
Material name : Evaluation data

Customer's product name :

TDK product name : DC-DC converter
CC3-2412SS-E (SIP model)

TDK·Lambda

TDK Corporation
Power Systems Business Group

DWG.No.	TRSC-1585-1
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Issued 2006/12/01

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* The measurement has been done without external output capacitor.
(Except the output ripple noise measurement.)

(Product specification)

Product name	Input voltage(V)	Output voltage(V)	Output current(mA)	The maximum output power(W)	Ambient temperature(°C)
CC3-2412SS-E	18~36	12 ±3%	0~250	3	-40 ~ +85 ^{*2}
		15 ±3% ^{*1}	0~200		

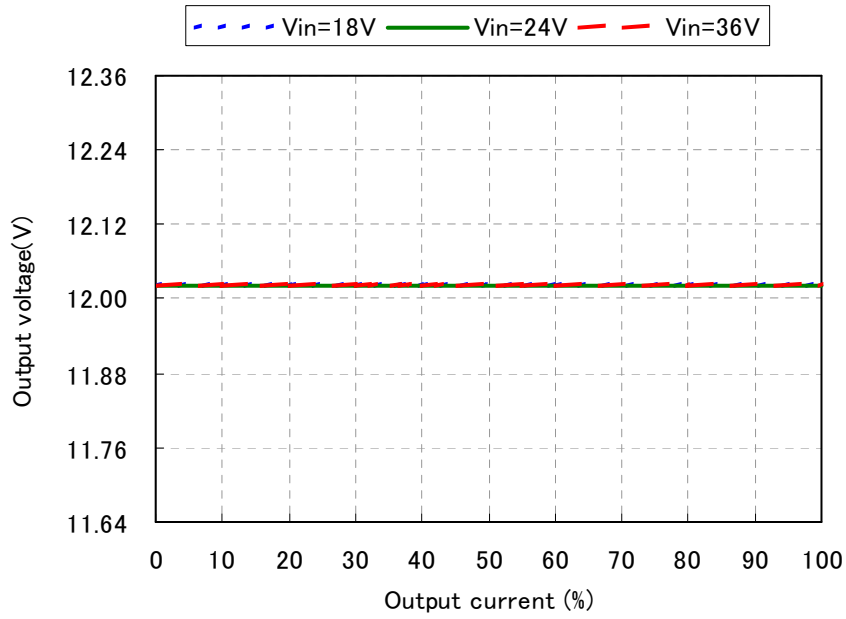
*1 TRM and -Vout are short-circuited.

*2 At 50°C or more, output power derating is necessary.

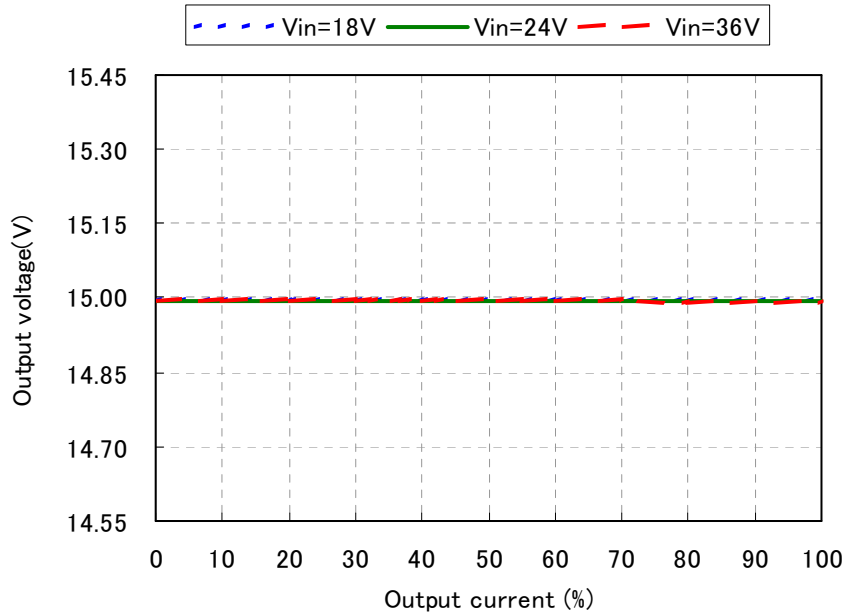
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DC-DC converter CC3-2412SS-E			
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1. Load regulation

Condition Ta : -40°C

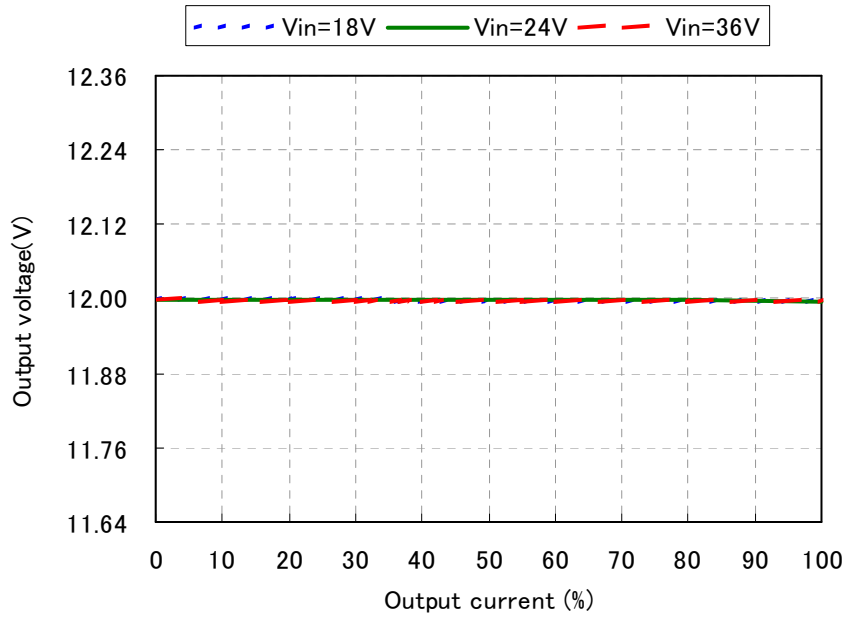


Condition Ta : -40°C
TRM: Short-circuited to -Vout.

