

Solution Guide for Infineon Technologies AG PrimePACK™ series



PrimePACK™ 2in1



PrimePACK™3+

Supported by Infineon Technologies AG



Your One and Only Company

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**1-4 Waveform of Tamura gate driver
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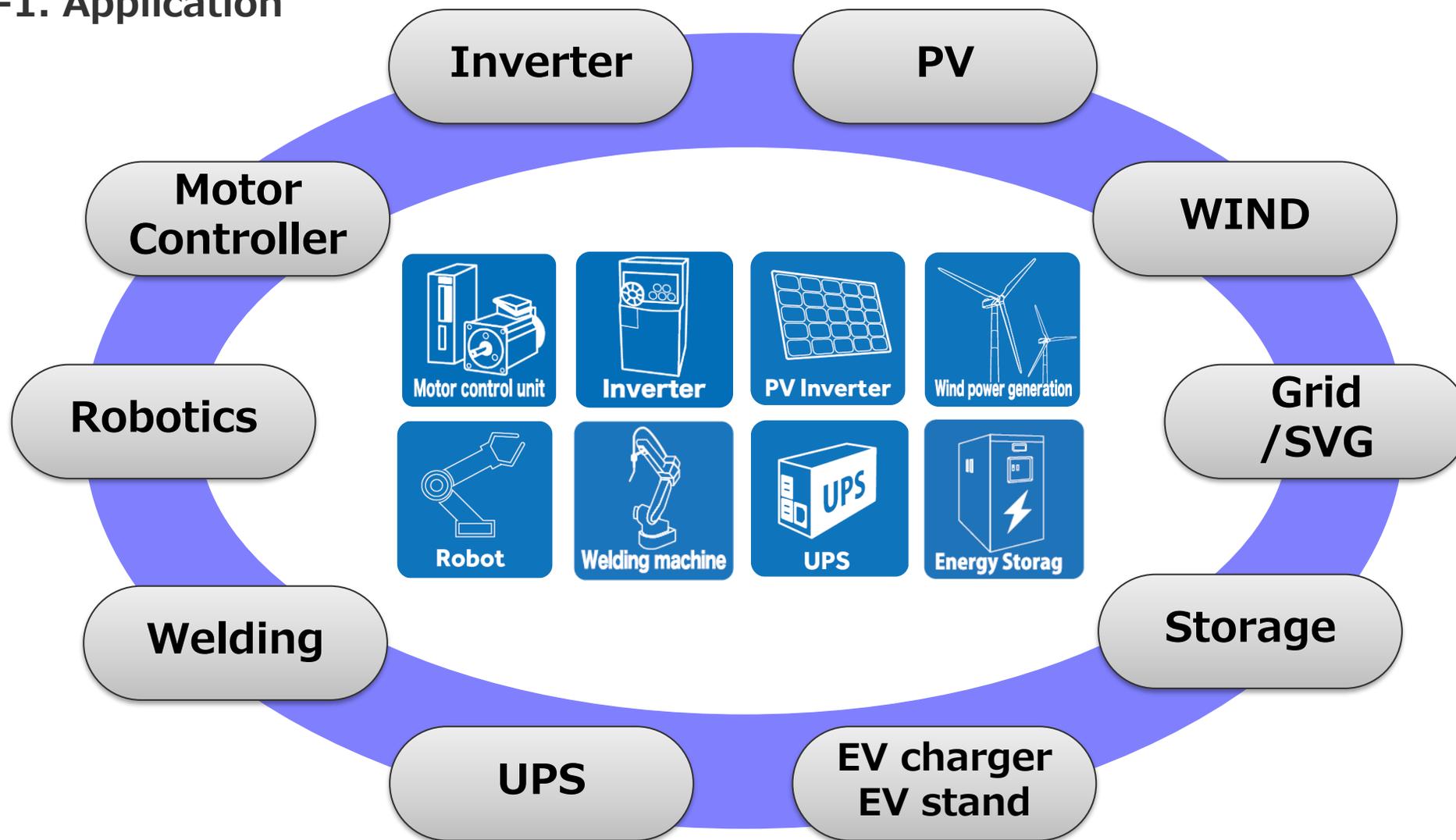
1-5 Products appearance and line-up

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1. Solution Guide for Infineon Technologies AG PrimePACK™

