Current sensors optimized for large current

～Open loop / Closed loop type～

TAMURA

TAM-CS-00007
Rev B

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Current sensors optimized for large current

Index

Current sensors optimized for large current

1. Why, When we started development Current Sensors

Circuit design Technology

Transformer Technology

Potting Technology

EMI/EMC Solution

Market Awareness

Current sensors optimized for large current

1. Why, When we started development Current Sensors

1924 1930 1939 1956 1994 2007 2011 2016 2024

RADIO

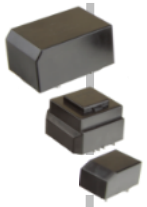
Power Transformer

Audio Transformer

Reactors

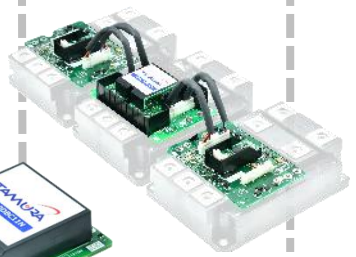
ZERO watt standby Power Supply

Power supply module



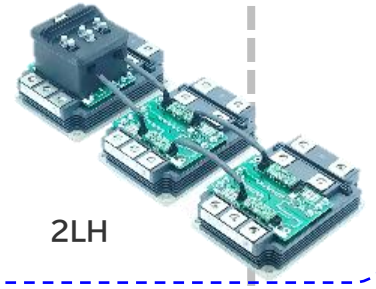
Reactors(HPM)

