

ICL701-4 VRD/POL Inductor



Features

- Designed for use with IKOR's proprietary coupled inductor multi-phase DC-DC converter topology
- Low height and small size allows use in both imbedded (VRD) and module (VRM) applications
- Robust SMD package is compatible with SMT assembly process handling

Applications

- VRDs (Imbedded)
- VRMs (Module)
- POLs
- VRM 10.x / VRM11 based designs.
- DDR2/3 memory

The ICL701-4 using IKOR's coupled inductor technology solves the most pressing problem facing IA-32 VRDs and VRMs. This patented technology solves the trade-off between efficiency and elimination of bulk capacitors by dramatically lowering the VRM output inductance while using industry-standard components and relatively low switching frequencies. This technology provides superior transient response performance to higher frequency solutions due to the unique method of coupling between phases, and enables high-current designs with little or no electrolytic output bypass capacitance. The ICL701-4 coupled inductor can be used in both VRD and module VRM applications. Its small size and low height make it possible to design high-density VRMs and to fit the inductors very close to the CPU socket in VRD applications. This device can also be used in high-current System VRM (SVRM) applications where small size, high efficiency, and low total BOM cost is critical.

Electrical Specifications

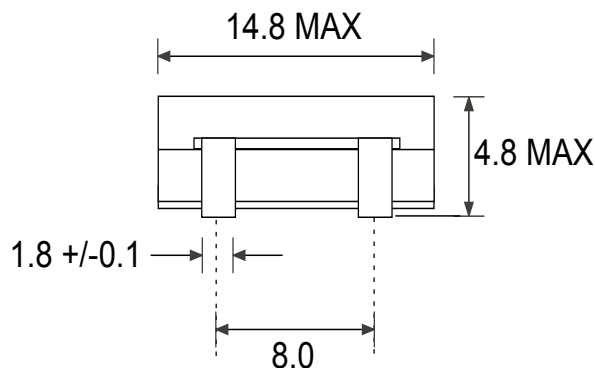
Parameter	Test Conditions	Min	Typ	Max	Unit
Turns Ratio (1 - 2) : (4 - 3)	1Vrms @100 kHz		1:1		-
L_s (1-2)	0.1Vrms @ 500 kHz	525	675	825	nH
L_s (4-3)	0.1Vrms @ 500 kHz	525	675	825	nH
LL (1-2)	short 4+3, 1.0 Vrms @ 1 MHz		140		nH
DCR (each winding)	25°C	0.27	0.30	0.33	mΩ

1. This is RoHS Compliant product.
2. The nominal DCR is measured from point (a) to point (b), as shown on the mechanical drawing.
3. Operating temperature range: 0°C to 100°C.
4. Isat is the current at which the inductance drops by 25% max.
5. Meets UL 94V-0.

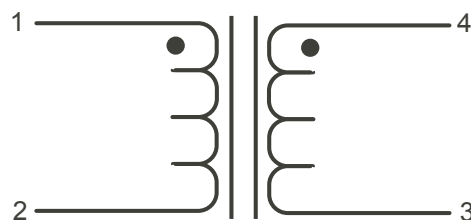
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Front View

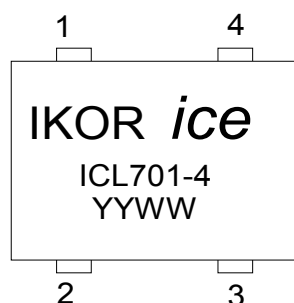


Schematic

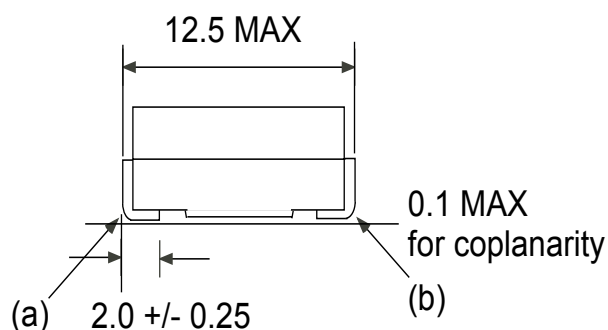


units: mm

Top View

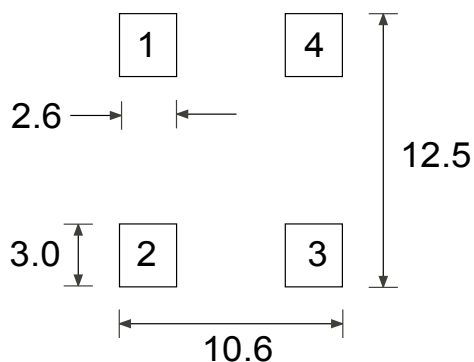


Side View

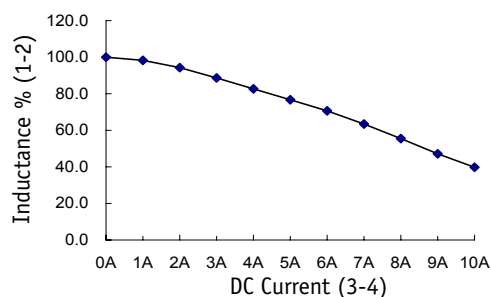


units: mm

Layout



Inductance vs. Current



Magnetizing inductance (1-2) vs. DC current applied (3-4)

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