

RDS100A-24

EVALUATION DATA

型式データ

2. 特性データ Characteristics

2-1. 静特性 Steady state data	
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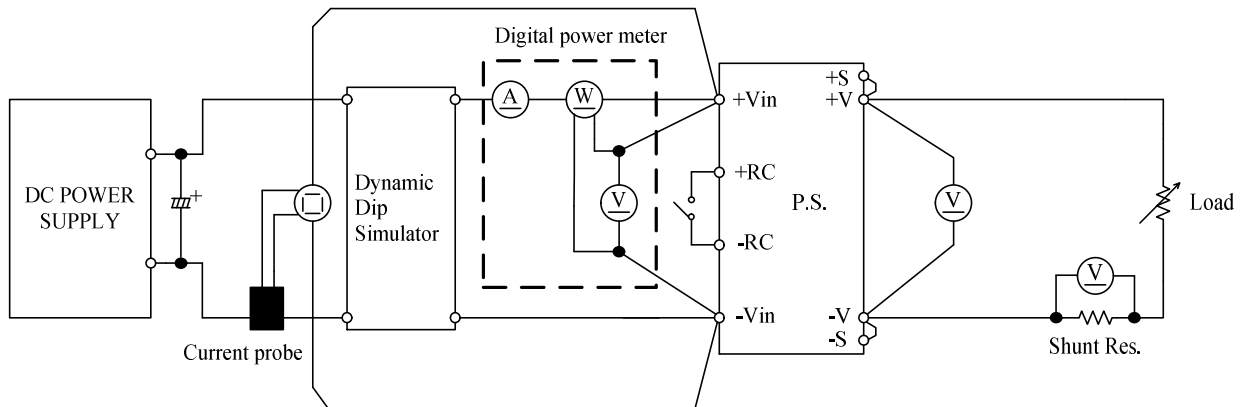
使用記号 Terminology used

	定義	Definition
Vin	入力電圧	Input voltage
Vout	出力電圧	Output voltage
Iin	入力電流	Input current
Iout	出力電流	Output current
Ta	周囲温度	Ambient temperature
f	周波数	Frequency
RC	ON/OFFコントロール	ON/OFF Control

※ 当社測定条件における結果であり、参考値としてお考え願います。
Test results are reference data based on our measurement condition.

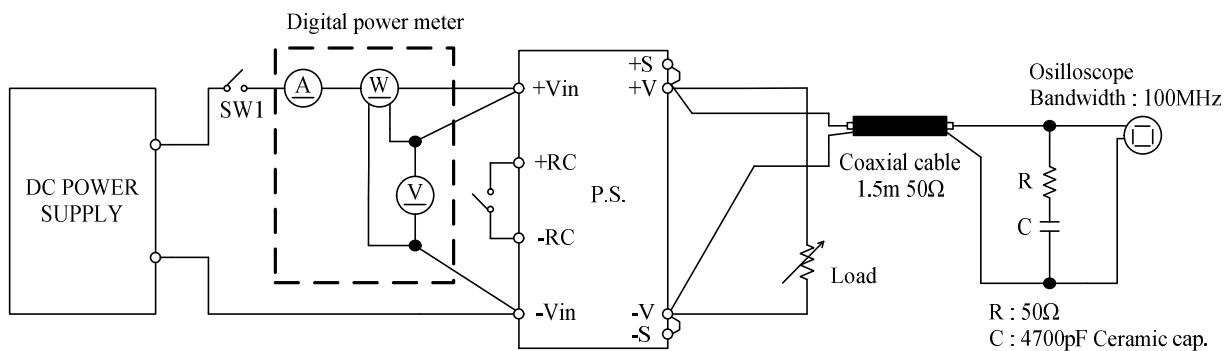
測定回路3 Circuit 3 used for determination

- 入力サージ電流 (突入電流) 波形 Inrush current waveform



測定回路4 Circuit 4 used for determination

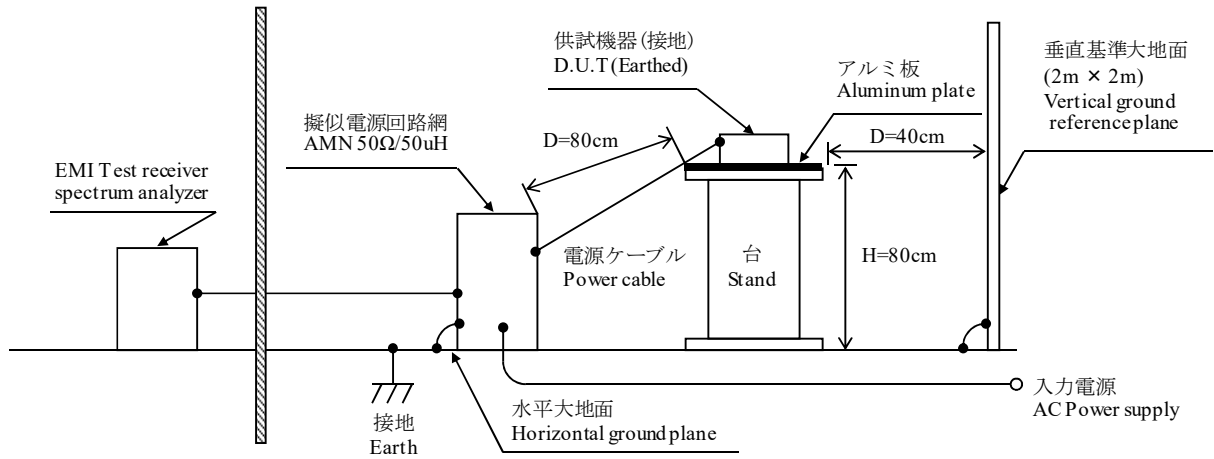
- 出力リップル、ノイズ波形 Output ripple and noise waveform



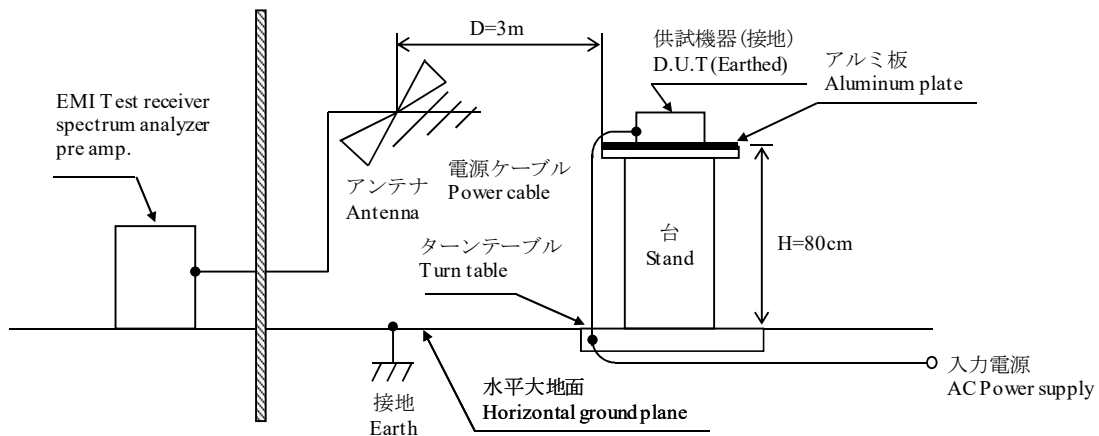
測定構成 Configuration used for determination

- EMI特性 Electro-Magnetic Interference characteristics

(a) 雑音端子電圧 (帰還ノイズ) Conducted Emission



(b) 雑音電界強度 (放射ノイズ) Radiated Emission



1-2. 使用測定機器 List of equipment used

	EQUIPMENT USED	MANUFACTURER	MODEL NO.
1	DIGITAL STORAGE OSCILLOSCOPE	YOKOGAWA ELECT.	DL1740 / DLM2054
2	DIGITAL MULTIMETER	AGILENT	34970A
3	DIGITAL POWER METER	YOKOGAWA ELECT.	WT210 / WT310HC
4	CURRENT PROBE	YOKOGAWA ELECT.	701932 / 701930
5	DYNAMIC DUMMY LOAD	TAKASAGO	FK-400L / FK-600L
6	DUMMY LOAD	PCN	RHF250 SERIES
7	CVCF	KIKUSUI	PCR4000LA / PCR4000LE
8	CVCF	TAKASAGO	AA2000XG
9	CONTROLLED TEMP. CHAMBER	ESPEC	SU-641
10	EMI TEST RECEIVER / SPECTRUM ANALYZER	ROHDE & SCHWARZ	ESR3
11	PRE AMP.	SONOMA	310N
12	AMN	SCHWARZBECK	NNLK8121
13	ANTENNA	TESEQ	CBL6111D

2. 特性データ Characteristics

2-1. 静特性 Steady state data

(1) 入力・負荷・温度変動／出力起動・遮断電圧

Regulation - line and load, Temperature drift / Start up voltage and Drop out voltage

5V

1. Regulation - line and load

Condition Ta : 25 °C

Iout \ Vin	18VDC	24VDC	32VDC	Line regulation	
0%	5.007V	5.007V	5.007V	0mV	0.000%
50%	5.003V	5.003V	5.003V	0mV	0.000%
100%	5.002V	5.001V	5.001V	1mV	0.020%
Load regulation	5mV	6mV	6mV		
	0.100%	0.120%	0.120%		

2. Temperature drift

Conditions Vin : 24 VDC

Iout : 100 %

Ta	-20°C	+25°C	+50°C	Temperature stability	
Vout	4.985V	5.001V	5.021V	36mV	0.720%