SiC/IGBT Gate Driver



2LG-C Parallel

2CG-B for SiC



2LH

Current Sensor

Open Type

L Series

Closed Type

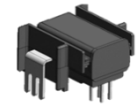
S Series

Fluxgate Type

F Series

Large Current

Open loop (ASIC) Type

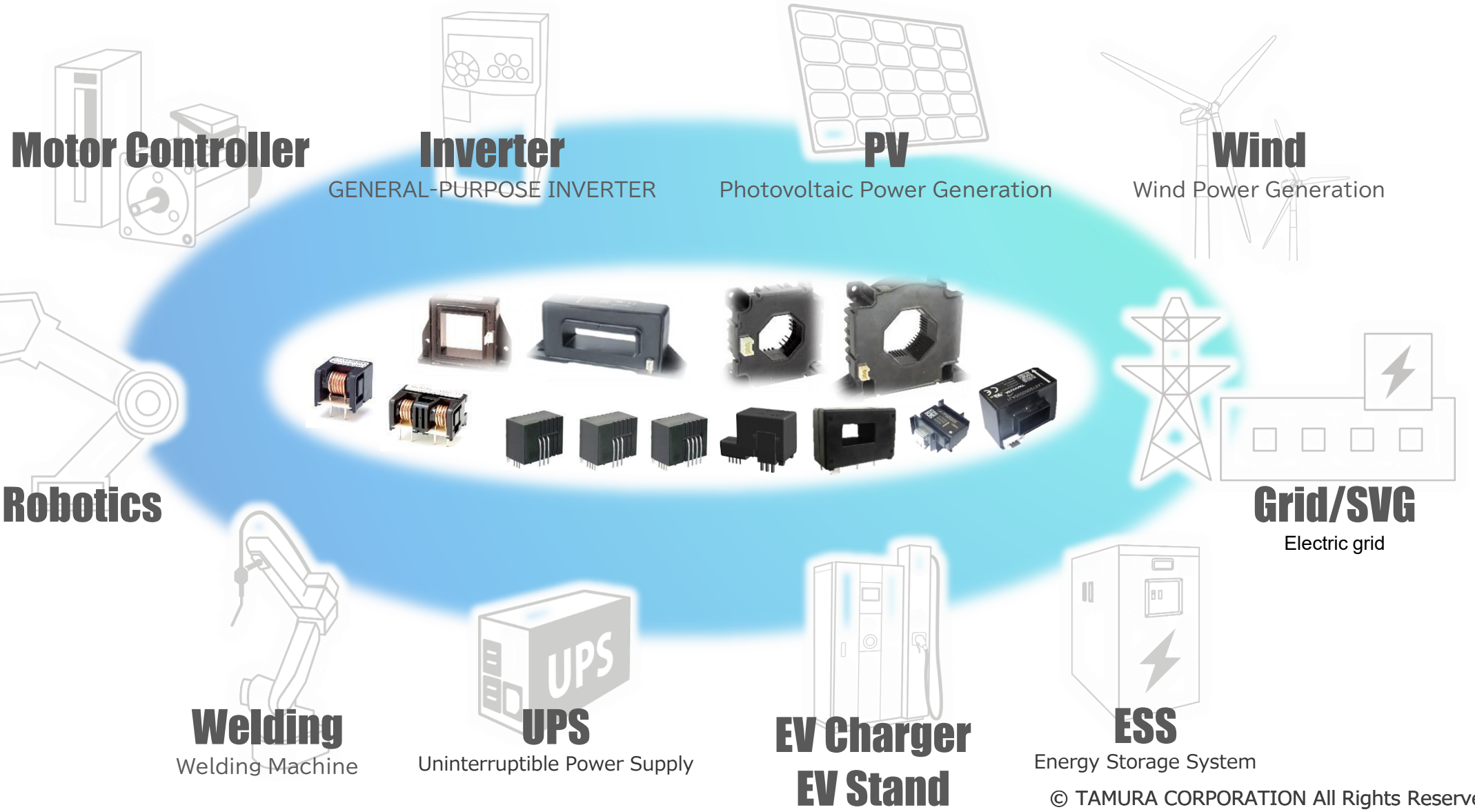


LA Series

Power Supply

Current sensors optimized for large current

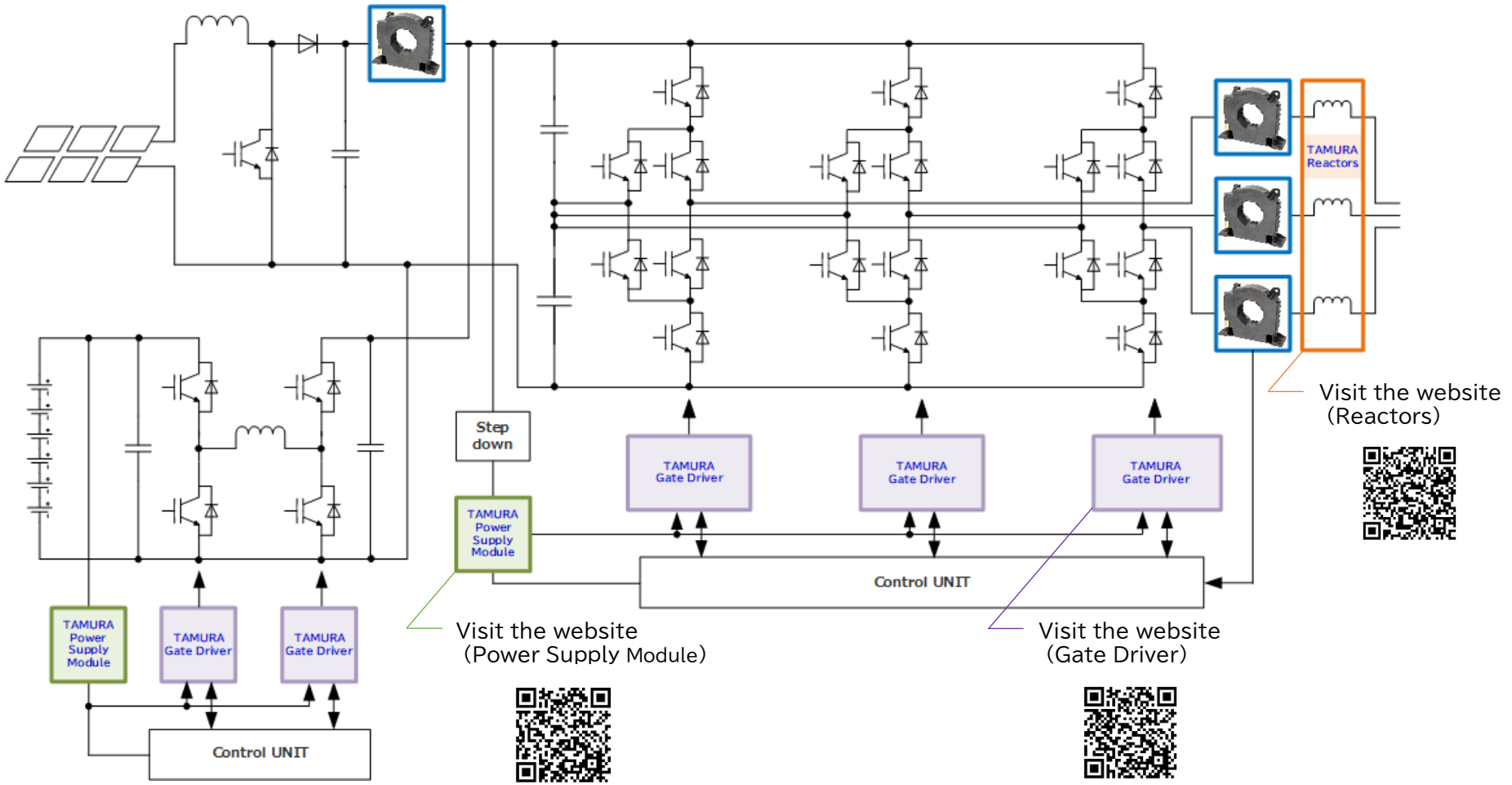
2. Application



Current sensors optimized for large current

2. Application

PV inverters & BESS



Current sensors optimized for large current

