





PH150F 280-*

EVALUATION DATA

型式データ

DWG. No.		C075-53-01	
承認	承認	査閲	担当
 93-7-13	 93.6.30	 93.6.30	 93.6.30

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使用記号 Terminology used

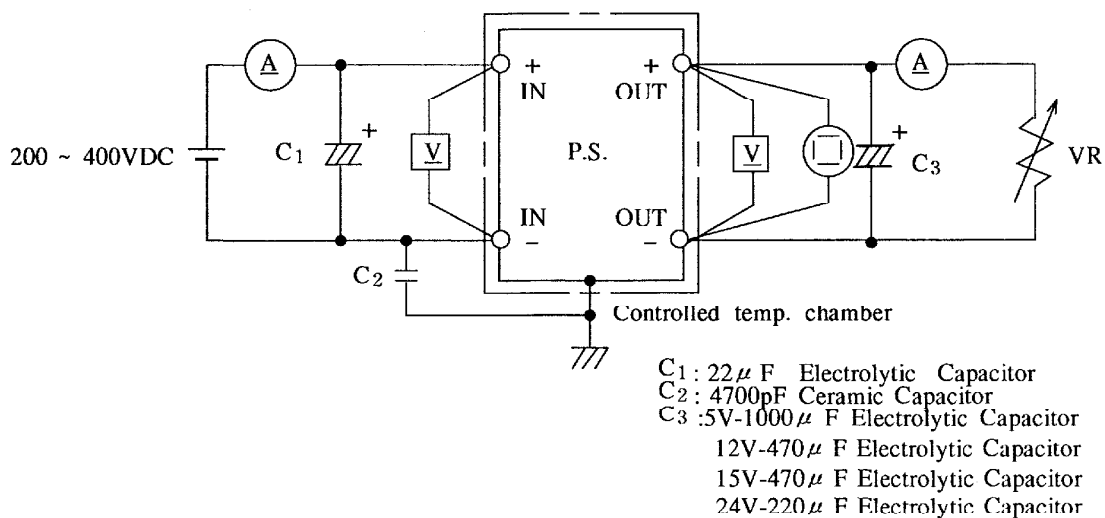
Definition

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 _p	ベースプレート温度	Base-Plate Temperature

