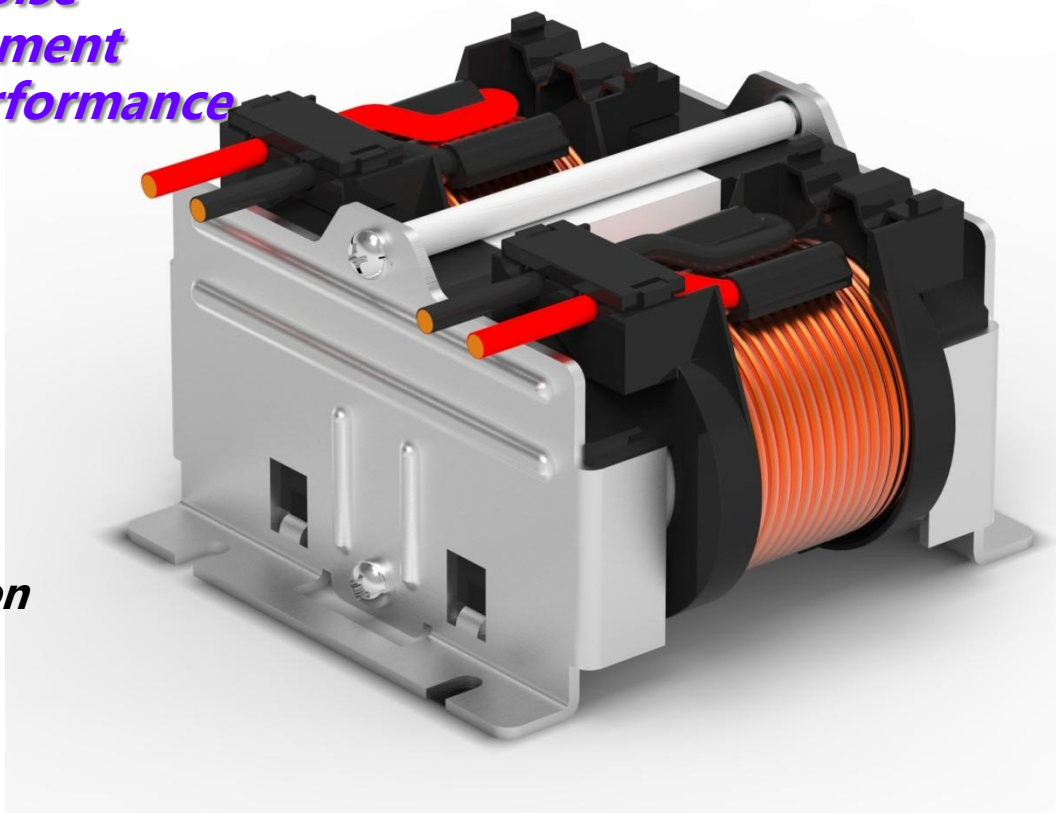
State-in-art Tamura Technology

Features

- *High Efficiency*
- *Low Audio Noise*
- *EMC Improvement*
- *High Cost Performance*



Spike Blocker™

1+1 Concept

Hybrid Magnetics

Integrated Magnetics

Acoustic Premium

- ☐ *Micro Inverter*
- ☑ *Residential PV*
- ☐ *Commercial PV*
- ☐ *Central & Station*

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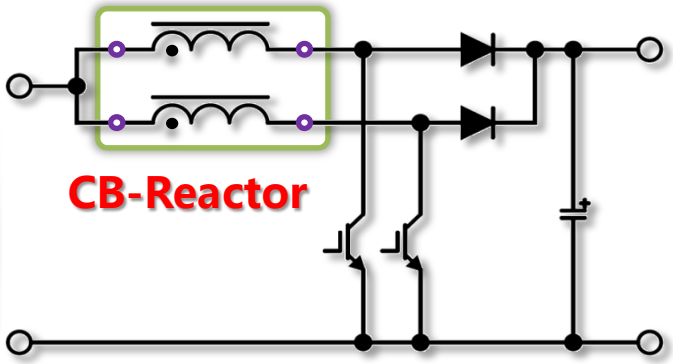
Tamura New Technology on Solar Inverter