3. Features of Tamura Current Sensors ～Case of large current type～

Features items	Applied technology		Benefits
Lower offset drift	Trans, Analog	EMC, Potting	Achieved lower temp drift =>60% reduction @-40℃ !
Lower dv/dt level	Trans, Analog	EMC, Potting	Error caused by high-speed switching => Reduced 50% !
Lower output noise level	Analog	EMC, Potting	Stronger bulk current injection => Error only for 50MHz !

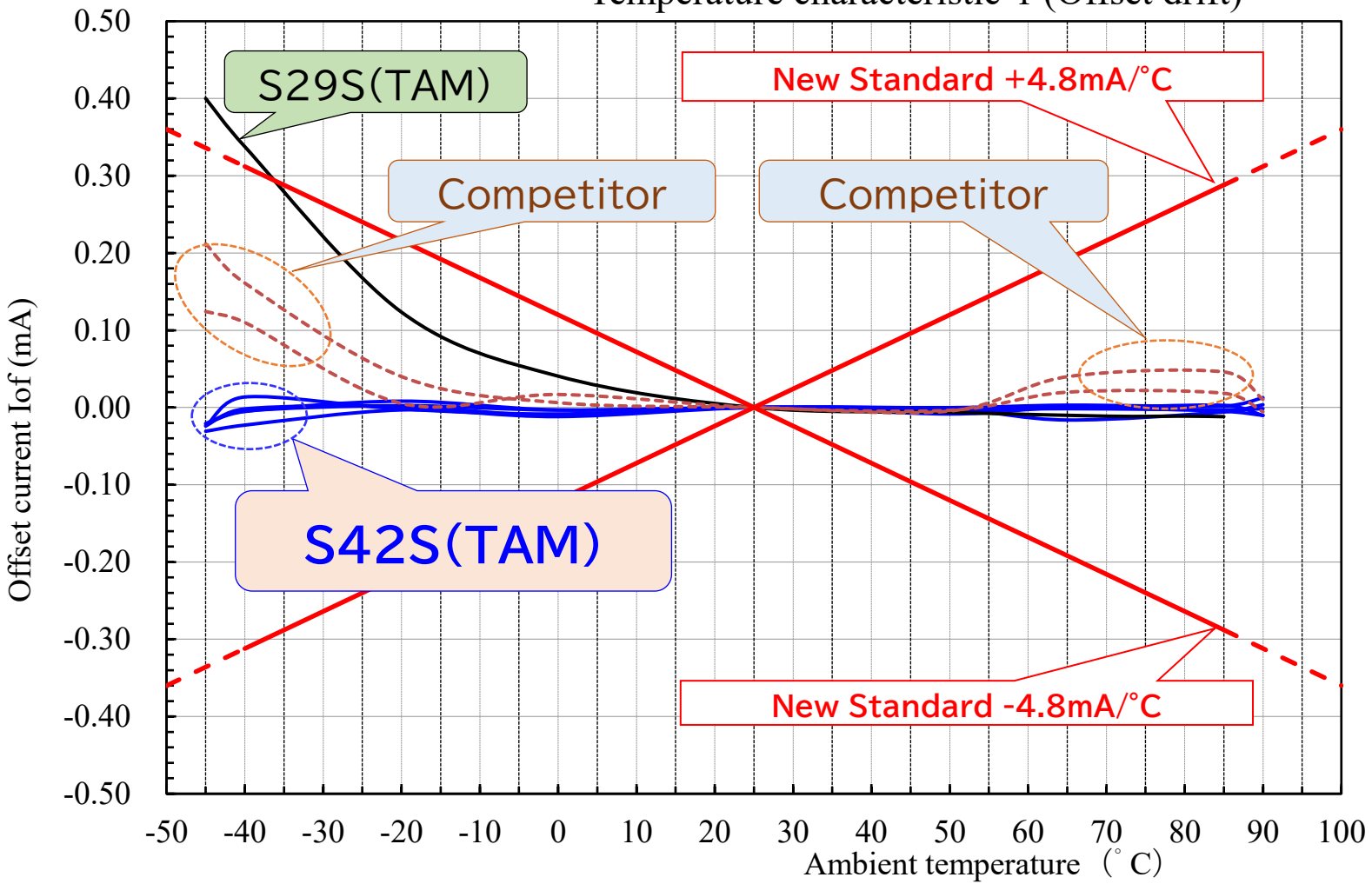
Current sensors optimized for large current

