

# ICL411-3 VRD/POL Inductor



## Applications

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

## Features

- Design 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
- Integrated design lowers cost and simplifies assembly

The ICL411-3, a 4-phase inductor assembly using IKOR's coupled inductor technology, solves the most pressing problem facing IA-32 VRDs. 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 ICL411-3 4-phase coupled inductor assembly is designed for VRD applications. Its integrated design allows it 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.

## Single Inductor Electrical Specifications

Parameter	Test Conditions	Min	Typ	Max	Unit
$L_s$	1.0 Vrms @ 500 kHz	260	325	390	nH
LL	1.0 Vrms @ 500 kHz	90	100	110	nH

## Inductor Assembly Electrical Specifications

Parameter	Test Conditions	Min	Typ	Max	Unit
$L_s$ (1-3)	1.0 Vrms @ 500 kHz	520	650	780	nH
$L_s$ (2-5)	1.0 Vrms @ 500 kHz	520	650	780	nH
$L_s$ (4-7)	1.0 Vrms @ 500 kHz	520	650	780	nH
$L_s$ (6-8)	1.0 Vrms @ 500 kHz	520	650	780	nH
DCR (1-3)	25° C	.387	.43	.473	m $\Omega$
DCR (2-5)	25° C	.477	.53	.583	m $\Omega$
DCR (4-7)	25° C	.477	.53	.583	m $\Omega$
DCR (6-8)	25° C	.387	.43	.473	m $\Omega$

Electrical specifications at 25°C unless noted otherwise.

Specifications subject to change without notice.

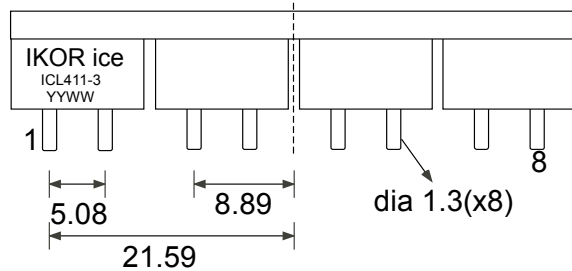
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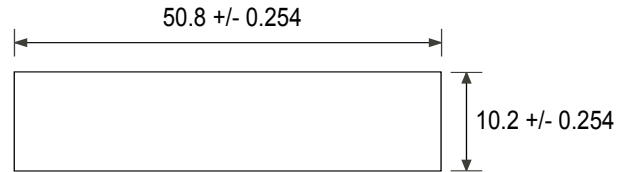
## Inductor Assembly

units: mm

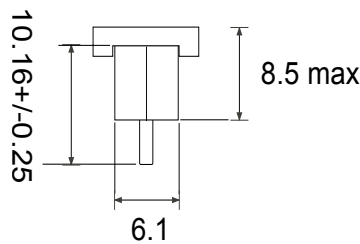
Front View



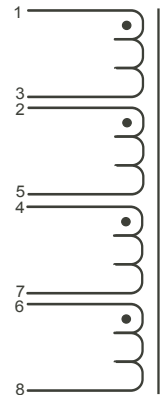
Top View



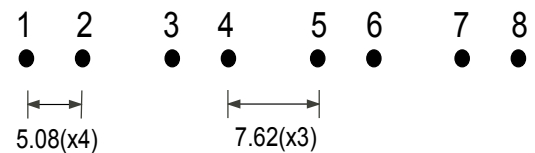
Side View



Schematic



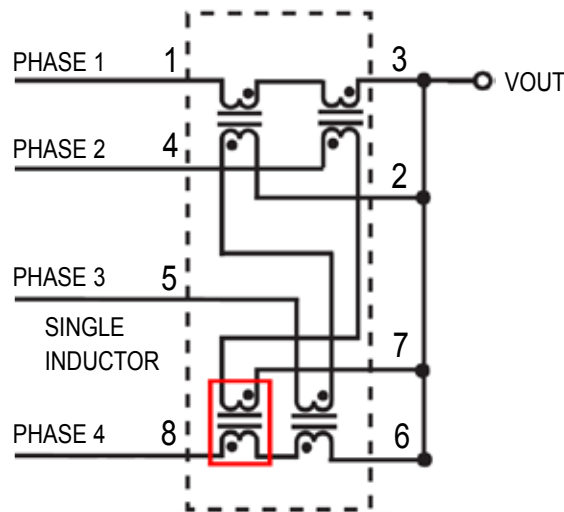
Layout



## Single Inductor

units: mm

## Application Schematic



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