1-1. Application



1. Solution Guide for Infineon Technologies AG PrimePACK™

1-2. Tamura Gate Driver 7 key points

Low stray capacity

Soft turn off + Active Clamp

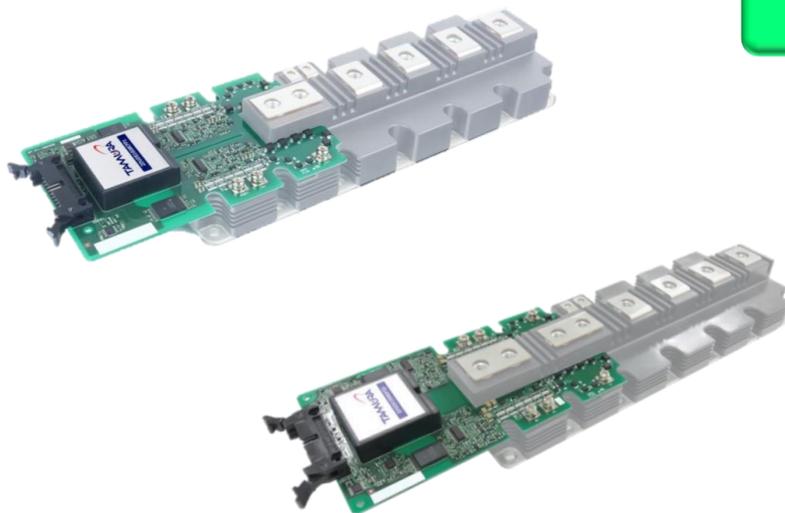
Wider input voltage

High-speed response

High-accuracy

High Power DC-DC converter

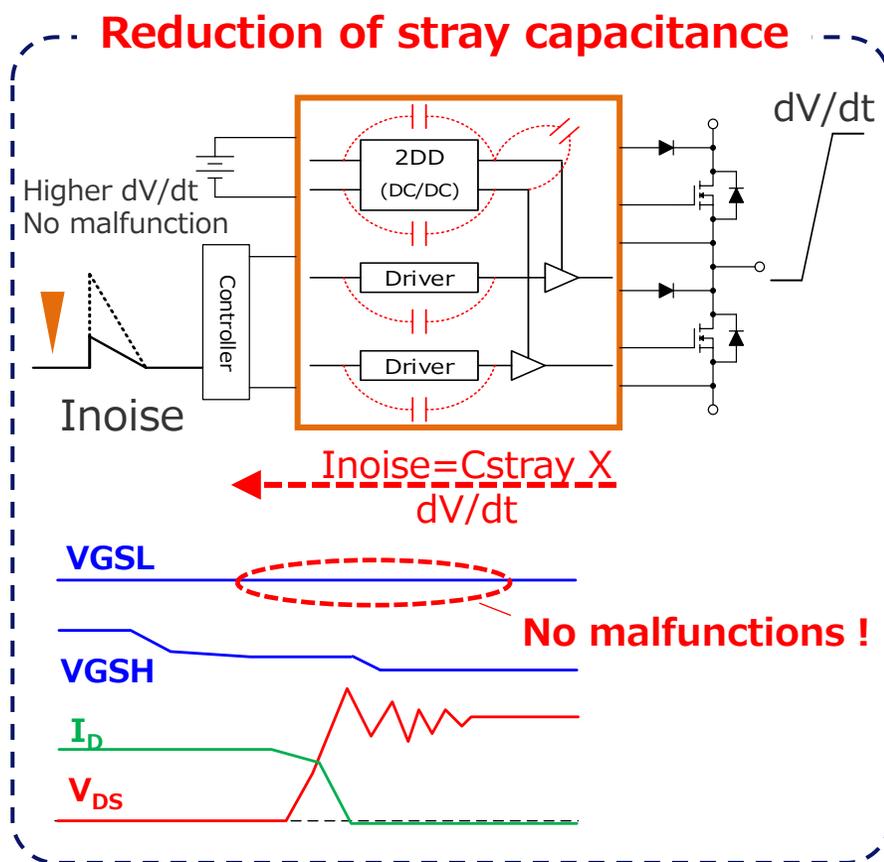
Multi parallel solution



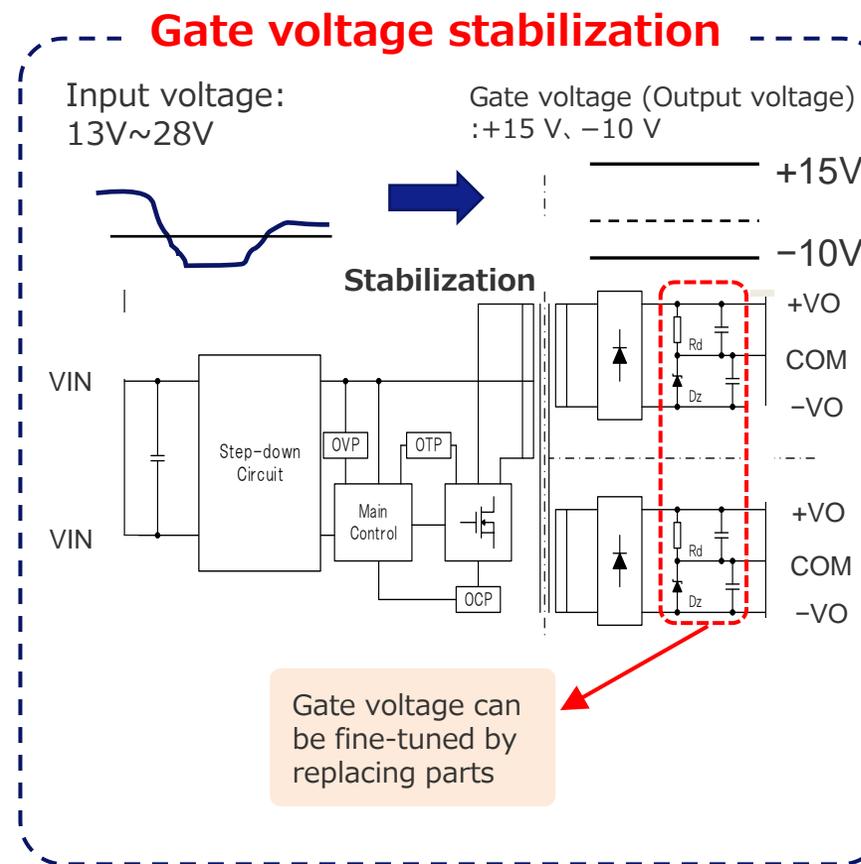
1. Solution Guide for Infineon Technologies AG PrimePACK™