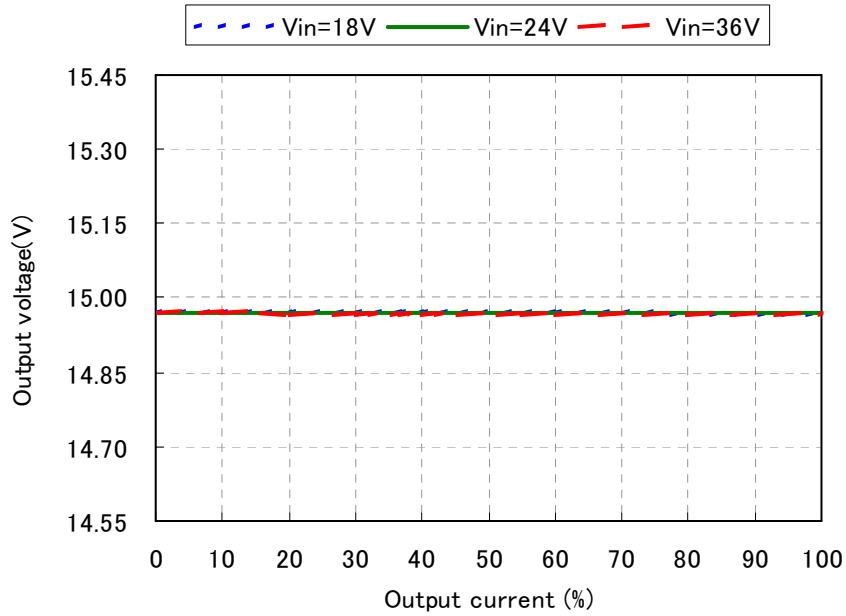


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DC-DC converter CC3-2412SS-E			
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Condition Ta : 25°C

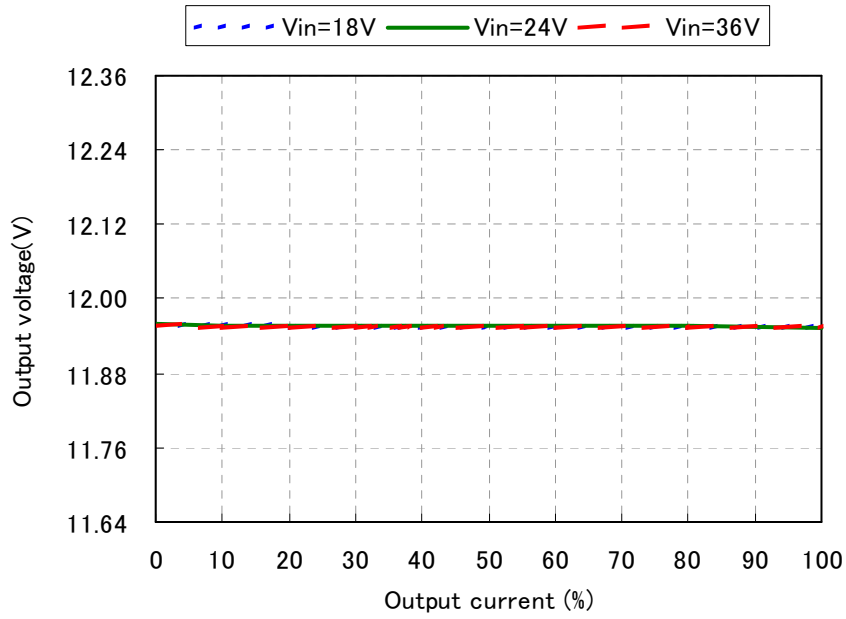


Condition Ta : 25°C
TRM: Short-circuited to -Vout.

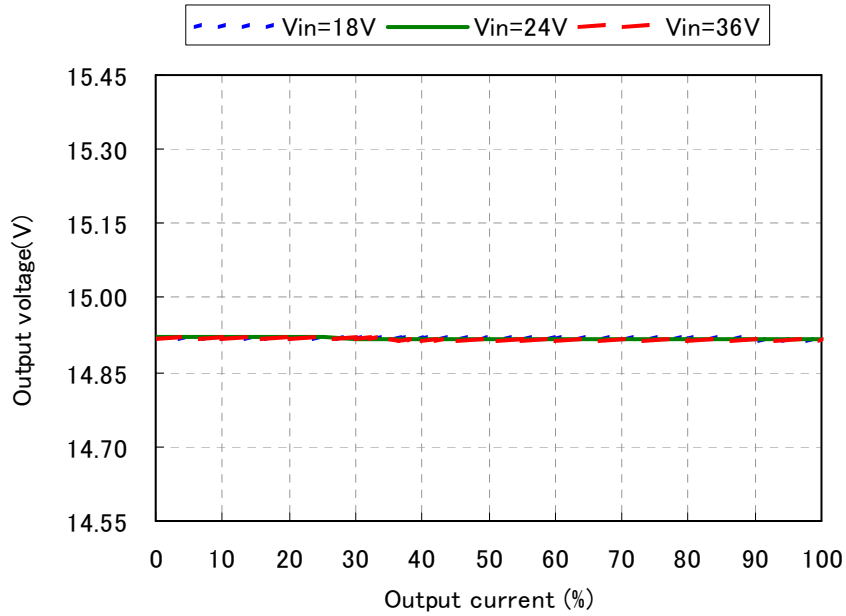


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Condition Ta : 85°C



Condition Ta : 85°C
TRM: Short-circuited to -Vout.