3. Start up voltage and Drop out voltage

Conditions Ta : 25 °C

Iout : 100 %

Start up voltage (Vin)	16.5 VDC
Drop out voltage (Vin)	14.4 VDC

12V

1. Regulation - line and load

Condition Ta : 25 °C

Iout \ Vin	18VDC	24VDC	32VDC	Line regulation	
0%	12.010V	12.010V	12.010V	0mV	0.000%
50%	12.007V	12.007V	12.007V	0mV	0.000%
100%	12.007V	12.006V	12.006V	1mV	0.008%
Load regulation	3mV	4mV	4mV		
	0.025%	0.033%	0.033%		

2. Temperature drift

Conditions Vin : 24 VDC

Iout : 100 %

Ta	-20°C	+25°C	+50°C	Temperature stability	
Vout	11.971V	12.006V	12.022V	51mV	0.425%

3. Start up voltage and Drop out voltage

Conditions Ta : 25 °C

Iout : 100 %

Start up voltage (Vin)	16.5 VDC
Drop out voltage (Vin)	14.4 VDC

24V

1. Regulation - line and load

Condition Ta : 25 °C

Iout \ Vin	18VDC	24VDC	32VDC	Line regulation	
0%	24.024V	24.024V	24.024V	0mV	0.000%
50%	24.019V	24.019V	24.019V	0mV	0.000%
100%	24.019V	24.019V	24.018V	1mV	0.004%
Load regulation	5mV	5mV	6mV		
	0.042%	0.042%	0.050%		

2. Temperature drift

Conditions Vin : 24 VDC

Iout : 100 %

Ta	-20°C	+25°C	+50°C	Temperature stability	
Vout	23.958V	24.019V	24.022V	64mV	0.533%

3. Start up voltage and Drop out voltage

Conditions Ta : 25 °C

Iout : 100 %

Start up voltage (Vin)	16.5 VDC
Drop out voltage (Vin)	14.4 VDC

(2) リプルノイズ電圧対入力電圧 Ripple noise voltage vs. Input voltage

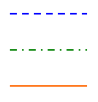
Conditions

Iout : 100 %

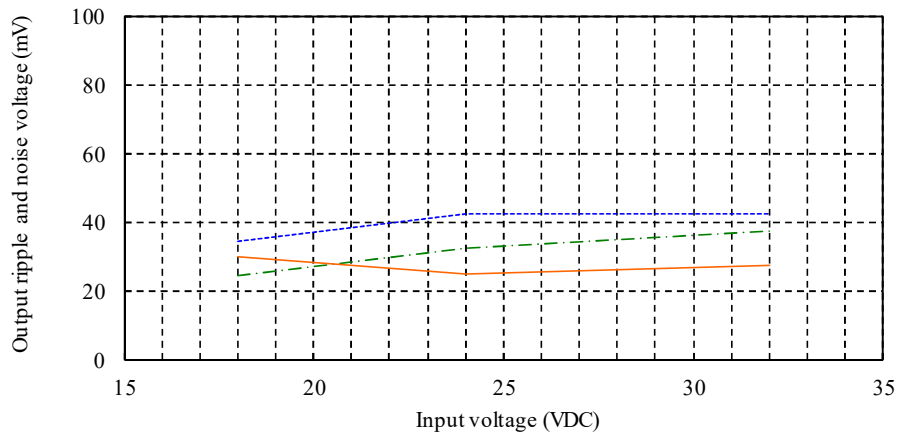
Ta : -20 °C

25 °C

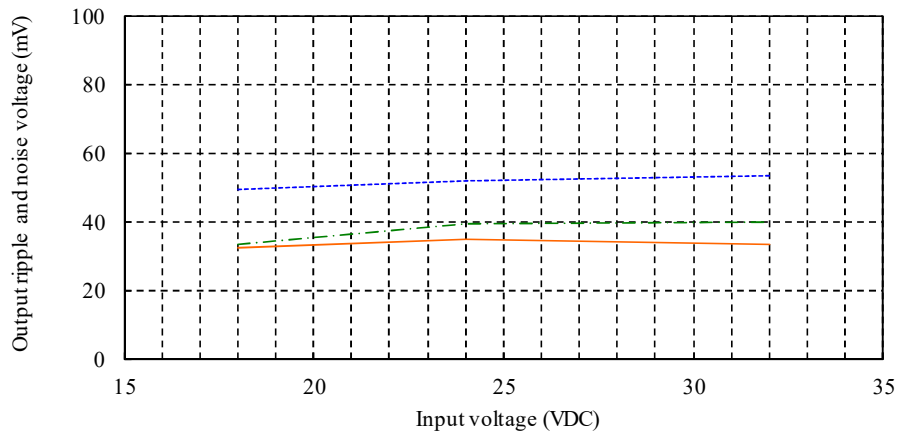
50 °C



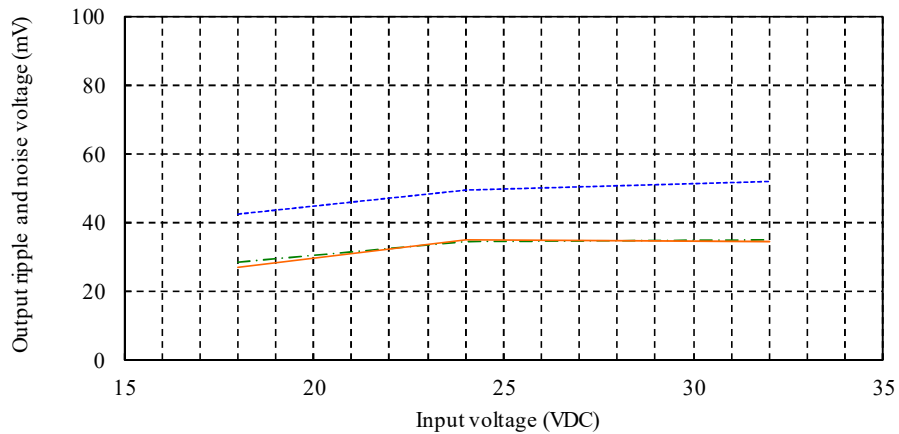
5V



12V



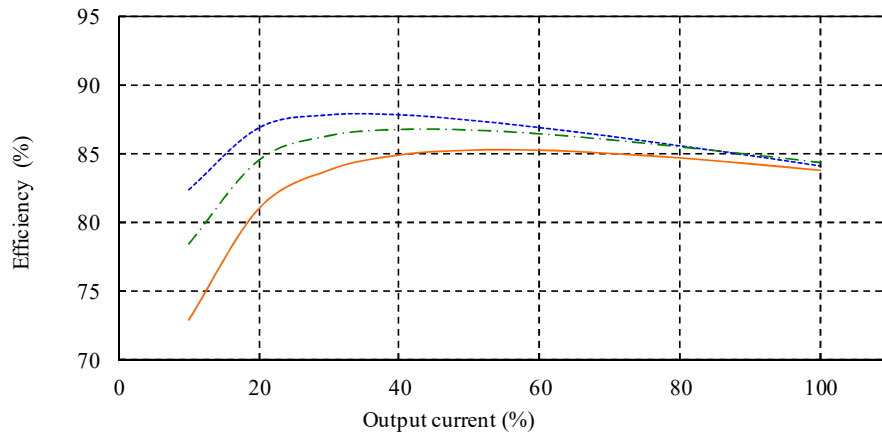
24V



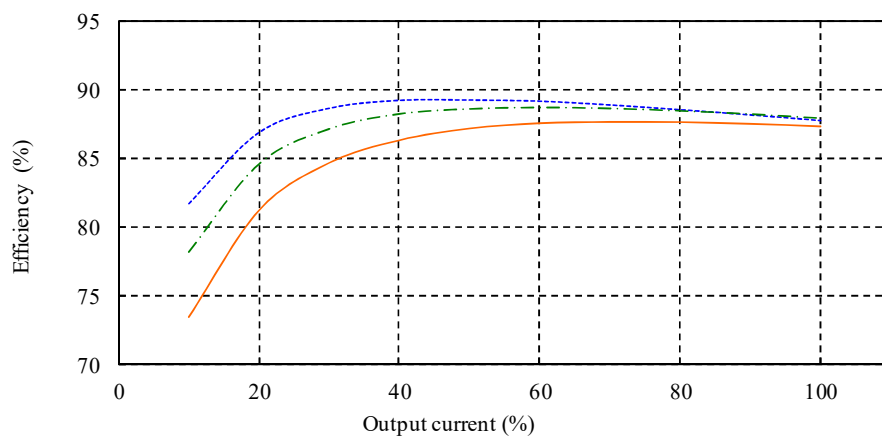
(3) 効率対出力電流 Efficiency vs. Output current