PV Reactor Serials

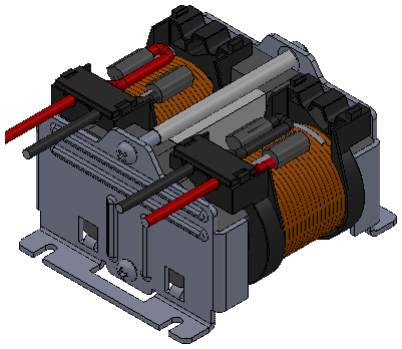


- Premium
- Golden
- Silver

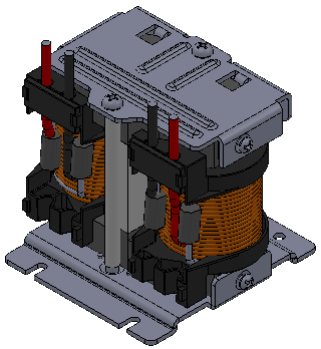
DCL,CB-DCL,ACL
On 3KW,4KW,5KW

Spike Blocker™

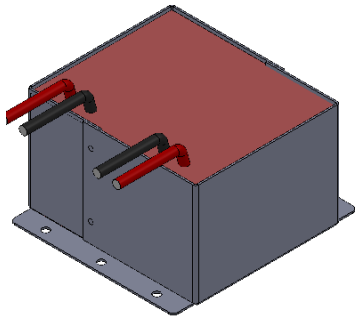
Residential PV



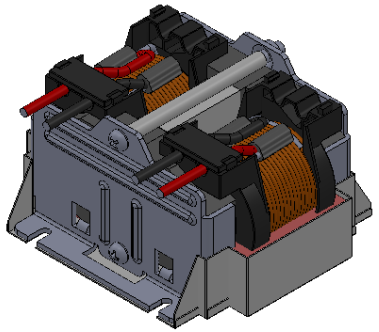
H-Mounting



V-Mounting



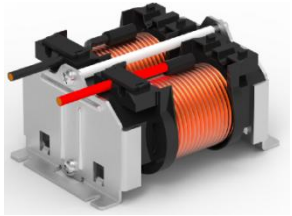