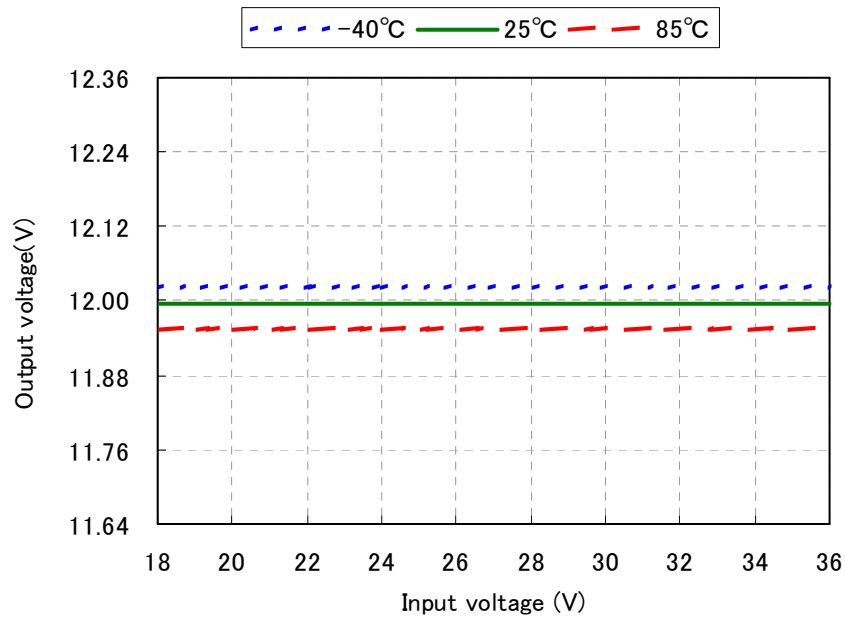


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2. Line regulation

Condition

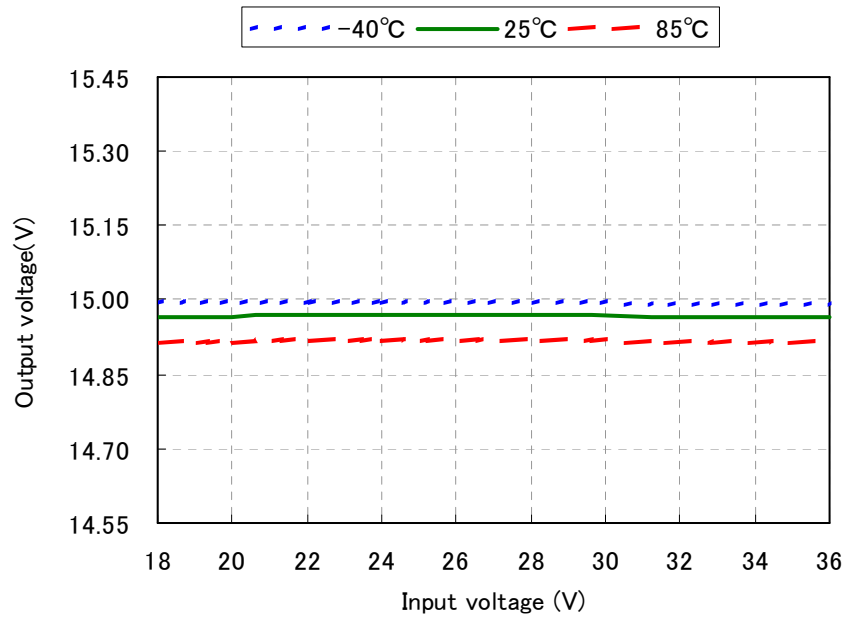
I_{out} : 100%



Condition

I_{out} : 100%

TRM: Short-circuited to -V_{out}.



Product name or model, title

DC-DC converter CC3-2412SS-E

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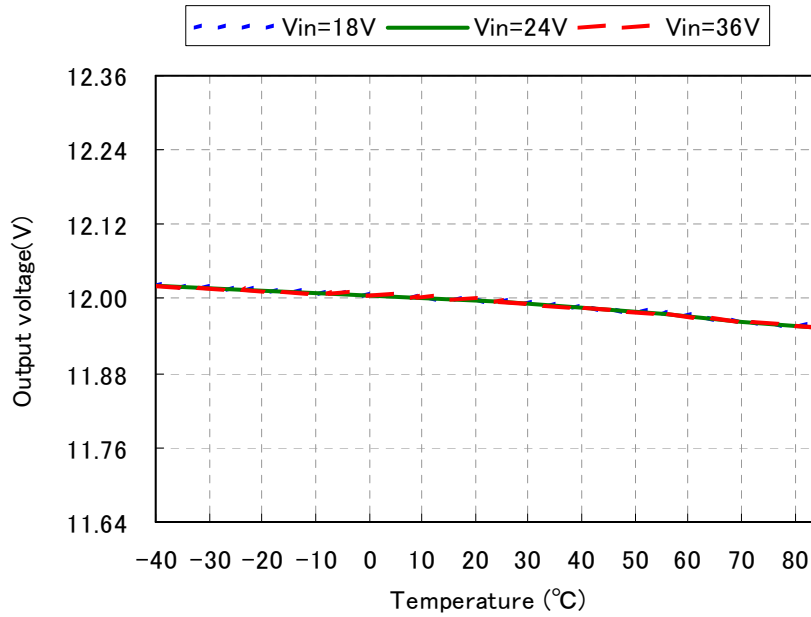
Evaluation data

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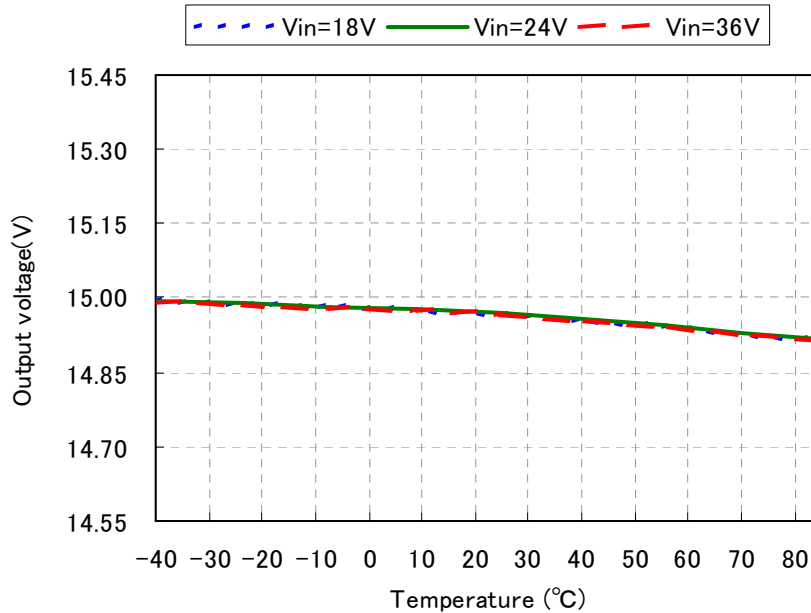
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3. Temperature regulation

Condition Iout : 100%



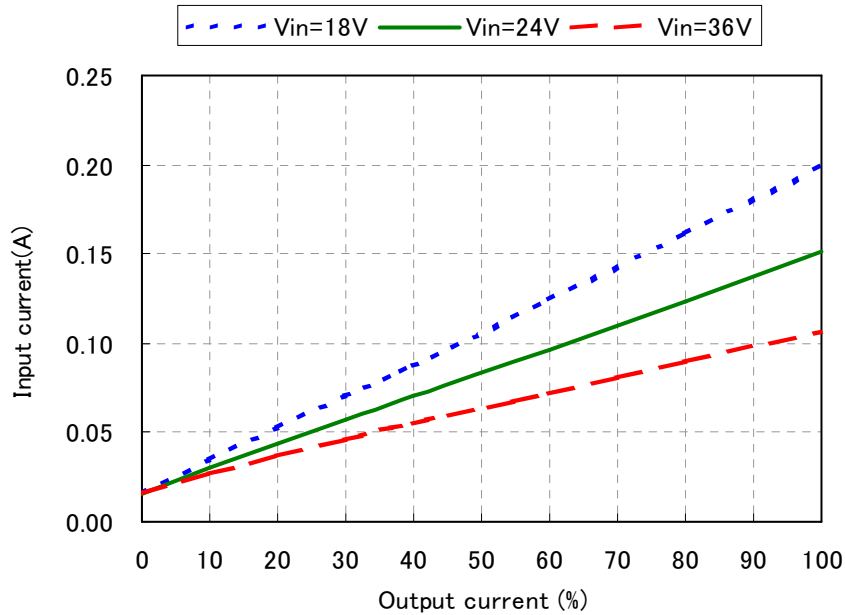
Condition Iout : 100%
TRM: Short-circuited to -Vout.



