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Material name : Evaluation data

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Customer's product name :

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TDK product name : DC-DC converter  
CC3-1203SS-E (SIP model)

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# ***TDK-Lambda***

**TDK Corporation**  
**Power Systems Business Group**

DWG.No.	TRSC-1579-1
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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)
CC3-1203SS-E	9~18	3.3 ±3%	0~800	2.64	-40 ~ +85 *2
		3.67 ±3% *1	0~720		

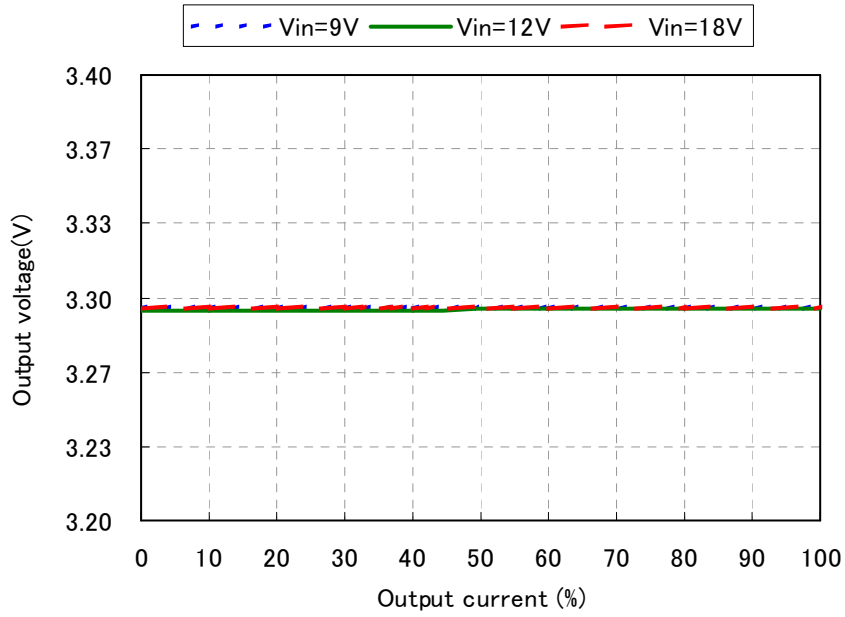
\*1 TRM and -Vout are short-circuited.

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

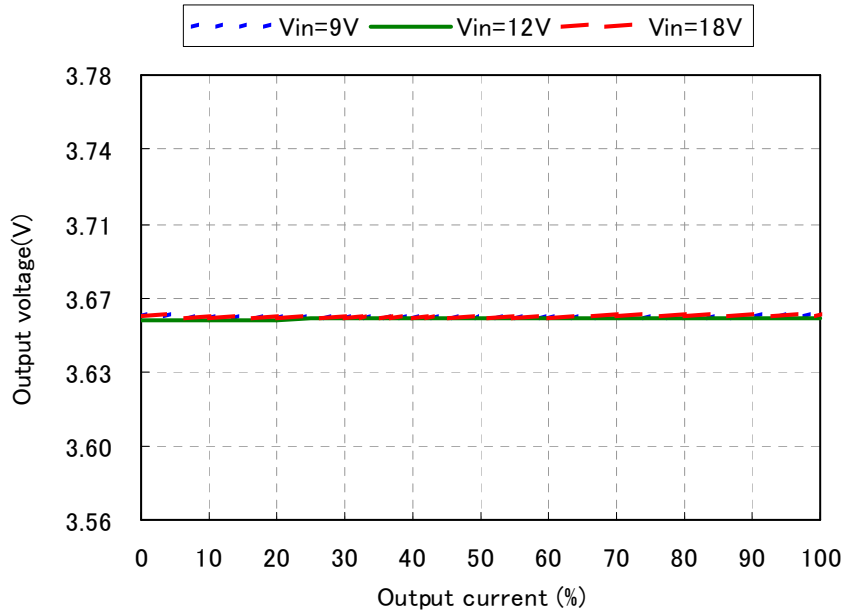
TDK CORPORATION	Product name or model, title		
	DC-DC converter CC3-1203SS-E		
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# 1. Load regulation

Condition Ta : -40°C

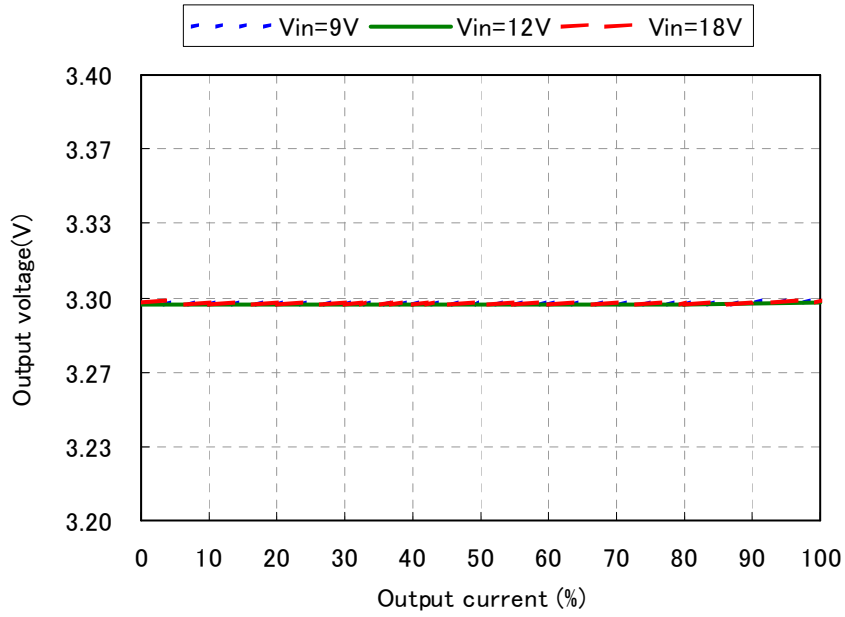


Condition Ta : -40°C  
TRM: Short-circuited to -Vout.