3. Features of Tamura Current Sensors ～Case of large current type～

Lower offset drift

Lower offset drift

Temperature characteristic-1 (Offset drift)



S42 series

Current sensors optimized for large current

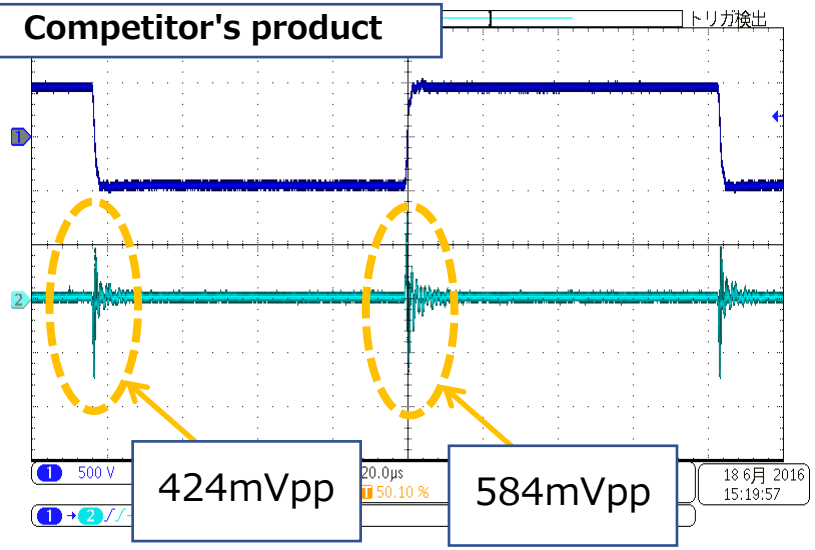
3. Features of Tamura Current Sensors ～Case of large current type～