Conditions Vin : 18 VDC ---
 24 VDC - - -
 32 VDC —
 Ta : 25 °C

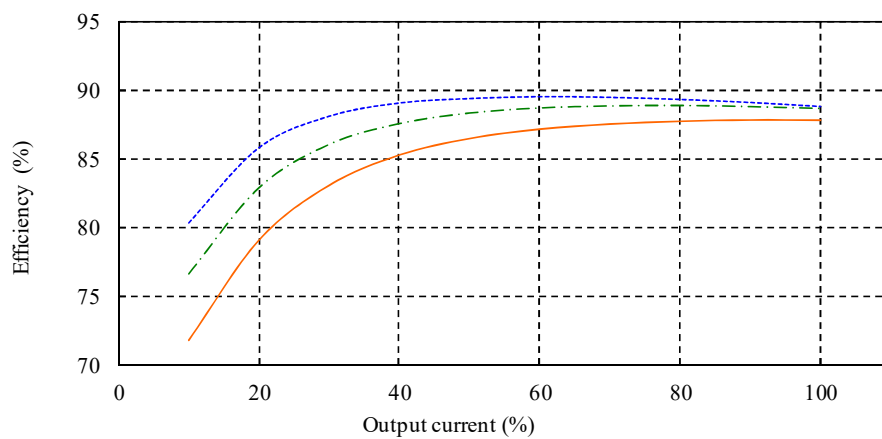
5V



12V



24V

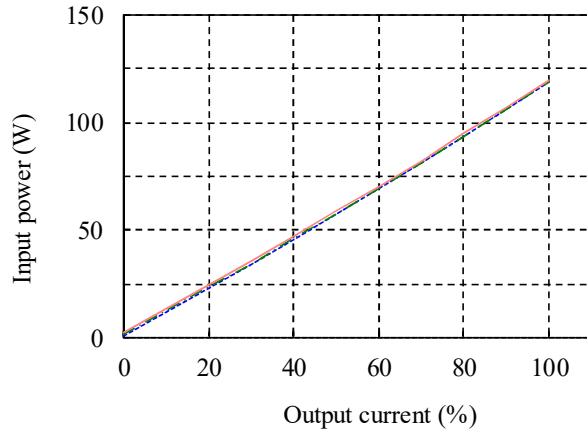


(4) 入力電力対出力電流 Input power vs. Output current

Conditions Vin : 18 VDC ---
 24 VDC - - -
 32 VDC ———
 Ta : 25 °C

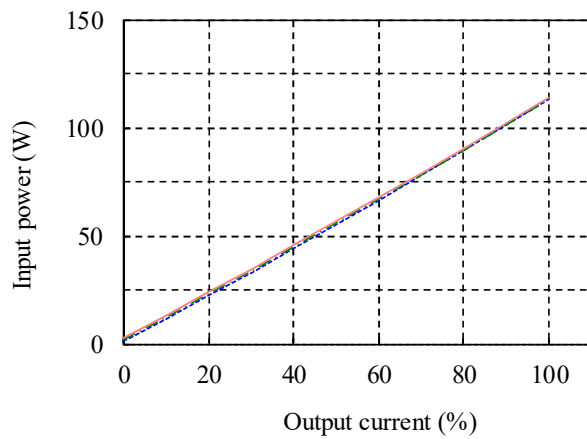
5V

Vin	Input power	
	Iout : 0%	Control OFF
18VDC	1.3W	0.3W
24VDC	2.0W	0.5W
32VDC	2.9W	0.9W



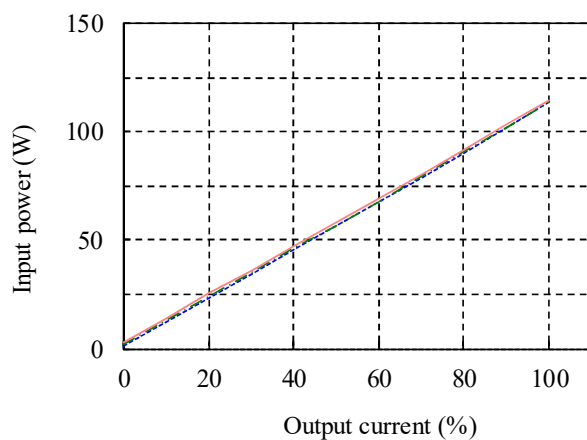
12V

Vin	Input power	
	Iout : 0%	Control OFF
18VDC	1.4W	0.3W
24VDC	2.1W	0.5W
32VDC	3.0W	0.9W



24V

Vin	Input power	
	Iout : 0%	Control OFF
18VDC	1.7W	0.3W
24VDC	2.4W	0.5W
32VDC	3.3W	0.9W

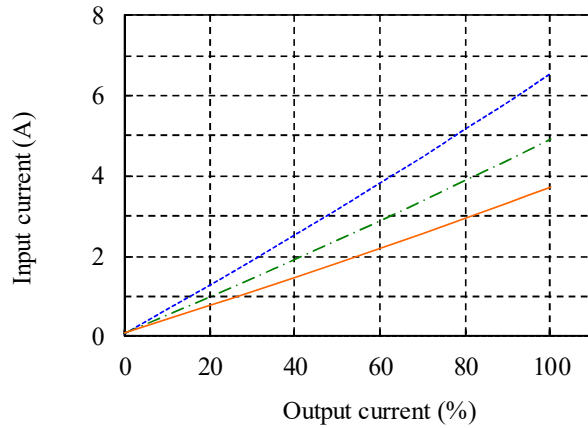


(5) 入力電流対出力電流 Input current vs. Output current

Conditions Vin : 18 VDC ---
 24 VDC - - -
 32 VDC ———
 Ta : 25 °C

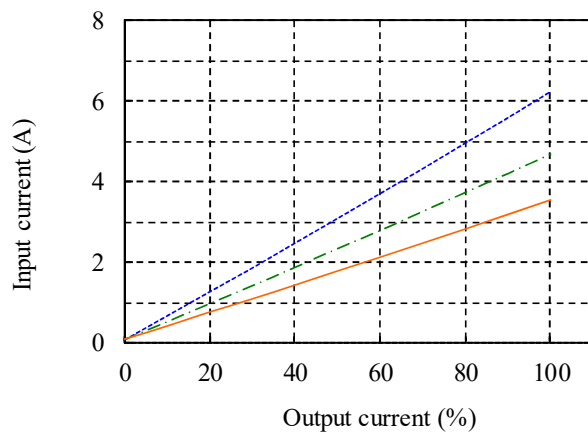
5V

Vin	Input current	
	Iout : 0%	Control OFF
18VDC	0.07A	0.02A
24VDC	0.08A	0.02A
32VDC	0.09A	0.03A



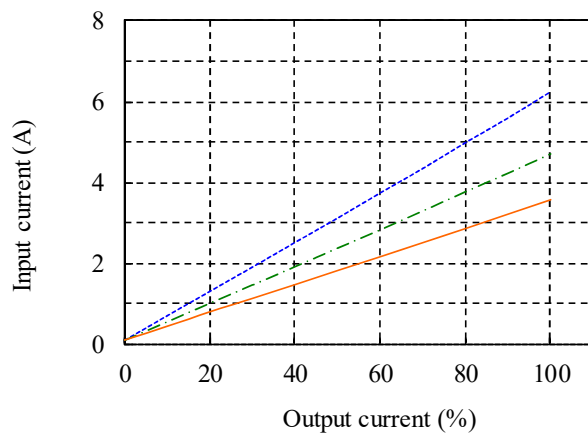
12V

Vin	Input current	
	Iout : 0%	Control OFF
18VDC	0.08A	0.02A
24VDC	0.09A	0.02A
32VDC	0.09A	0.03A



24V

Vin	Input current	
	Iout : 0%	Control OFF
18VDC	0.10A	0.02A
24VDC	0.10A	0.02A
32VDC	0.10A	0.03A