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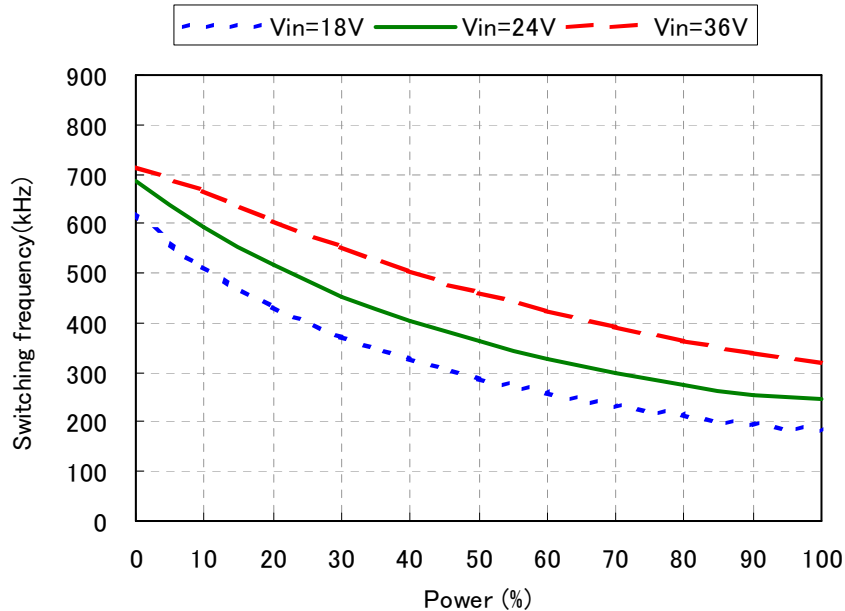
4. Input current(vs. load current)

Condition Ta : 25°C
Vout : 12V



5. Switching frequency(vs. output power)

Condition Ta : 25°C



Product name or model, title

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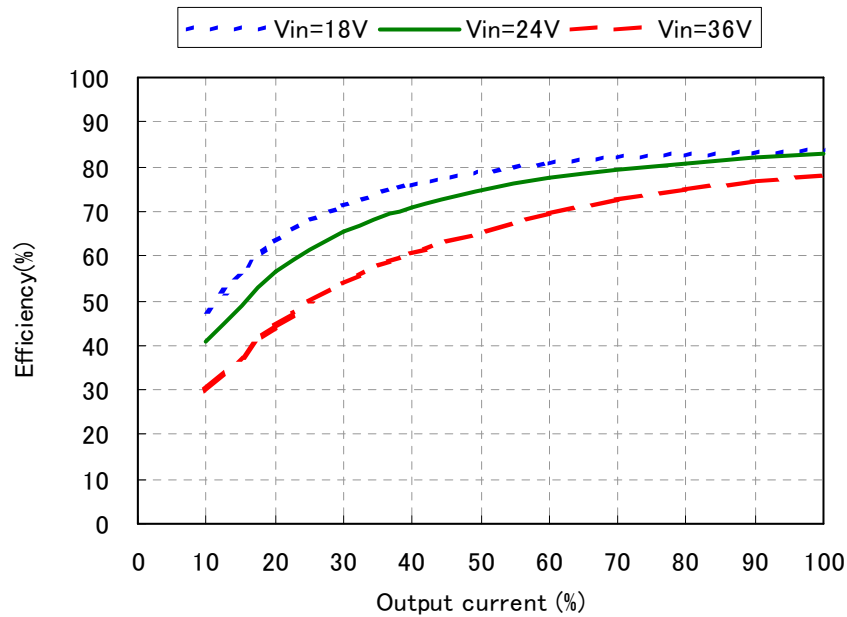
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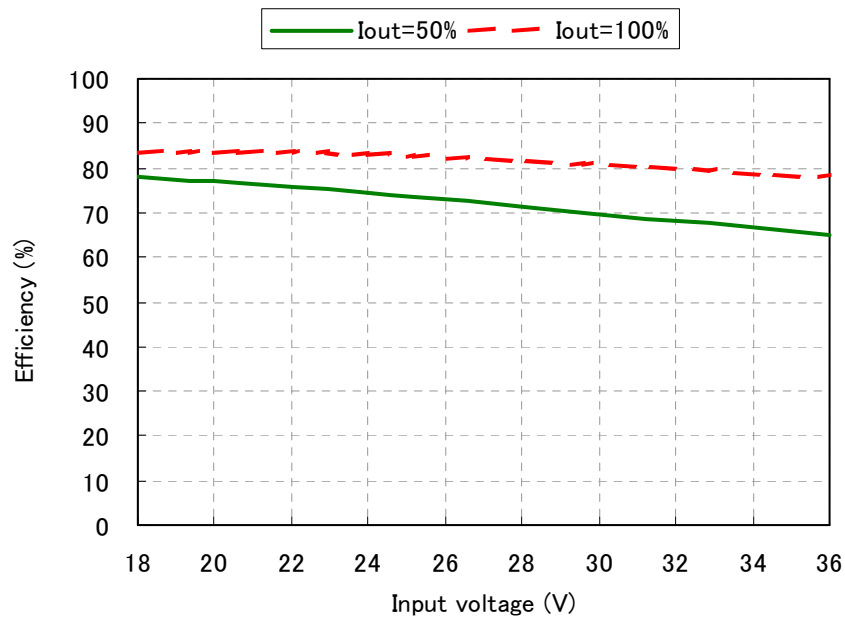
6. Efficiency(vs. load current)

Condition Ta : 25°C
Vout : 12V



7. Efficiency(vs. input voltage)

Condition Ta : 25°C
Vout : 12V



Product name or model, title

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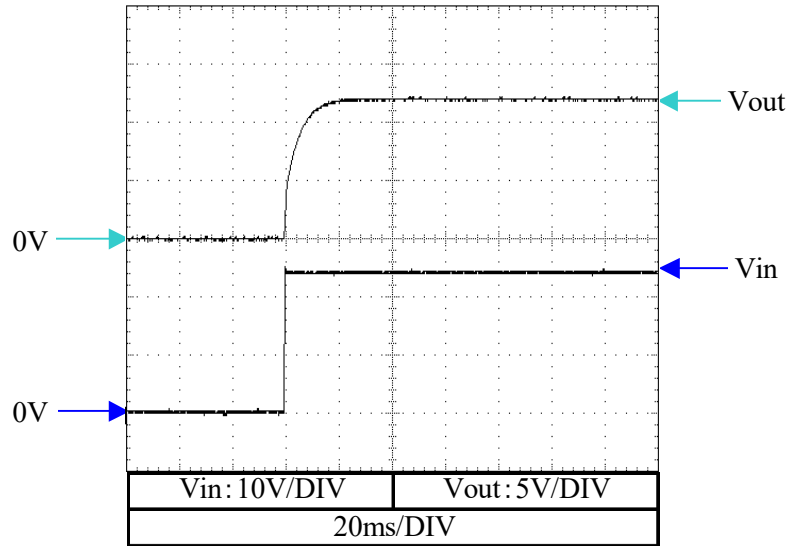
8. Output rise characteristics