1-3. Each protection function to ensure reliability

Low stray capacity



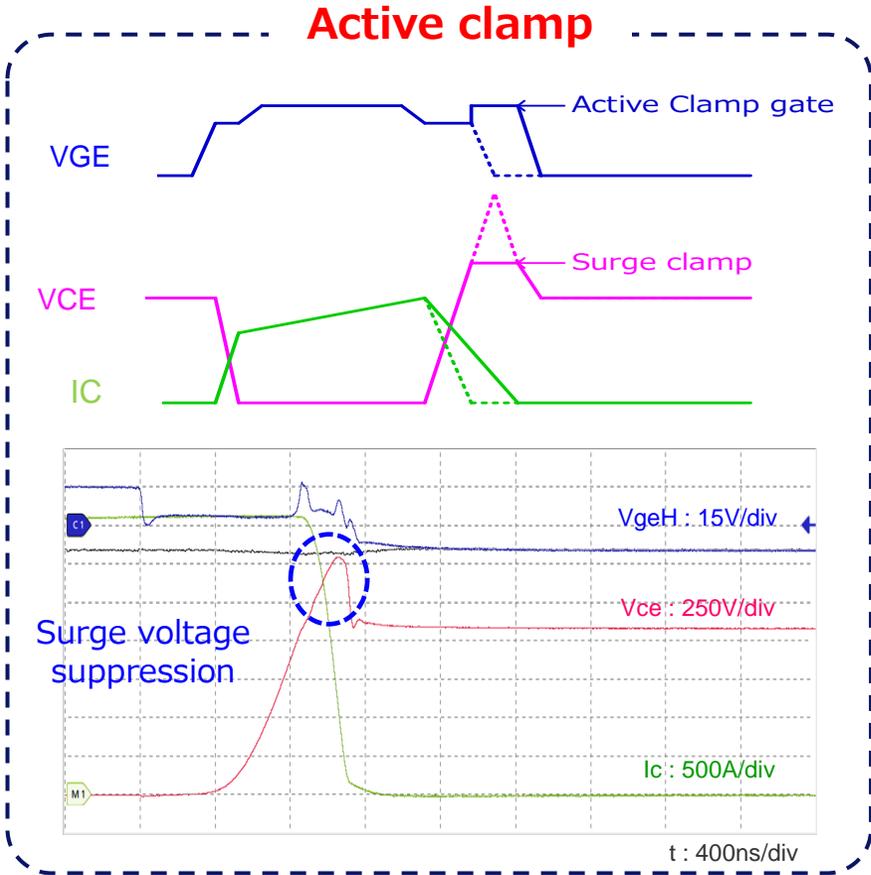
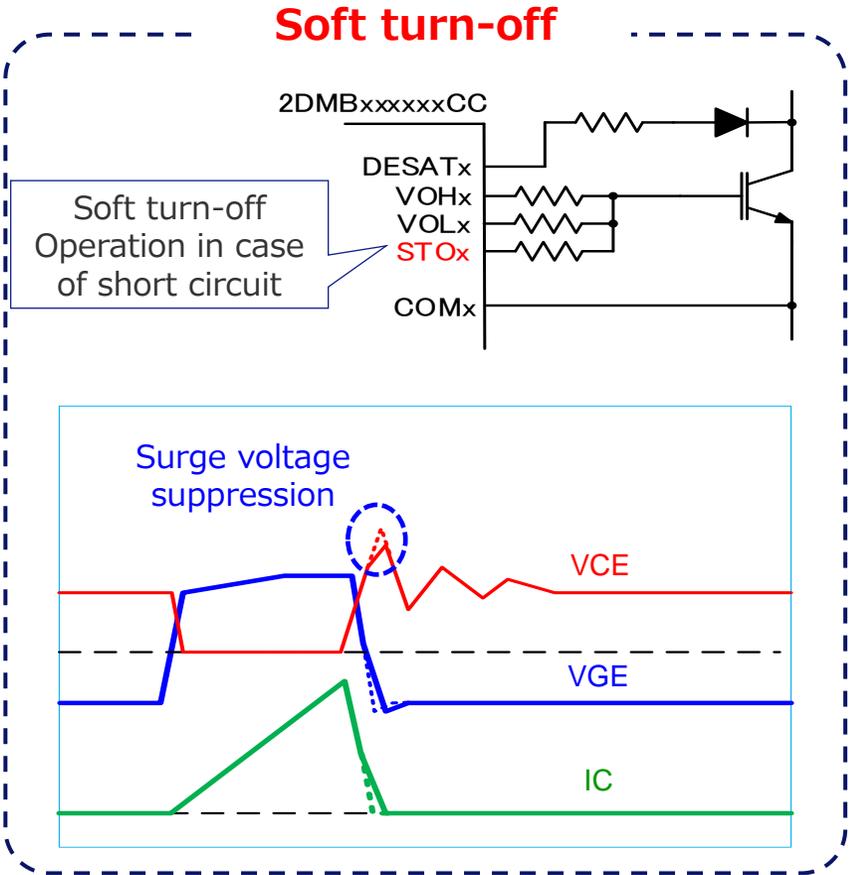
Wider input voltage



1. Solution Guide for Infineon Technologies AG PrimePACK™

1-3. Each protection function to ensure reliability

Soft turn off + Active Clamp



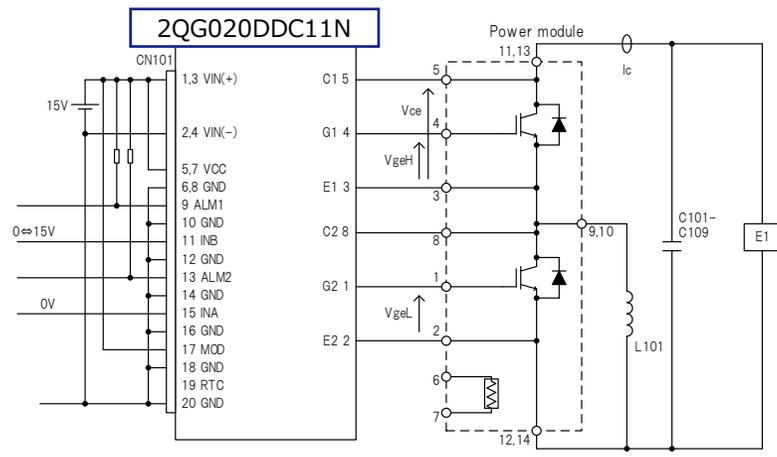
1. Solution Guide for Infineon Technologies AG PrimePACK™

1-4. Waveform of Tamura gate driver (2 Pulse test)