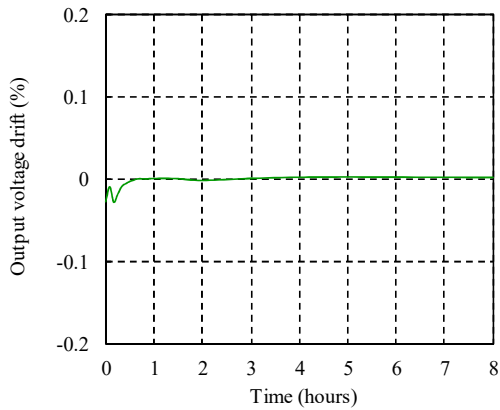


2-2. 通電ドリフト特性

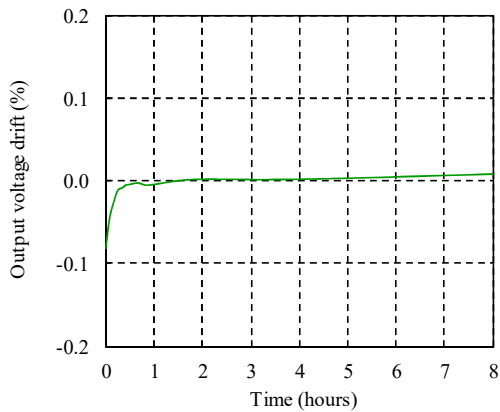
Warm up voltage drift characteristics

Conditions Vin : 24 VDC
Iout : 100 %
Ta : 25 °C

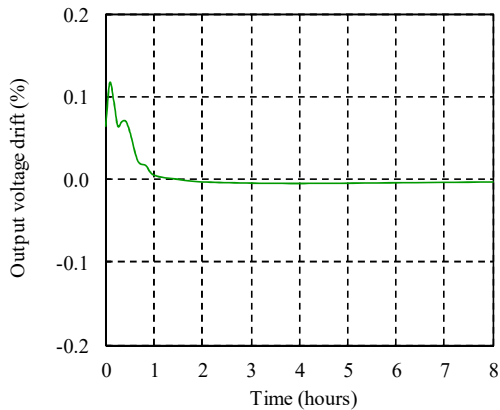
5V



12V



24V

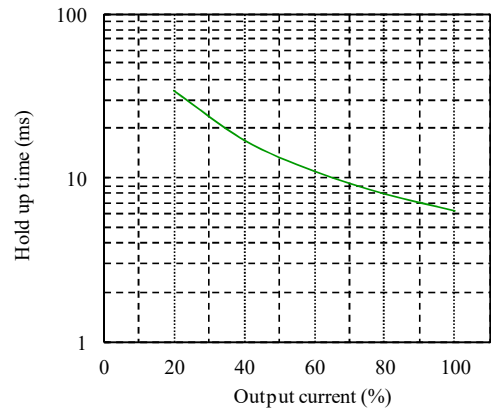


2-3. 出力保持時間特性

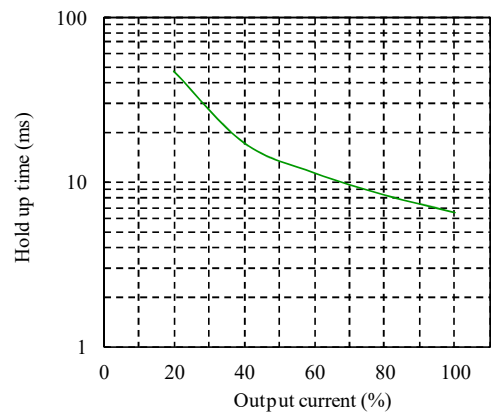
Hold up time characteristics

Conditions Vin : 24 VDC
Ta : 25 °C

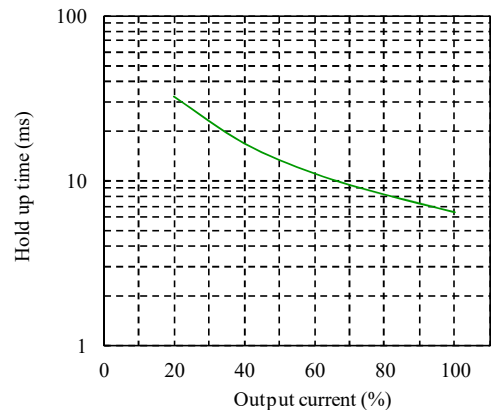
5V



12V

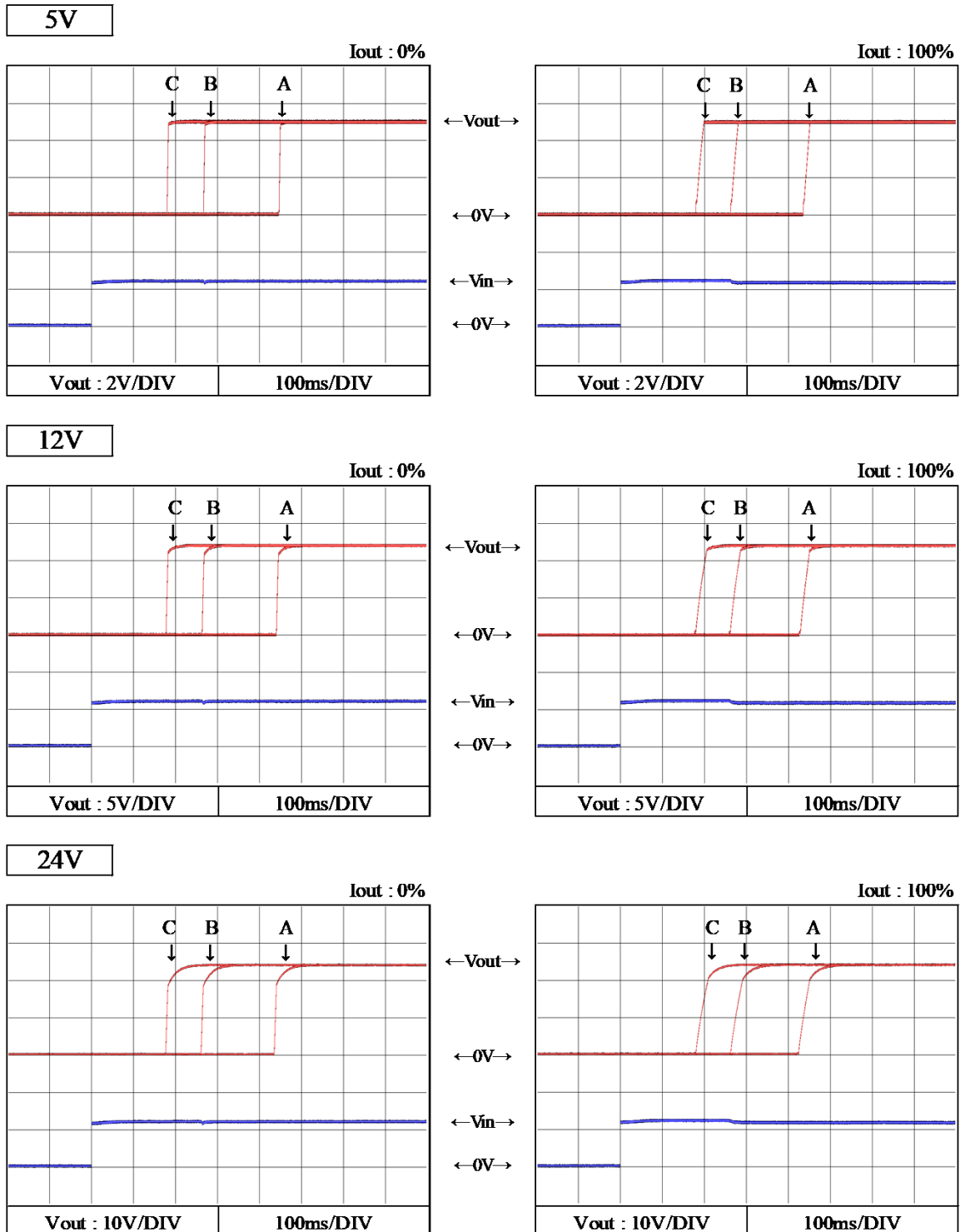


24V



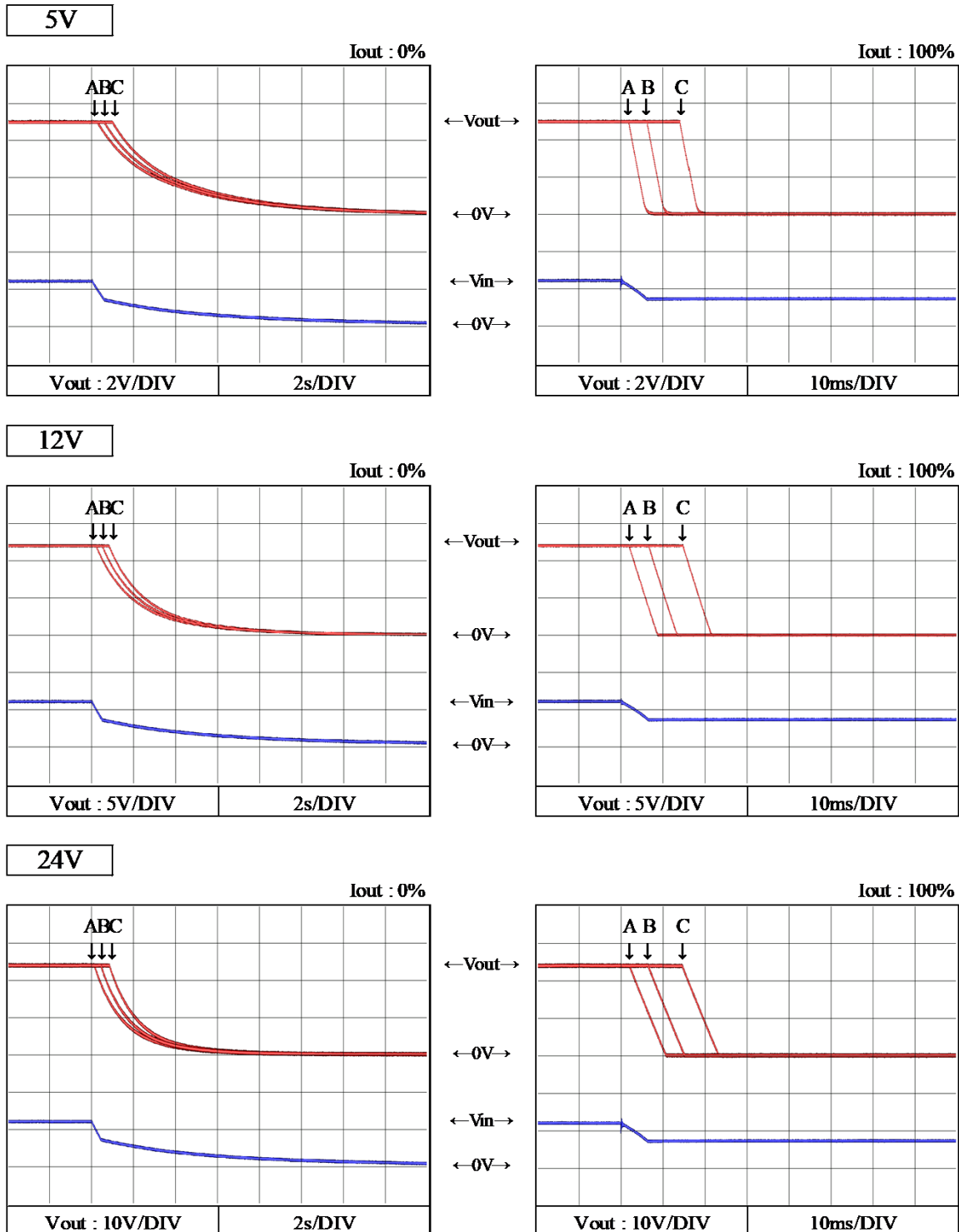
2-4. 出力立ち上がり特性 Output rise characteristics