Condition

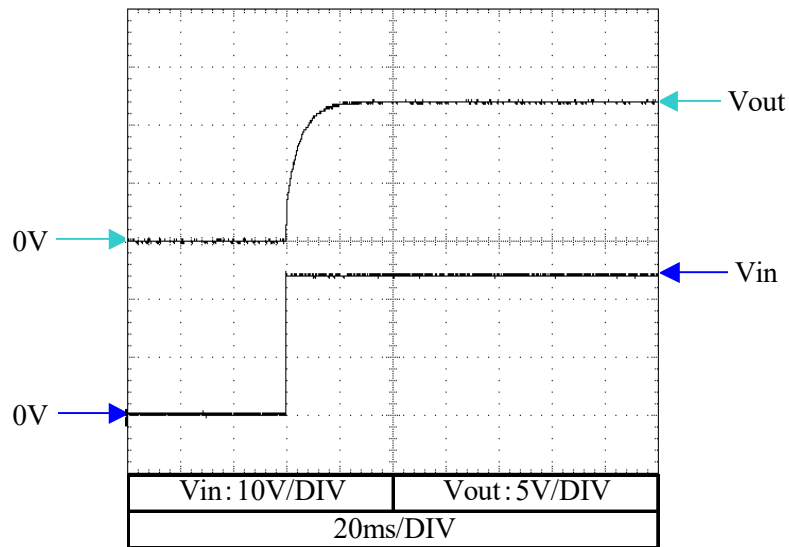
Vin : 24V

Ta : 25°C

Iout : 0%



Iout : 100%



Product name or model, title

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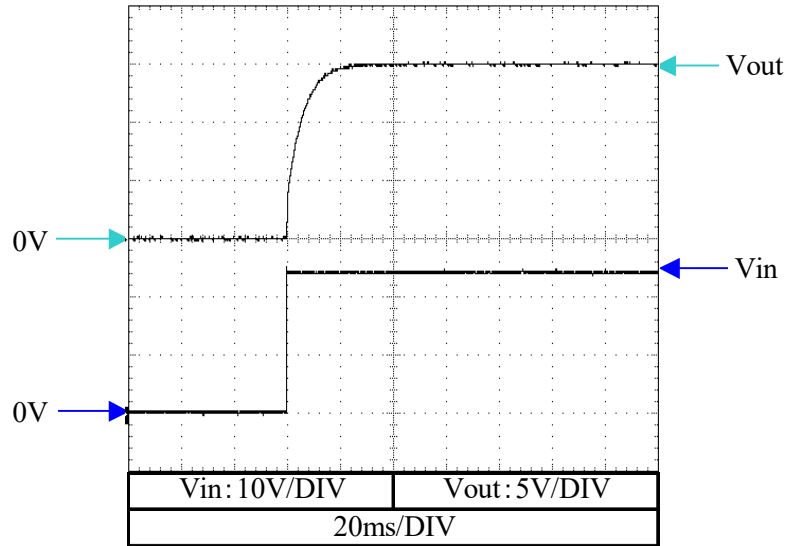
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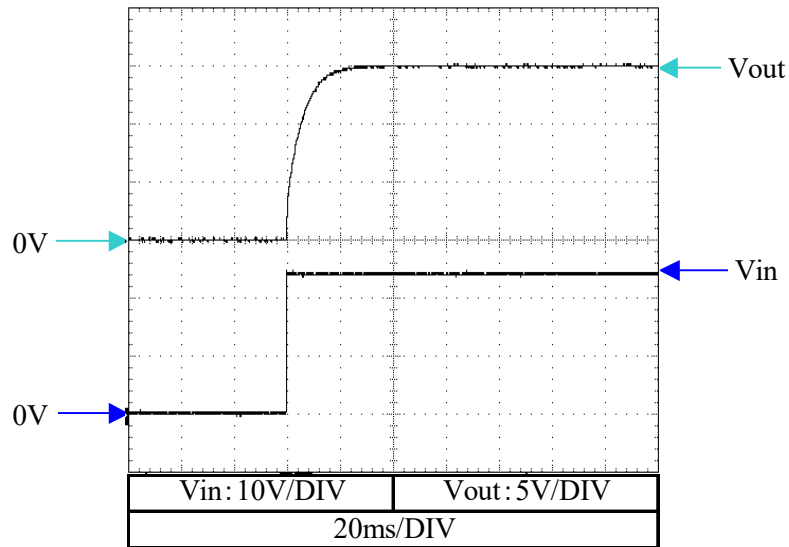
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Condition Vin : 24V
 Ta : 25°C
 TRM: Short-circuited to -Vout.