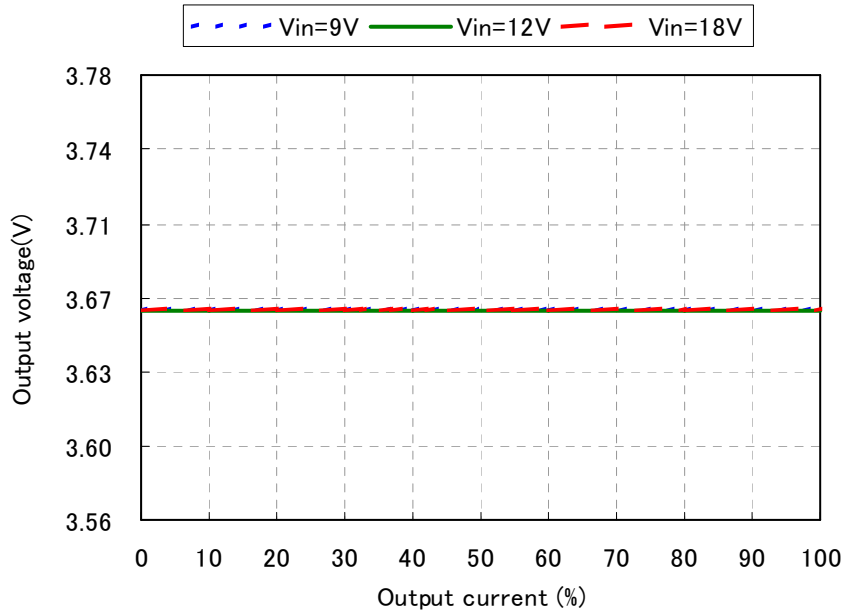


Product name or model, title			
DC-DC converter CC3-1203SS-E			
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Condition Ta : 25°C

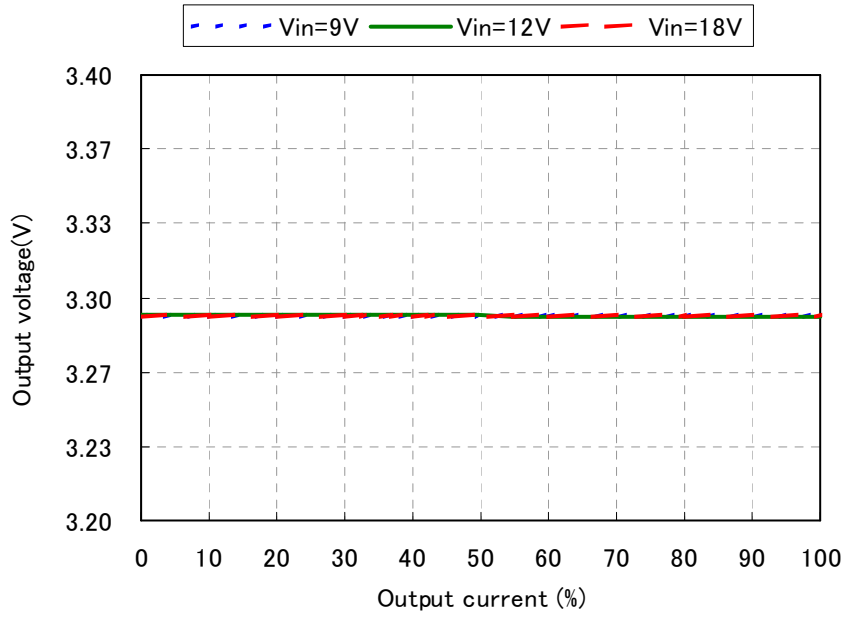


Condition Ta : 25°C  
TRM: Short-circuited to -Vout.

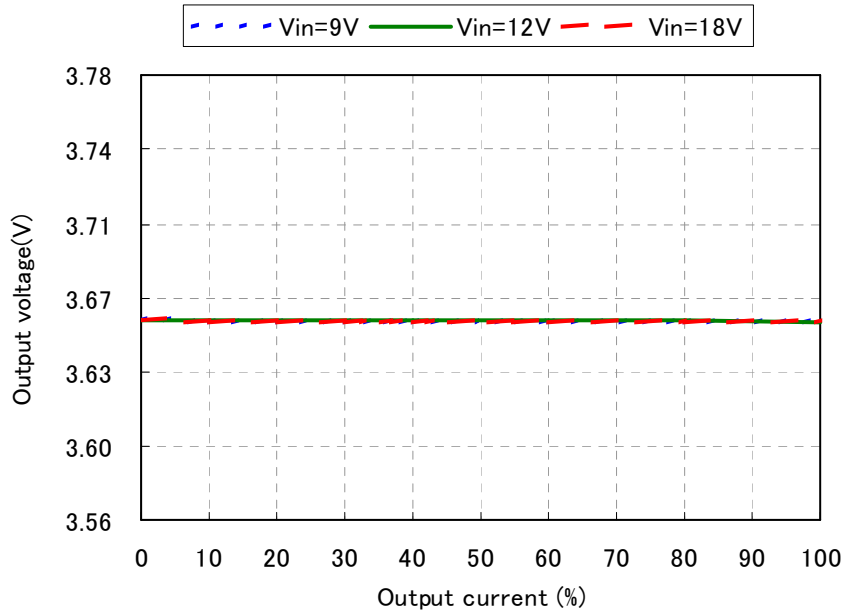


Product name or model, title			
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Condition Ta : 85°C



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

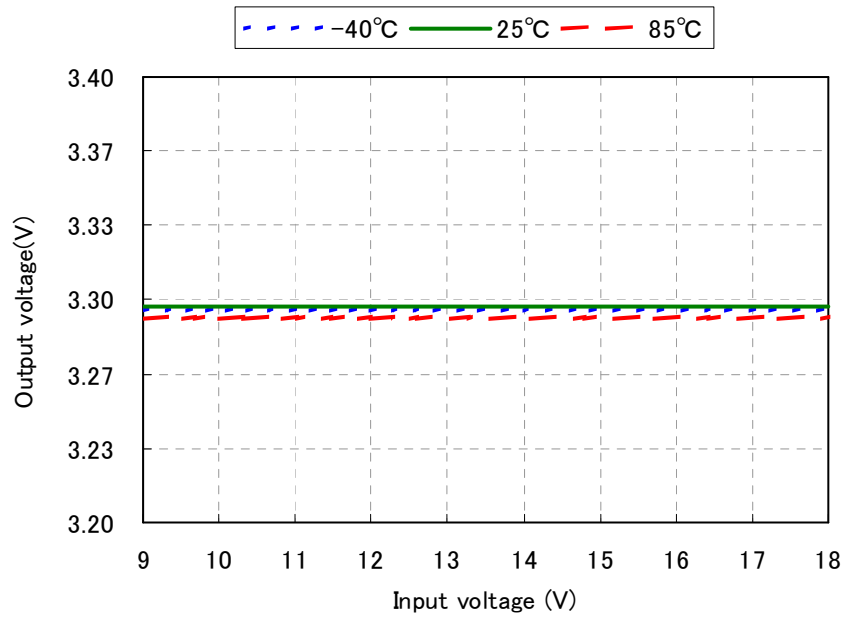


Product name or model, title			
DC-DC converter CC3-1203SS-E			
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## 2. Line regulation

