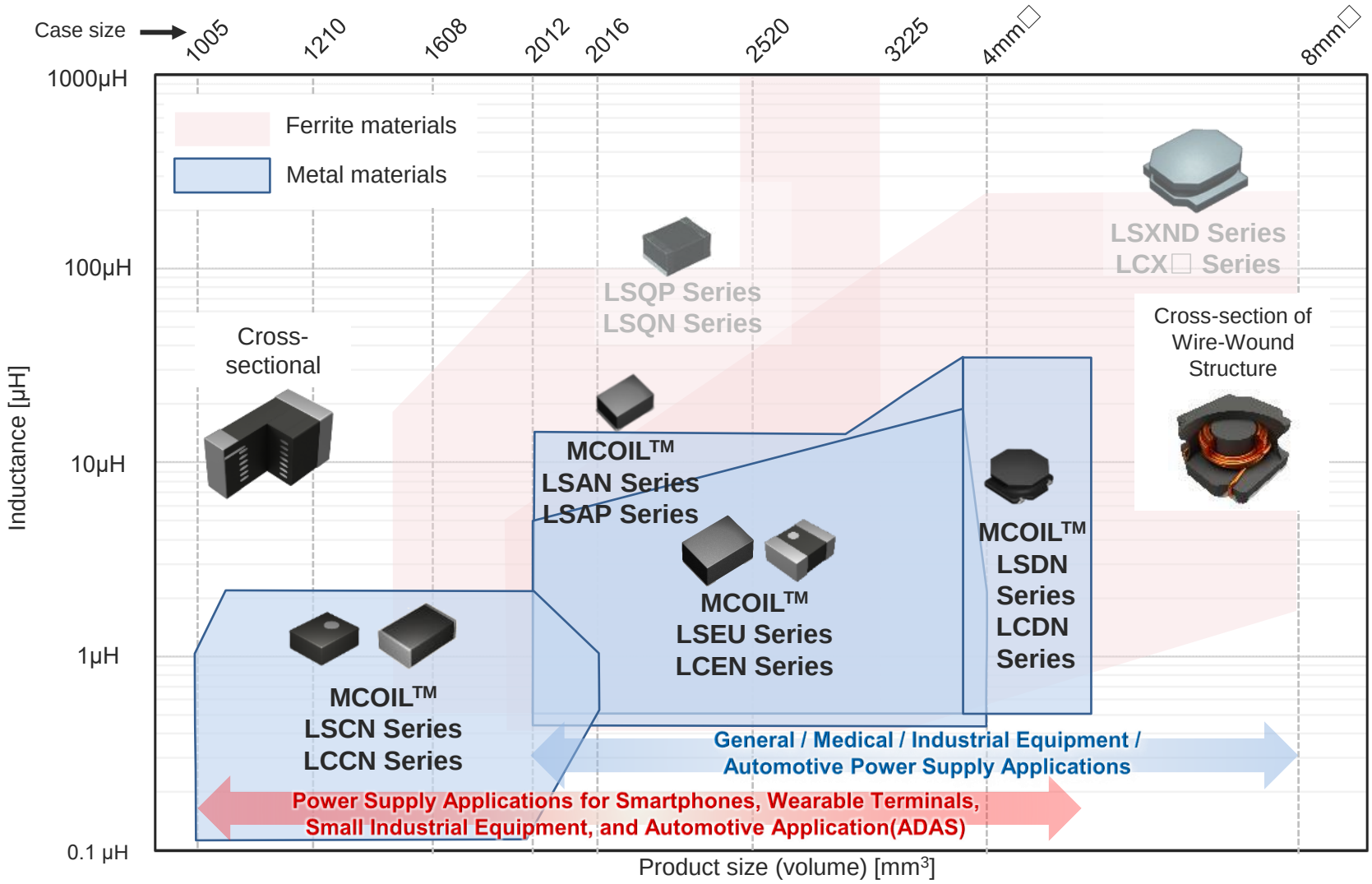