Sealed



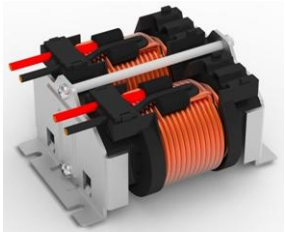
Semi-Molding

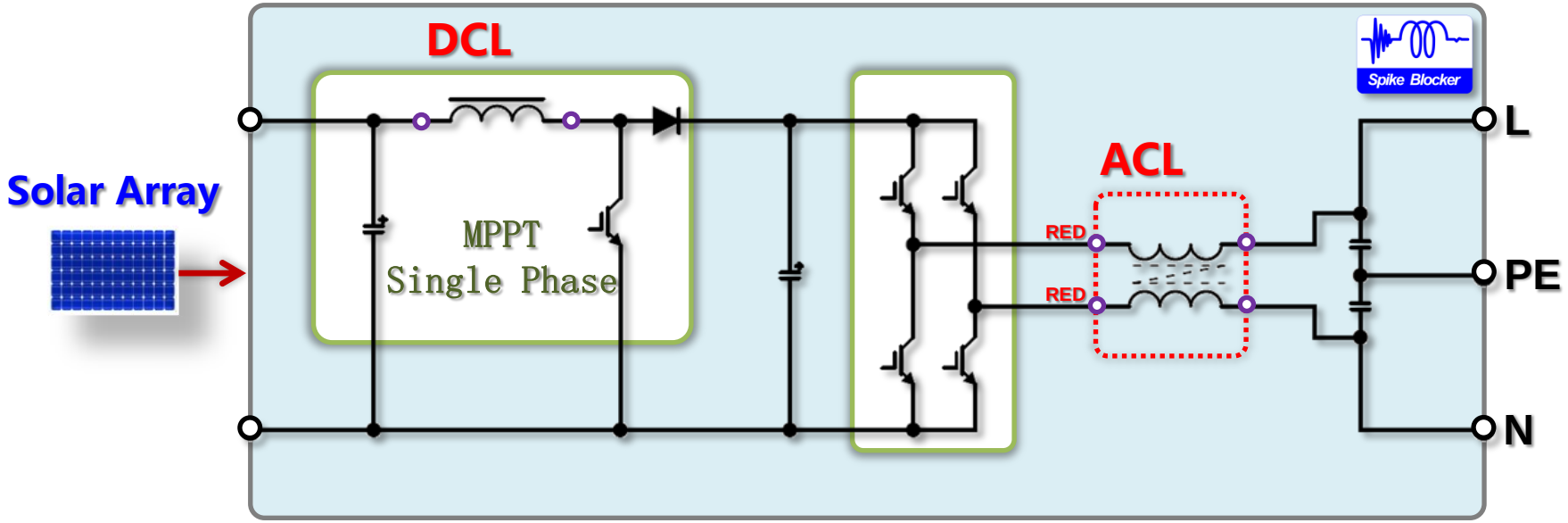
Hybrid Magnetics on Solar PV

1 MPPT Single Phase Solution



1+1
Concept





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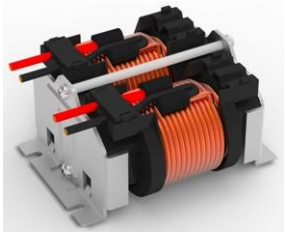
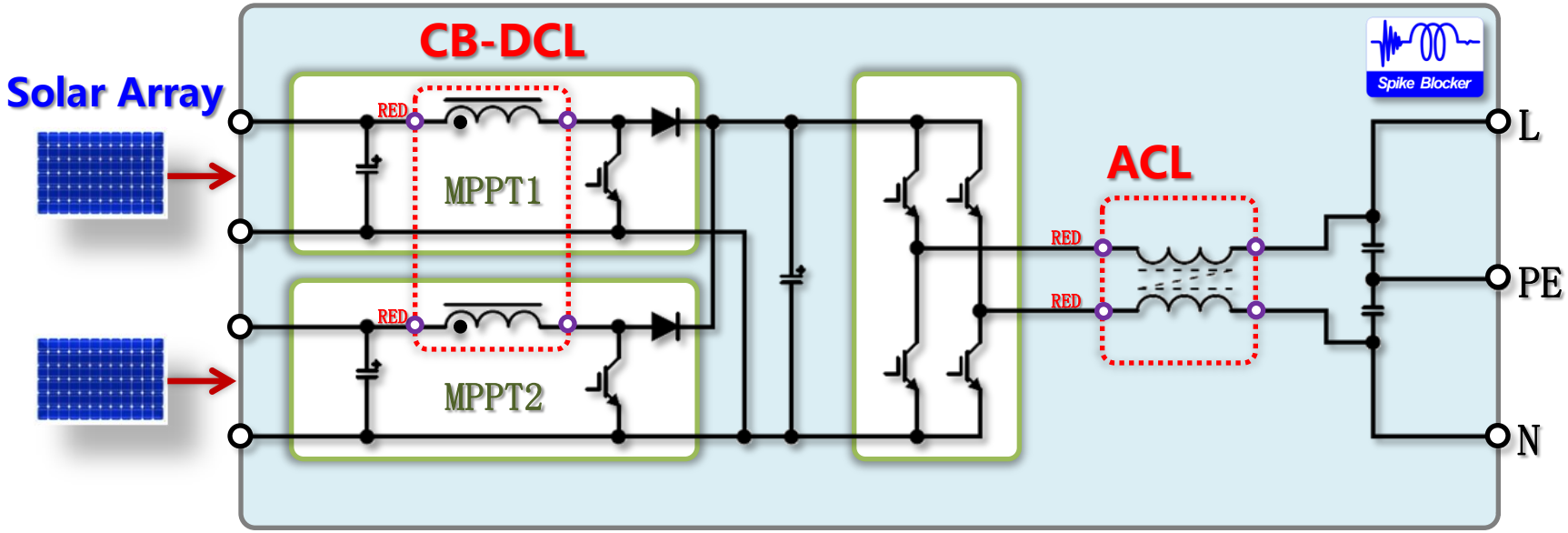
Hybrid Integrated Magnetics on PV

