

RDS100-24

EVALUATION DATA

型式データ

DWG No. B029-53-01		
APPD	CHK	DWG
<i>Kurosawa</i>	<i>Ryuman</i>	<i>Shima mune</i>
9, Mar, '10	9, Mar, '10	9, Mar, '10

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使用記号 Terminology used

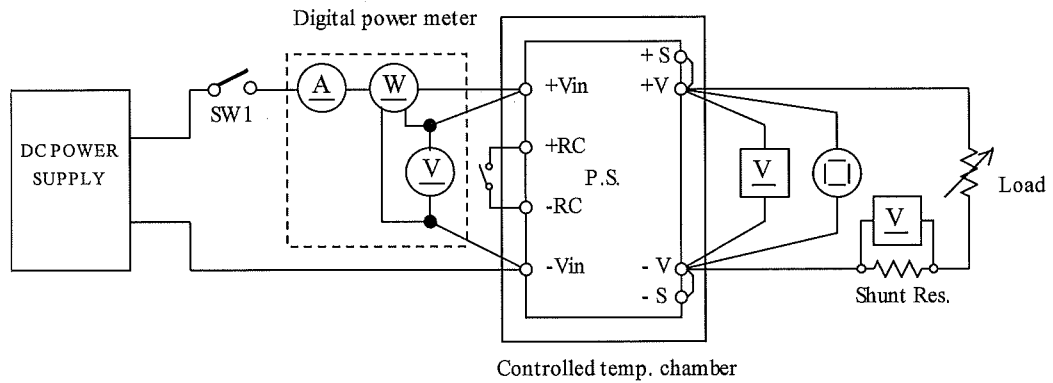
	Definition	
V _{in} 入力電圧	Input voltage
V _{out} 出力電圧	Output voltage
I _{in}	..... 入力電流	Input current
I _{out}	..... 出力電流	Output current
T _a	..... 周囲温度	Ambient temperature
f	..... 周波数	Frequency
CNT (RC)	..... ON/OFF コントロール	ON/OFF control

1. 測定方法 Evaluation Method

1.1 測定回路 Circuit used for determination

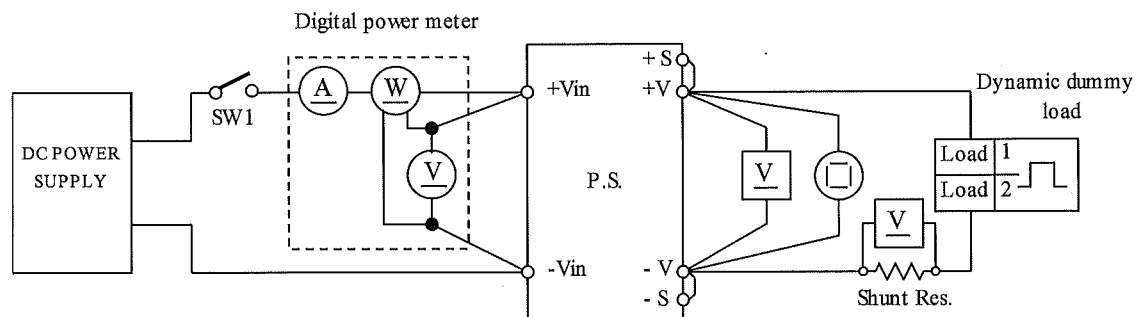
測定回路1 Circuit 1

- | | |
|--|---|
| <ul style="list-style-type: none"> • 静特性 • 過電流保護特性 • 過電圧保護特性 • 出力立ち上がり・立ち下がり特性 • 出力保持時間特性 | <ul style="list-style-type: none"> Steady state data Over current protection (OCP) characteristics Over voltage protection (OVP) characteristics Output rise/fall characteristics Hold up time characteristics |
|--|---|

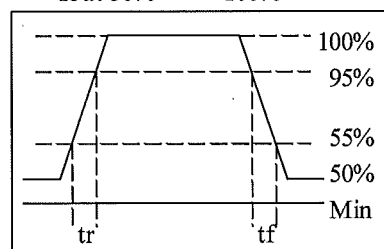


測定回路2 Circuit 2

- | | |
|--|---------------------------------------|
| <ul style="list-style-type: none"> • 過渡応答（負荷急変）特性 | Dynamic load response characteristics |
|--|---------------------------------------|

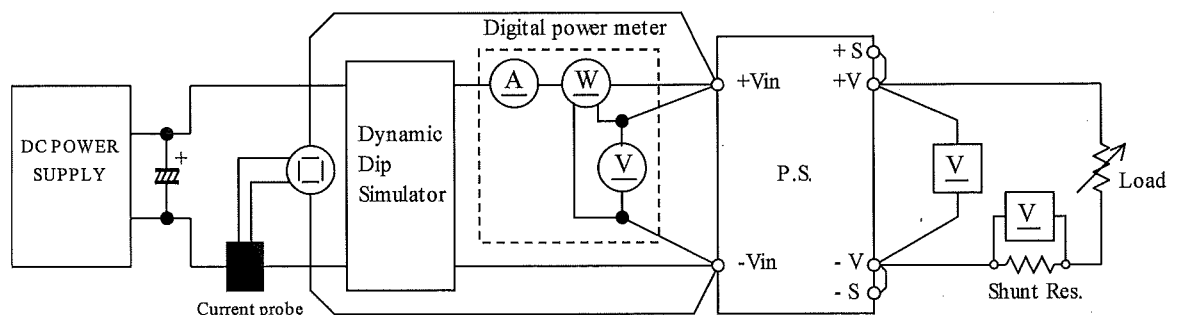


Output current waveform
Iout 50% \leftrightarrow 100%



測定回路3 Circuit 3

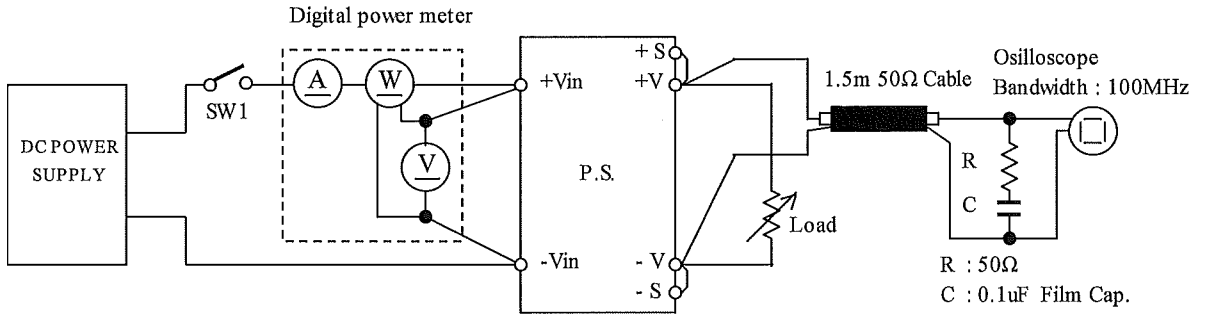
- | | |
|---|--------------------------------|
| <ul style="list-style-type: none"> • 入力サージ電流（突入電流）特性 | Inrush current characteristics |
|---|--------------------------------|



測定回路4 Circuit 4

- 出力リップル、ノイズ特性
Normal Mode (JEITA Standard RC-9131A)

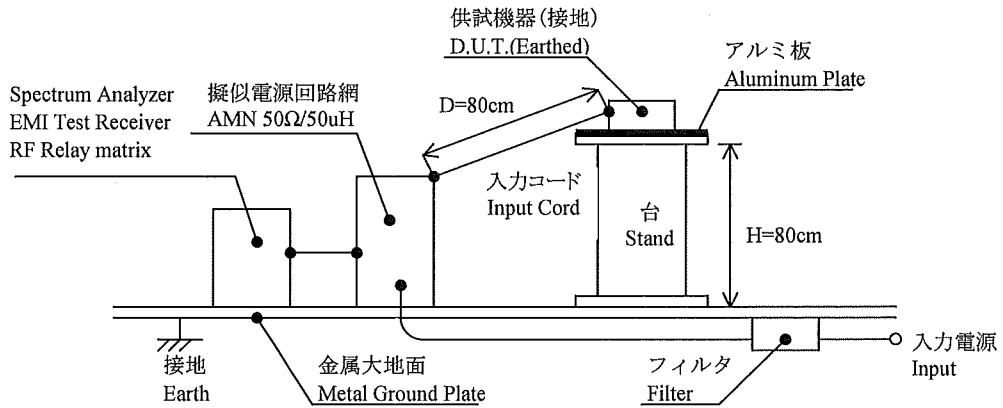
Output ripple and noise waveform



測定構成 Configuration

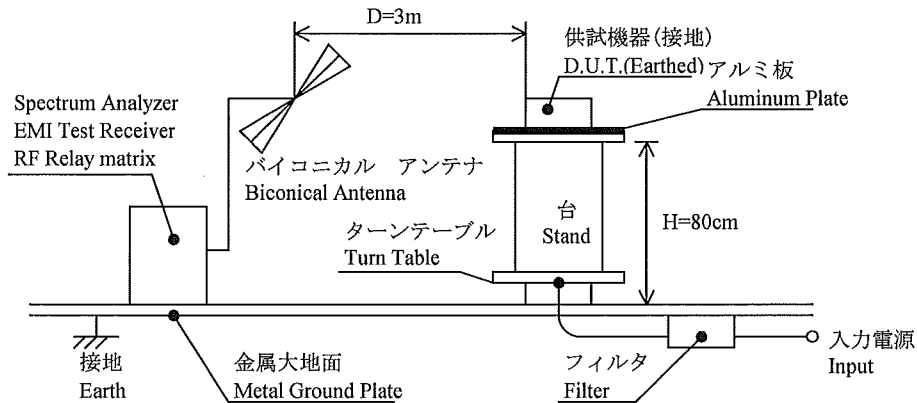
- E M I 特性
雑音端子電圧 (帰還ノイズ)