Conditions Vin : 18 VDC (A)
 24 VDC (B)
 32 VDC (C)
 Ta : 25 °C



2-5. 出力立ち下がり特性 Output fall characteristics

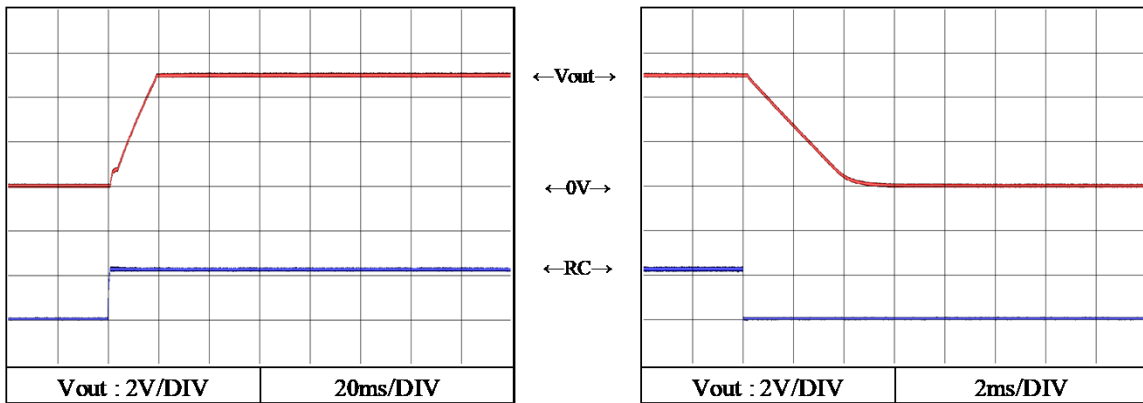
Conditions V_{in} : 18 VDC (A)
 24 VDC (B)
 32 VDC (C)
 T_a : 25 °C



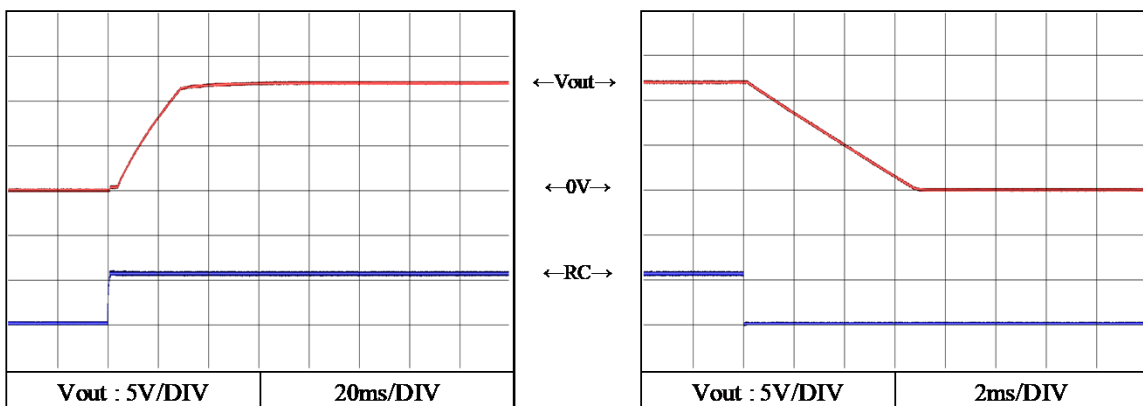
2-6. ON/OFFコントロール時出力立ち上がり、立下がり特性
 Output rise, fall characteristics with ON/OFF Control

Conditions Vin : 24 VDC
 Iout : 100 %
 Ta : 25 °C

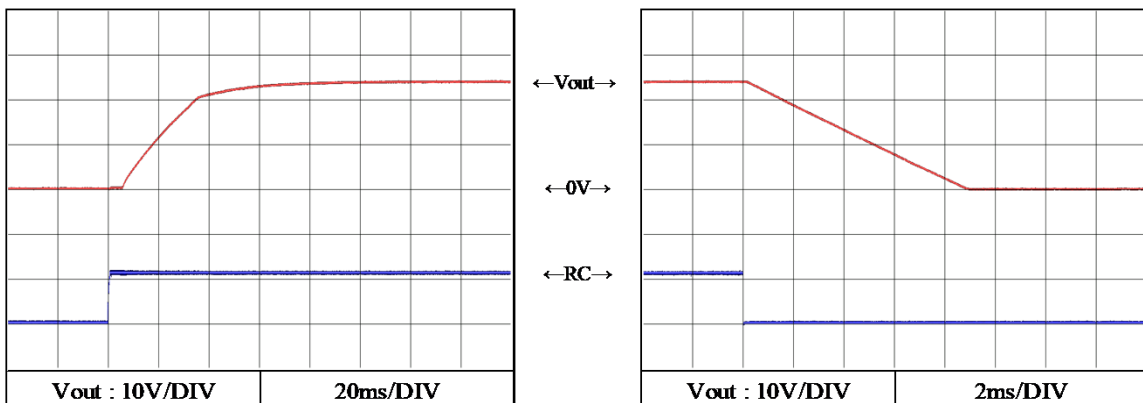
5V



12V



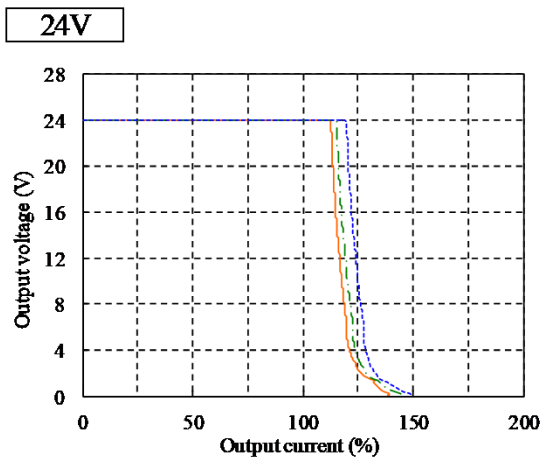
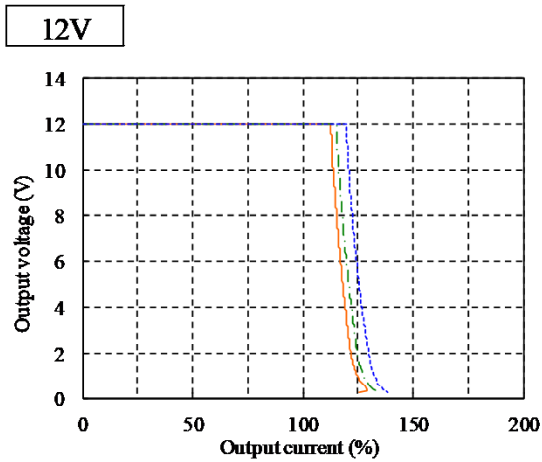
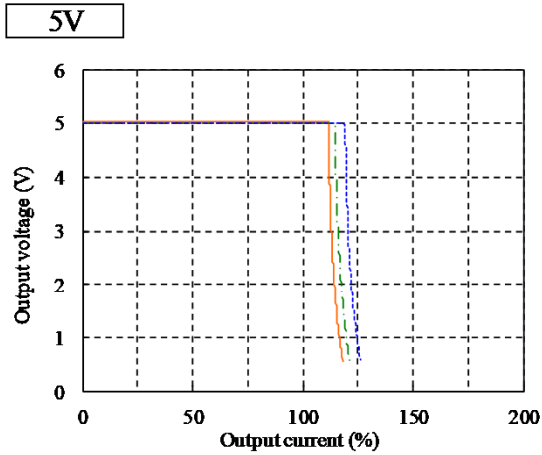
24V



2-7. 過電流保護特性

Over current protection (OCP) characteristics

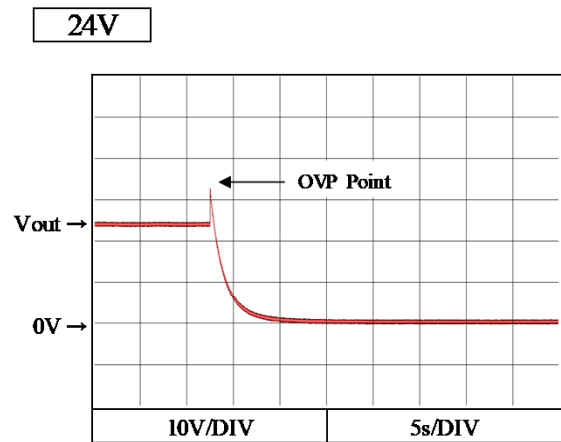
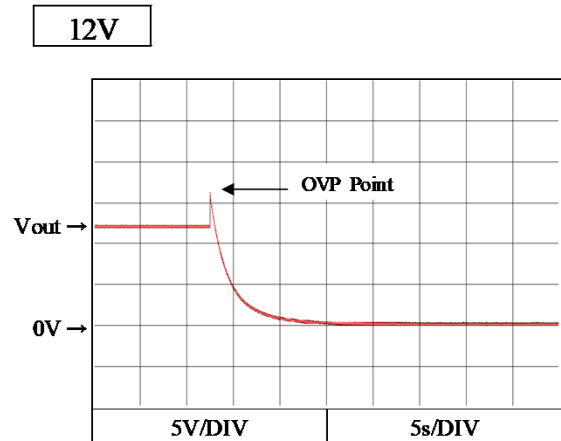
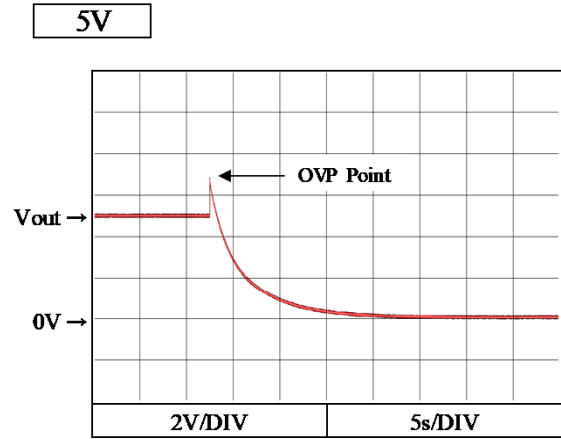
Conditions V_{in} : 24 VDC
 T_a : -20 °C (---)
 25 °C (---)
 50 °C (—)