2 MPPTs Single Phase Solution

1+1
Concept





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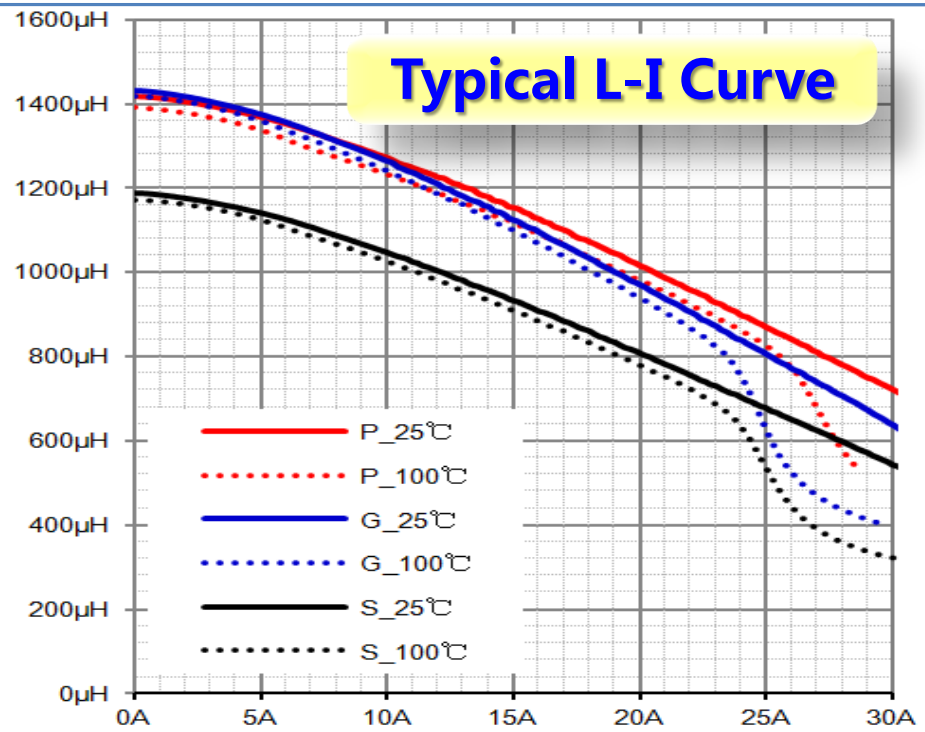
How to Choice ?