Lower dv/dt level

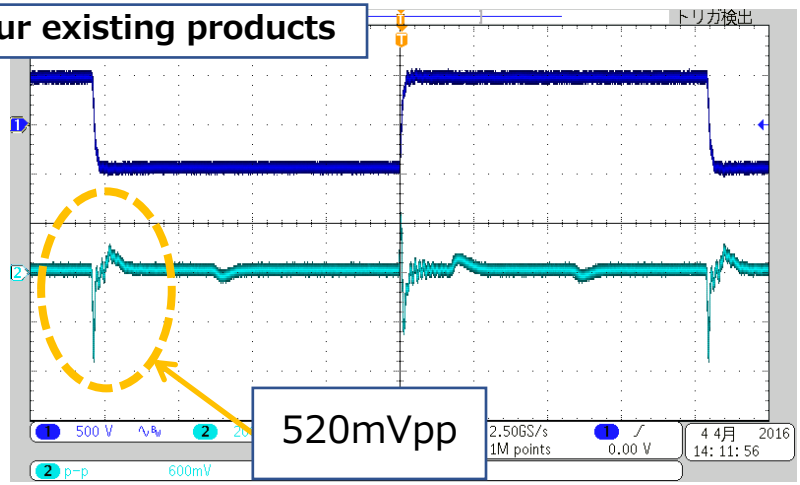
Patent pending

Low dv/dt Level -Parasitic capacitance reduction circuit-

Competitor's product

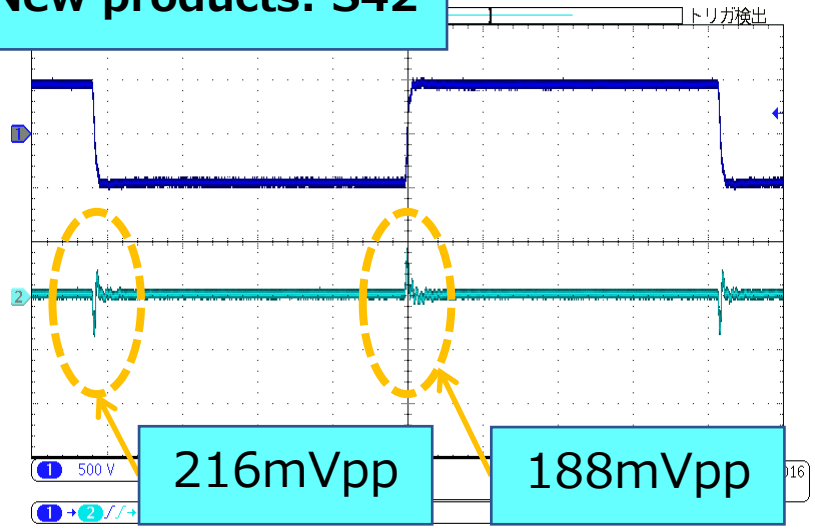


Our existing products



50% reduction

New products: S42



Accurate position and torque control

S42 series
S42 series

S30 series

Accurate position and torque control

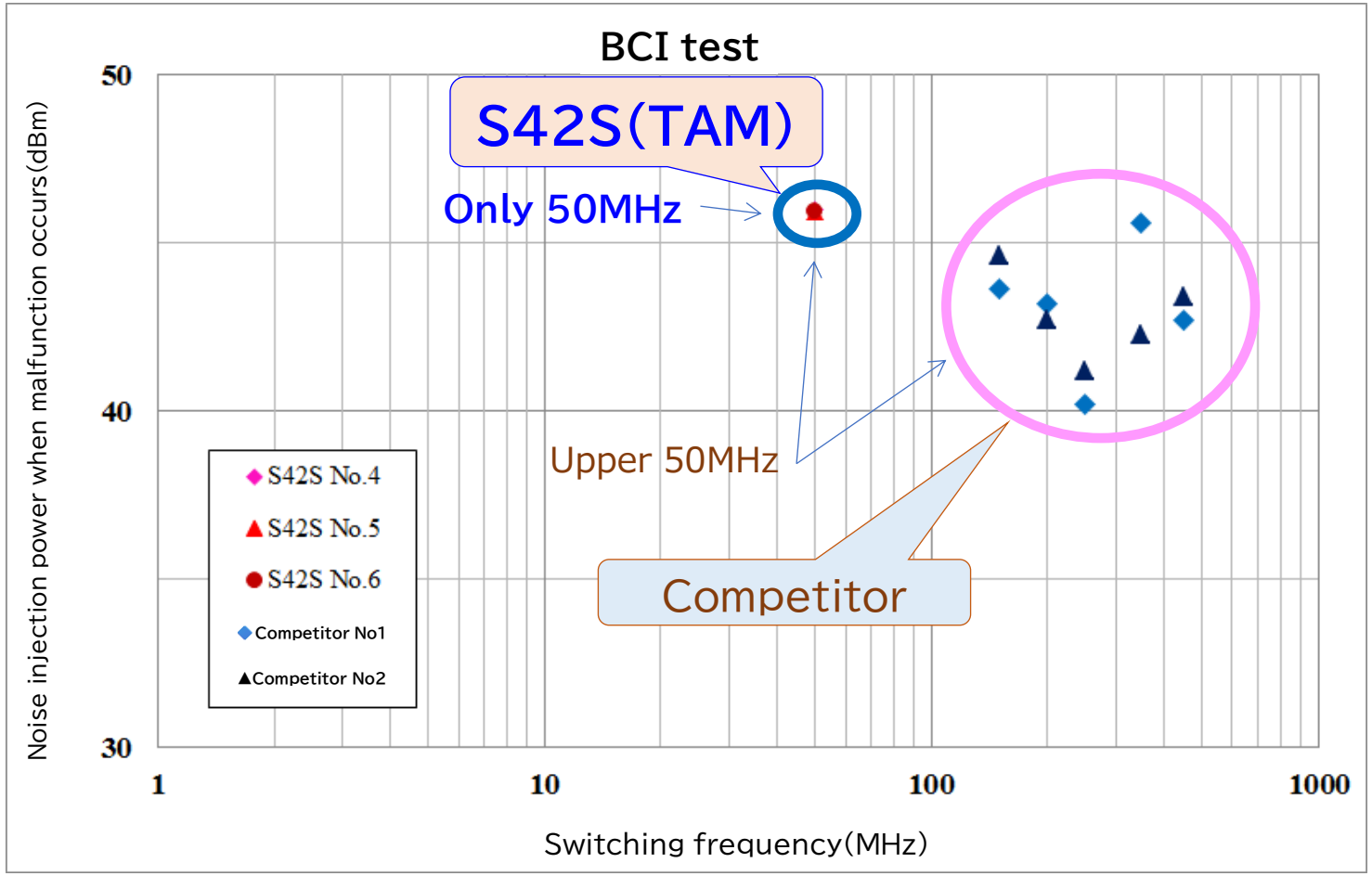
Current sensors optimized for large current