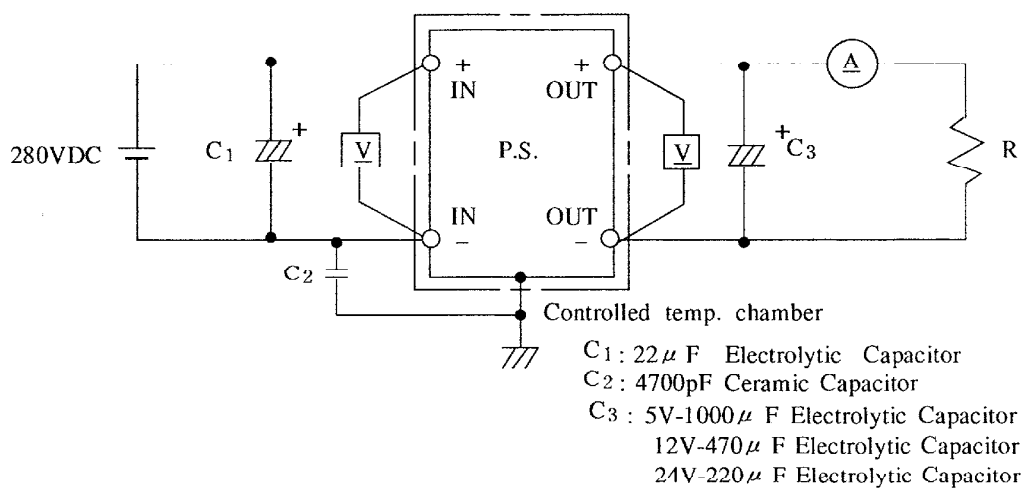
1. 評価測定方法 EVALUATION METHOD

1 - 1 測定回路 Circuits used for determination

(1) 静特性 Steady state data



(2) 通電ドリフト特性 Warm up voltage drift characteristics

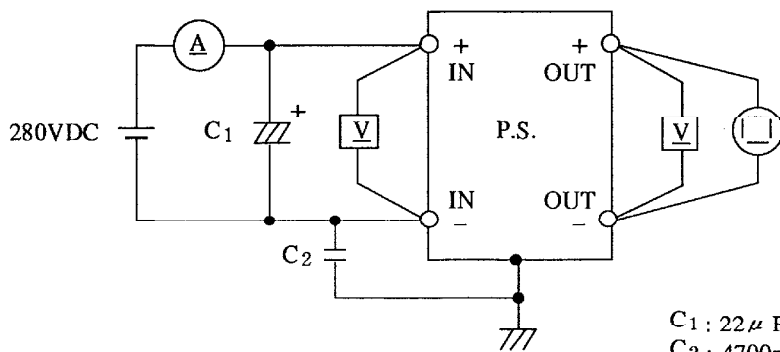


(3) 過電流保護特性 Over current protection (O.C.P.) characteristics

静特性と同じ

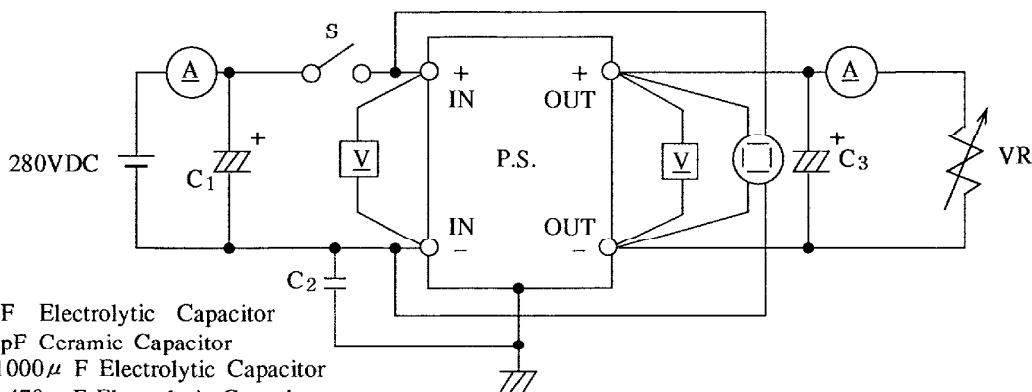
Same as steady state data

(4) 過電圧保護特性 Over voltage protection (OVP) characteristics



C1: 22 μ F Electrolytic Capacitor
C2: 4700pF Ceramic Capacitor

(5) 出力立上り特性 Output rise characteristics

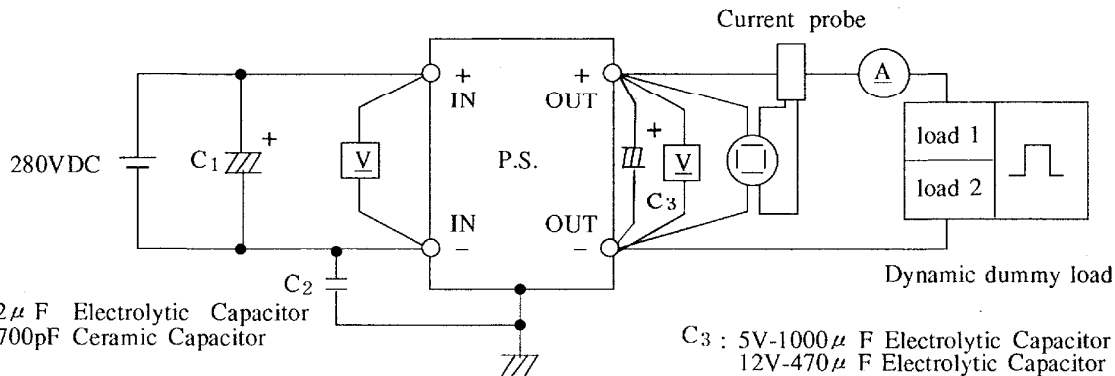