2-8. 過電圧保護特性

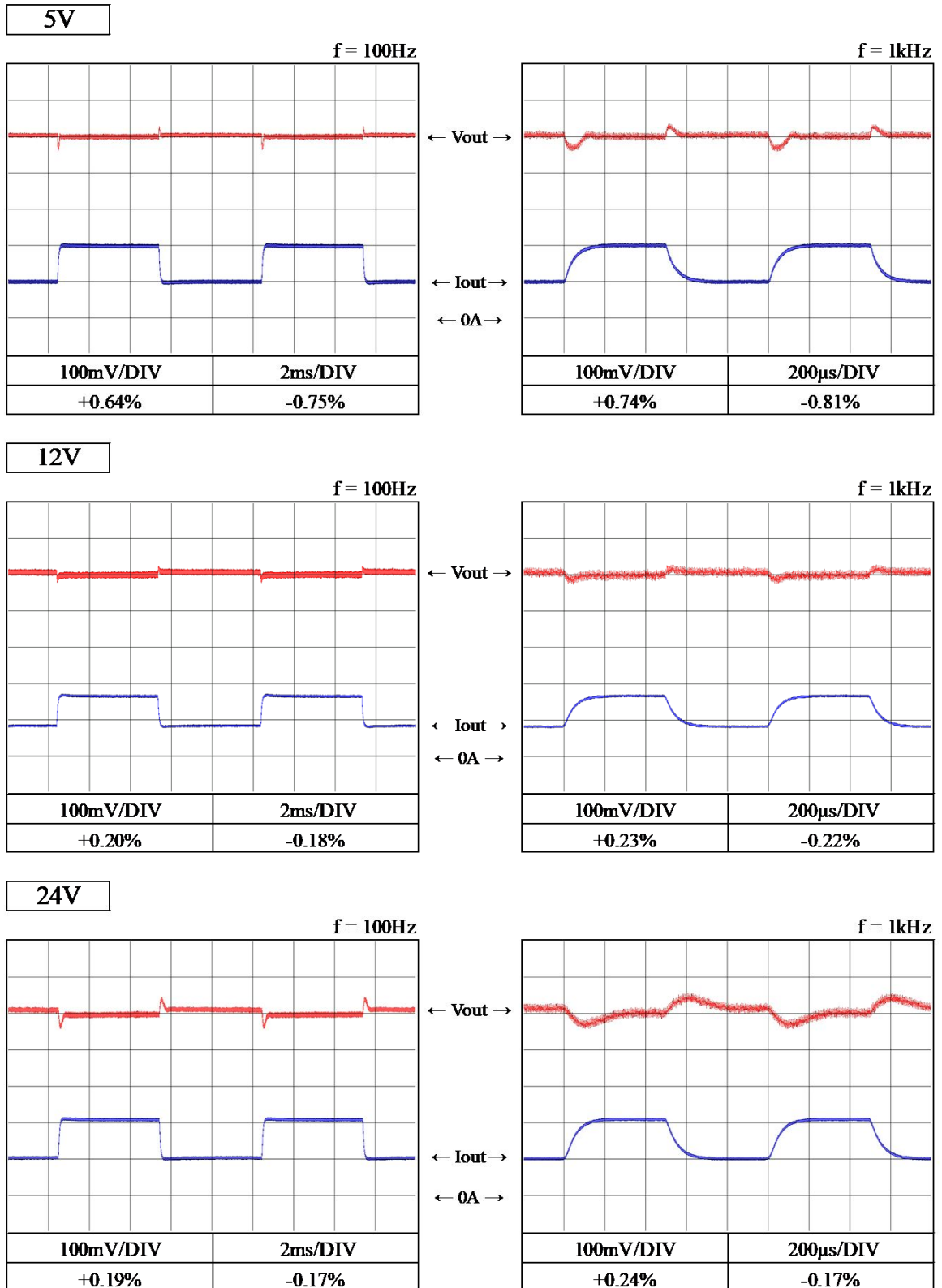
Over voltage protection (OVP) characteristics

Conditions V_{in} : 24 VDC
 I_{out} : 0 %
 T_a : 25 °C



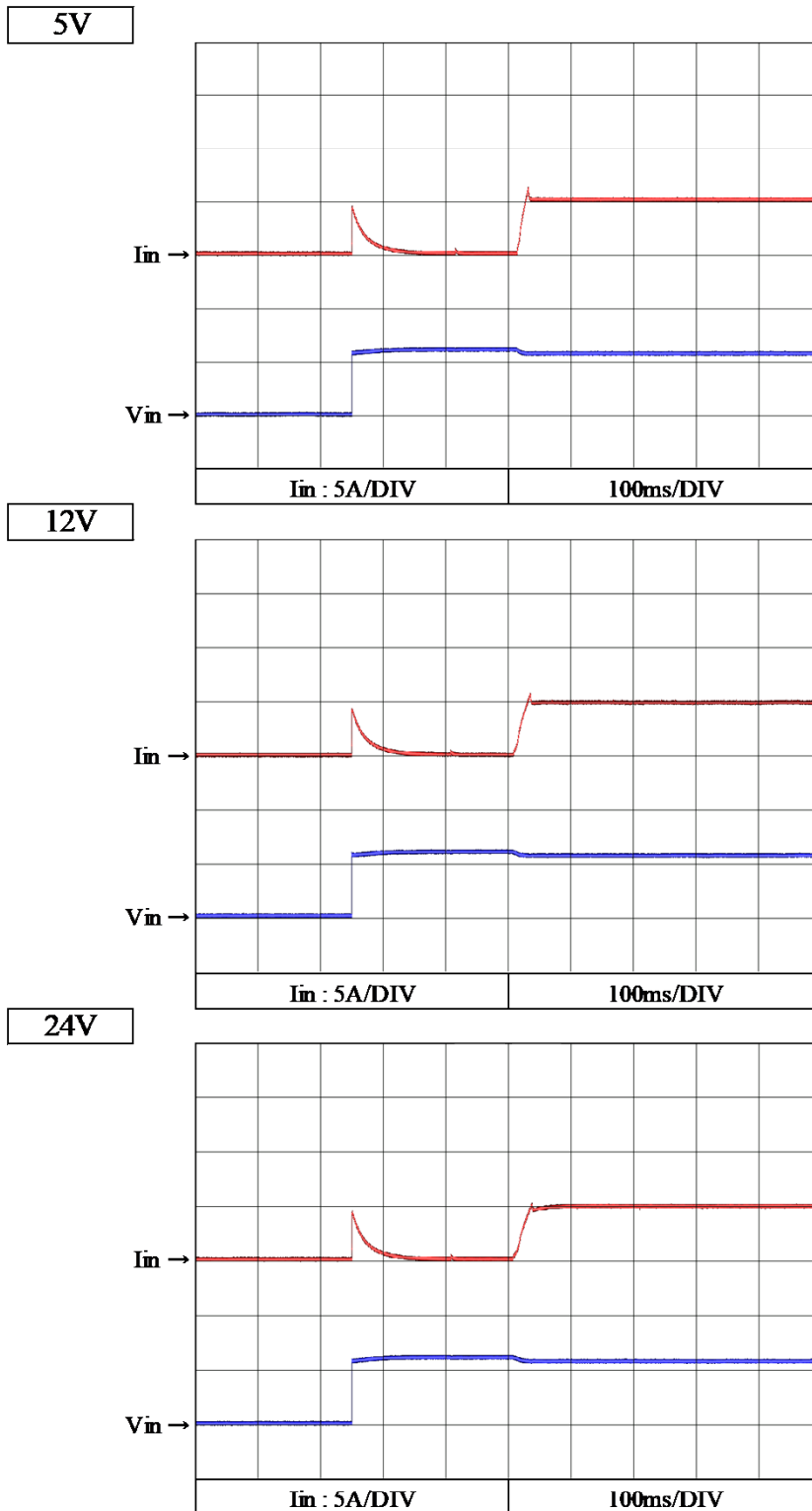
2-9. 過渡応答(負荷急変)特性 Dynamic load response characteristics

Conditions V_{in} : 24 VDC
 I_{out} : 50 % \leftrightarrow 100 %
 (tr = tf = 100 μ s)
 T_a : 25 $^{\circ}$ C