3. Features of Tamura Current Sensors ～Case of large current type～

Lower output noise level

Lower output noise level

Error Level : ±20mA



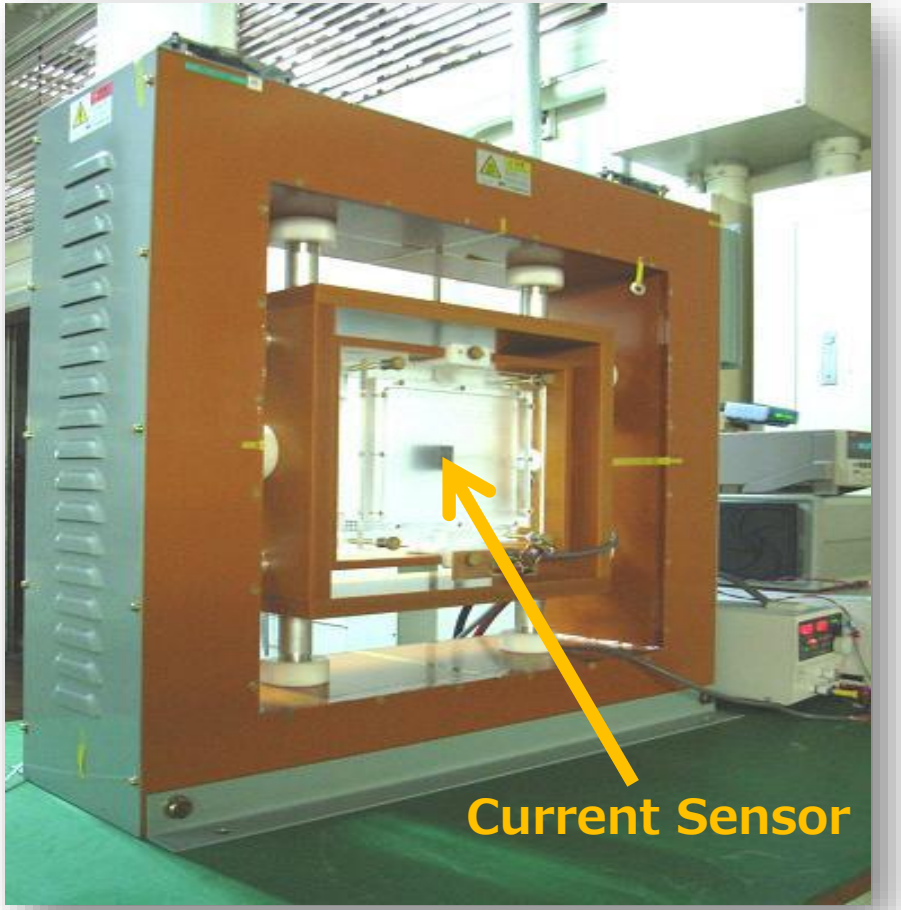
S42 series

Current sensors optimized for large current