Electro-Magnetic Interference characteristics
Conducted Emission Noise



雑音電界強度 (輻射ノイズ)

Radiated Emission Noise



1.2 使用測定機器 List of equipment used

	EQUIPMENT USED	MANUFACTURER	MODEL NO.
1	DIGITAL STORAGE OSCILLOSCOPE	TEKTRONIX	TDS3012
2	DIGITAL STORAGE OSCILLOSCOPE	YOKOGAWA ELECT.	DL1740EL
3	DIGITAL MULTIMETER	AGILENT	34970A
4	DIGITAL POWER METER	YOKOGAWA ELECT.	WT110
5	CURRENT PROBE/AMPLIFIER	YOKOGAWA ELECT.	701930
6	DYNAMIC DUMMY LOAD	TAKASAGO	FK-400L
7	CVCF	TAKASAGO	AA2000XG
8	DYNAMIC DIP SIMULATOR	CYBERNETICS	PSA-210
9	CONTROLLED TEMP. CHAMBER	ESPEC	SU-641
10	SPECTRUM ANALYZER EMI TEST RECEIVER	ROHDE & SCHWARZ	ESCI
11	RF SELECTOR	TOYO, CORP	NS4900
12	AMN	SCHWARZBECK	NNLK8121
13	ANTENNA (BICONICAL ANTENNA)	TESEQ	CBL6111D

2.1 静特性 Steady state data

(1) 入力・負荷・温度変動／出力起動・低下電圧

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%	5.022V	5.023V	5.023V	1mV	0.020%
50%	5.021V	5.021V	5.022V	1mV	0.020%
100%	5.018V	5.018V	5.018V	0mV	0.000%
load regulation	4mV	5mV	5mV		
	0.080%	0.100%	0.100%		

2. Temperature drift Conditions Vin : 24 VDC Iout : 100 %

Ta	-20°C	+25°C	+50°C	temperature stability	
Vout	4.998V	5.018V	5.036V	38mV	0.760%

3. Start up voltage and Drop out voltage Conditions Ta : 25 °C Iout : 100 %

Start up voltage (Vin)	14.9VDC
Drop out voltage (Vin)	13.7VDC

12V

1. Regulation - line and load Condition Ta : 25 °C

Iout \ Vin	18VDC	24VDC	32VDC	line regulation	
0%	12.048V	12.048V	12.044V	4mV	0.033%
50%	12.048V	12.048V	12.048V	0mV	0.000%
100%	12.048V	12.048V	12.047V	1mV	0.008%
load regulation	0mV	0mV	4mV		
	0.000%	0.000%	0.033%		

24V

1. Regulation - line and load Condition Ta : 25 °C

Iout \ Vin	18VDC	24VDC	32VDC	line regulation	
0%	24.019V	24.020V	24.024V	5mV	0.021%
50%	24.019V	24.020V	24.022V	3mV	0.013%
100%	24.012V	24.019V	24.020V	8mV	0.033%
load regulation	7mV	1mV	4mV		
	0.029%	0.004%	0.017%		

2. Temperature drift Conditions Vin : 24 VDC Iout : 100 %

Ta	-20°C	+25°C	+50°C	temperature stability	
Vout	23.952V	24.019V	24.070V	118mV	0.492%

3. Start up voltage and Drop out voltage Conditions Ta : 25 °C Iout : 100 %

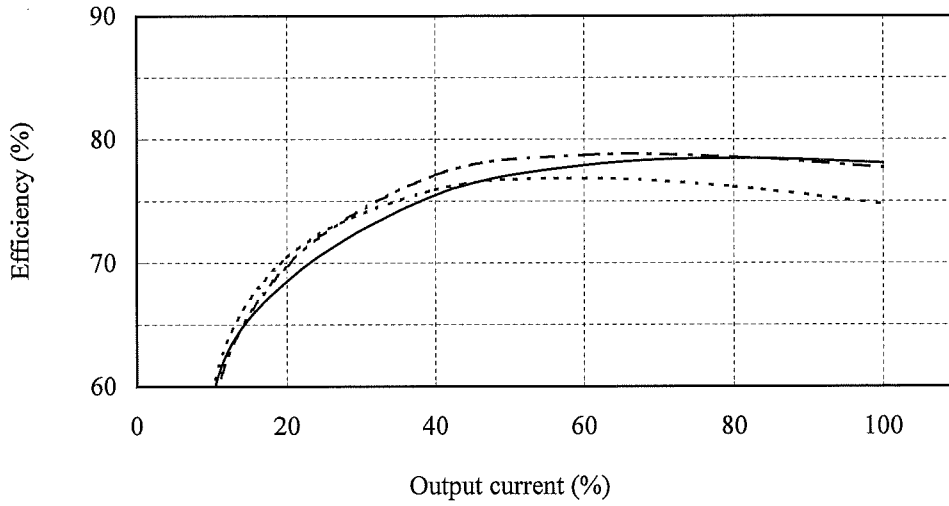
Start up voltage (Vin)	14.2VDC
Drop out voltage (Vin)	13.8VDC