2-10. 入力サージ電流(突入電流)波形 Inrush current waveform

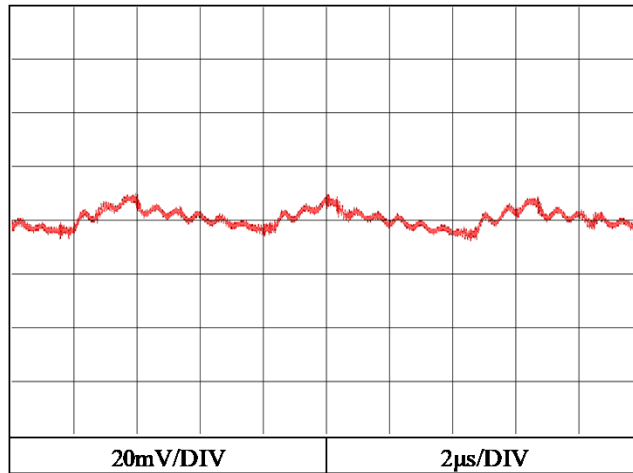
Conditions V_{in} : 24 VDC
 I_{out} : 100 %
 T_a : 25 °C



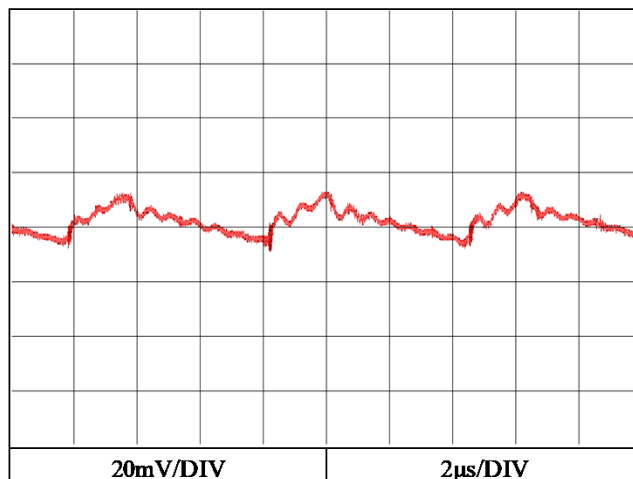
2-11. 出力リップル、ノイズ波形 Output ripple and noise waveform

Conditions Vin : 24 VDC
 Iout : 100 %
 Ta : 25 °C

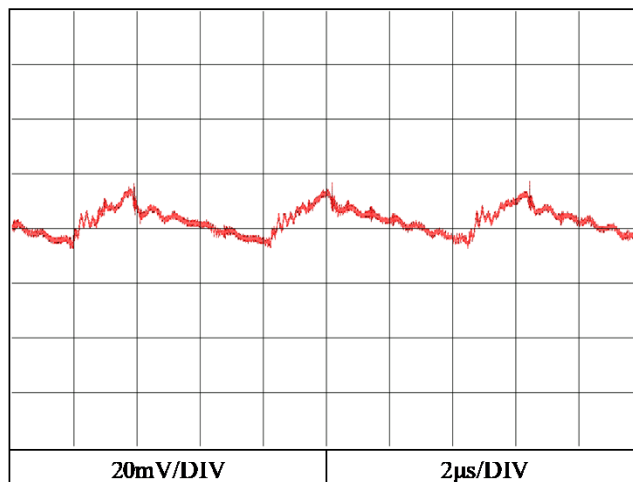
5V



12V



24V



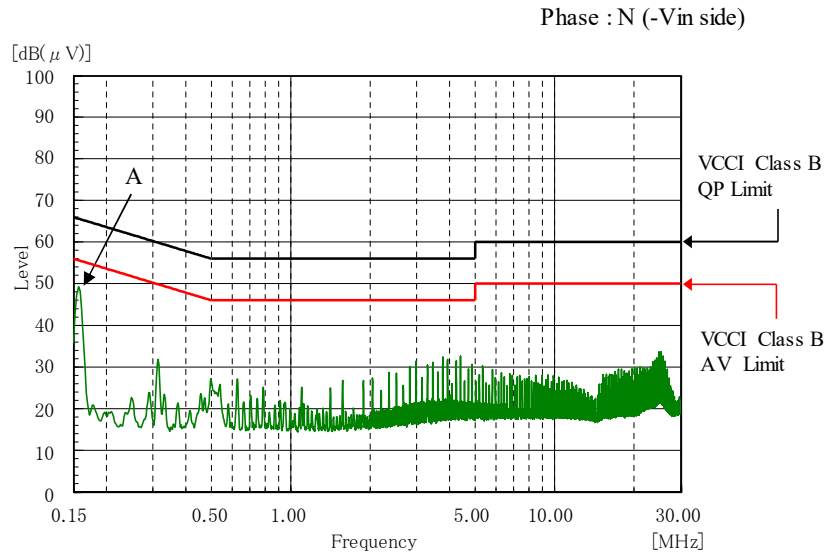
2-12. EMI特性 Electro-Magnetic Interference characteristics

Conditions Vin : 24 VDC
Iout : 100 %
Ta : 25 °C

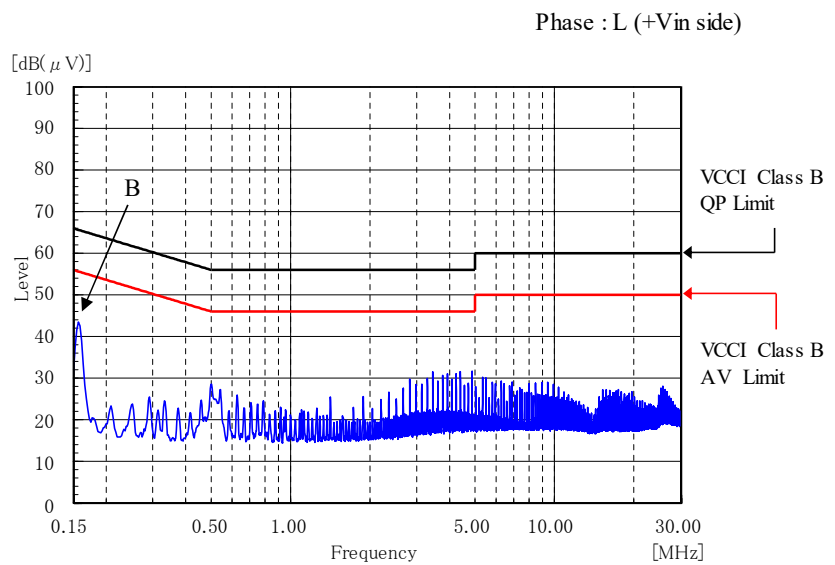
雑音端子電圧
Conducted Emission

5V

Point A (0.157MHz)		
Ref. Data	Limit (dB)	Measure (dB)
QP	65.6	48.5
AV	55.6	48.6



Point B (0.157MHz)		
Ref. Data	Limit (dB)	Measure (dB)
QP	65.6	41.7
AV	55.6	41.8



EN55011-B,EN55032-B,FCC-Bの限界値はVCCI class Bの限界値と同じ

Limit of EN55011-B,EN55032-B,FCC-B are same as its VCCI class B.

表示はピーク値

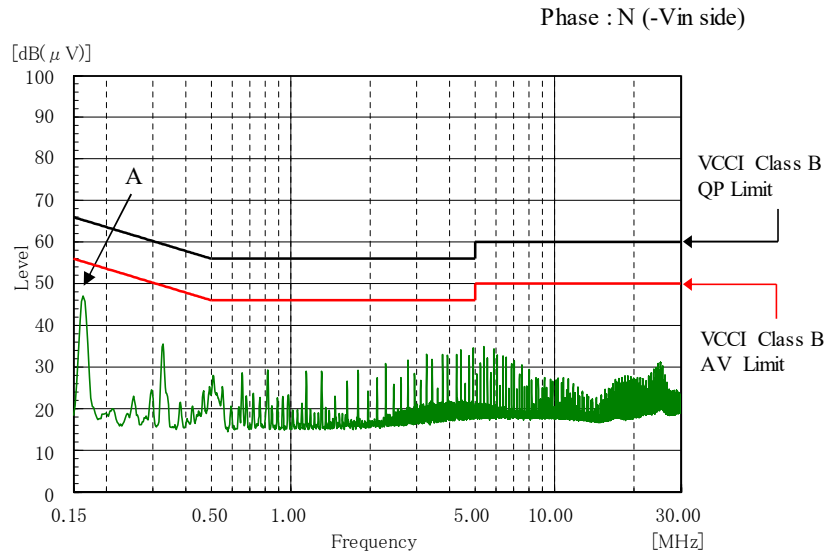
Indication is peak values.

Conditions Vin : 24 VDC
Iout : 100 %
Ta : 25 °C

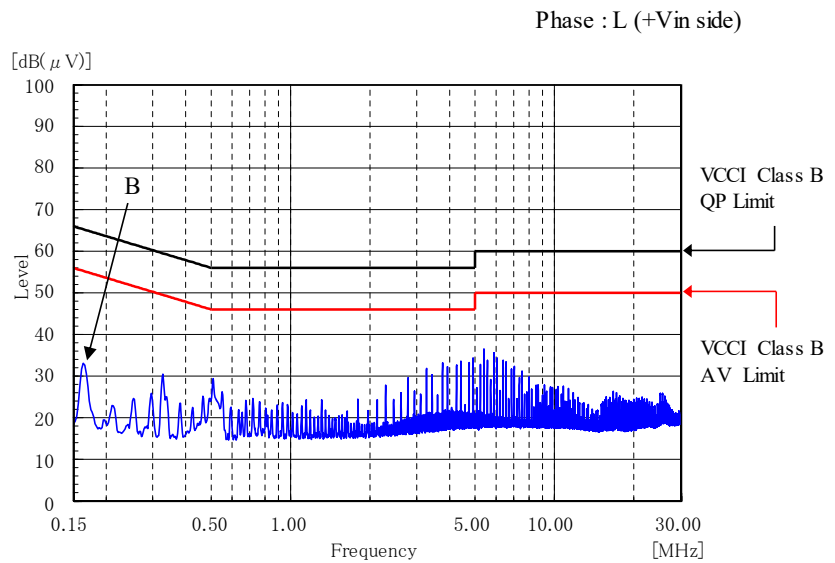
雑音端子電圧
Conducted Emission

12V

Point A (0.164MHz)		
Ref. Data	Limit (dB)	Measure (dB)
QP	65.3	46.6
AV	55.3	46.7



Point B (0.164MHz)		
Ref. Data	Limit (dB)	Measure (dB)
QP	65.3	31.0
AV	55.3	30.8



EN55011-B,EN55032-B,FCC-Bの限界値はVCCI class Bの限界値と同じ

Limit of EN55011-B,EN55032-B,FCC-B are same as its VCCI class B.