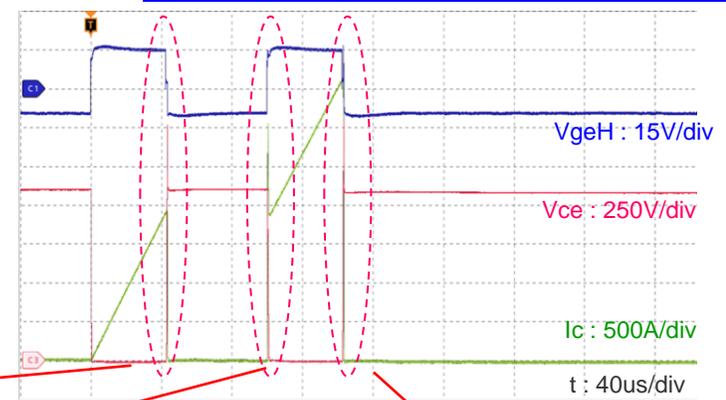
IGBT : FF1800R17IP5

DC Link : 1100V, Ron : 0.56Ω, Roff : 1.5Ω, Upper arm, Tj=25°C

Highly stable gate drive with proprietary drive circuit and active clamp circuit (patent pending)



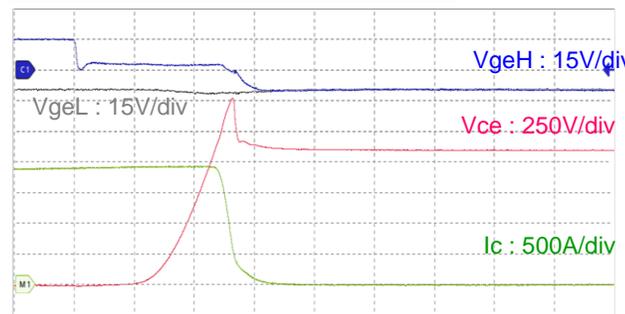
C101-109 : 760uF(Ls : 45nH)
L101: 25uH



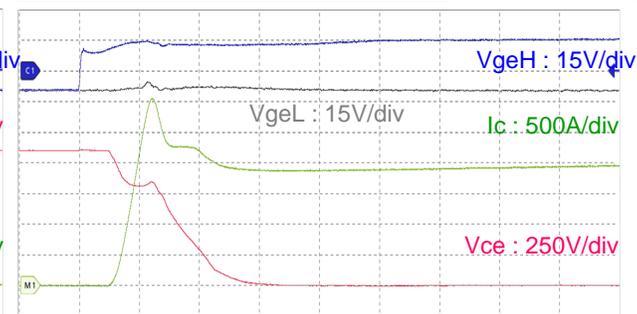
Turn OFF / Ic = 1800A

Turn ON / Ic = 1800A

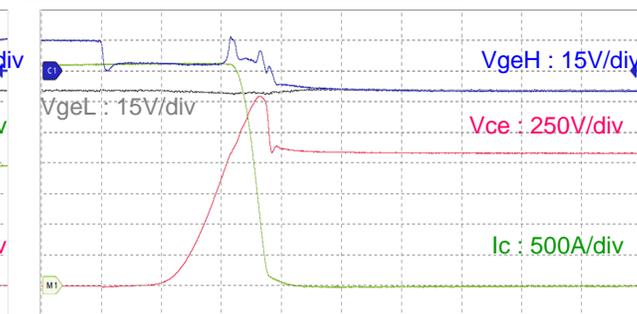
Turn OFF / Ic = 3600A



Item	Measurement value	
Vcep	1517	V
dV/dt	3.3	kV/us
dI/dt	17.2	kA/us
Eoff	651	mJ



Item	Measurement value	
dV/dt	2.8	kV/us
dI/dt	14.2	kA/us
Eon	826	mJ



Item	Measurement value	
Vcep	1544	V
dV/dt	3.4	kV/us
dI/dt	22.5	kA/us
Eoff	1444	mJ

1. Solution Guide for Infineon Technologies AG PrimePACK™

1-4. 2 Pulse test (Enlarged waveform)

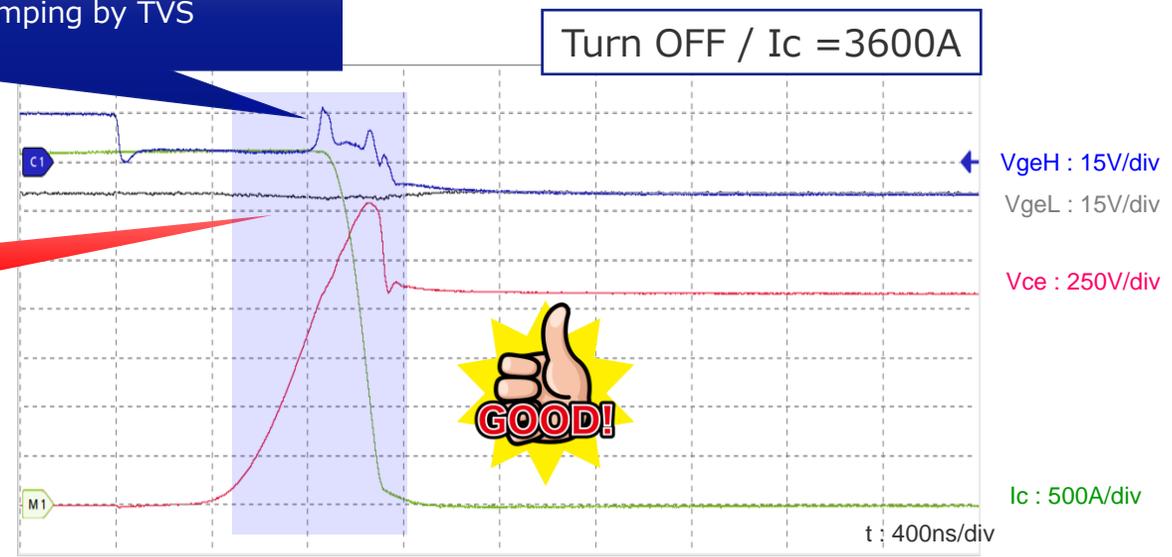
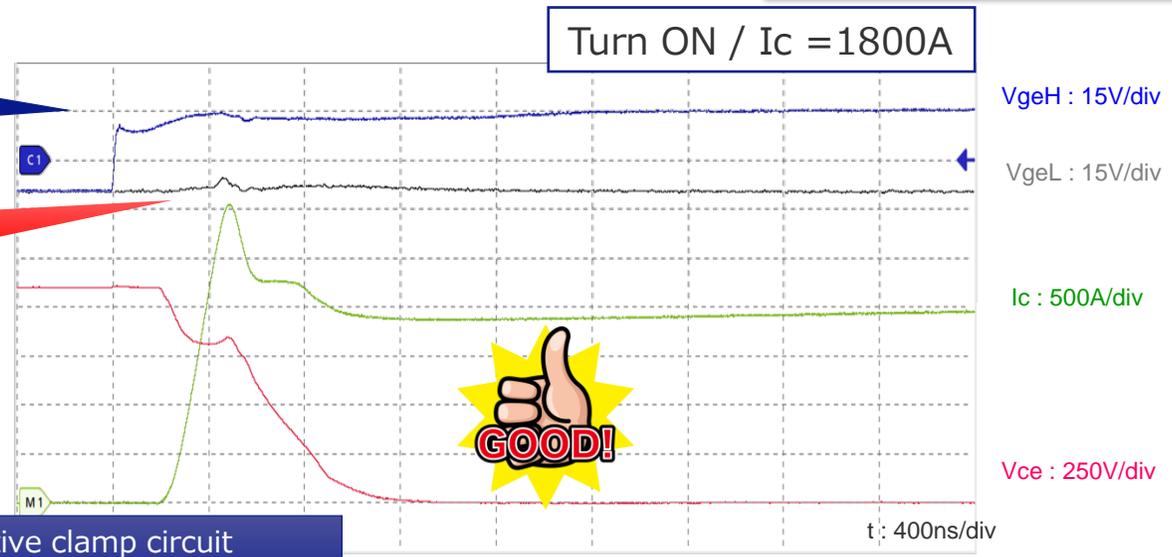
IGBT : FF1800R17IP5