(2) 効率対出力電流

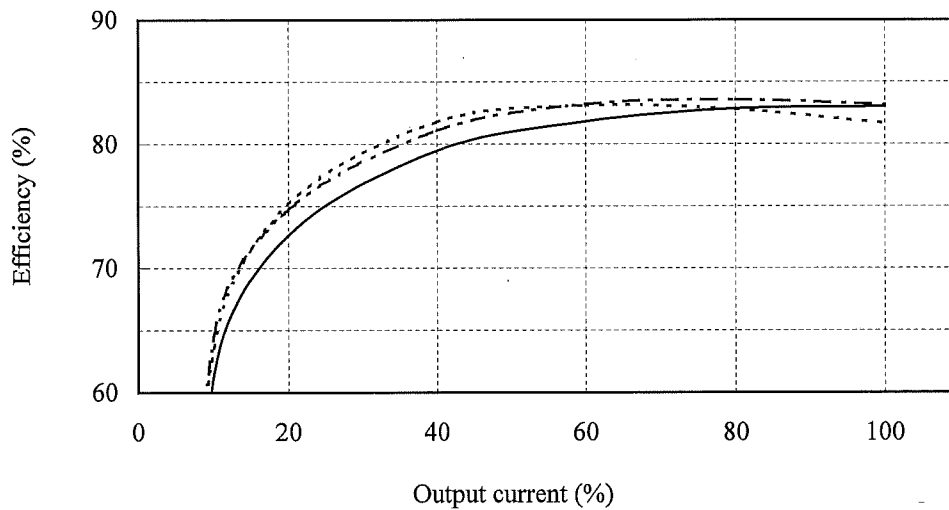
Efficiency vs. Output current

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

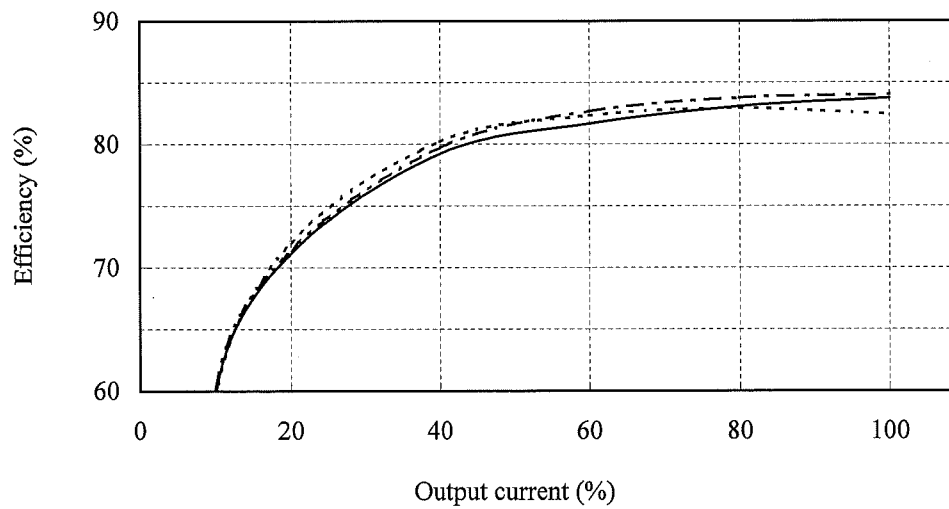
5V



12V



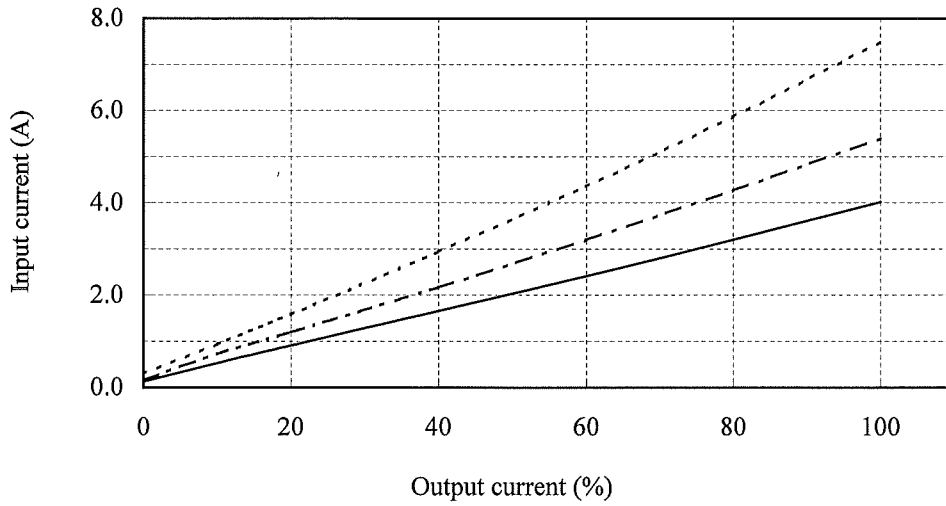
24V



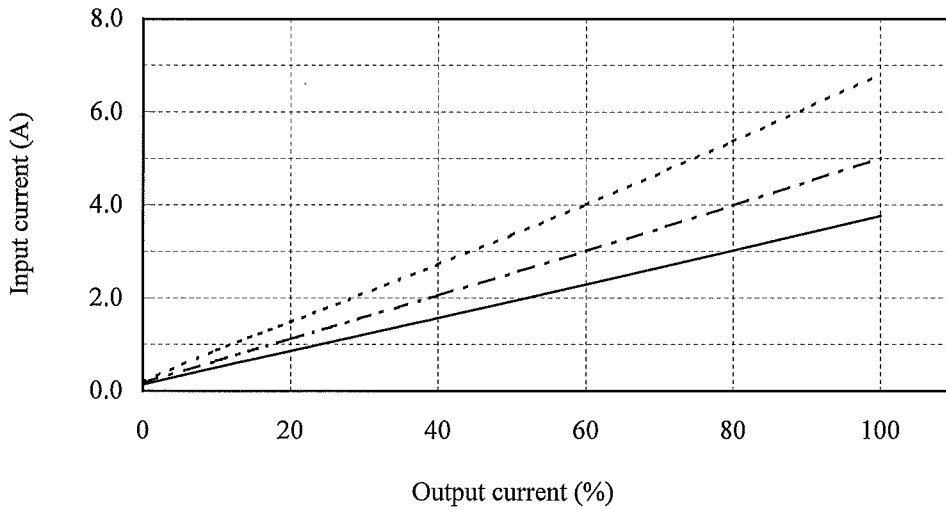
(3) 入力電流対出力電流
Input current vs. Output current

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

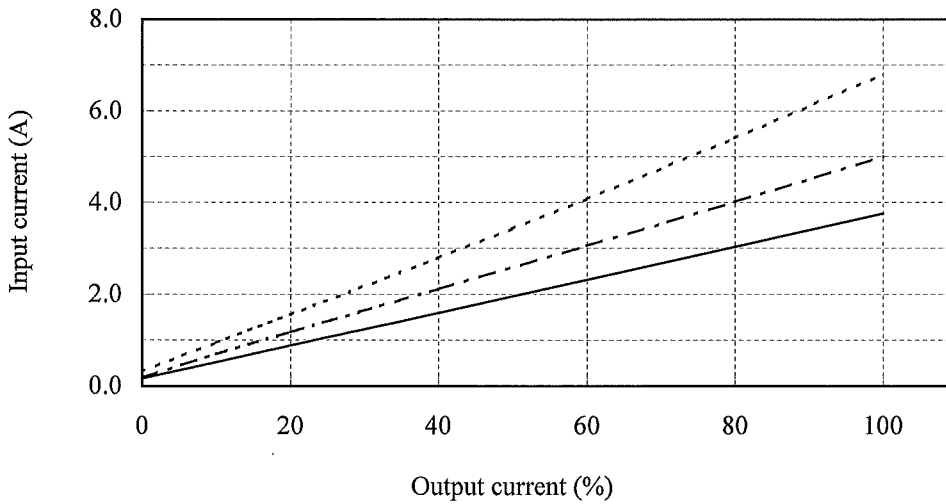
5V



12V



24V



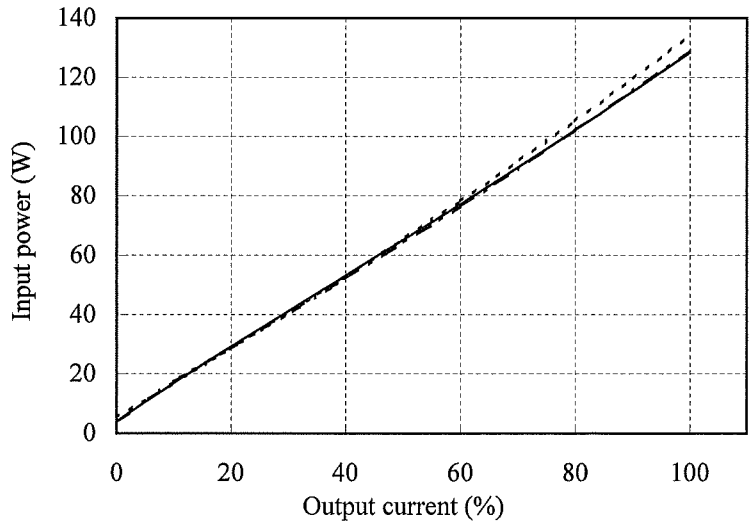
(4) 入力電力対出力電流
Input power vs. Output current

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

5V

Conditions Iout : 0%	
Vin	Input power
18VDC	5.4W
24VDC	3.8W
32VDC	4.2W

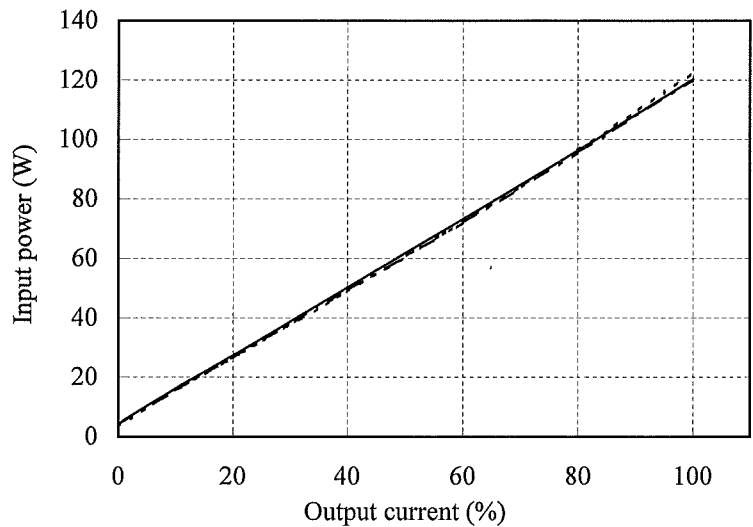
Conditions CNT (RC) : OFF	
Vin	Input power
18VDC	0.9W
24VDC	1.2W
32VDC	1.6W



12V

Conditions Iout : 0%	
Vin	Input power
18VDC	3.6W
24VDC	4.1W
32VDC	4.5W

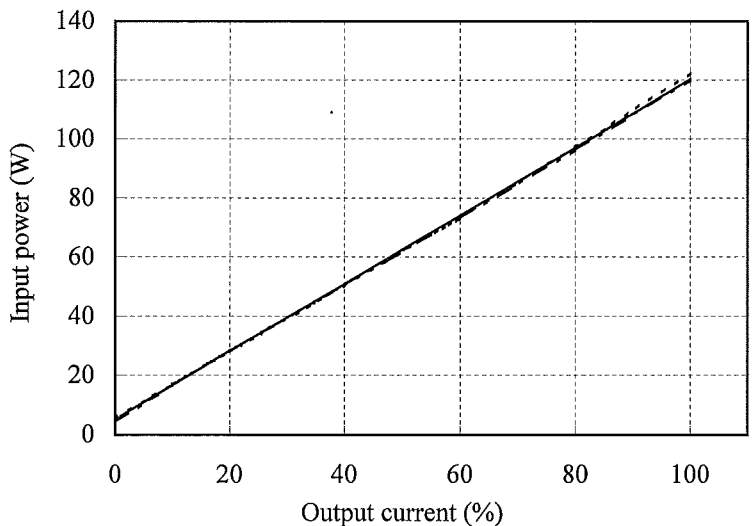
Conditions CNT (RC) : OFF	
Vin	Input power
18VDC	0.9W
24VDC	1.1W
32VDC	1.5W