Condition

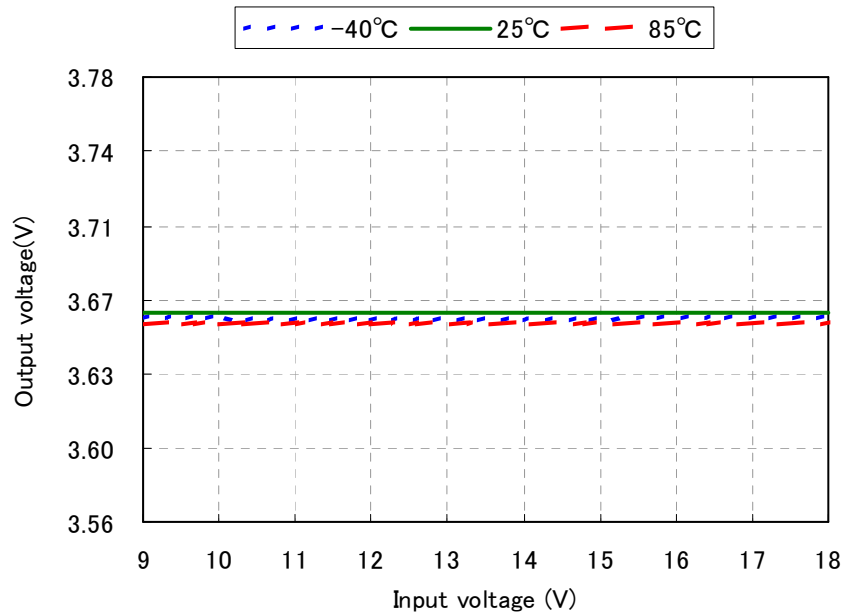
I<sub>out</sub> : 100%



Condition

I<sub>out</sub> : 100%

TRM: Short-circuited to -V<sub>out</sub>.



Product name or model, title

DC-DC converter CC3-1203SS-E

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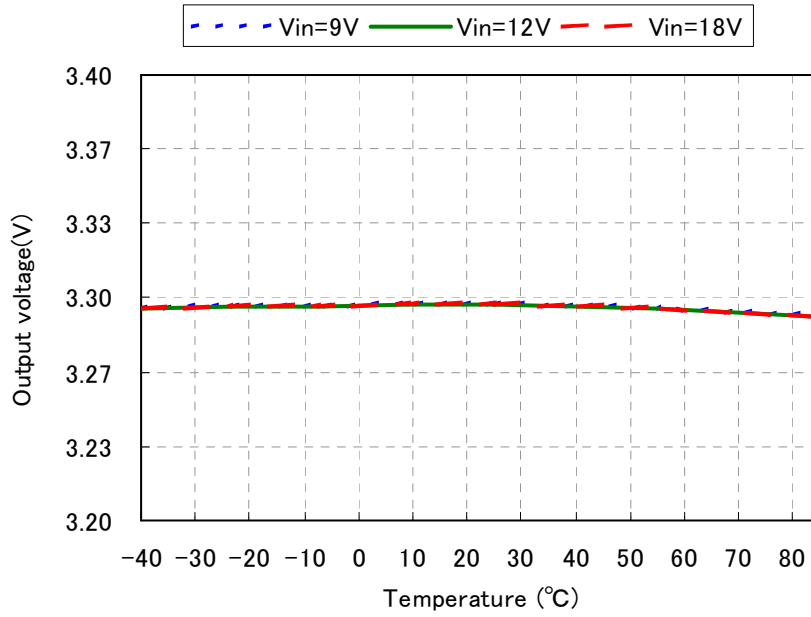
Evaluation data

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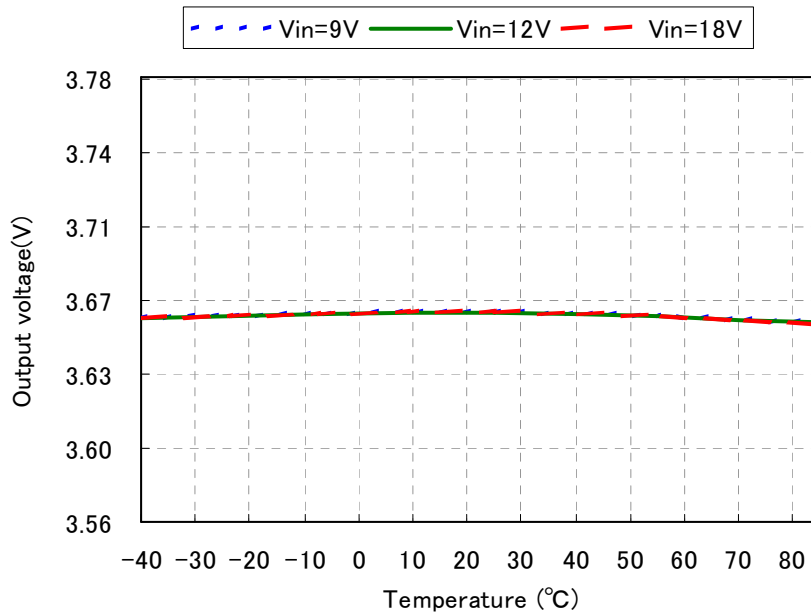
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### 3. Temperature regulation

Condition      Iout : 100%



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



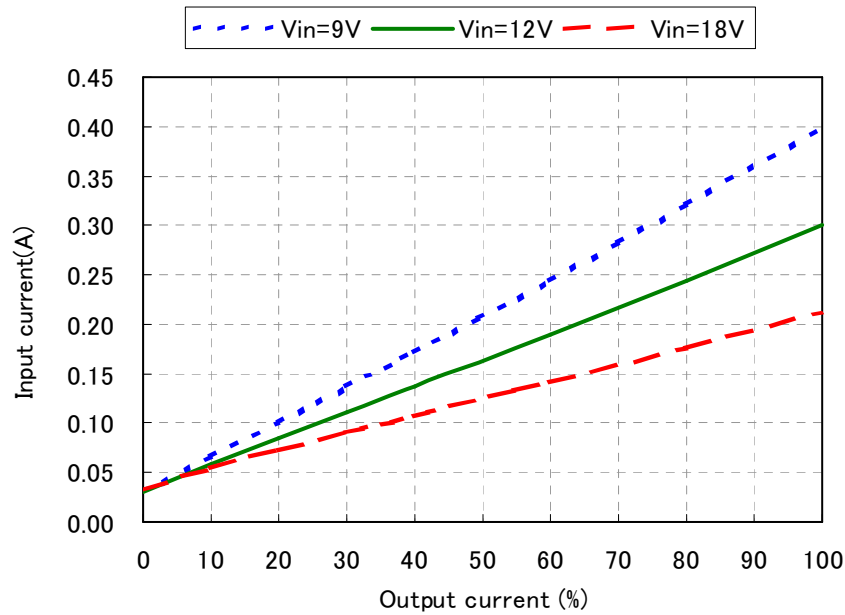
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## 4. Input current(vs. load current)