C1: 22 μ F Electrolytic Capacitor
C2: 4700pF Ceramic Capacitor
C3: 5V-1000 μ F Electrolytic Capacitor
12V-470 μ F Electrolytic Capacitor
24V-220 μ F Electrolytic Capacitor

(6) 出力立下り特性 Output fall characteristics

出力立上り特性と同じ
Same as Output rise characteristics

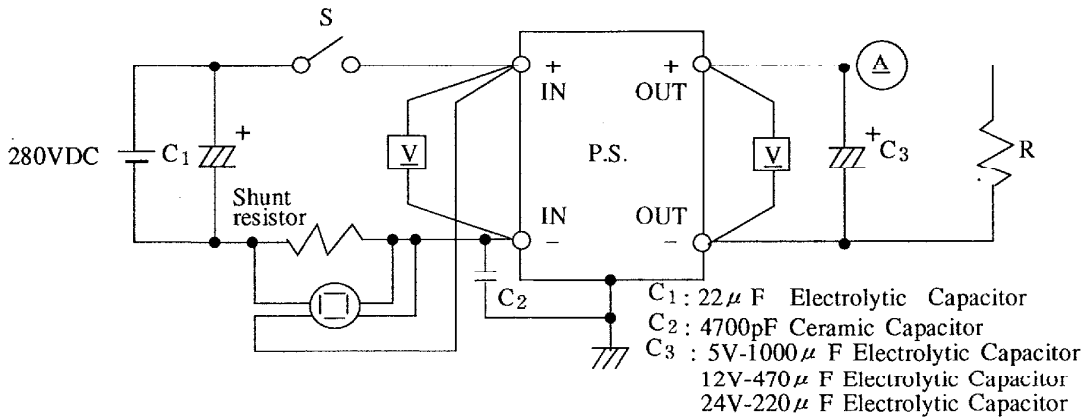
(7) 過渡応答 (負荷急変) 特性 Dynamic load response characteristics



C1: 22 μ F Electrolytic Capacitor
C2: 4700pF Ceramic Capacitor

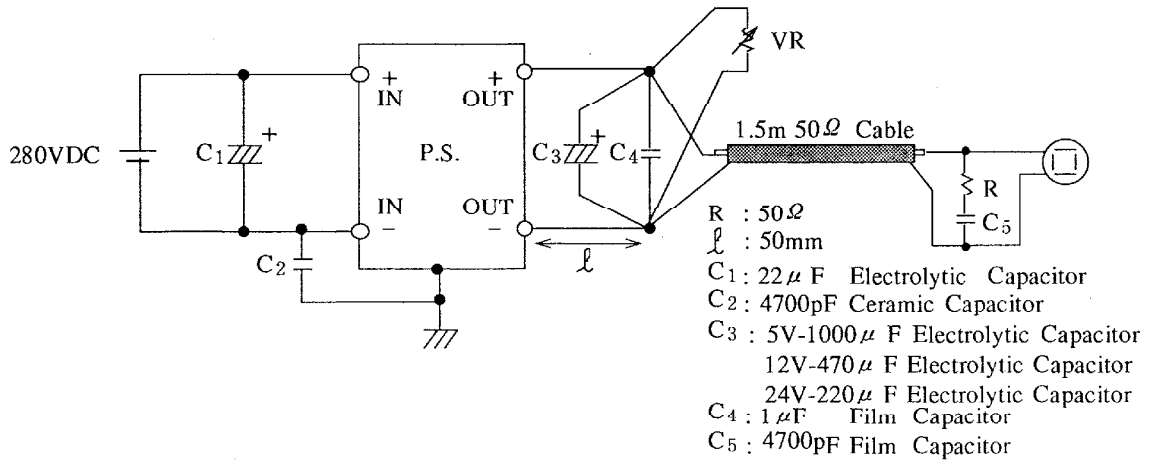
C3: 5V-1000 μ F Electrolytic Capacitor
12V-470 μ F Electrolytic Capacitor
24V-220 μ F Electrolytic Capacitor

