$	1.75
$P0 \pm 0.10$	4.0
$P \pm 0.10$	4.0
$P2 \pm 0.05$	2.0
$D + 0.10 / -0$	1.5
$D1 \pm 0.10$	1.0
$A0 \pm 0.10$	2.88
$B0 \pm 0.10$	3.72
$K0 \pm 0.10$	2.5
$T \pm 0.05$	0.26

**Performance curves**



**Solder reflow profile**



**Table 1 - Standard SnPb solder (T<sub>C</sub>)**

Package thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> ≥350
<2.5 mm)	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

**Table 2 - Lead (Pb) free solder (T<sub>C</sub>)**

Package thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350 - 2000	Volume mm <sup>3</sup> >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 <sub>smin</sub> )	100 °C	150 °C
• Temperature max. (T <sub>smax</sub> )	150 °C	200 °C
• Time (T <sub>smin</sub> to T <sub>smax</sub> ) (t <sub>s</sub> )	60-120 seconds	60-120 seconds
Ramp up rate T <sub>L</sub> to T <sub>p</sub>	3 °C/ second max.	3 °C/ second max.
Liquidous temperature (T <sub>L</sub> )	183 °C	217 °C
Time (t <sub>L</sub> ) maintained above T <sub>L</sub>	60-150 seconds	60-150 seconds
Peak package body temperature (T <sub>p</sub> )*	Table 1	Table 2
Time (t <sub>p</sub> )* within 5 °C of the specified classification temperature (T <sub>C</sub> )	20 seconds*	30 seconds*
Ramp-down rate (T <sub>p</sub> to T <sub>L</sub> )	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<sub>p</sub>) is defined as a supplier minimum and a user maximum.

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