24V

Conditions Iout : 0%	
Vin	Input power
18VDC	5.8W
24VDC	4.4W
32VDC	5.3W

Conditions CNT (RC) : OFF	
Vin	Input power
18VDC	0.9W
24VDC	1.2W
32VDC	1.6W

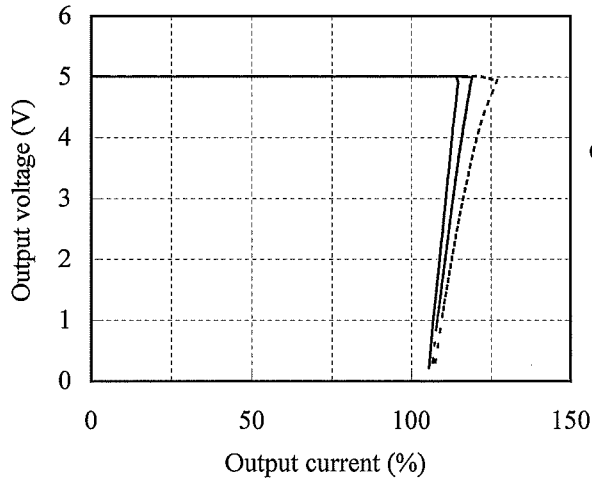


2.2 過電流保護特性

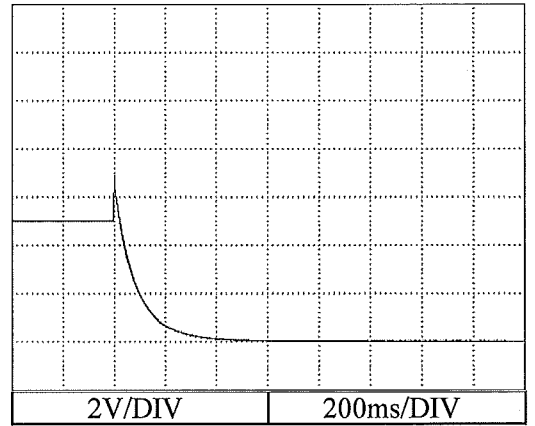
Over current protection (OCP) characteristics