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

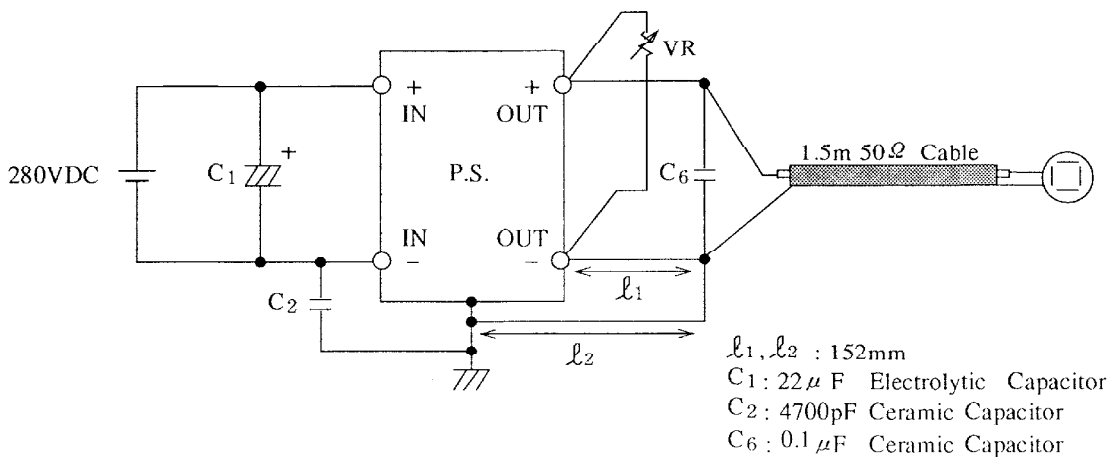


(9) 出力リップル、ノイズ波形 Output-ripple, noise waveform

NORMAL MODE (EIAJ Standard RC-9002A)



NORMAL + COMMON MODE



1 - 2 使用測定機器 List of equipment used

No.	DESCRIPTION	MANUFACTURER	MODEL No.
1	Oscilloscope	TEKTRONIX	2465B
2		HITACHI	V-1050F
3	Digital oscilloscope	YEW	DL2140
4		HITACHI	VC-6041
5	Digital volt meter	SANWA	9100EA
6	D.C. Ampere meter	YOKOGAWA ELEC.	2051
7	Dynamic dummy load	TAKAMIZAWA	PSA-150D
8	Variable resistive load	MATSUNAGA	44 / 11 Ω
9	Variable resistive load	MATSUNAGA	2.4 / 0.6 Ω
10	Controlled temp. chamber	JEC	303D
11	Shunt resistor	KUWANO	100mV, 1A
12	Current probe amplifier	TEKTRONIX	TM503
13	Current probe	TEKTRONIX	A6303

2. 特性データ CHARACTERISTICS

2-1 静特性 Steady state data

(1) 入力・負荷・温度変動 Regulation - line and load , temp . drift

5V

1. Regulation - line and load , temp . drift Condition T_p : 25°C

I_{out} \ V_{in}	200VDC	280VDC	400VDC	line regulation	
0%	5.008V	5.009V	5.009V	1mV	0.02%
50%	5.010V	5.009V	5.010V	1mV	0.02%
100%	5.015V	5.009V	5.011V	6mV	0.12%
load regulation	7mV	0mV	2mV		
	0.14%	0%	0.04%		

2. Temperature drift Conditions V_{in} :280VDC
 I_{out} :100%

T_p	-20°C	25°C	85°C	Temp. stability	
V_{out}	5.004V	5.009V	5.004V	5mV	0.10%

12V

1. Regulation - line and load , temp . drift Condition T_p : 25°C

I_{out} \ V_{in}	200VDC	280VDC	400VDC	line regulation	
0%	12.002V	12.003V	12.004V	2mV	0.02%
50%	12.001V	12.003V	12.004V	3mV	0.03%
100%	12.002V	12.003V	12.004V	2mV	0.02%
load regulation	1mV	0mV	0mV		
	0.01%	0%	0%		

2. Temperature drift Conditions V_{in} :280VDC
 I_{out} :100%

T_p	-20°C	25°C	85°C	Temp. stability	
V_{out}	11.982V	12.003V	12.003V	21mV	0.18%

入力・負荷・温度変動 Regulation - line and load , temp . drift

24V

1. Regulation - line and load , temp . drift Condition $T_p : 25^\circ\text{C}$

I_{out} \ V_{in}	200VDC	280VDC	400VDC	line regulation	
	0%	24.01V	24.01V	24.01V	0mV
50%	24.01V	24.01V	24.01V	0mV	0%
100%	24.00V	24.01V	24.01V	10mV	0.04%
load regulation	10mV	0mV	0mV		
	0.04%	0%	0%		