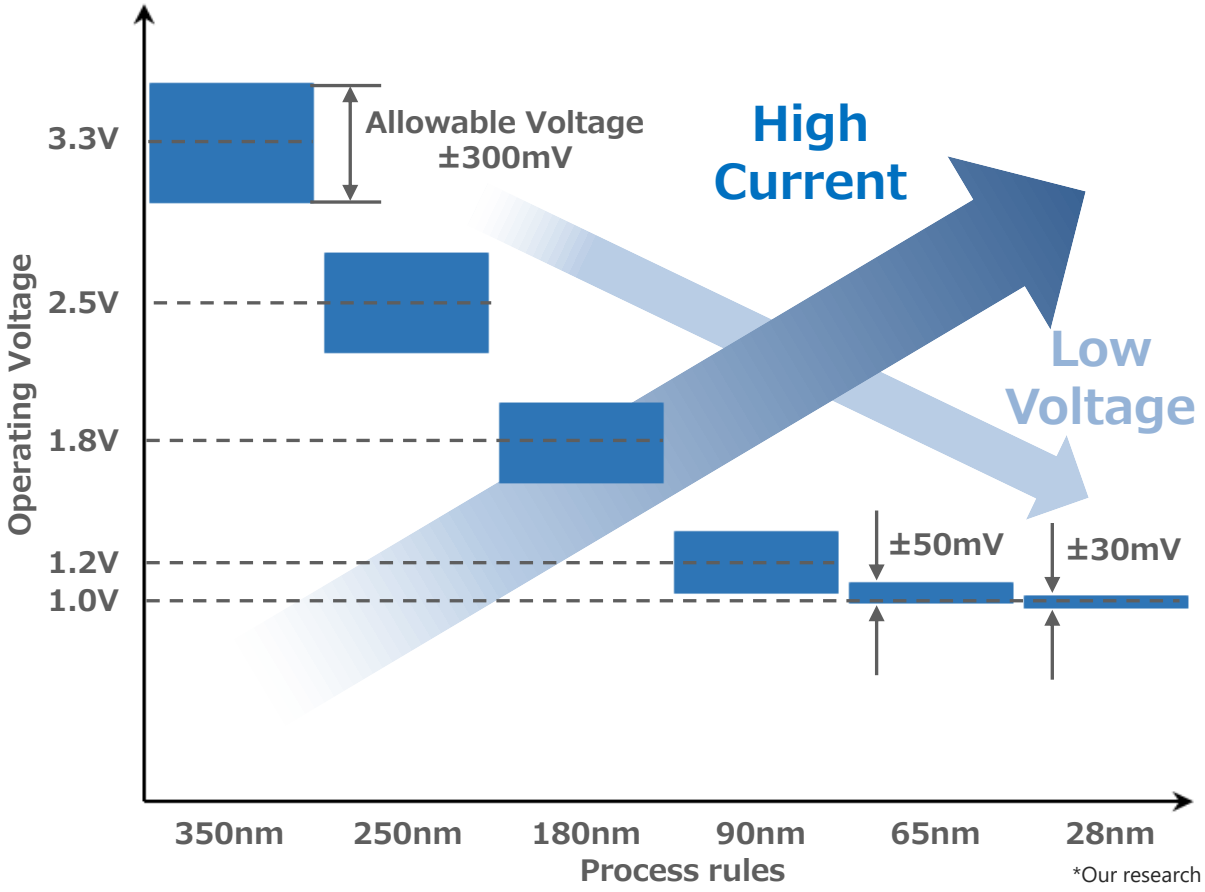
TAIYO YUDEN
MCOIL™ Series