SW side gate (turn ON)
No ringing and no overshoot

OFF side gate
Stable L state without malfunction

Gate resistance change area by our original active clamp circuit
(Normal turn-off ⇒ shift to soft turn-off)
⇒ Assist Vce Peak voltage reduction before clamping by TVS
⇒ TVS conduction loss can be reduced

OFF side gate
Stable L state without malfunction

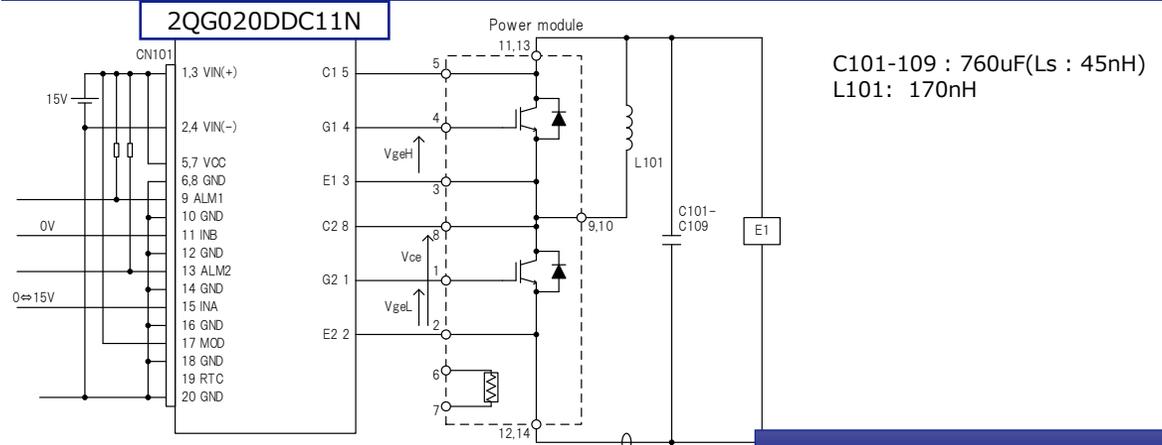


1. Solution Guide for Infineon Technologies AG PrimePACK™

1-4 Waveform of Tamura gate driver (Short circuit test)