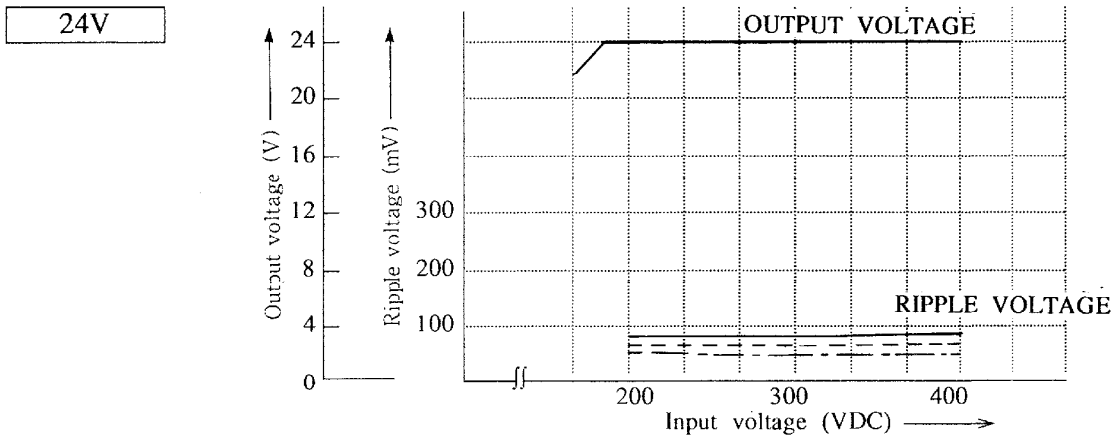
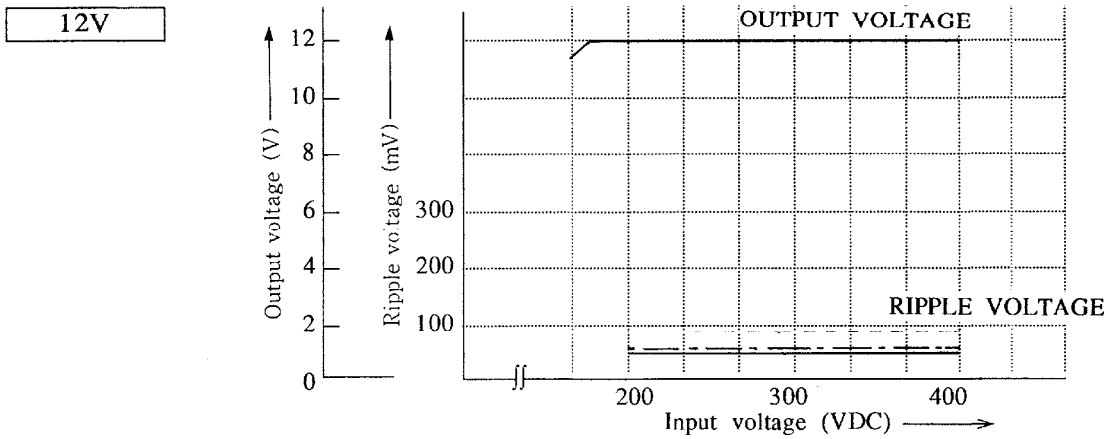
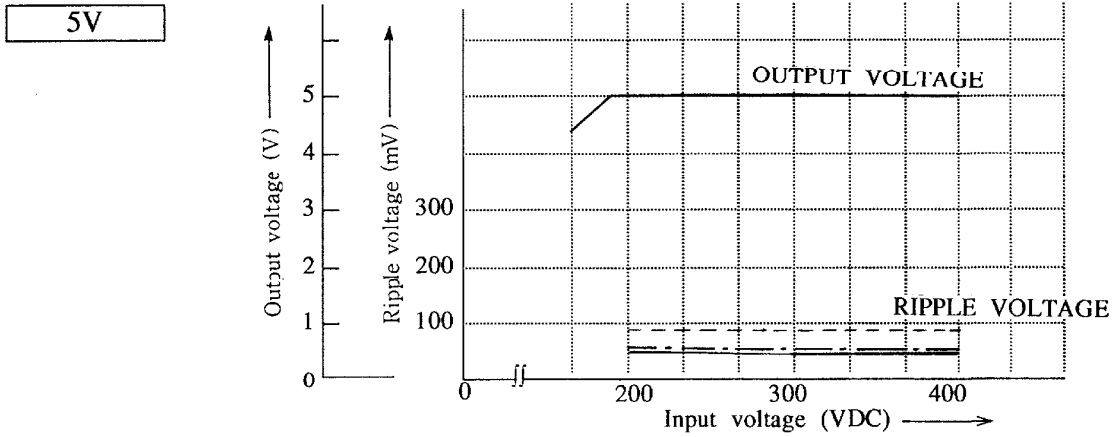
2. Temperature drift Conditions $V_{in} : 280\text{VDC}$
 $I_{out} : 100\%$

T_p	-20°C	25°C	85°C	Temp. stability	
V_{out}	23.98V	24.01V	24.00V	30mV	0.13%

(2) 出力電圧・リップル電圧対入力電圧

Conditions Iout : 100%
 Tp : -20°C ---
 25°C - - -
 85°C ———

Output voltage and ripple voltage v.s. input voltage

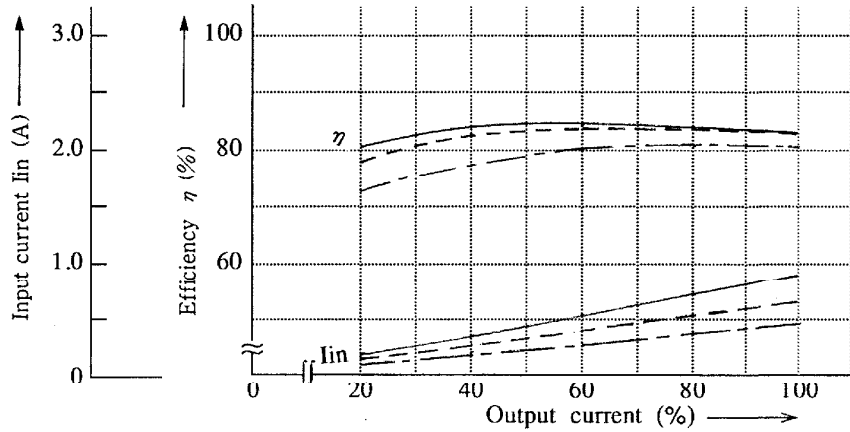


(3) 効率・入力電流対出力電流

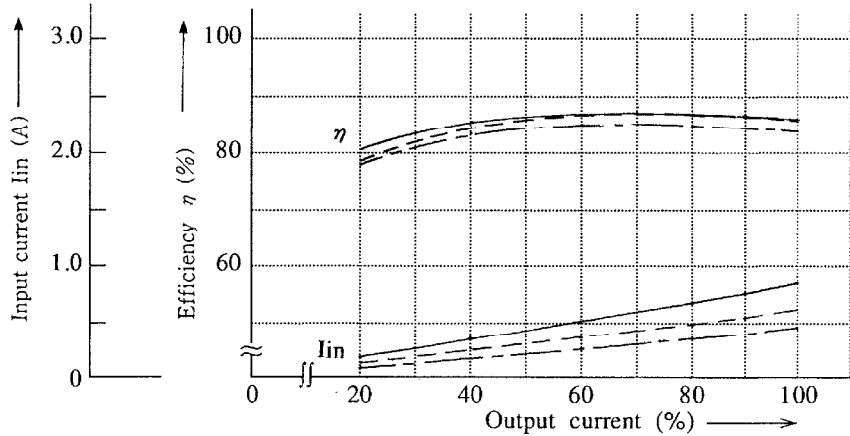
Efficiency and input current v.s. output current