Iout : 0%



Iout : 100%



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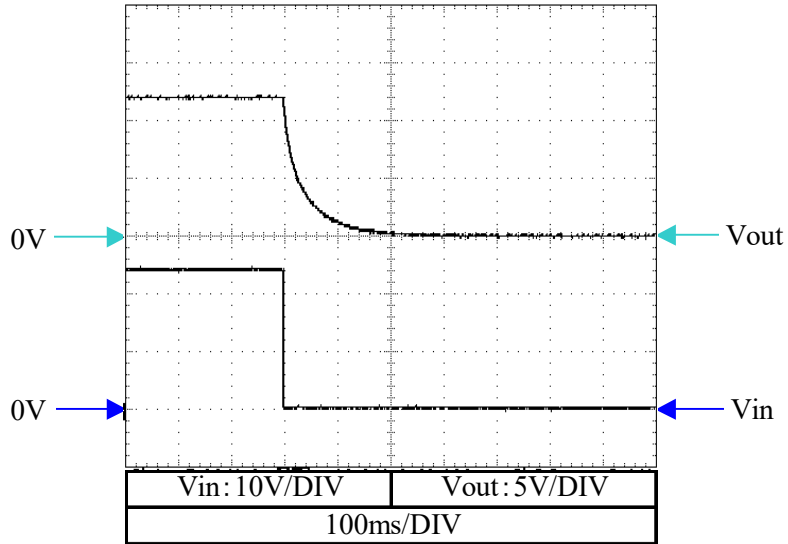
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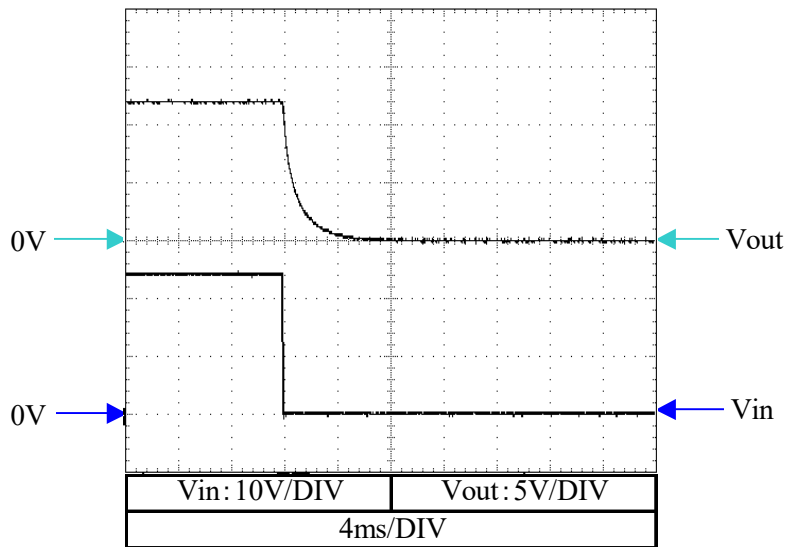
9. Output fall characteristics

Condition Vin : 24V
Ta : 25°C

Iout : 0%



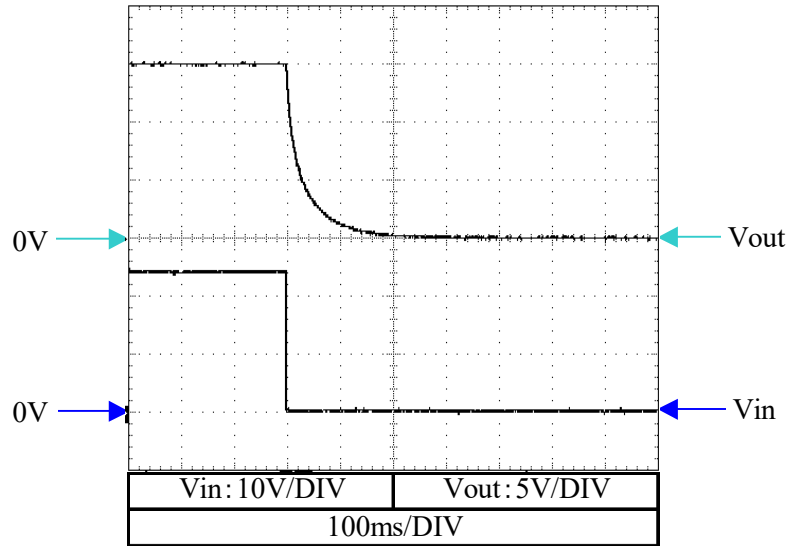
Iout : 100%



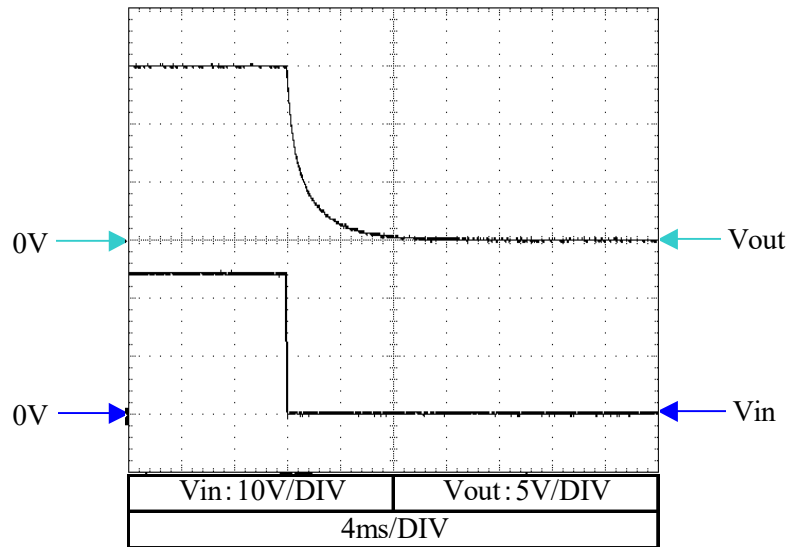
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Condition Vin : 24V
 Ta : 25°C
 TRM: Short-circuited to -Vout.

Iout : 0%



Iout : 100%



Product name or model, title

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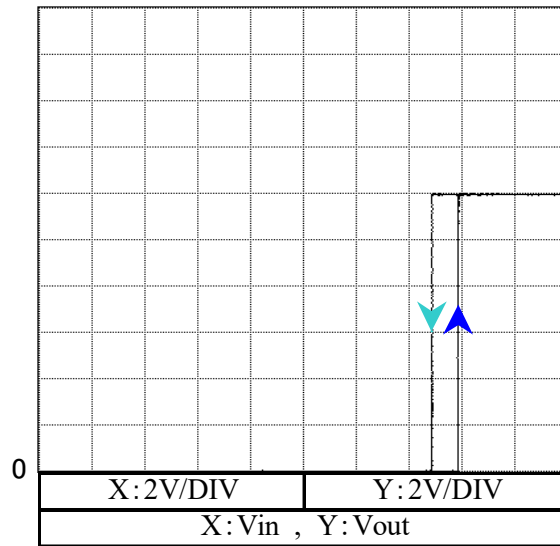
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10. Start/stop input voltage characteristics