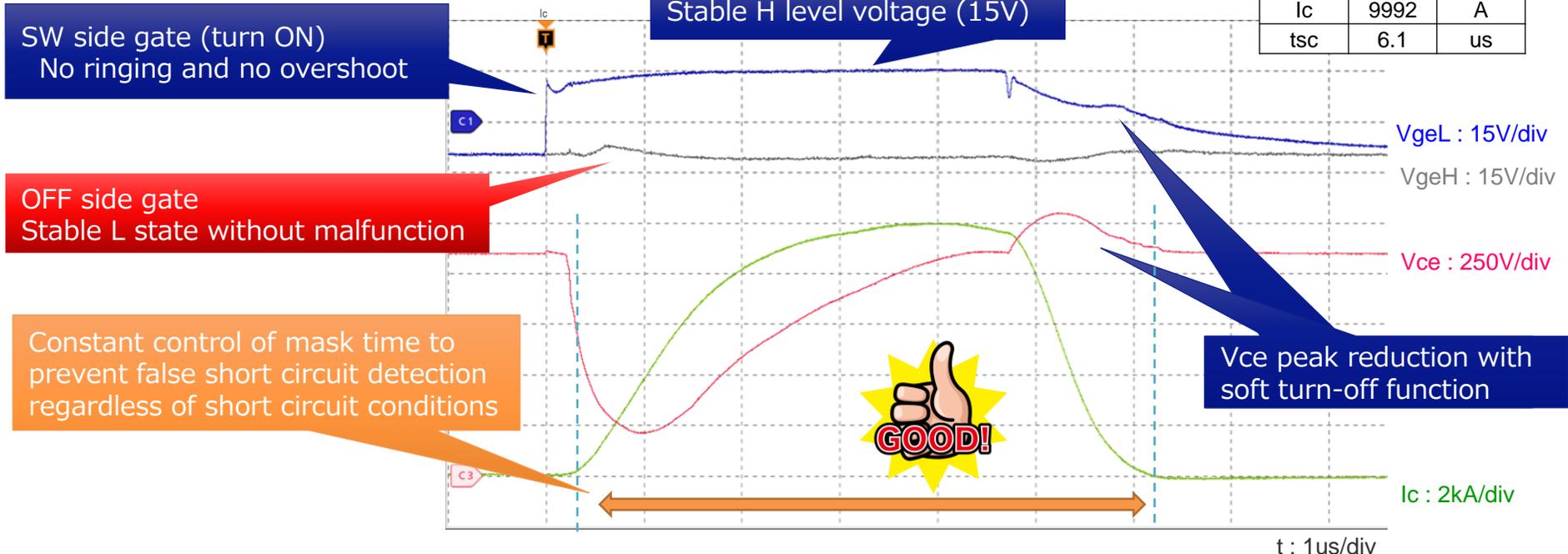
IGBT : FF1800R17IP5

DC Link : 1100V, Ron : 0.56Ω, Roff : 1.5Ω, Lower arm, Tj=25°C



This driver suppresses the Vce peak voltage in the short circuit by our original circuit technology, and can control the mask time to prevent false short circuit detection. (Patent pending)

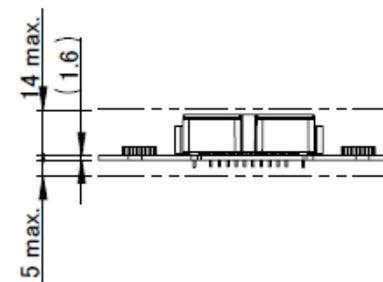
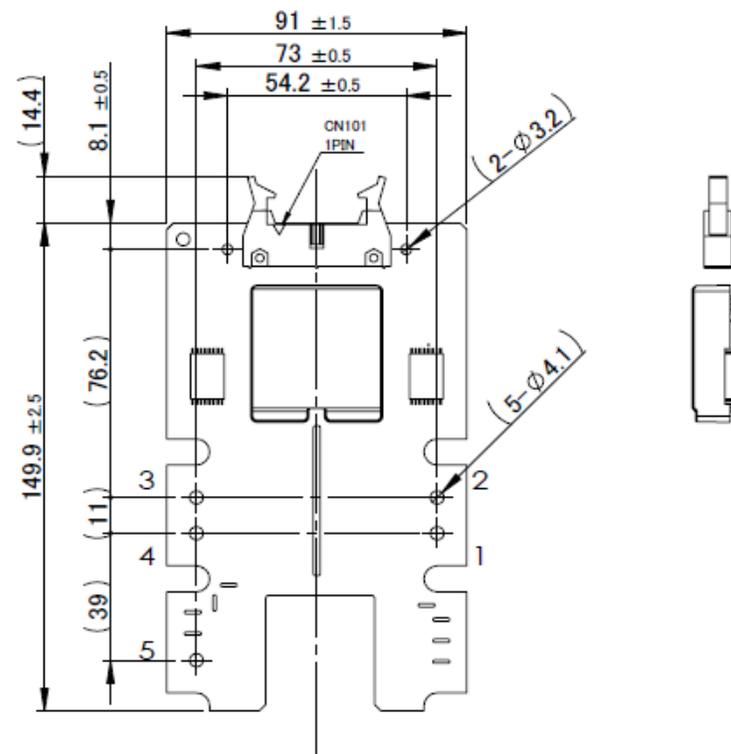
Item	Measurement value	
Vcep	1298	V
Ic	9992	A
tsc	6.1	us



1. Solution Guide for Infineon Technologies AG PrimePACK™

1-5 Products appearance and line-up

Infineon Technologies AG PrimePACK™



PrimePACK™ is registered trademark of Infineon Technologies AG, Germany.

1. Solution Guide for Infineon Technologies AG PrimePACK™

Product line-up for Infineon Technologies PrimePACK™ 2in1 Type

Package	Output power (Ref.)	Ic	Part No	TAMURA Driver			
				2PG-C/2PG-D	2CG-B/2CG-D	2DD	
				Vce = 1200V			
	150kW	900	FF900R12IE4*		2PG??0yxC11N-?? *1	2CG010BBC11N (+15/-10V) Soft turn off	2DD151008C (+15V/-10V) 
	250kW	1200	FF1200R12IE5*			2CG010DBC11N (+15/-10V) Soft turn off +Active clamp	
		1400	FF1400R12IP4*				
				Vce = 1700V			
	150kW	650	FF650R17IE4*		2PG??0yxC11N-?? *1	2CG010BBC11N (+15/-10V) Soft turn off	2DD151008C (+15V/-10V) 
	350kW	1200	FF1200R17IP5*			2CG010DBC11N (+15/-10V) Soft turn off +Active clamp	
	250kW	1000	FF1000R17IE4*				
	350kW	1400	FF1400R17IP4*				

*1 Not in stock due to optimization required. Please contact us.