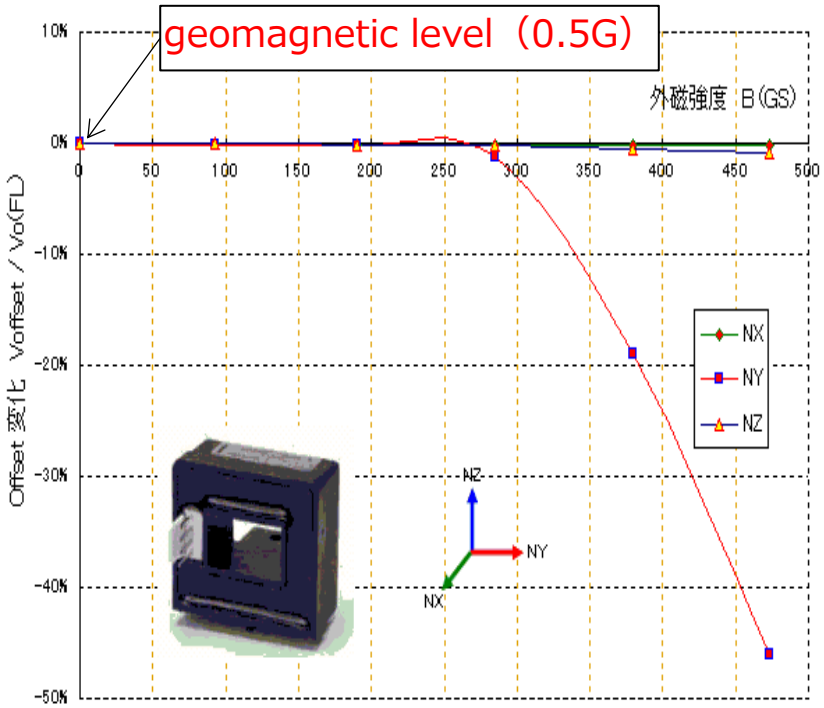
4. Technology to support of Current Sensors

Magnetic noise immunity

Evaluation Technology



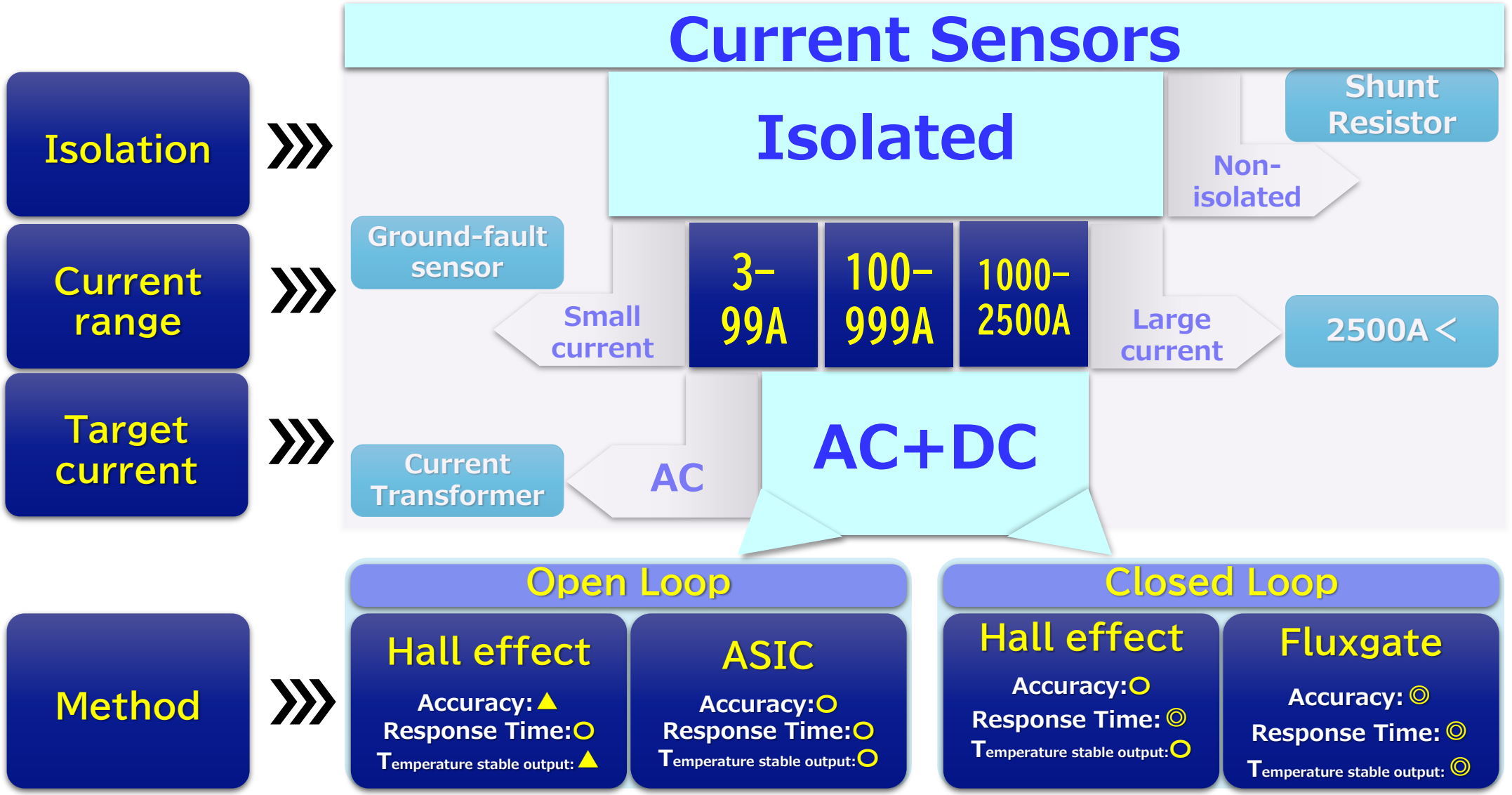
External magnetic noise evaluation equipment