表示はピーク値

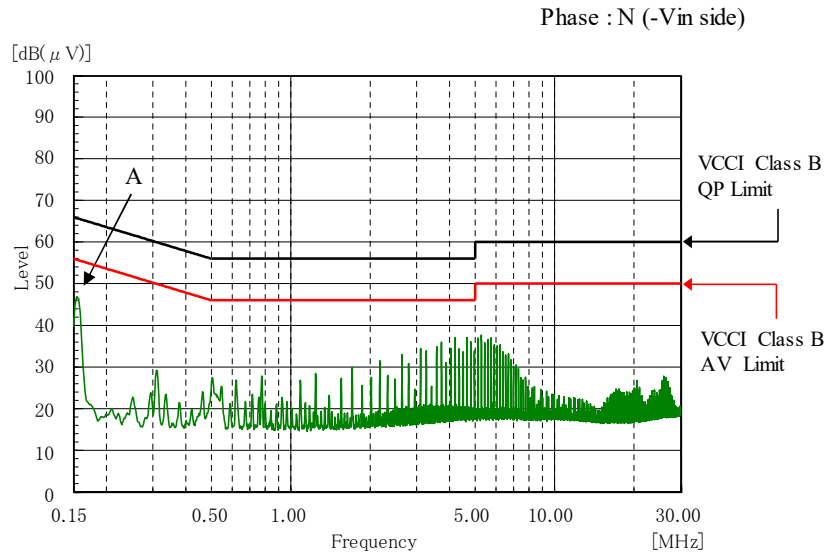
Indication is peak values.

Conditions Vin : 24 VDC
Iout : 100 %
Ta : 25 °C

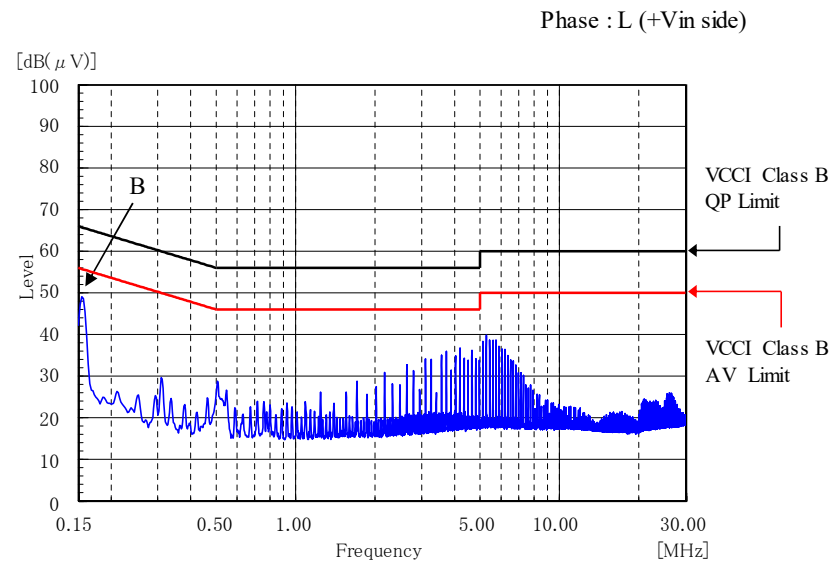
雑音端子電圧
Conducted Emission

24V

Point A (0.155MHz)		
Ref.	Limit	Measure
Data	(dB)	(dB)
QP	65.8	46.5
AV	55.8	46.6



Point B (0.155MHz)		
Ref.	Limit	Measure
Data	(dB)	(dB)
QP	65.8	48.6
AV	55.8	48.6



EN55011-B,EN55032-B,FCC-Bの限界値はVCCI class Bの限界値と同じ

Limit of EN55011-B,EN55032-B,FCC-B are same as its VCCI class B.

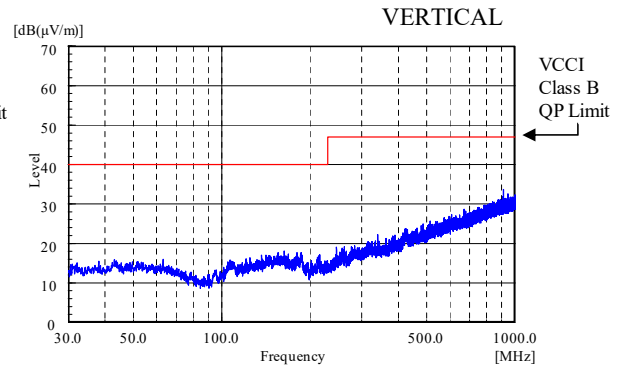
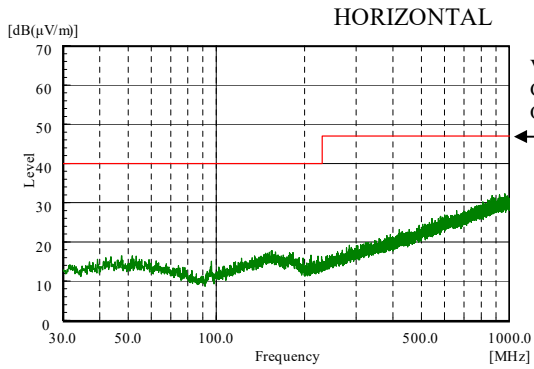
表示はピーク値

Indication is peak values.

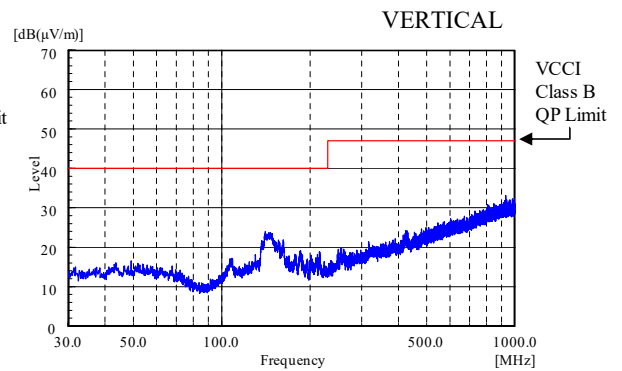
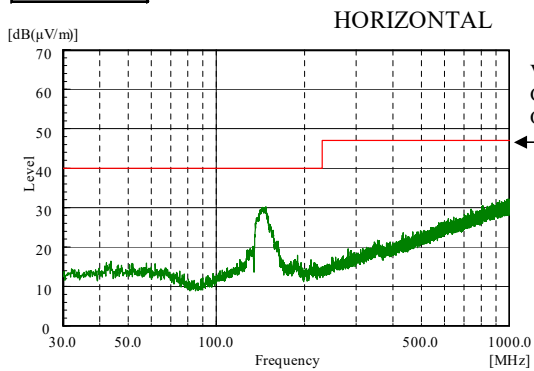
Conditions Vin : 24 VDC
 Iout : 100 %
 Ta : 25 °C

雑音電界強度
 Radiated Emission

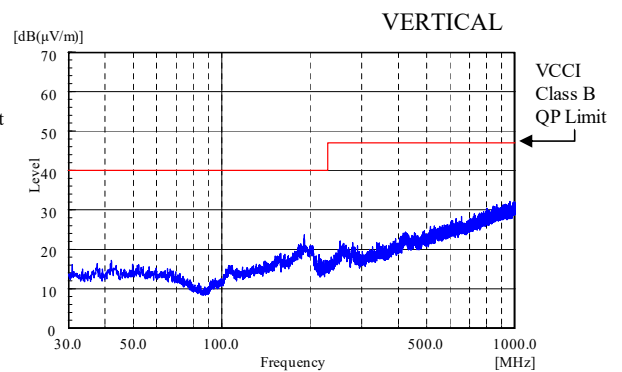
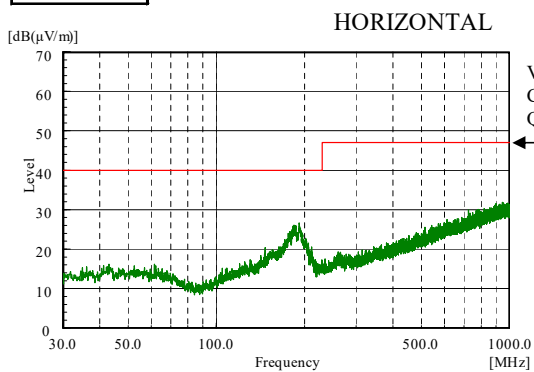
5V



12V



24V



EN55011-B,EN55032-B,FCC-Bの限界値はVCCI class Bの限界値と同じ

Limit of EN55011-B,EN55032-B,FCC-B are same as its VCCI class B.

表示はピーク値

Indication is peak values.