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

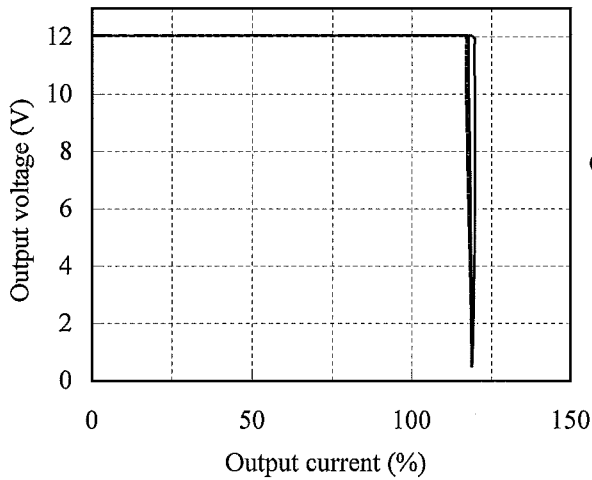
5V



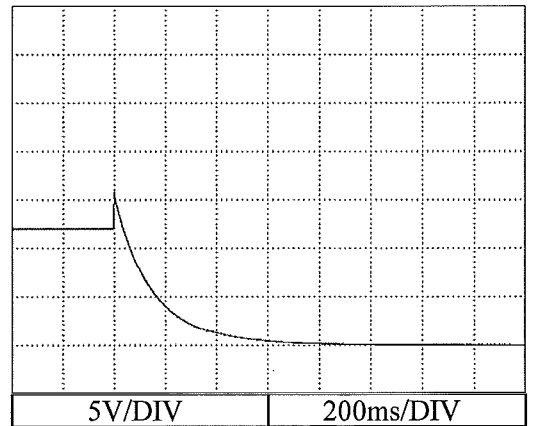
OVP Point
 →
 Vout →
 0V →



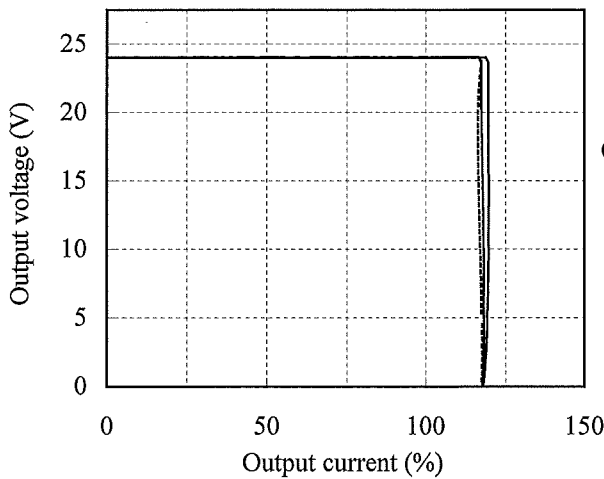
12V



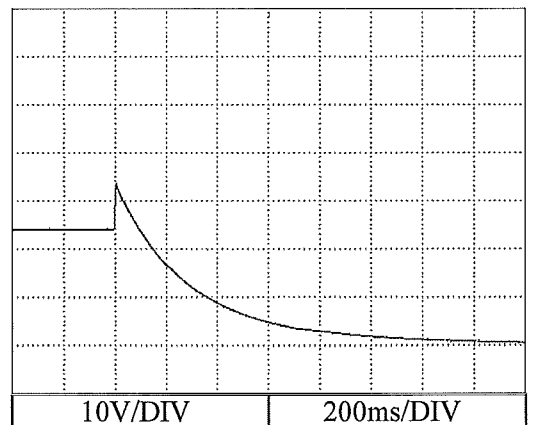
OVP Point
 →
 Vout →
 0V →



24V

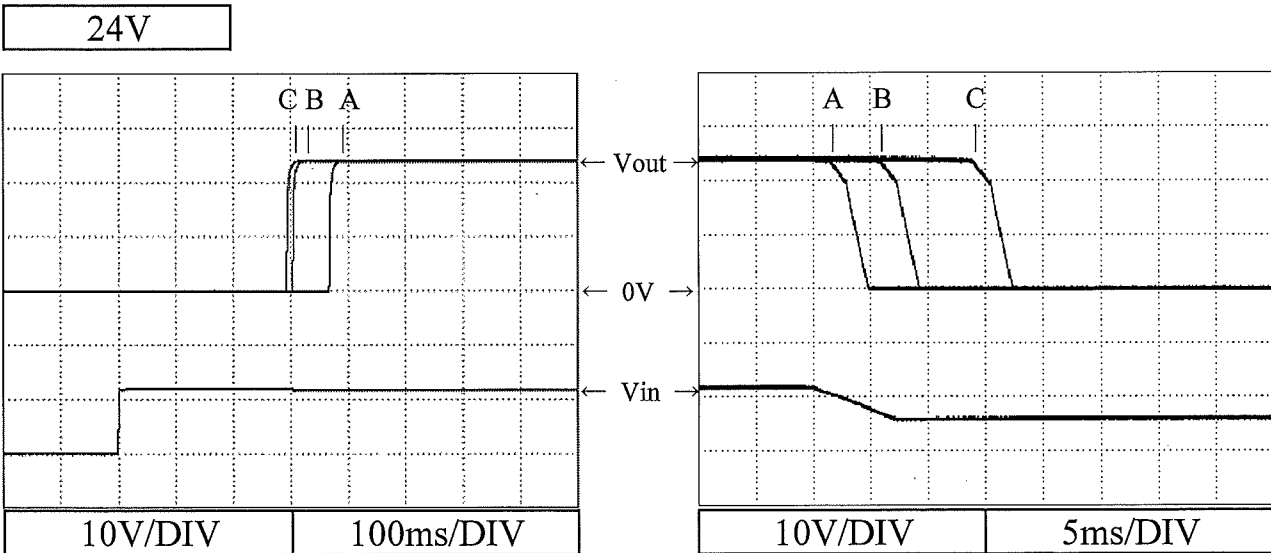
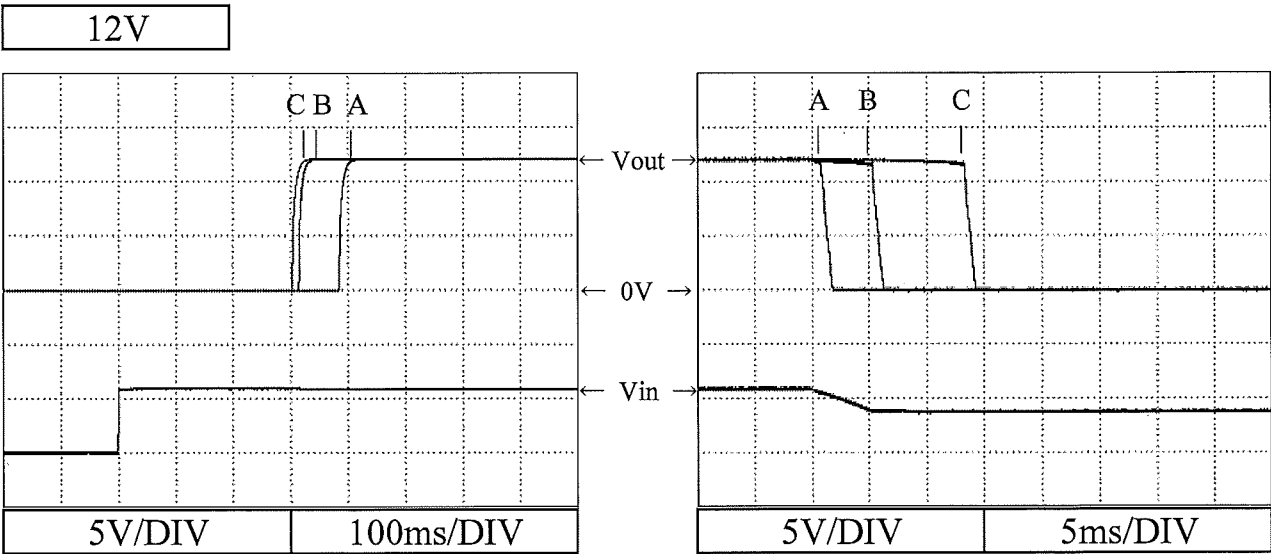
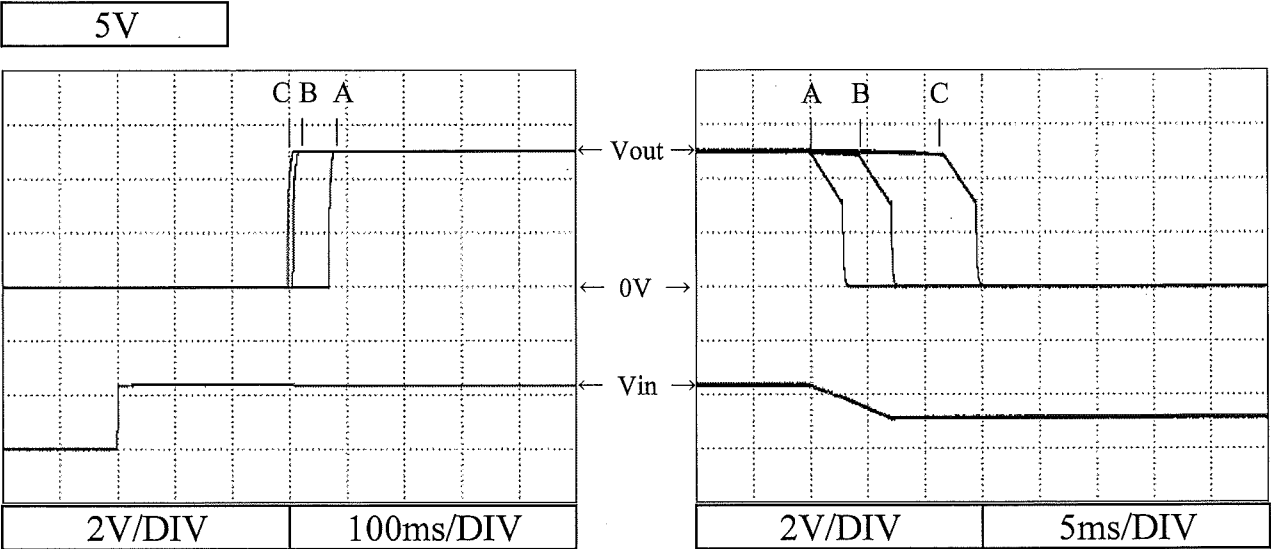


OVP Point
 →
 Vout →
 0V →



2.4 出力立ち上がり・立ち下がり特性
Output rise/fall characteristics

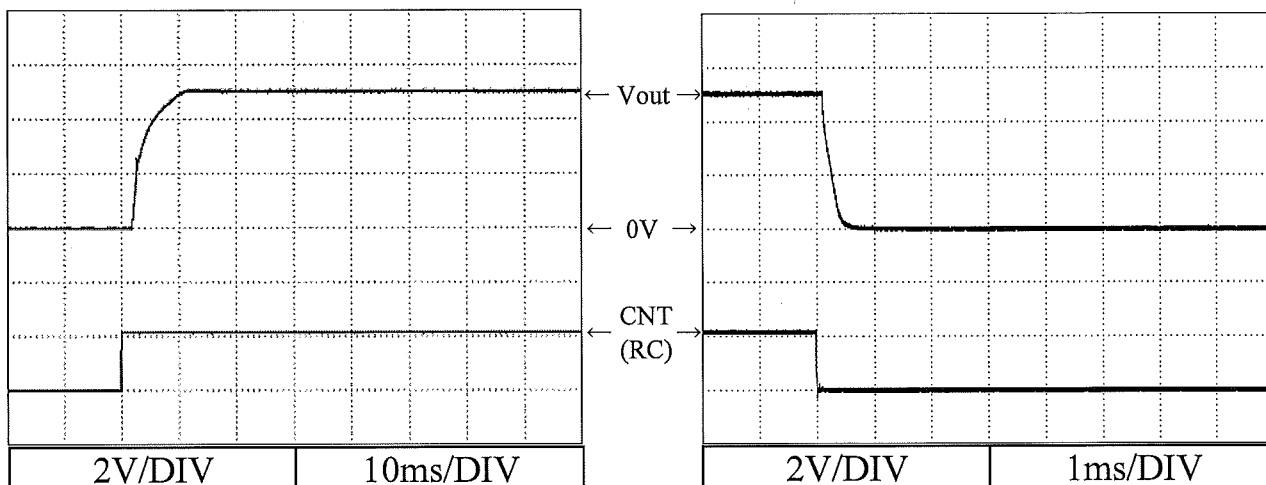
Conditions Vin : 18 VDC (A)
24 VDC (B)
32 VDC (C)
Iout : 100 %
Ta : 25 °C



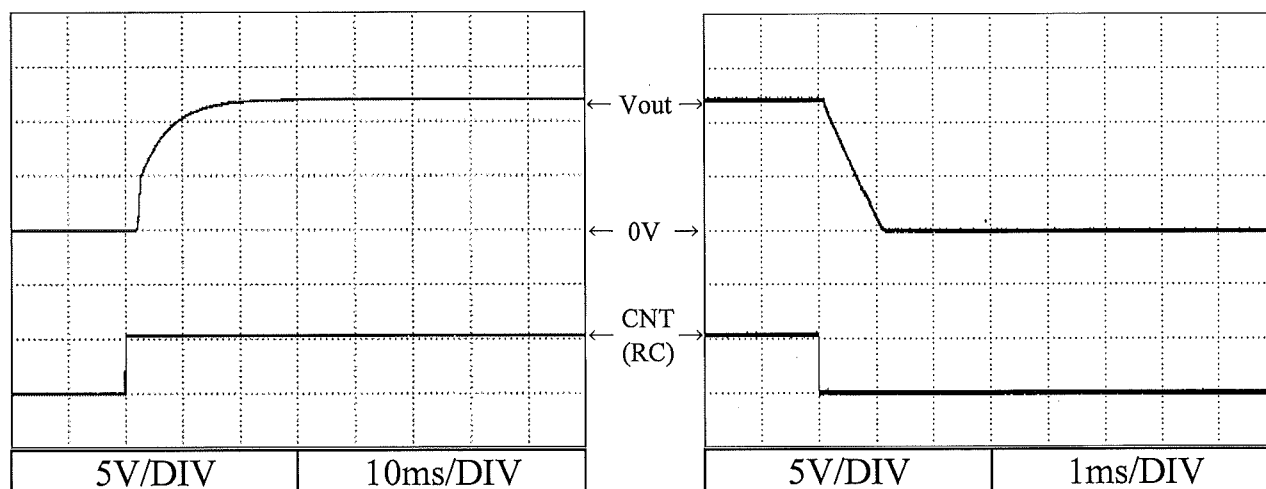
2.5 ON/OFFコントロール時出力立ち上がり・立ち下がり特性
Output rise/fall characteristics with ON/OFF control