Condition

Ta : 25°C

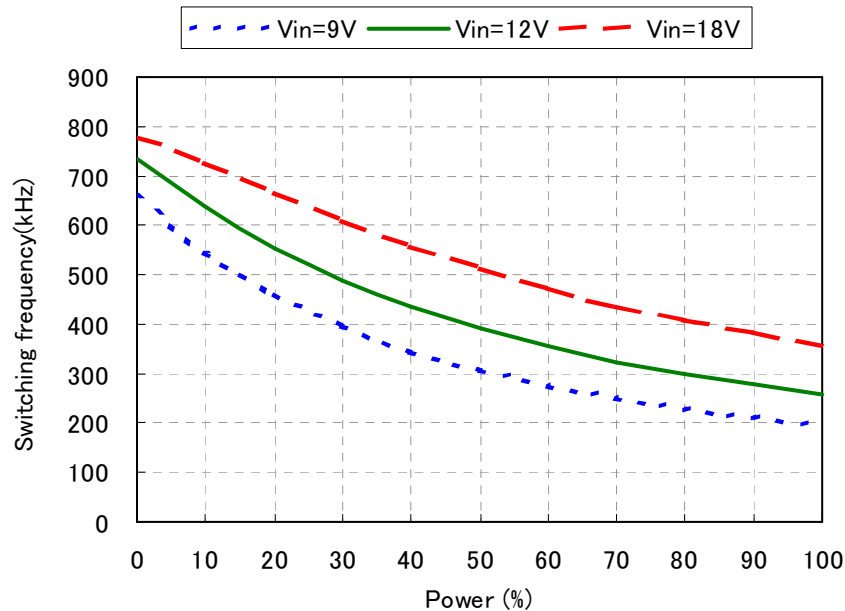
Vout : 3.3V



## 5. Switching frequency(vs. output power)

Condition

Ta : 25°C



Product name or model, title

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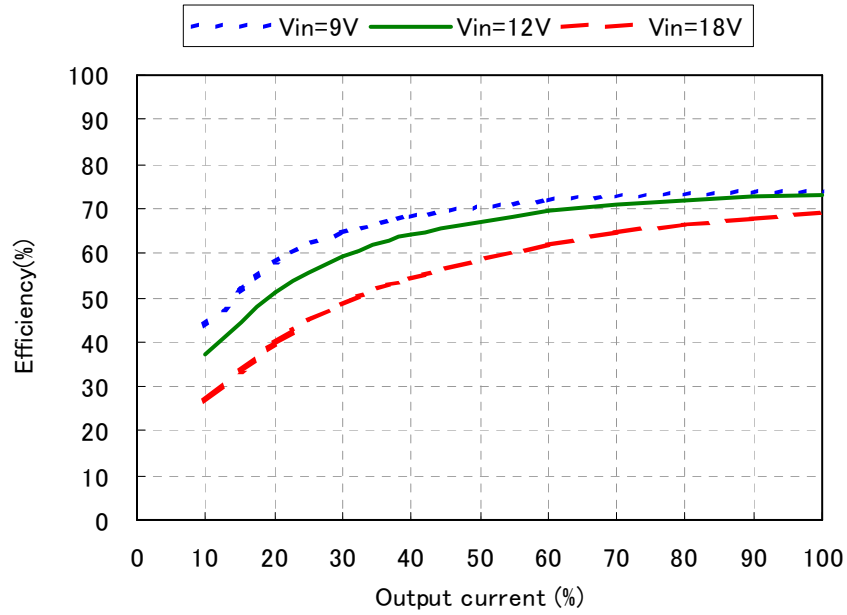
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## 6. Efficiency(vs. load current)

Condition

Ta : 25°C

Vout : 3.3V

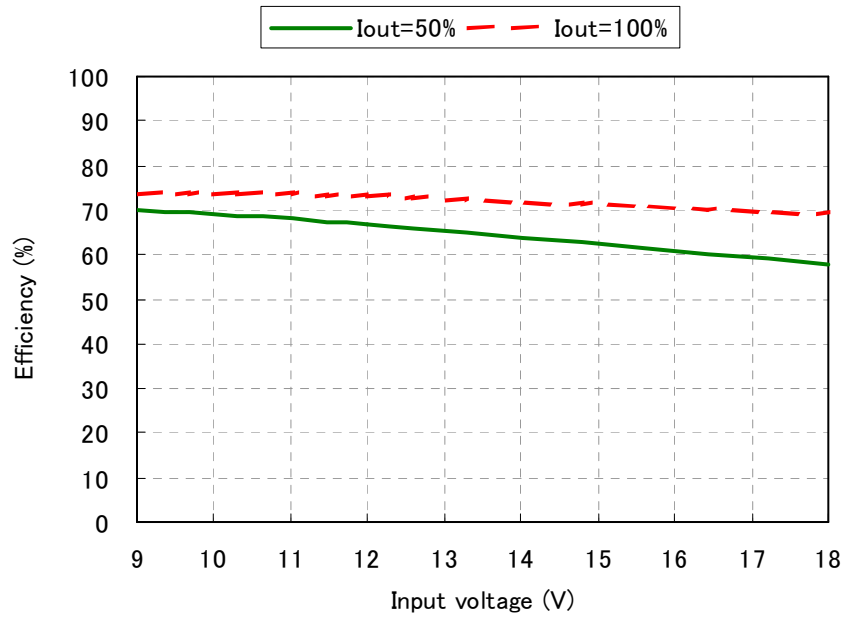


## 7. Efficiency(vs. input voltage)

Condition

Ta : 25°C

Vout : 3.3V



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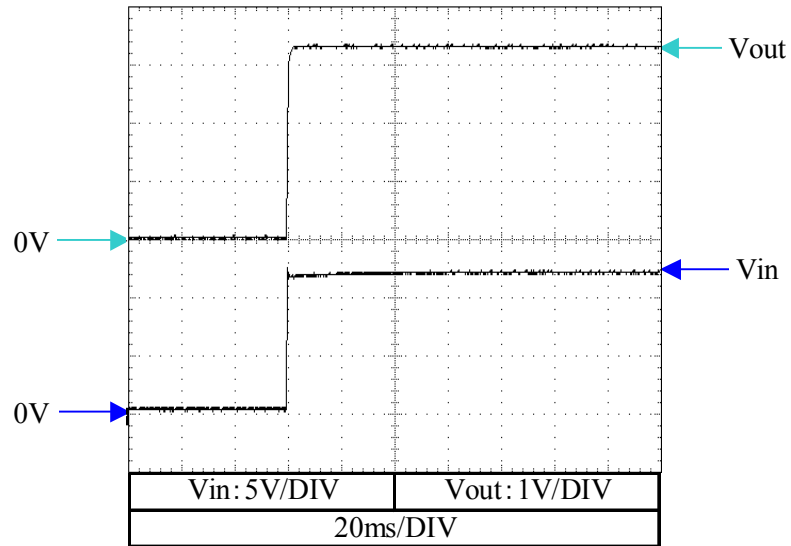
## 8. Output rise characteristics