x: Signal input voltage selectable: "C" => 3.3~15V / "D" => 15V

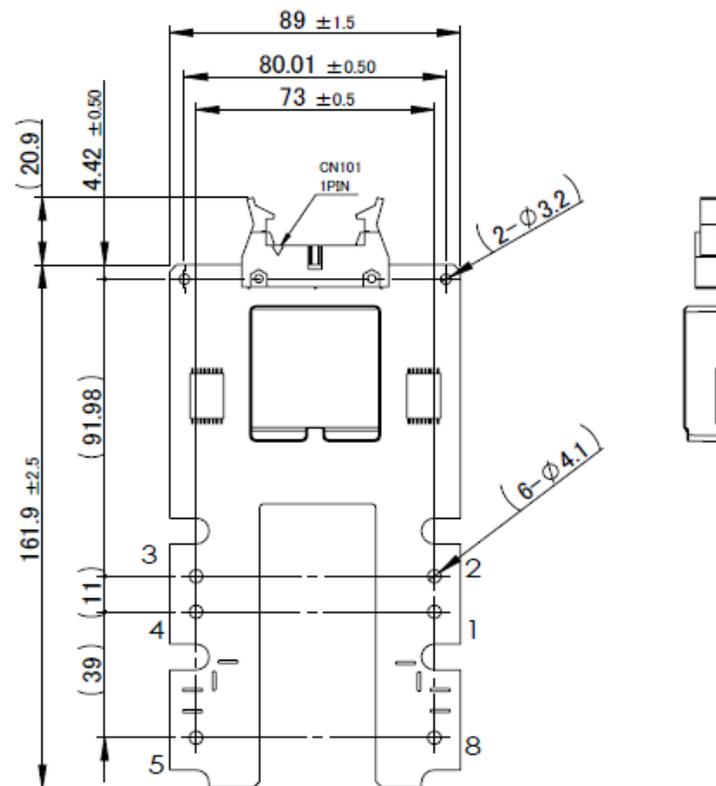
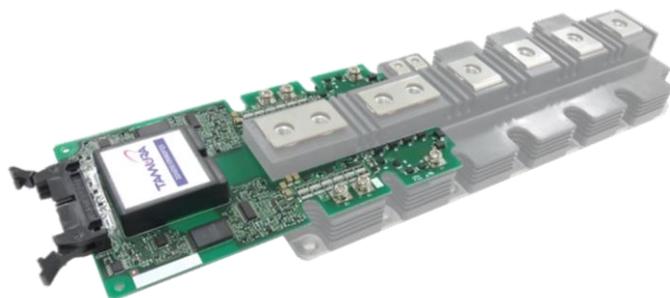
y: Protection circuits: "C"=>Soft turn off / "D"=>Soft turn off + Active clamp

?: Semi-optimized code

1. Solution Guide for Infineon Technologies AG PrimePACK™

1-5 Products appearance and line-up

Infineon Technologies AG PrimePACK™ 3+



PrimePACK™ is registered trademark of Infineon Technologies AG, Germany.

1. Solution Guide for Infineon Technologies AG PrimePACK™

Product line-up for Infineon Technologies PrimePACK™3+ 2in1 Type

Package	Output power (Ref.)	Ic	Part No	TAMURA Driver			
				2QG-C / 2QG-D	2CG-B/2CG-D	2DD	
	Vce = 1200V						
	150kW	900	FR900R12IE4D		2QG??0yDC11N-?? *2	2CG010BBC11N (+15/-10V) Soft turn off	2DD151008C (+15V/-10V)
	250kW	1500	FF1500R12IE5*			2CG010DBC11N (+15/-10V) Soft turn off +Active clamp	
	350kW	1800	FF1800R12IE5*				
	Vce = 1700V						
	350kW	1500	FF1500R17IP5*		2QG??0yDC11N-?? *2	2CG010BBC11N (+15/-10V) Soft turn off	2DD151008C (+15V/-10V)
500kW	1800	FF1800R17IP5*	2QG020DDC11N *1			2CG010DBC11N (+15/-10V) Soft turn off +Active clamp	

*1 Catalog products. Please confirm stock.
 *2 Not in stock due to optimization required. Please contact us.

y: Protection circuits: "C"=>Soft turn off / "D"=>Soft turn off + Active clamp
 ??: Semi-optimized code

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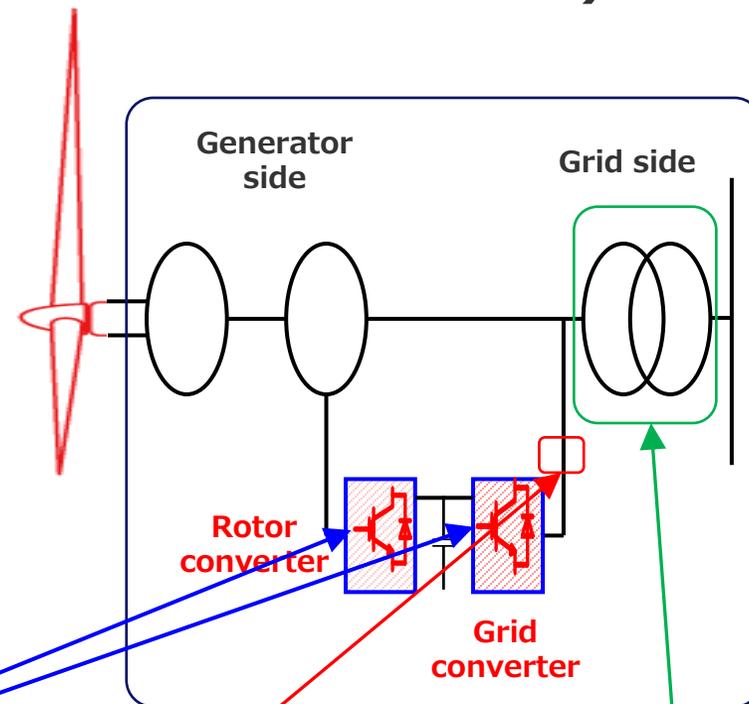
1-4 Waveform of Tamura gate driver
(2 pulse / Short circuit)

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2) Introduction of One Tamura (Wind Power converters)