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

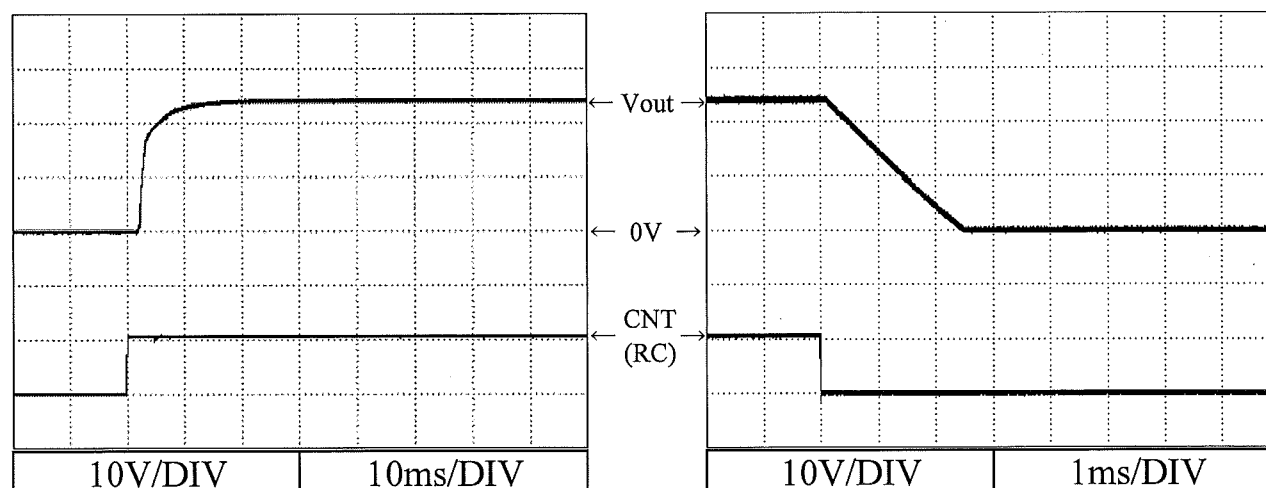
5V



12V



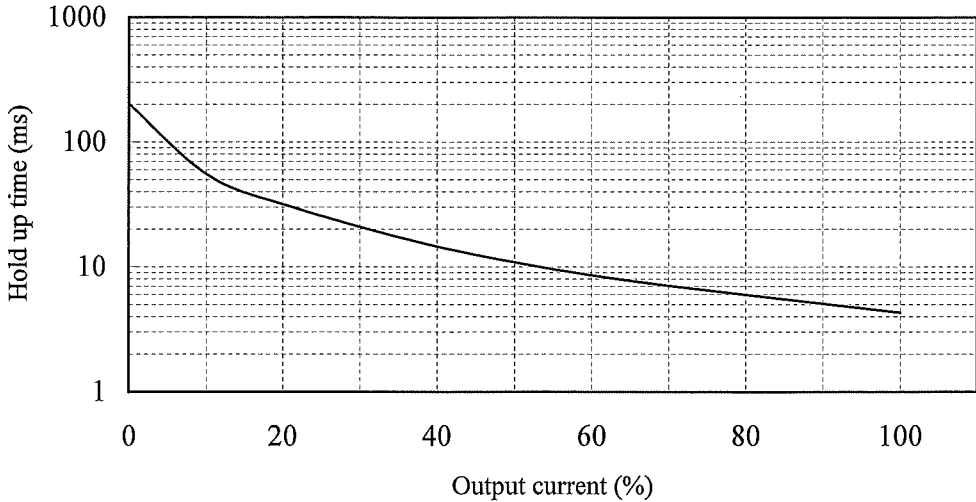
24V



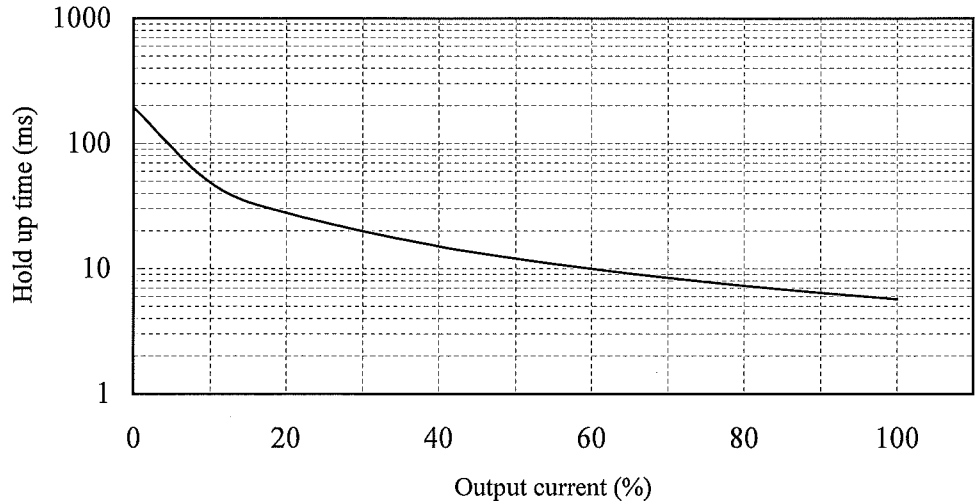
2.6 出力保持時間特性
Hold up time characteristics