Condition

I_{out} : 100%

T_a : 25°C



11. Dynamic load response characteristics

Condition

V_{in} : 24V

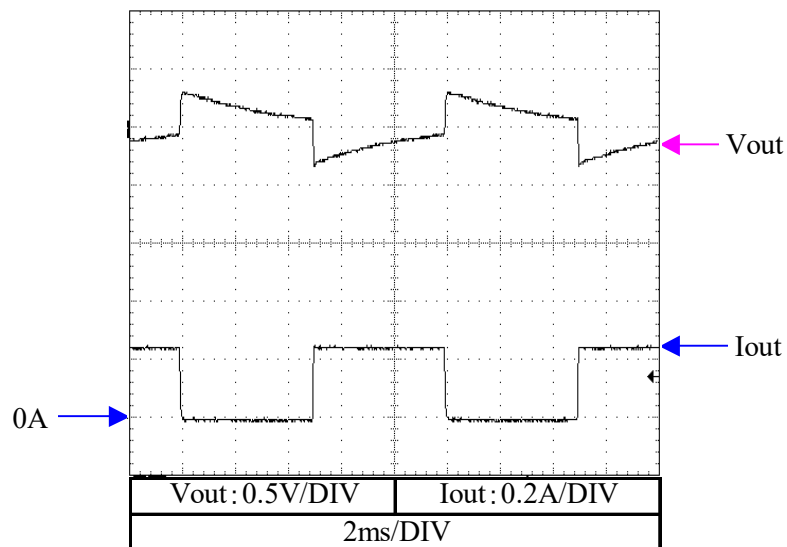
V_{out} : 12V

I_{out} : 0% ~ 100%

$T_r=T_f$: 100 μ s

f : 100Hz

T_a : 25°C



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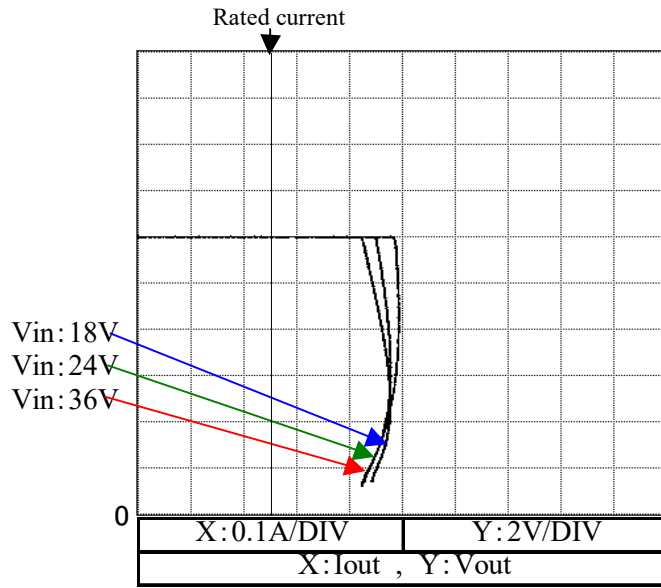
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12. Over current protection characteristics

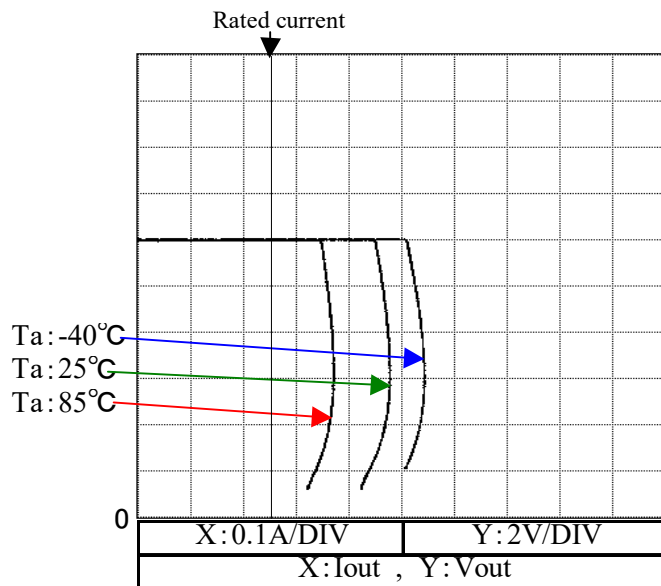
Condition

Ta : 25°C



Condition

Vin : 24V



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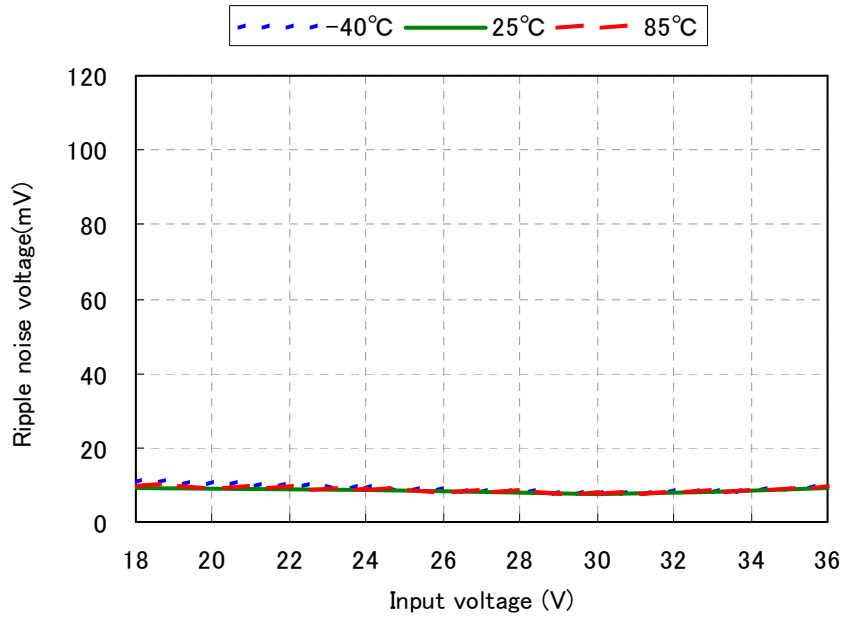
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13. Output ripple and noise characteristics

Condition

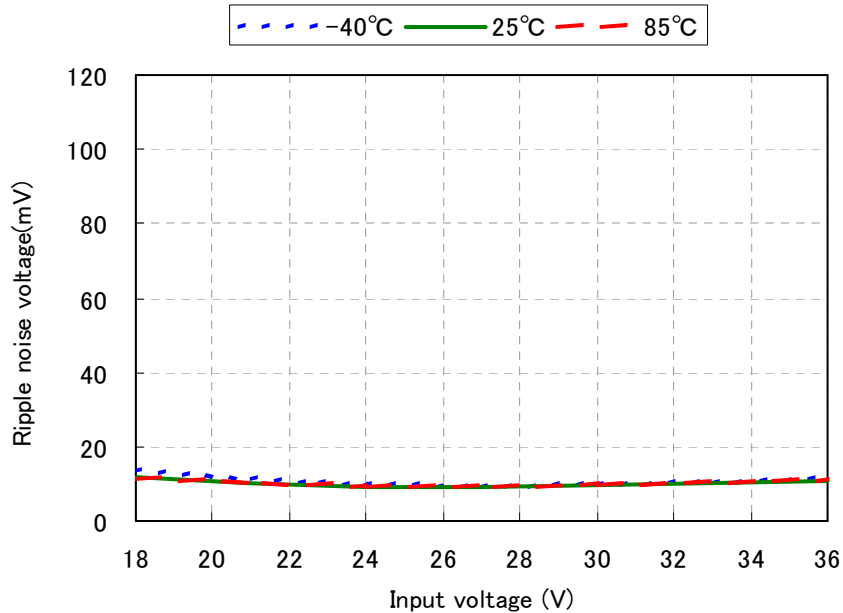
Iout : 100%



Condition

Iout : 100%

TRM: Short-circuited to -Vout.