TAIYO YUDEN's Power Inductor Line-Up



Power Inductor Trends

Transition of Semiconductor Power Supply Voltage



Miniaturization of
Semiconductor Process Rules

Compact, Multifunctional
and High-Performance

Semiconductor power supply
requires **high current**
and **low voltage**.

Compact, high current
And high efficiency
power inductors are required.

Issues/Solutions from the current situation

Issues High-Performance Compact Electronic Devices.
power inductors ⇒ Small size, high current and high efficiency

Challenges

Small Size
Insufficient inductance or saturation current.

High Current
Land patterns need to be changed for bigger case sizes.

High efficiency
Lower loss results in larger size

Solution

Replaced with Taiyo Yuden's power inductors that meet the latest device trends!

- **Small Size**
- **High Current**
- **Low DCR**
- **Low Core Loss**

Solution

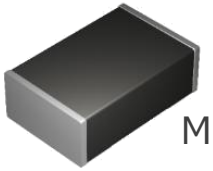
MCOIL™ Strategy

Small Size	High Current	Low DCR	Low Core Loss

Material **Process** **Structure**

Metal Power Inductors

MCOIL™ Series



Multilayer

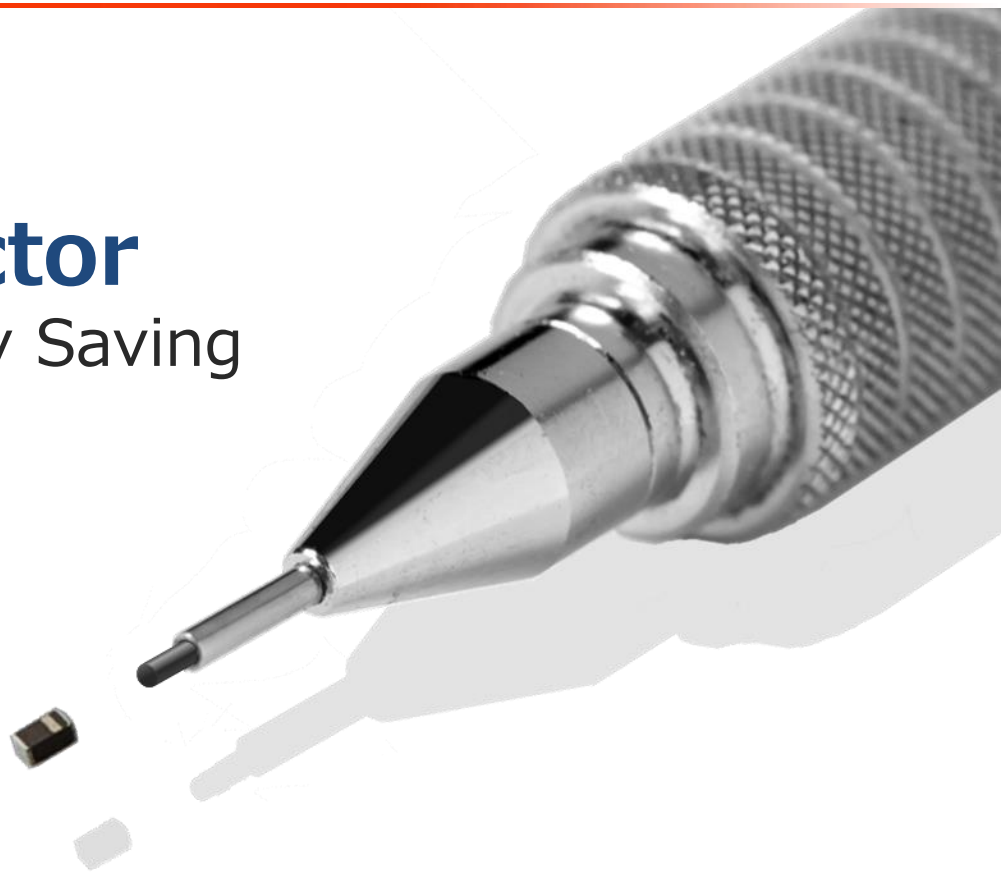
LSCN Series

Wire-Wound

LSEU Series

※The names of series noted in the text are excerpted from part numbers that indicate the types and characteristics of the products, and therefore are neither product names nor trademarks.