Condition

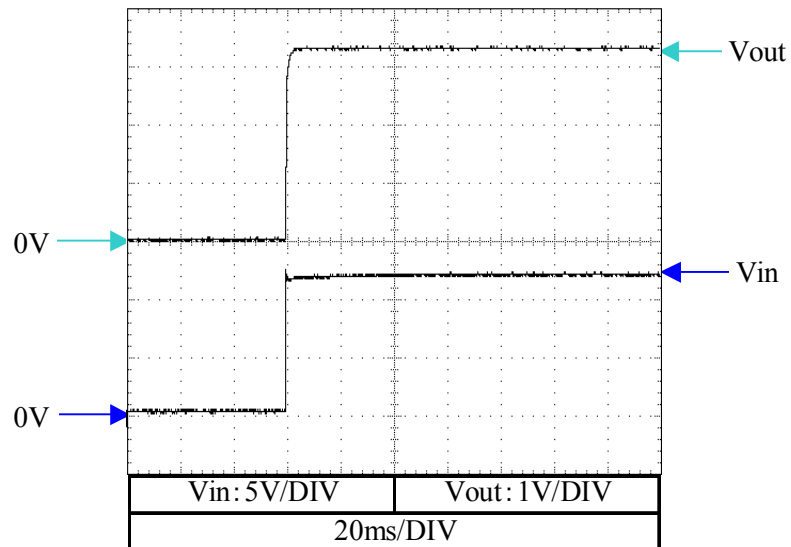
Vin : 12V

Ta : 25°C

Iout : 0%



Iout : 100%



Product name or model, title

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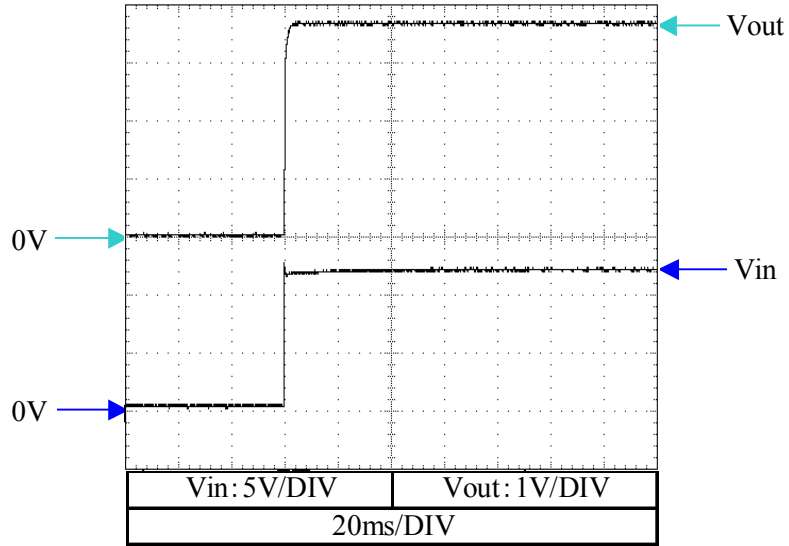
Evaluation data

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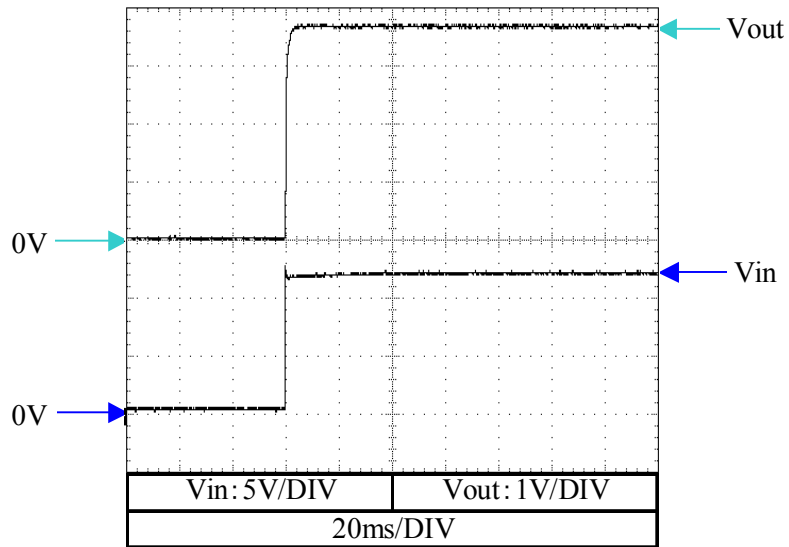
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Condition Vin : 12V  
 Ta : 25°C  
 TRM: Short-circuited to -Vout.

Iout : 0%



Iout : 100%



Product name or model, title			
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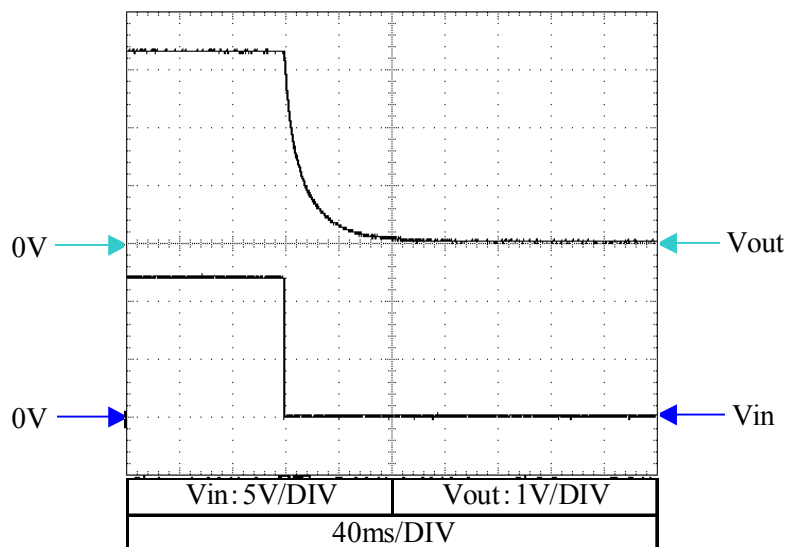
## 9. Output fall characteristics