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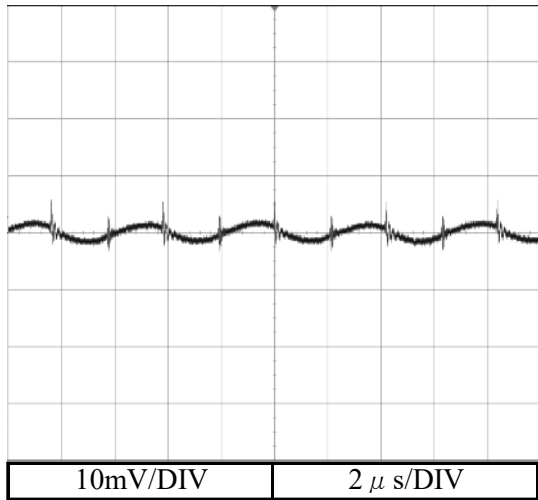
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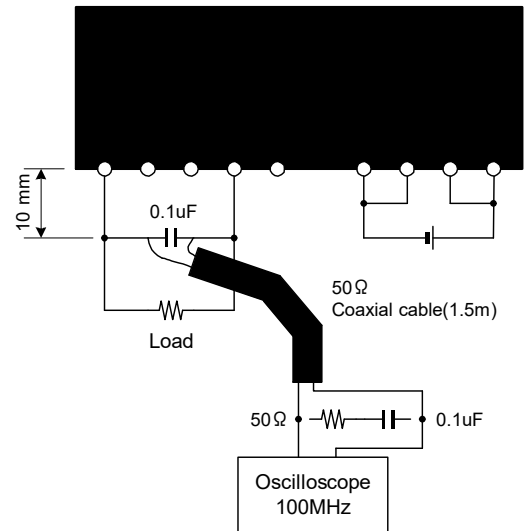
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14. Output ripple and noise waveform

Condition
 V_{in} : 24V
 I_{out} : 100%
 T_a : 25°C

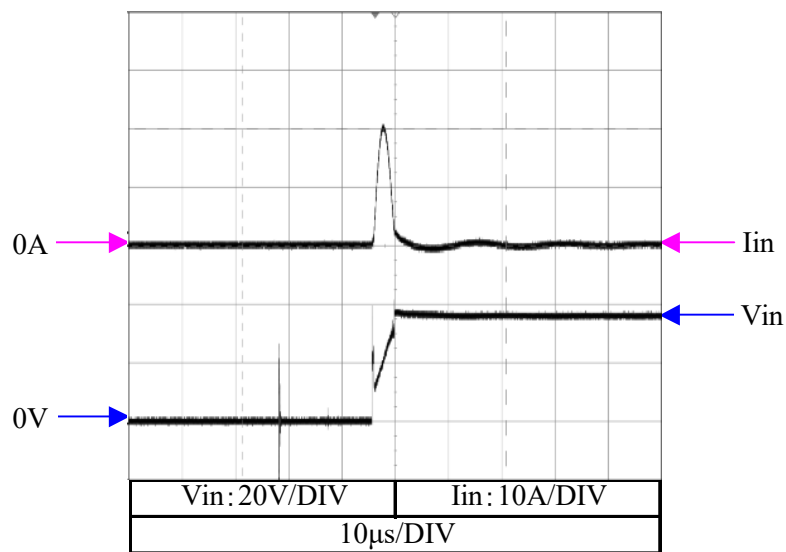


(Measurement circuit)



15. Inrush current waveform

Condition
 V_{in} : 36V
 I_{out} : 100%
 T_a : 25°C



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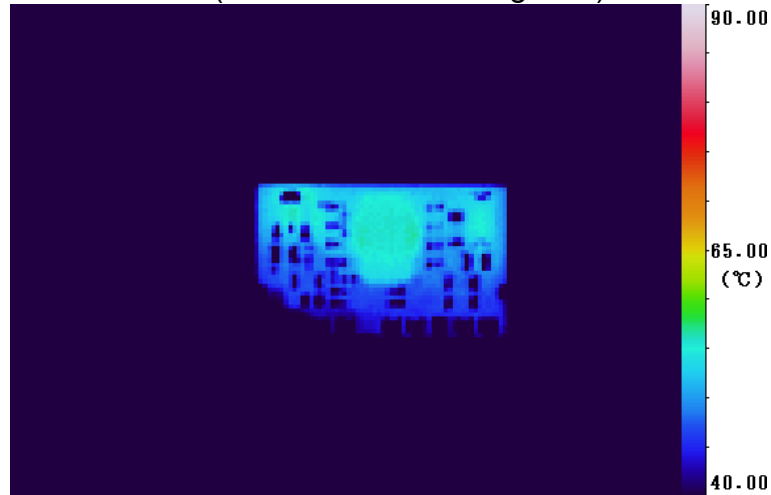
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16. Temperature distribution

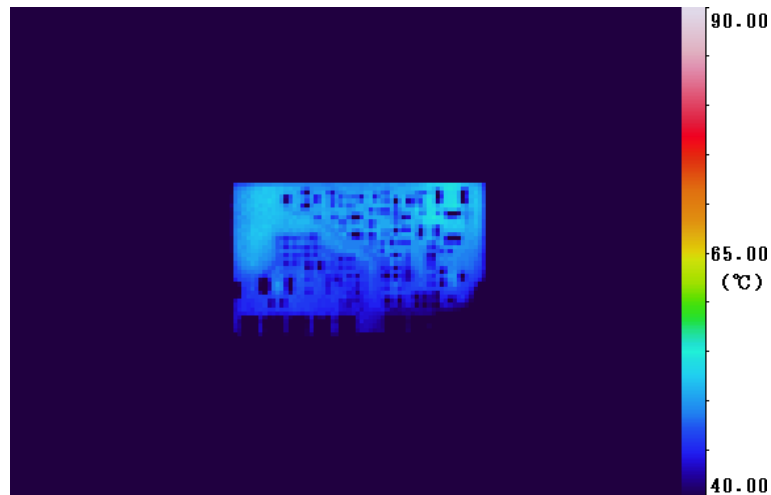
(Thermography)

Condition Vin : 24V
 Vout : 12V
 Iout : 100%
 Ta : 25°C
 Wind velocity: 0m/s

A side(transformer mounting side)



B side



(Main parts)

rise of temperature(Delta T)		
Main swtch(°C)	Rectifier diode(°C)	Transformer(°C)
28.4	26.7	28.4

* We measured the temperatures of parts without the case by using the thermography. Therefore, it might be different a little from the actual temperature.

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