- Premium
- Golden
- Silver

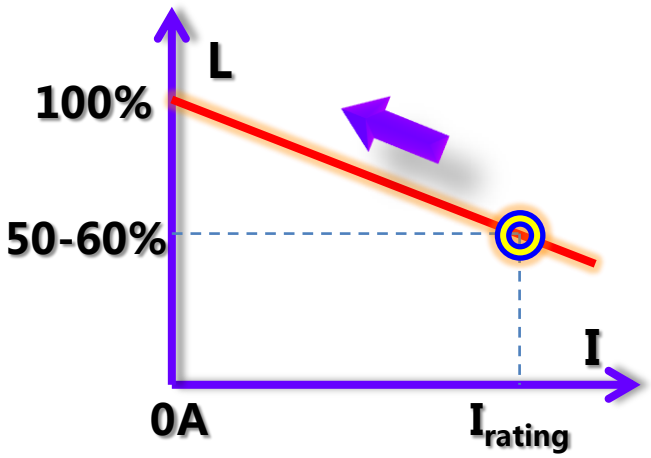
η_{EURO} & η_{CEC}

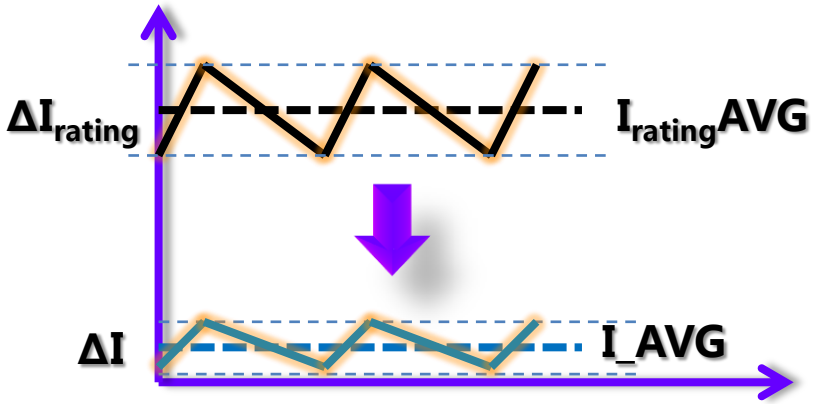
Premium Golden Silver
Best Better Best



Items	L	DCR	η	Cost
P	Large	Low	◎	-
G	Large	Middle	○	15% ↓
S	Small	Low	◎	1/3 ↓

L-I Trimming Benefits η_{EURO} & Cost

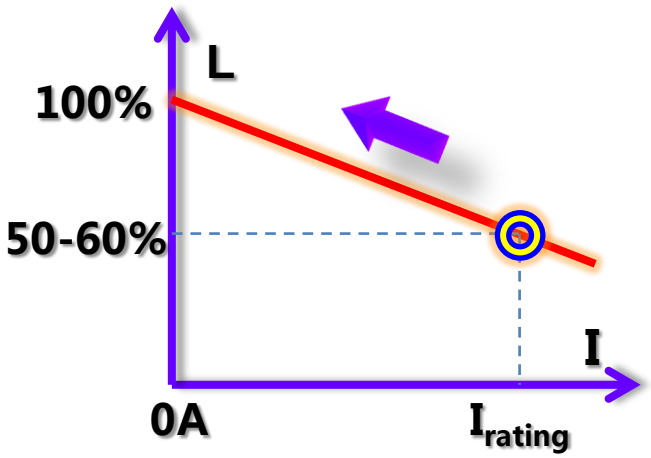


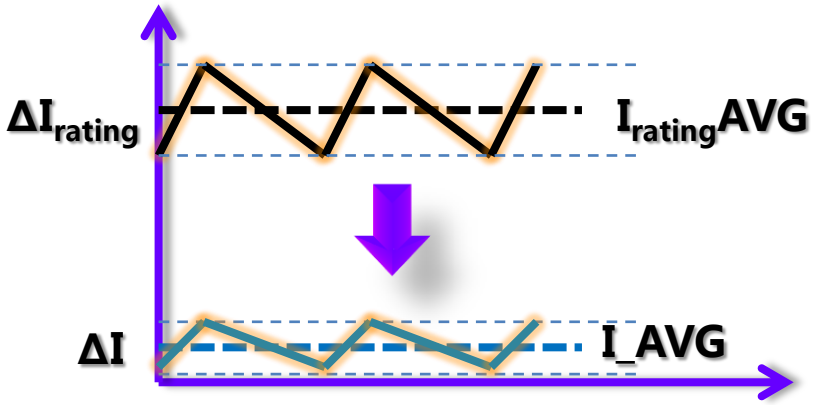


- Best η_{EURO} (Large L_{0A}, Low DCR)
- Low COST (Less Cu Wire)

High Efficient ferrite + Good DC Bias Powder Core
Achieves efficiency and cost balance.

L-I Trimming Benefits η_{EURO} & Cost





Designing Suggestion (20~50KHz)

- BST Ripple → $\Delta I_{rating}/I_{rating}AVG$ = 30~40%
- AC Ripple → $\Delta I_{rating}/I_{sine\_PK}$ = 15~20% (THD<3%)

High Efficient ferrite + Good DC Bias Powder Core
Achieves efficiency and cost balance.

TAMURA
Your One and Only Company

ＩＮＶ回路 効率比較

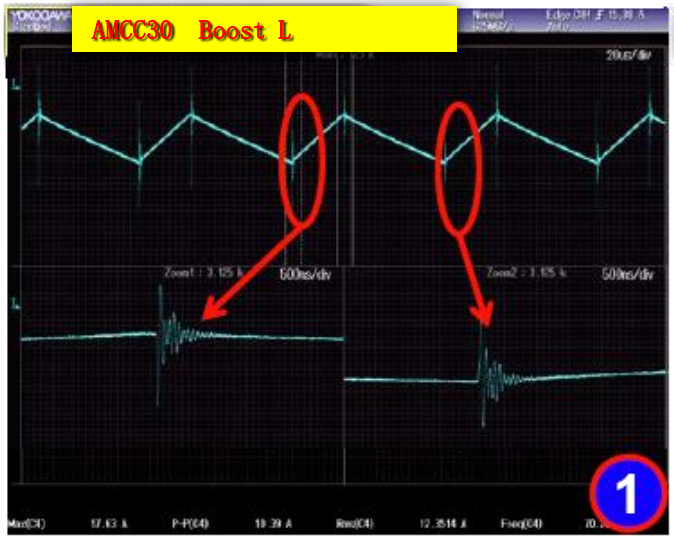
测试条件：日本三洋PV，250Vdc/202Vac/4KW

4KW (DCL+ACL)	回路効率	SR比較 (参)
Premium	95.05%	0.301%UP
Golden	95.00%	0.252%UP
Silver	95.22%	0.473%UP
SR (参)	94.745%	–

SR；6.5%Si鋼板RT

Spike Blocker ™ Technology

注重EMC性能的设计



①图所示，使用AMCC30磁芯进行绕制，输出功率为3KW的Boost电路的实测DCL电流波形（20KHz）；

②图所示，使用Φ47铁硅铝环进行绕制，输出功率为3KW的Boost电路的实测DCL电流波形（20KHz）；

③图所示，SP10217B-SH00SS（3KW-DCL-Silver），在与①、②同样试验机、相同功率、相同工作条件下实测DCL电流波形。

从这些实测波形可知，Spike Blocker™技术的采用，确实显著改善了系统的EMC性能。随着EMC性能的大幅改善，为减小共模滤波器的感量提高了可能，从而进一步降低了逆变器的成本，提高了系统的效率。

核心问题
寄生LC振荡

- ✓ 改善EMC
- ✓ 降低PV成本
- ✓ 改善PV效率