Condition

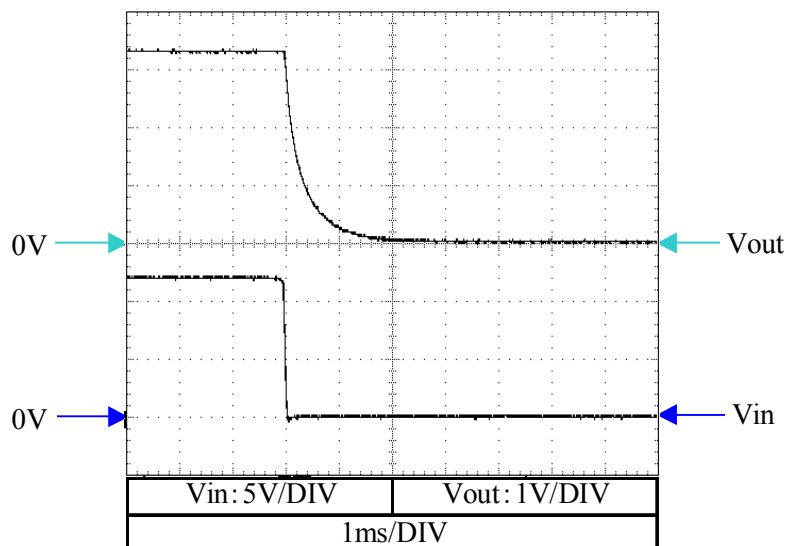
Vin : 12V

Ta : 25°C

Iout : 0%



Iout : 100%



Product name or model, title

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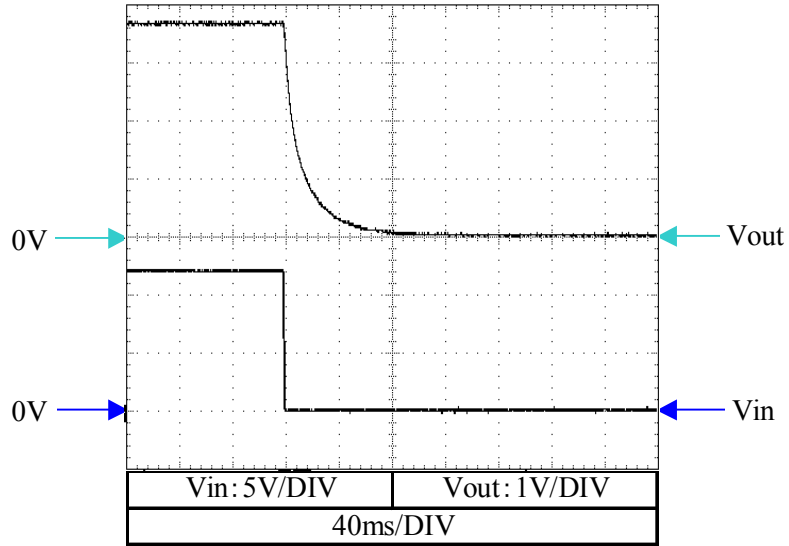
Evaluation data

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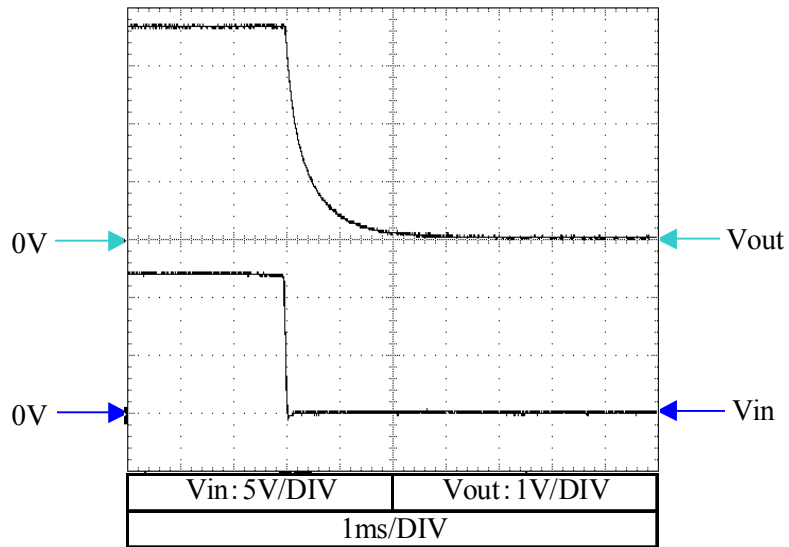
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Condition Vin : 12V  
 Ta : 25°C  
 TRM: Short-circuited to -Vout.

Iout : 0%



Iout : 100%



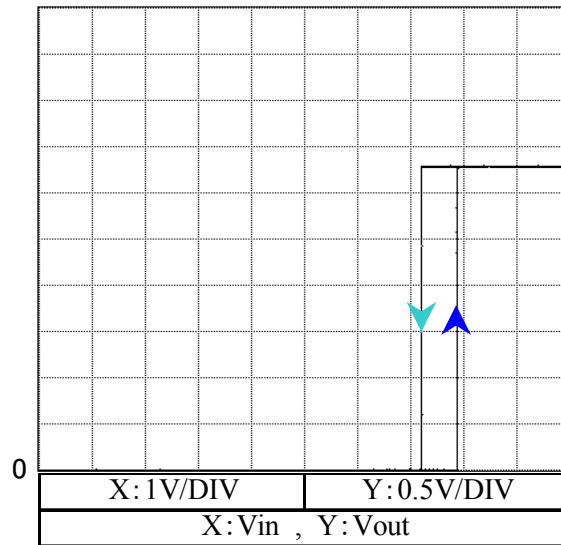
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## 10. Start/stop input voltage characteristics