Ultra Small
Metal Power Inductor
for Miniaturization / Energy Saving



Case Size **0402inch**

Inductance **1.0μH**

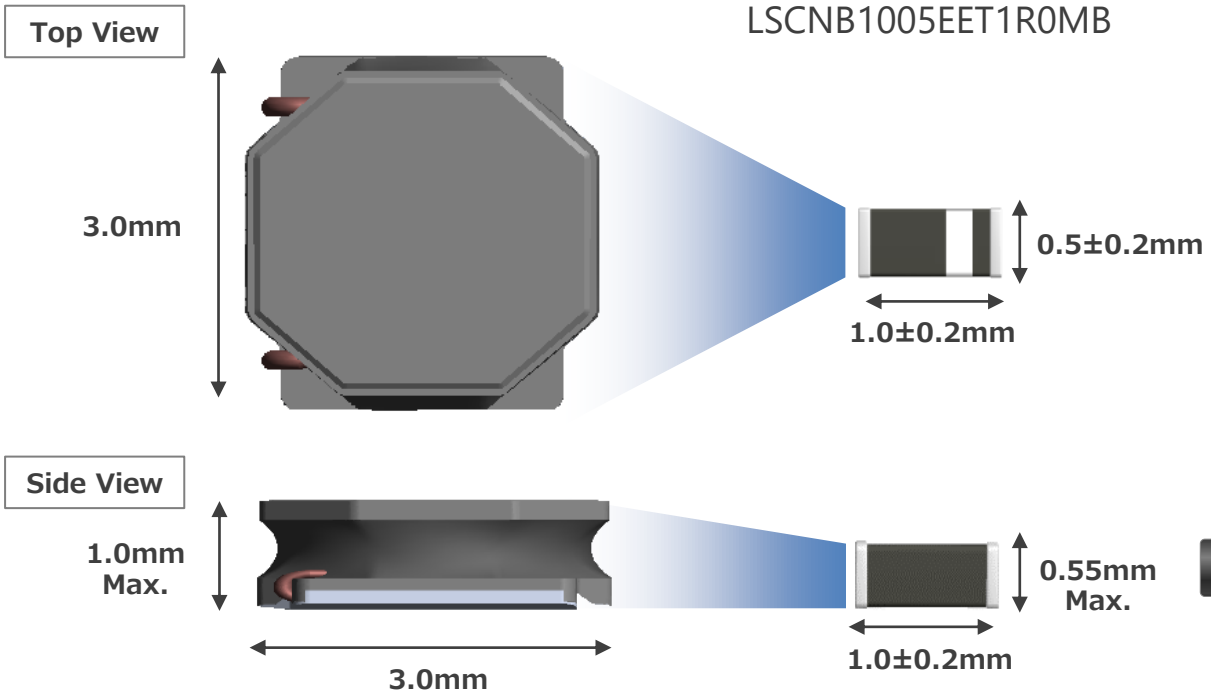
Saturation current **1.0A**

-95% of the Area, -97% of the Volume*

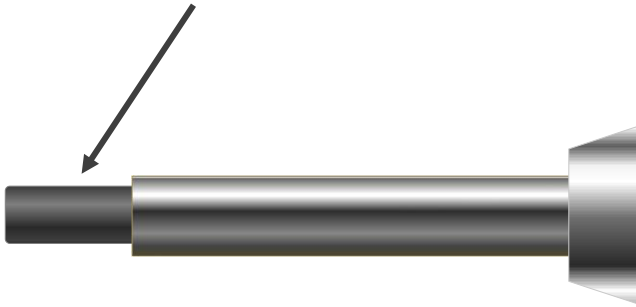
Compared to Equivalent Ferrite Power Inductors

3.0 x 3.0mm 1.0µH
Saturation Current 1.3A

1.0 x 0.5mm 1.0µH
Saturation Current Typ. 1.2A
LSCNB1005EET1R0MB



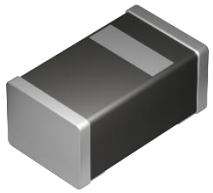
About the Same Size as the Lead of a 0.5mm Mechanical Pencil!