Conditions Vin : 24 VDC
Ta : 25 °C

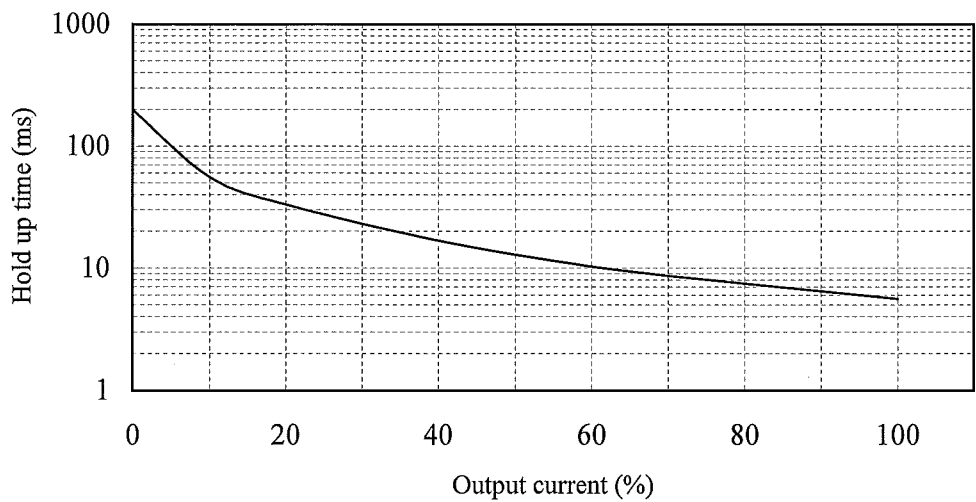
5V



12V



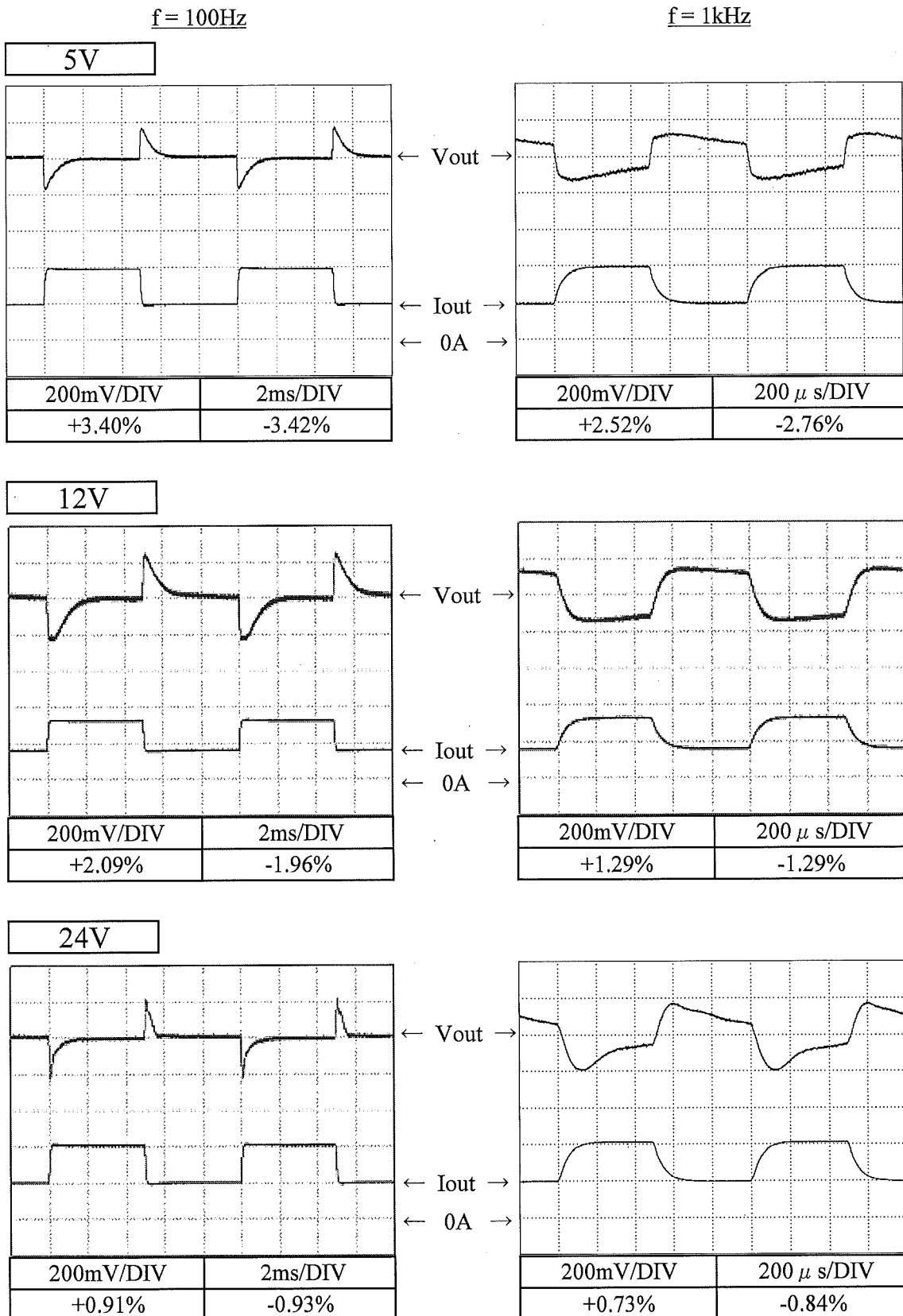
24V



2.7 過渡応答（負荷急変）特性

Dynamic load response characteristics

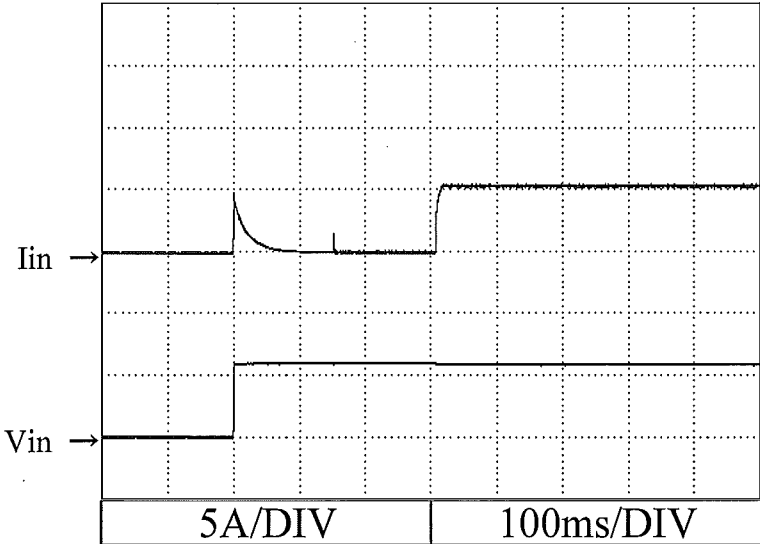
Conditions Vin : 24 VDC
 Iout : 50 % ↔ 100 %
 (tr = tf = 100us)
 Ta : 25 °C



2.8 入力サージ電流（突入電流）特性
Inrush current waveform

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

5V

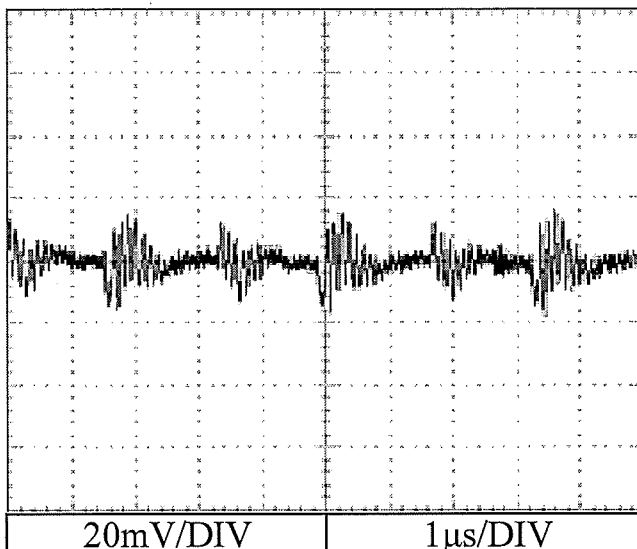


2.9 出力リップル、ノイズ波形
Output ripple and noise waveform

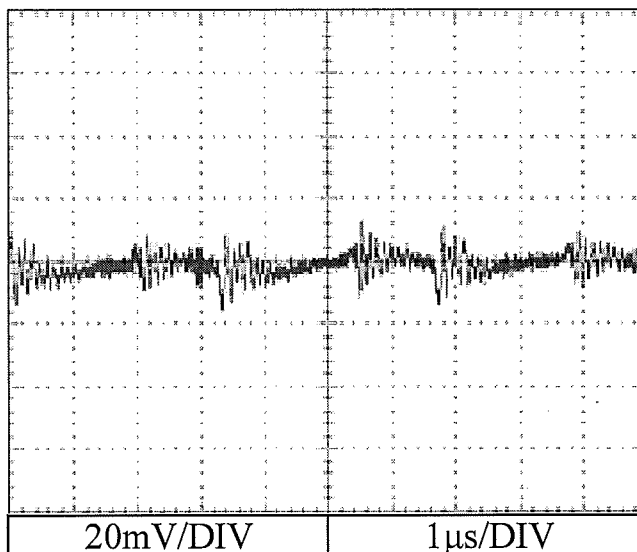
Conditions Vin : 24 VDC
Iout : 100 %
Ta : 25 °C

NORMAL MODE

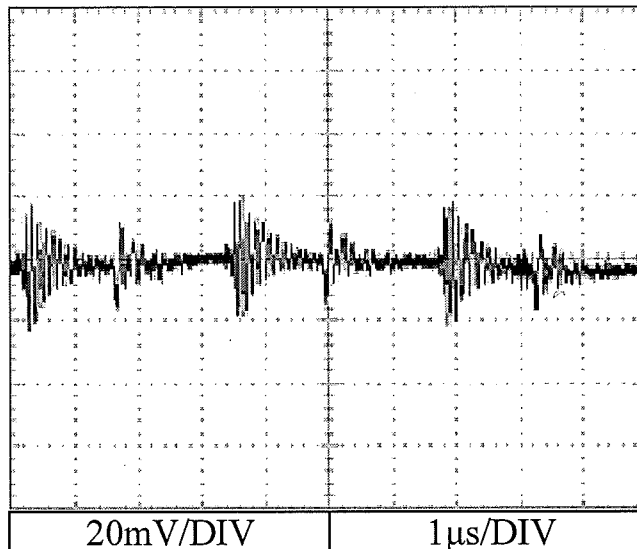
5V



12V



24V



2.10 EMI 特性

Electro-Magnetic Interference characteristics

雑音端子電圧

Conducted Emission

Conditions

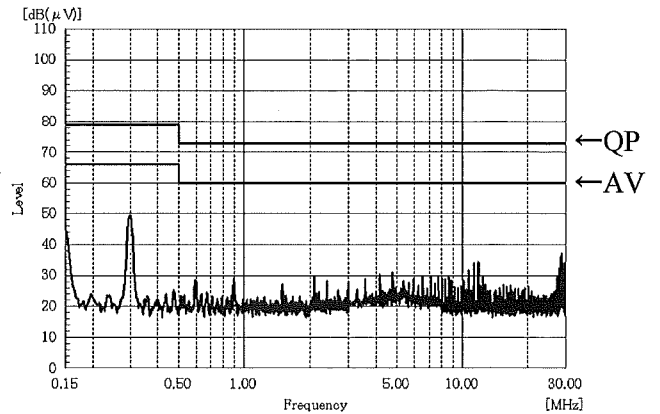
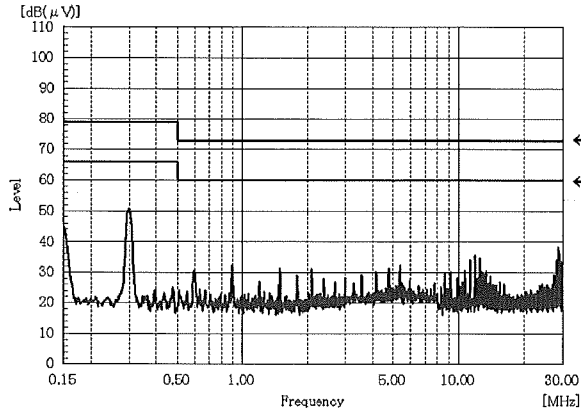
Vin : 24 VDC