Gate Driver Unit



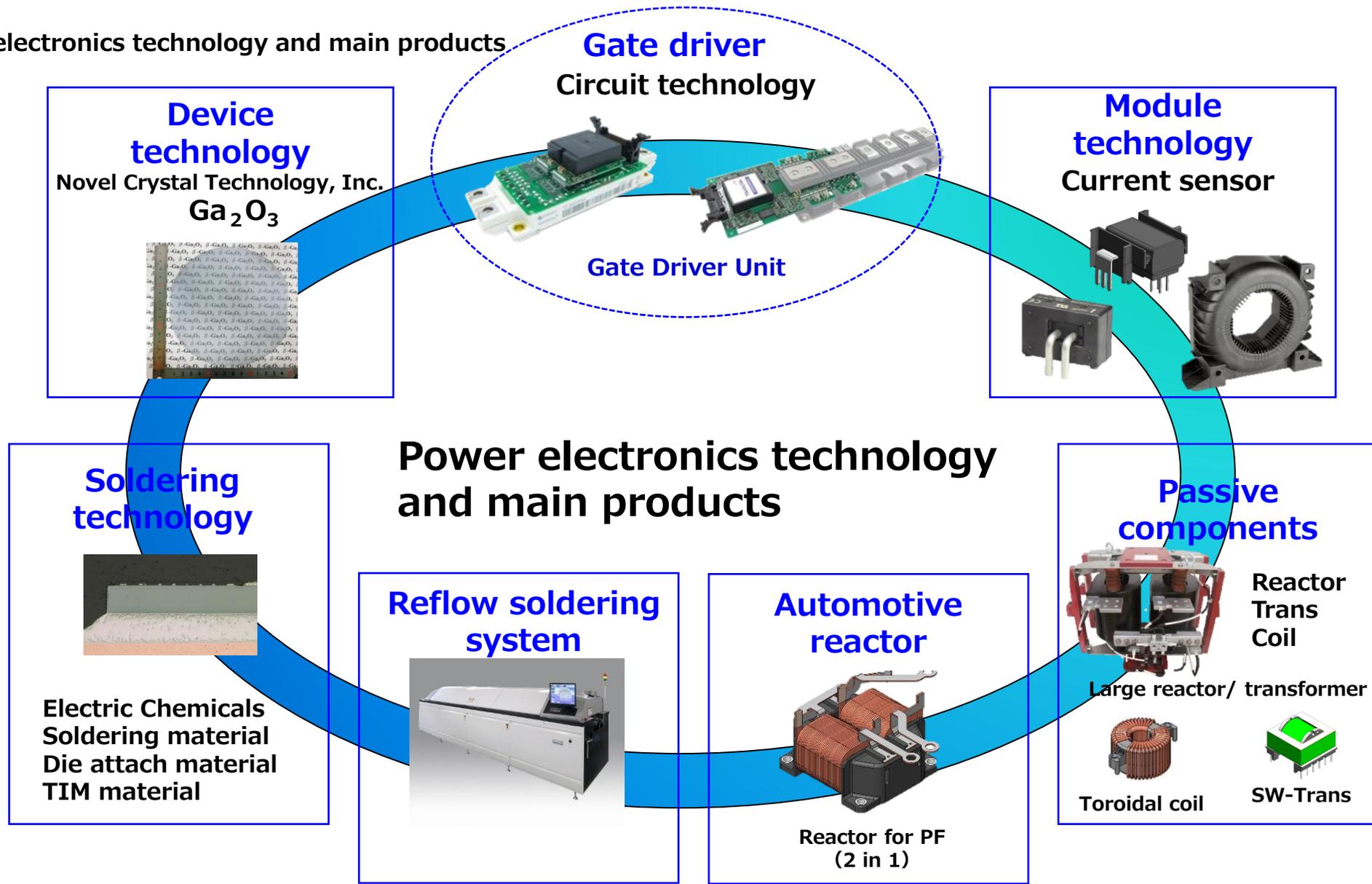
Current sensor



Reactor

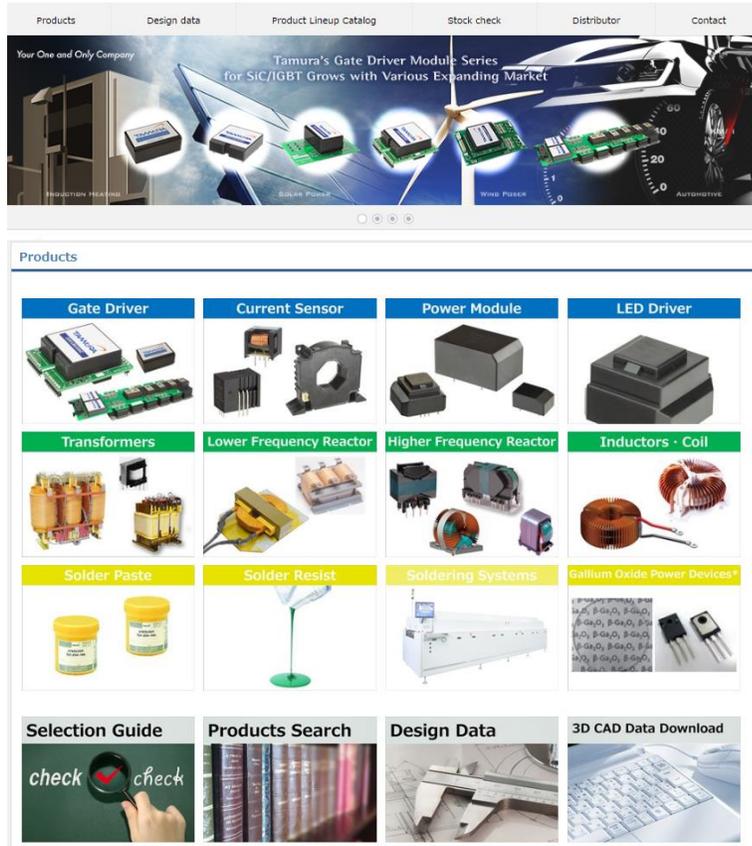
2) Introduction of One Tamura (General application)

Power electronics technology and main products



Appendix) Information & Contact

Please visit our website!



- Let's know more TAMURA products
Special movie
Presentation of conference
- Easy Get the essential
Matching data with power module
3D data to design!
- One-click to purchase
from the check stock!

Feel free to inquire! ↓
<https://www.tamuracorp.com/electronics/en/contact/>