*Compared to our company

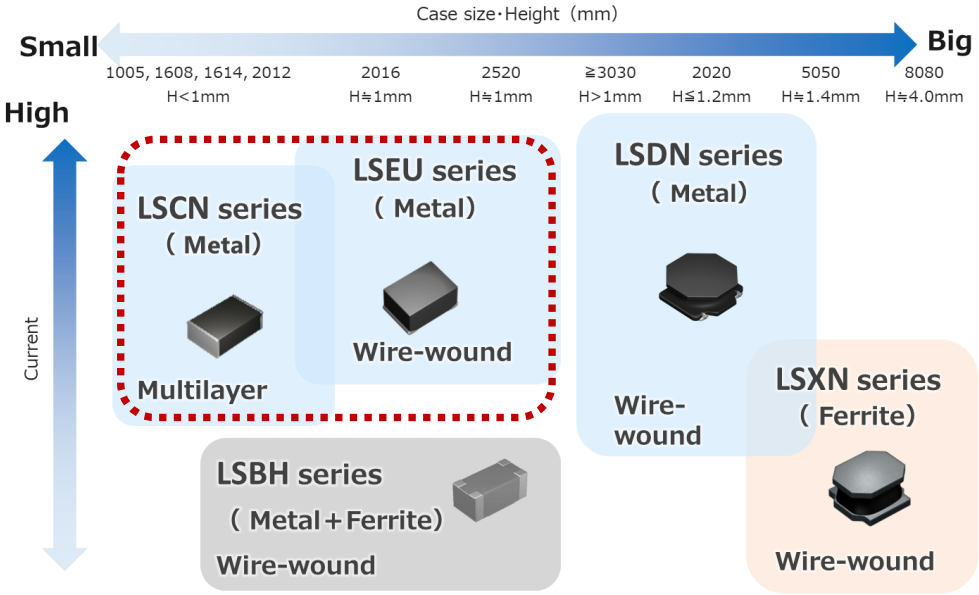
Metal Power Inductors L□CN(Multilayer) /L□EU(Wire-Wound) Series

L□CN series realized high-performance and miniaturization by combining magnetic materials and multilayer structure－the world first method
L□EU series realized high current and low DCR by improving metal materials in wire-wound structure



L□CN Series

L□EU Series



Applications

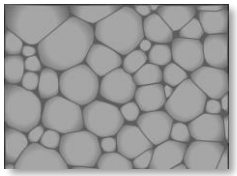
Smartphones/Automotive/Industry/Memory/PCs

※The names of series noted in the text are excerpted from part numbers that indicate the types and characteristics of the products, and therefore are neither product names nor trademarks.

MCOIL™ Series — Metal Power Inductors (Multilayer)

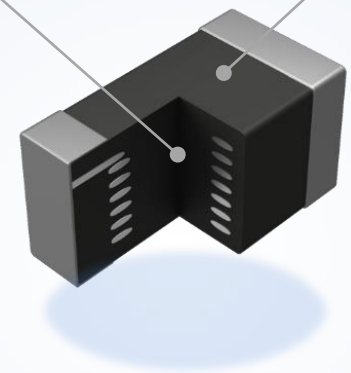
LSCN(MC) Series

Original Material



Particle bonding by oxide layer

High heat resistance
High thermal conductivity
Low loss iron-based magnetic material



Process Features

Multilayer
Technology
+
Thermomechanical
Technology

Applications

Smartphones/Wearable/
IoT/Automotive/Industry

Point

Reduce DCR
about −53%

Reduce Volume
about −54%

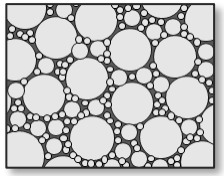
High Current
about x3.0

※ Compared to ferrite products of the same inductance
・CKP2012NR47M (ferrite products) Case Size(㎜):2.0x1.25x1.0 Inductance:0.47uH Isat(max):1.2A Rdc(max):0.080Ω
・LSCND1412FETR47ME (metal products) Case Size(㎜):1.4x1.2x0.65 Inductance:0.47uH Isat(max):3.6A Rdc(max):0.038Ω

MCOIL™ Series — Metal Power Inductors (Wire-Wound)