Iout : 100 %

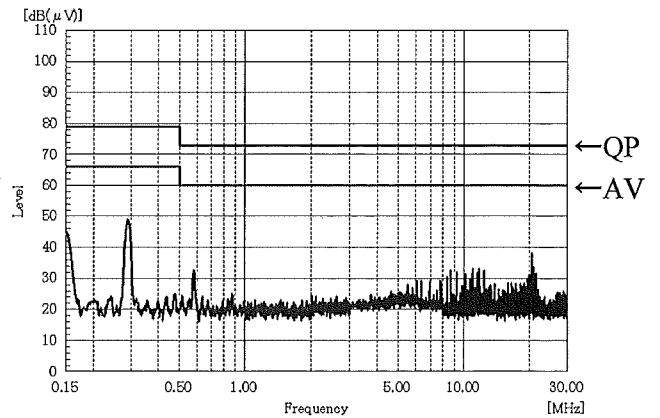
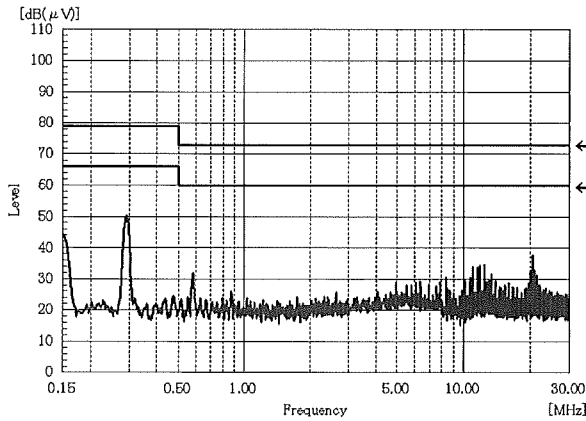
Phase : N (-Vin side)

Phase : L (+Vin side)

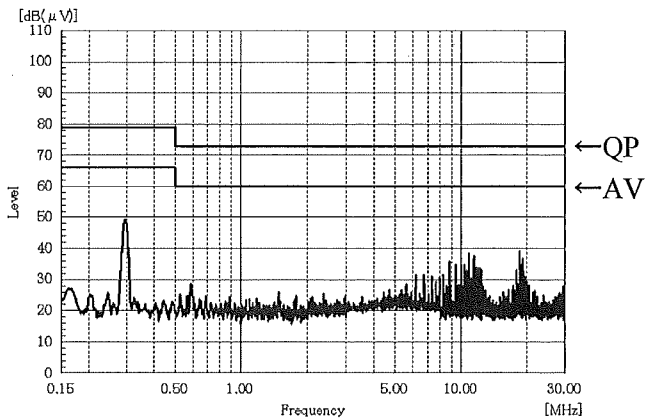
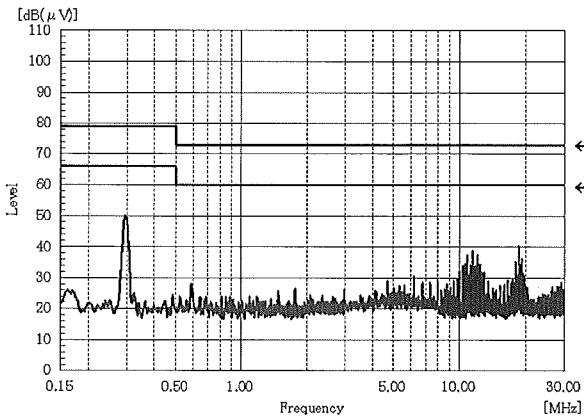
5V



12V



24V



EN55011-A,EN55022-Aの限界値はVCCI class Aの限界値と同じです。
Limit of EN55011-A,EN55022-A are same as its VCCI class A.

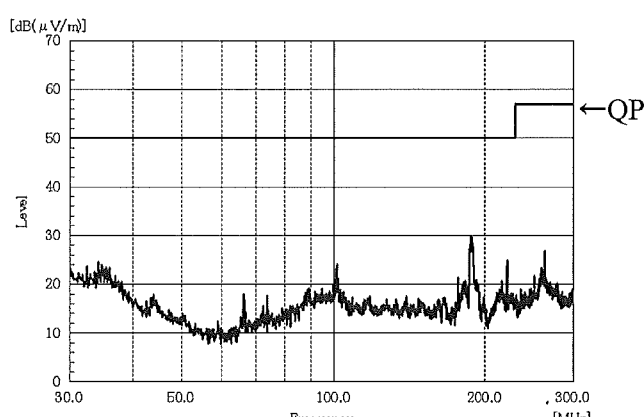
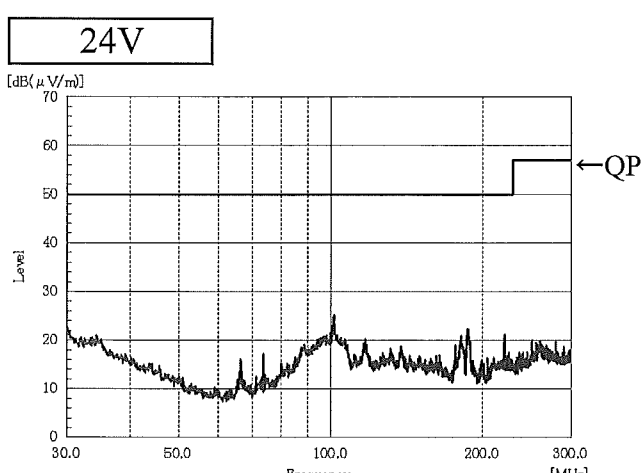
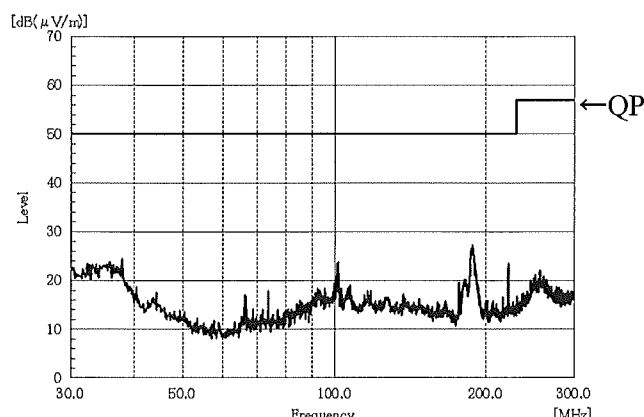
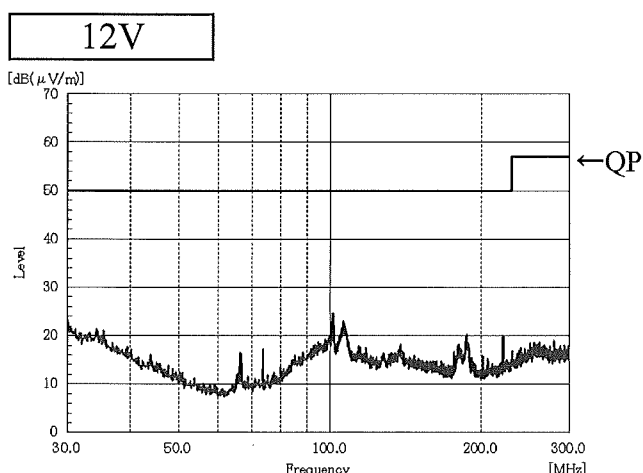
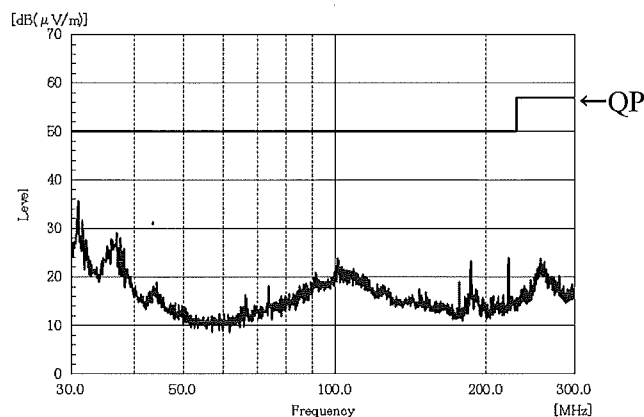
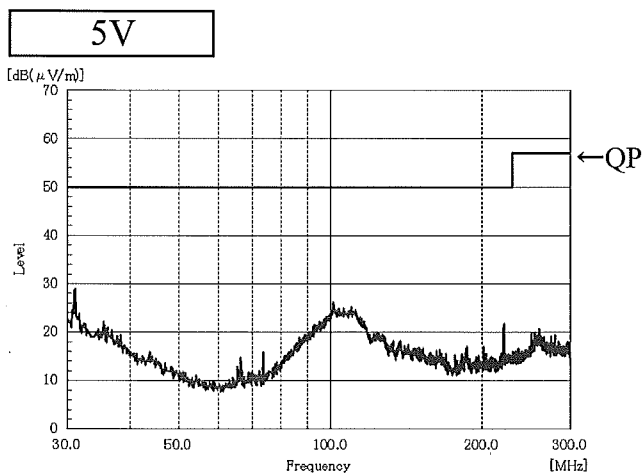
表示はピーク値です。
Indication is peak values.

雑音電界強度
Radiated Emission

Conditions Vin : 24 VDC
Iout : 100 %

HORIZONTAL

VERTICAL



EN55011-A,EN55022-Aの限界値はVCCI class Aの限界値と同じです。
Limit of EN55011-A,EN55022-A are same as its VCCI class A.

表示はピーク値です。
Indication is peak values.