Conditions Vin : 200VDC
 280VDC
 400VDC
 Tp : 25°C

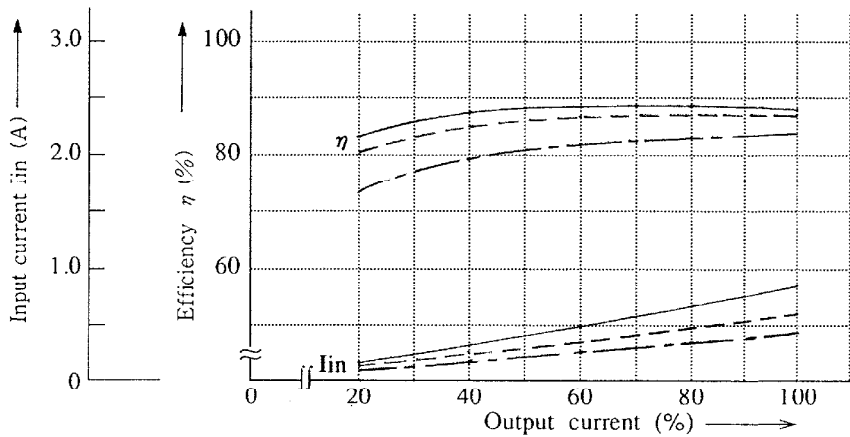
5V



12V



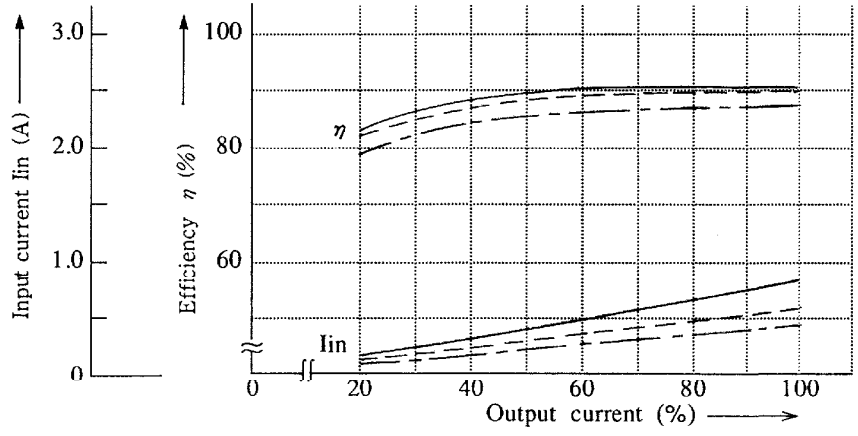
15V



PH150F280-*

Conditions Vin : 200VDC ———
 280VDC - - - - -
 400VDC - · - · -
 Tp : 25°C

24V



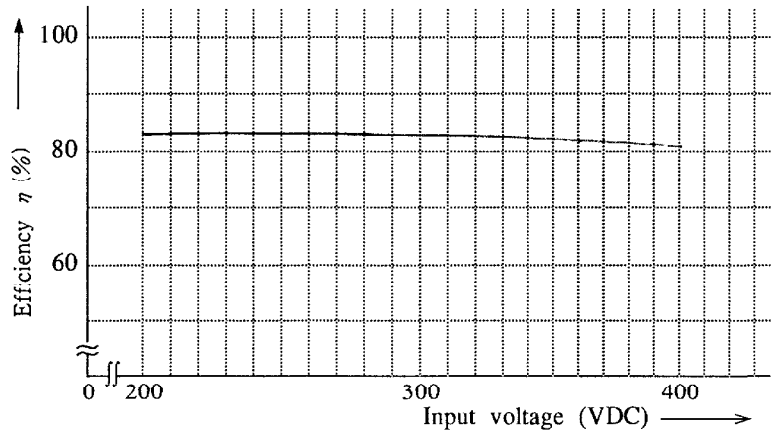
(4) 効率対入力電圧

Conditions Iout : 100% —

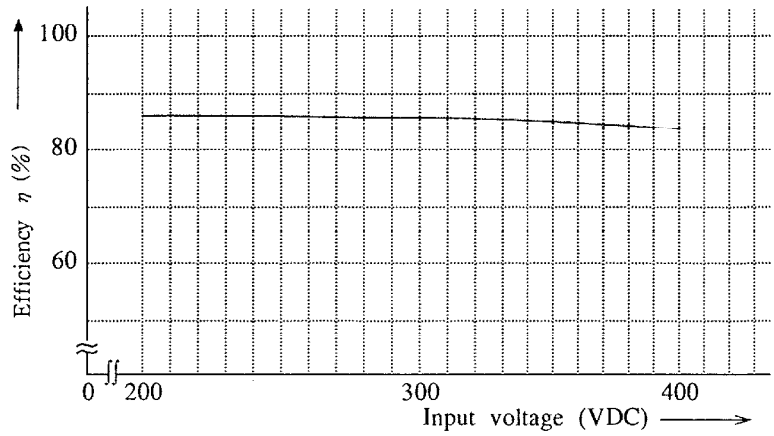
Efficiency v.s. input voltage

Tp : 25°C

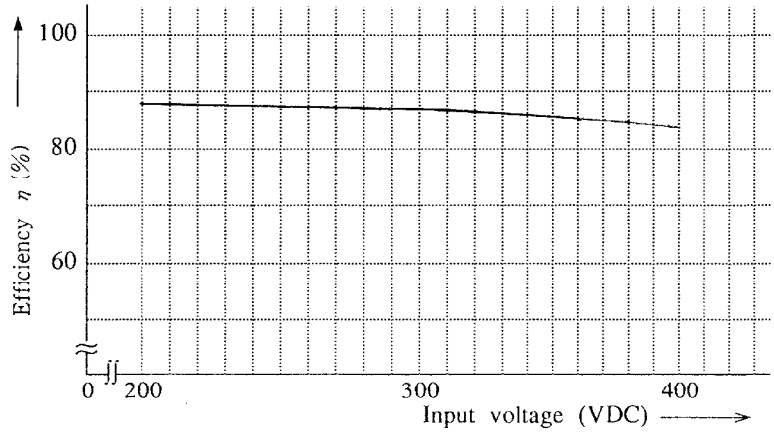
5V



12V



15V

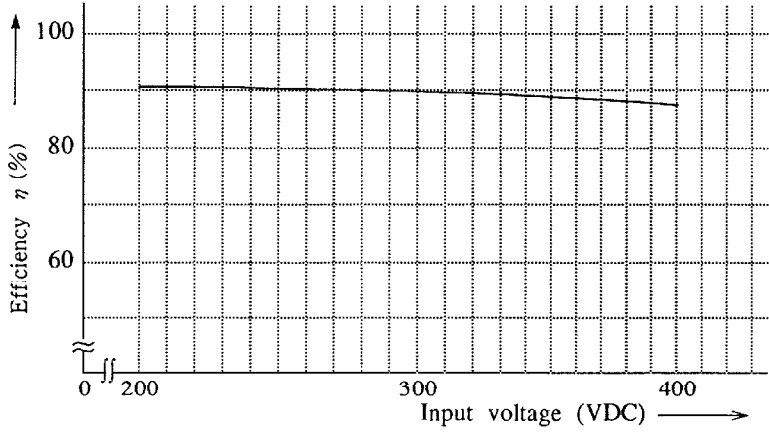


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Conditions Iout : 100% —

Tp : 25°C

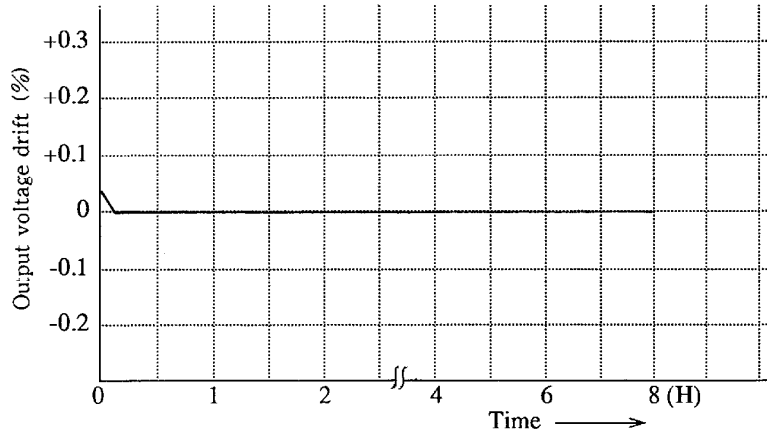
24V



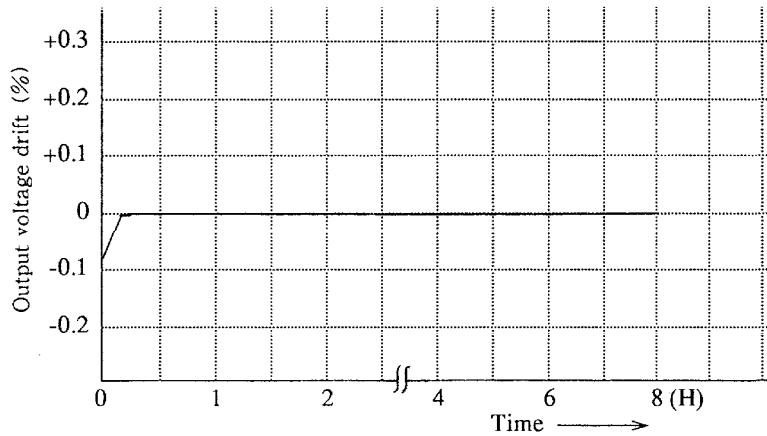
2-2 通電ドリフト特性 Warm up voltage drift Characteristics