Condition

$I_{out}$  : 100%

$T_a$  : 25°C



## 11. Dynamic load response characteristics

Condition

$V_{in}$  : 12V

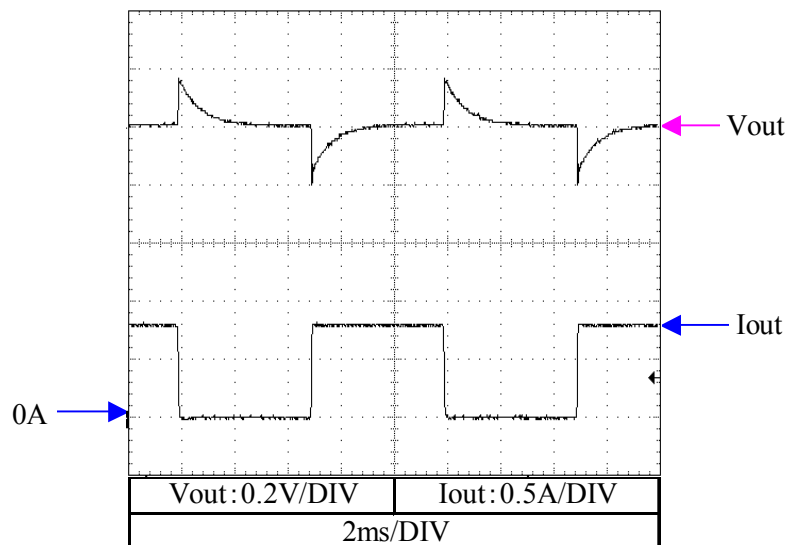
$V_{out}$  : 3.3V

$I_{out}$  : 0% ~ 100%

$T_r=T_f$  : 100us

$f$  : 100Hz

$T_a$  : 25°C



Product name or model, title

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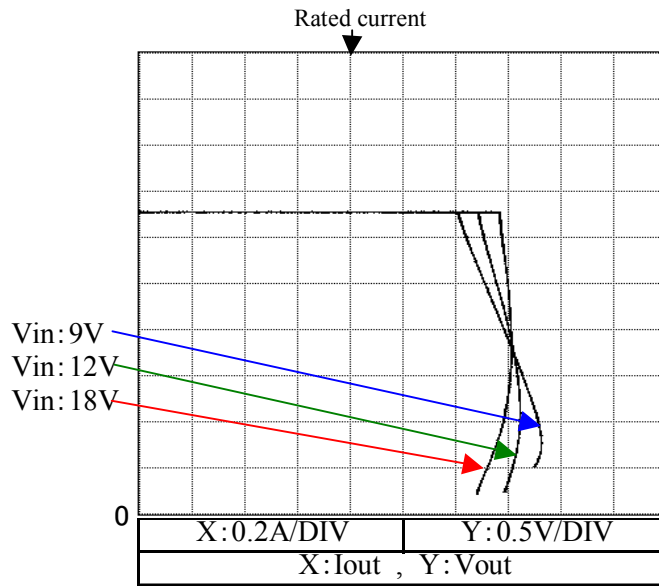
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# 12. Over current protection characteristics

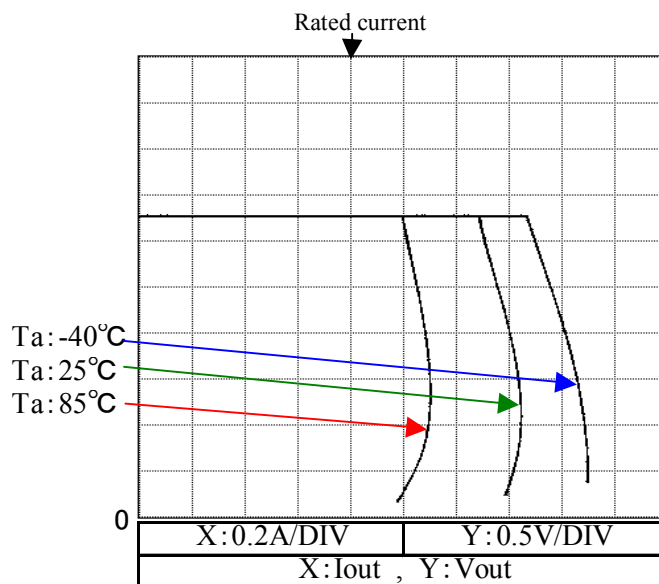
Condition

Ta : 25°C



Condition

Vin : 12V



Product name or model, title

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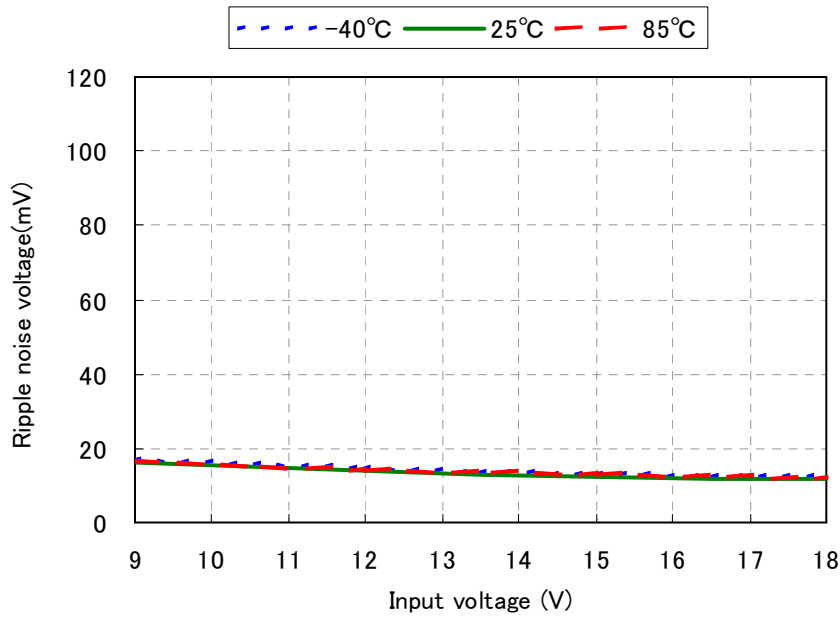
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# 13. Output ripple and noise characteristics

Condition

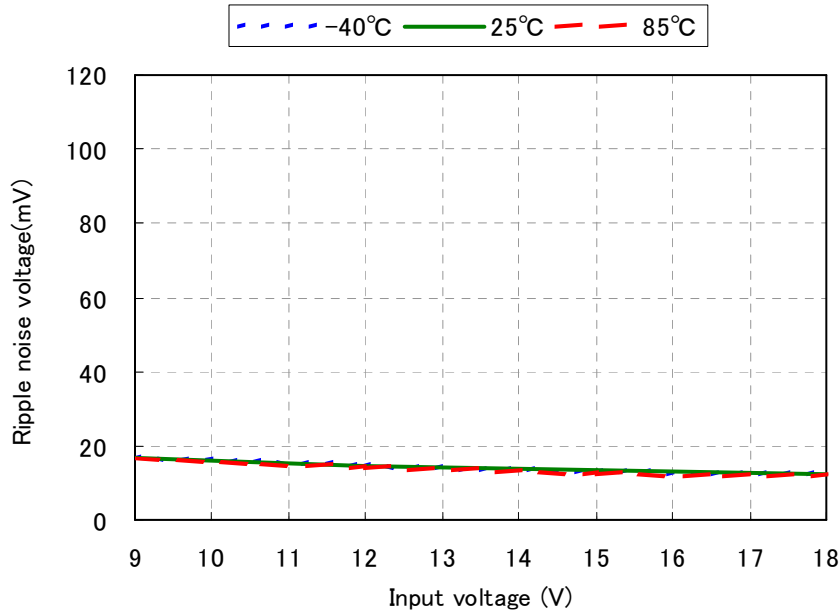
lout : 100%



Condition

lout : 100%

TRM: Short-circuited to -Vout.