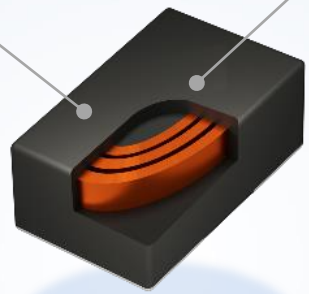
LSEU(ME) Series

Original Material



High density packing

Low loss iron-based magnetic material



Process Features

"Unique Molding Technology"
+
High-performance magnetic metal resin

Applications

Smartphones/Automotive Industry/Memory/PCs

Point

Reduce DCR
about −51%

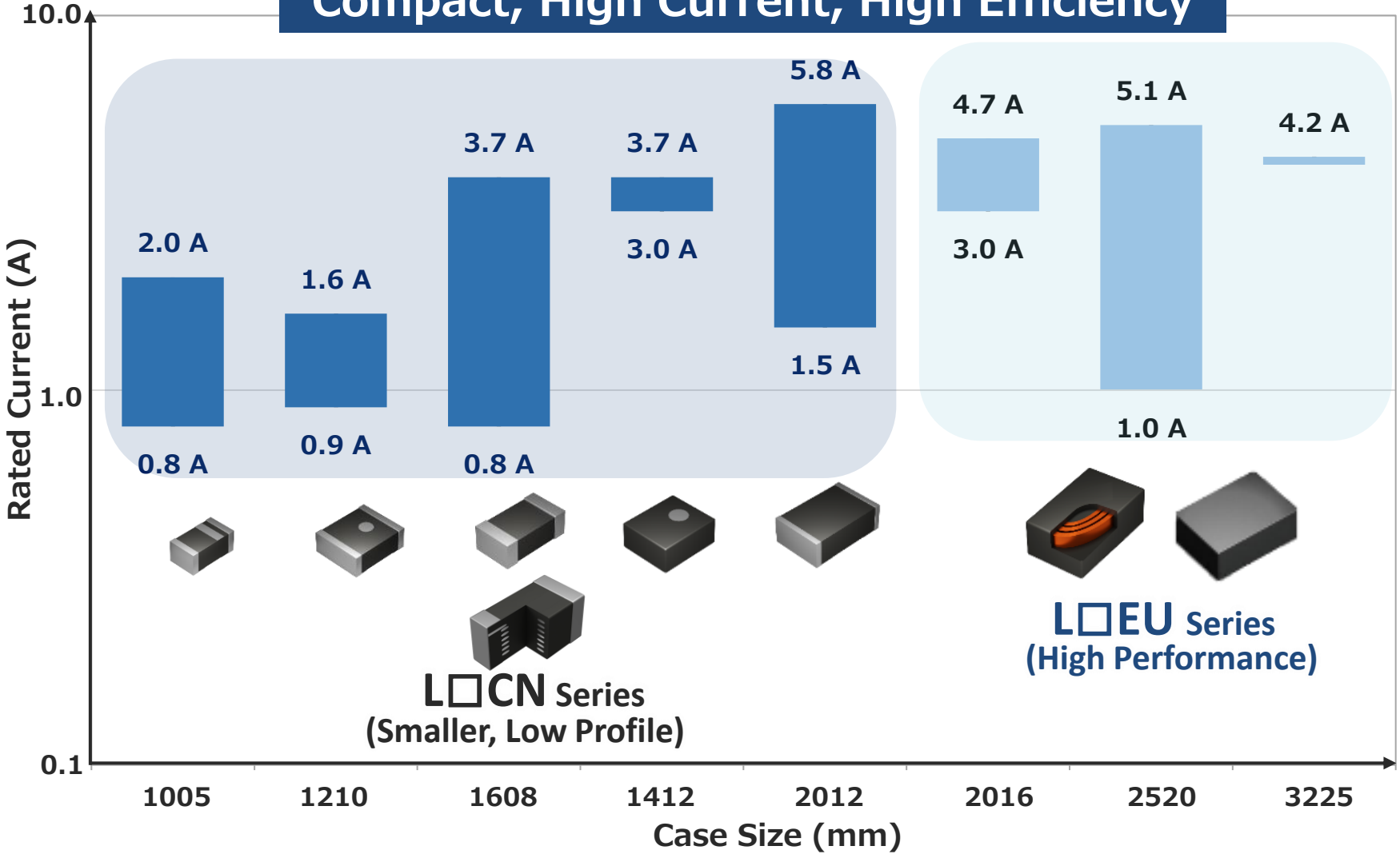
Low Core Loss
about −30%

High Current
about x1.6

※ Comparison with metal products of the same size and inductance
・LSANB2520KKT2R2M (MA) Case Size(㎜):2.5x2.0x1.0 Inductance:2.2uH Isat(max):1.5A Rdc(max):0.156Ω
・LSEUC2520KKT2R2M (ME) Case Size(㎜):2.5x2.0x1.0 Inductance:2.2uH Isat(max):2.5A Rdc(max):0.076Ω

Solution – Metal Power Inductors L□CN(Multilayer)/L□EU(Wire-Wound) Series

Compact, High Current, High Efficiency



※The names of series noted in the text are excerpted from part numbers that indicate the types and characteristics of the products, and therefore are neither product names nor trademarks.

TAIYO YUDEN