Conditions Vin : 280VDC
Iout : 100%
Tp : 25°C

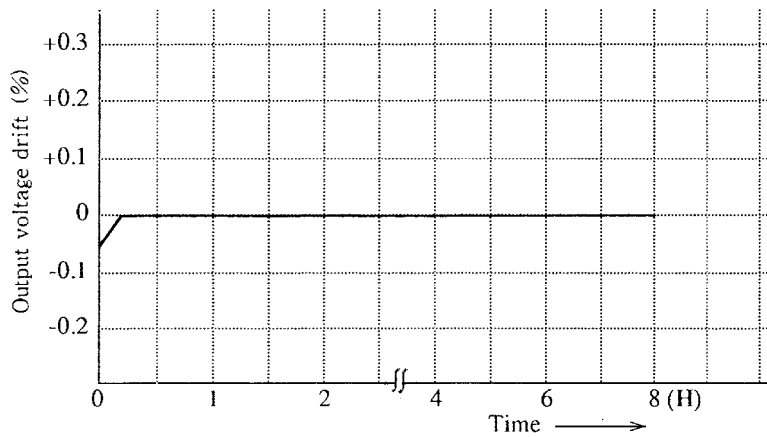
5V



12V



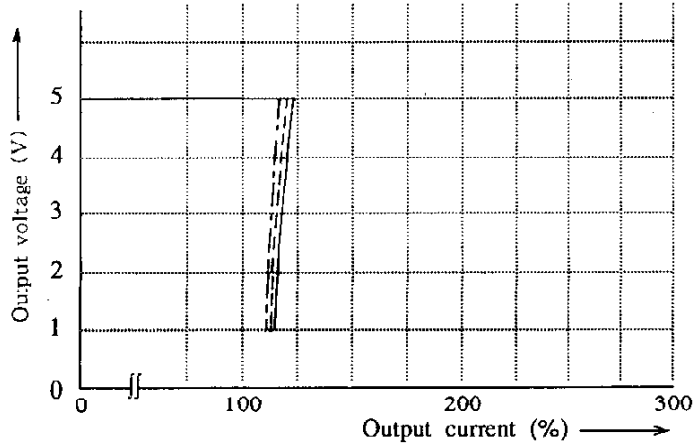
24V



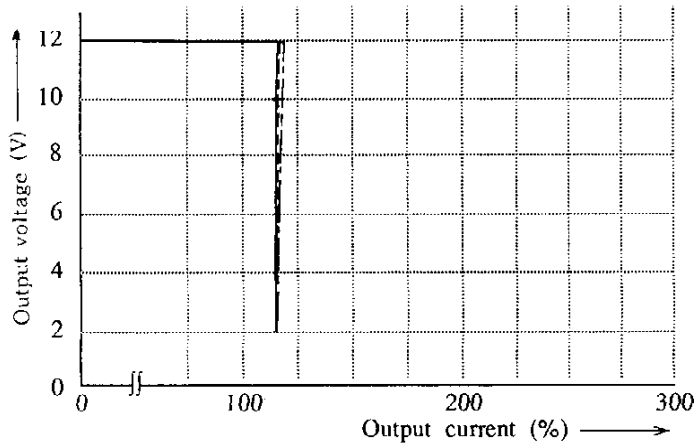
2-3 過電流保護特性 O.C.P.Characteristics

Conditions Vin : 200VDC ———
 280VDC - - -
 400VDC - - -
 Tp : 25°C

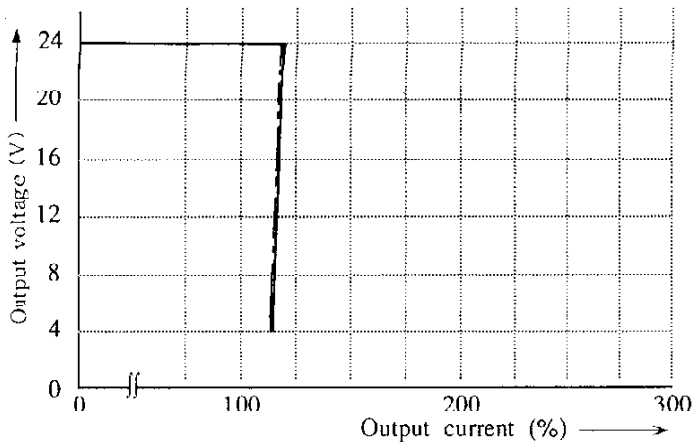
5V



12V



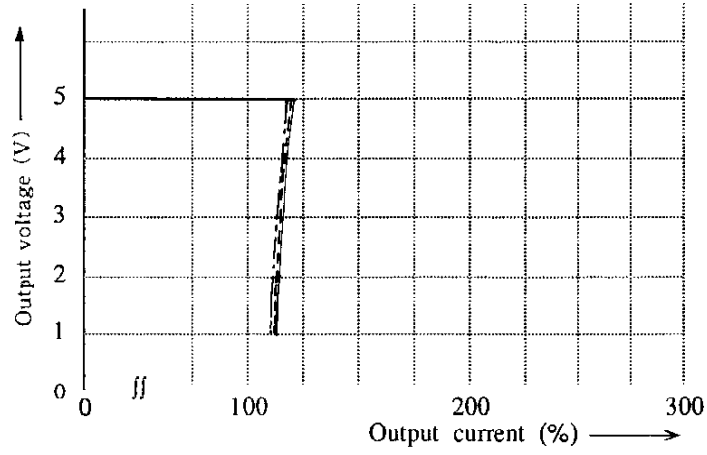
24V



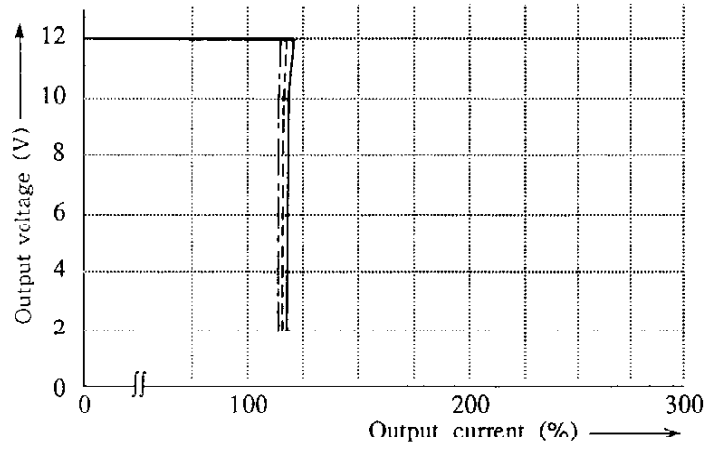