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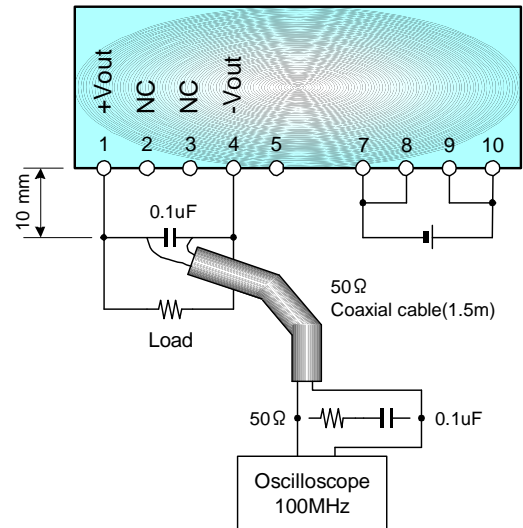
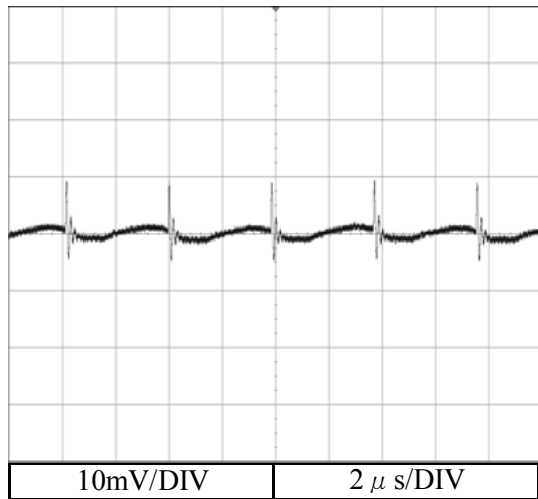
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## 14. Output ripple and noise waveform

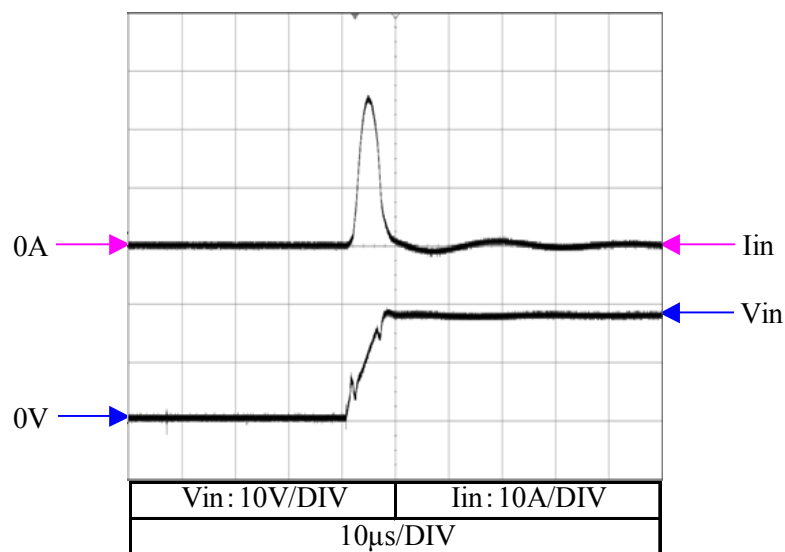
Condition Vin : 12V  
Iout : 100%  
Ta : 25°C

(Measurement circuit)



## 15. Inrush current waveform

Condition Vin : 18V  
Iout : 100%  
Ta : 25°C



Product name or model, title

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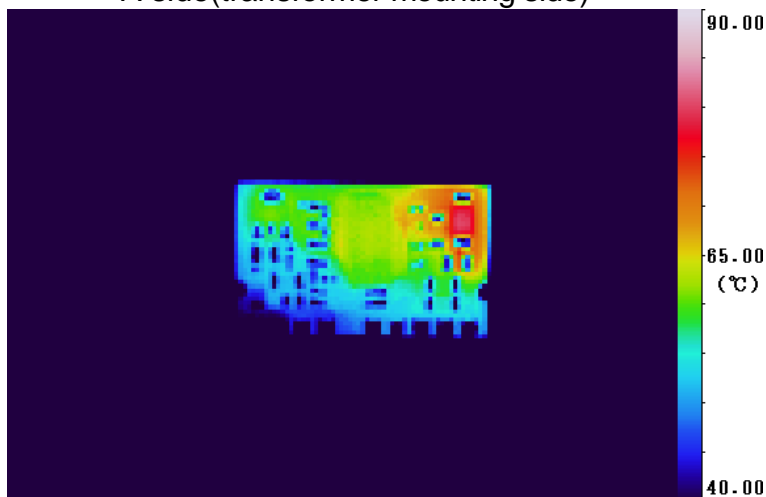
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# 16. Temperature distribution

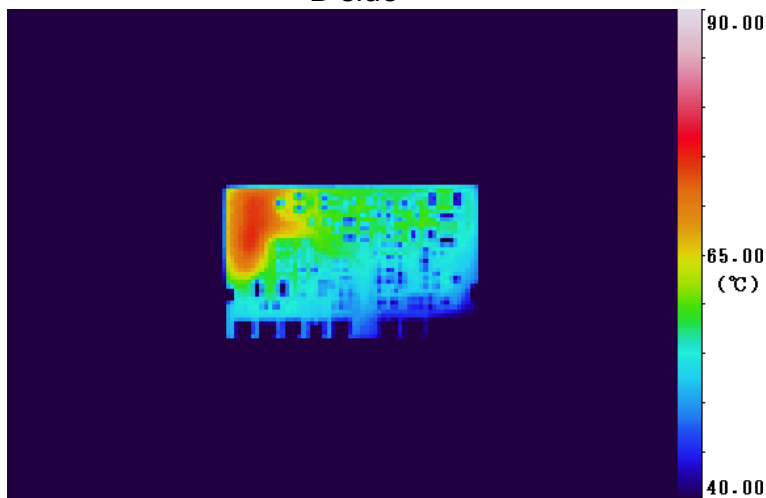
(Thermography)

Condition Vin : 12V  
 Vout : 3.3V  
 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)
32.6	52.0	39.0

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

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	DC-DC converter CC3-1203SS-E		
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