It is possible to evaluate magnetic noise immunity quantitatively from the geomagnetic level.

Current sensors optimized for large current

5. Product lineup / Tamura CS products range



Current sensors optimized for large current

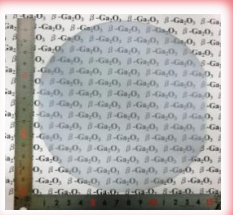
5. Product lineup

Appearance	Current	Supply voltage	Circuit	Primary Conductor	Model	Details
	200~1500A	±15V	Open	Penetration □40.5*40.5	L34S	
	50~600A	+5V	Open	Penetration □20.4*10.4	L37S-05	
	50~800A	±15V	Open		L37S-15	
	200~1500A	±15V	Open	Penetration □40.5*30.5	L40S	
	500~2500A	±15V	Open	Penetration □64.0*21.0	L51S	
	1500,2000,2500A	±15V	Open	Penetration □104.5*22.5	L55S	
	2000A	±24V	Closed	Penetration ○61	S30S	
	1000A	±24V	Closed	Penetration ○42	S42S	

Appendix) Introduction of One Tamura

Device technology

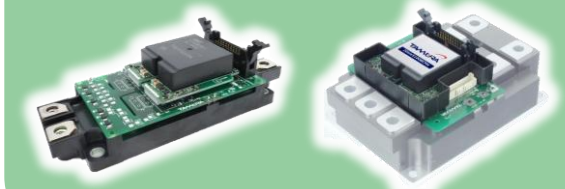
Ga_2O_3



Novel Crystal Technology, Inc.

Gate driver

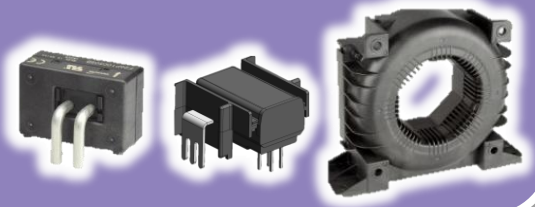
Circuit technology



Gate Driver Unit

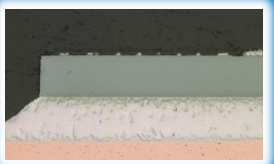
Module technology

Current sensor



Power electronics technology and main products

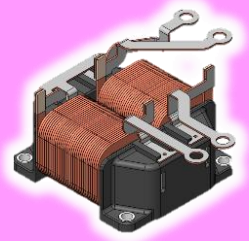
Soldering technology



Electric Chemicals
Soldering material
Die attach material
TIM material

Reflow soldering system

Automotive reactor

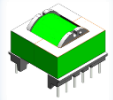


Reactor for PF
（2 in 1）

Passive components

Reactor Trans Coil
Large reactor/
transformer

Toroidal coil



SW-Trans

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Tamura's mascot "Quenu"