過電流保護特性 O.C.P.Characteristics

Conditions Vin : 280VDC
 Tp : -20°C ———
 25°C - - -
 85°C - - -

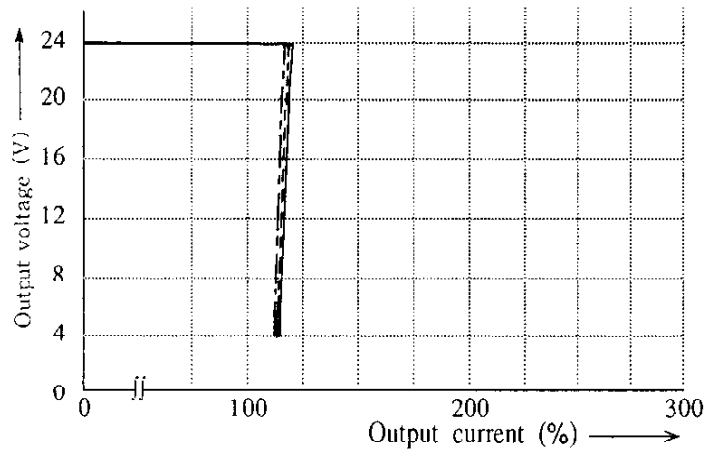
5V



12V



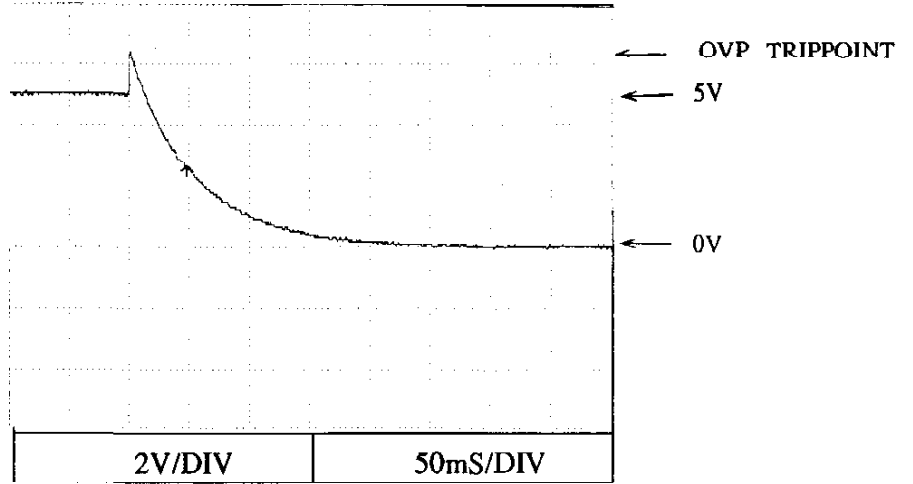
24V



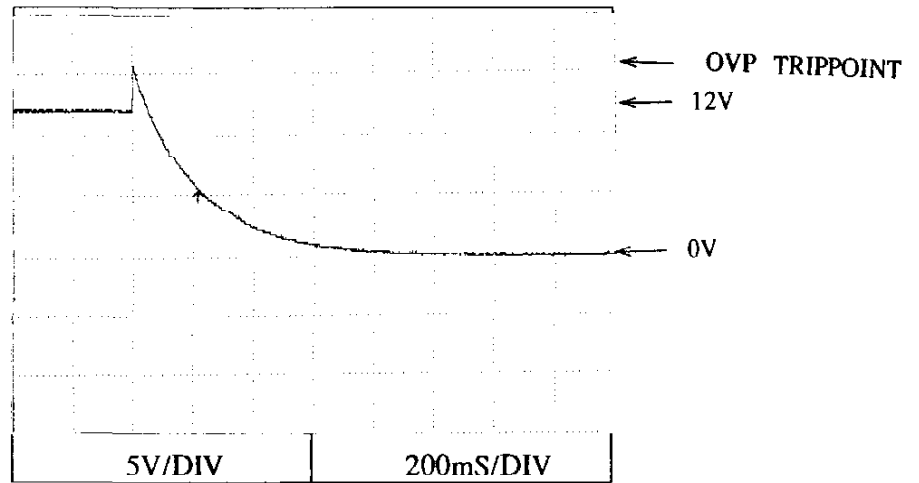
2-4 過電圧保護特性 O.V.P.Characteristics

Conditions Vin : 280VDC
Iout : 0%
Tp : 25°C

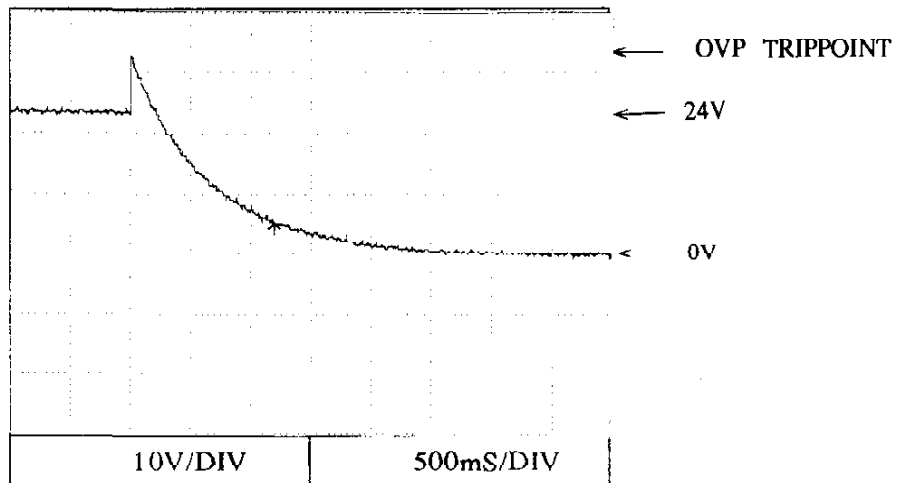
5V



12V



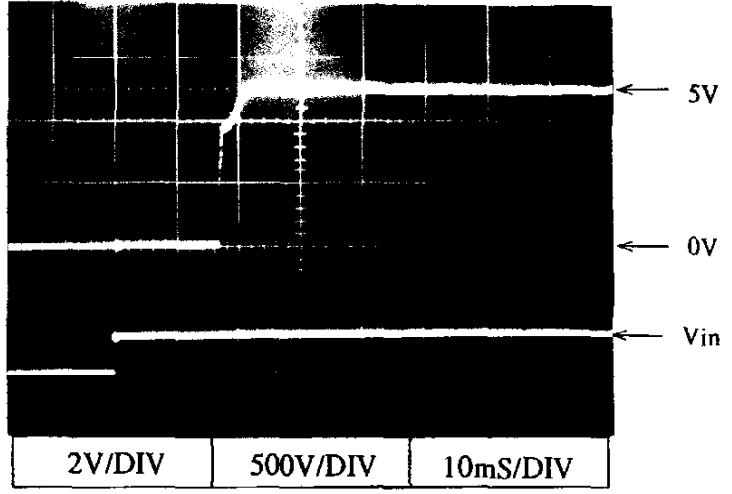
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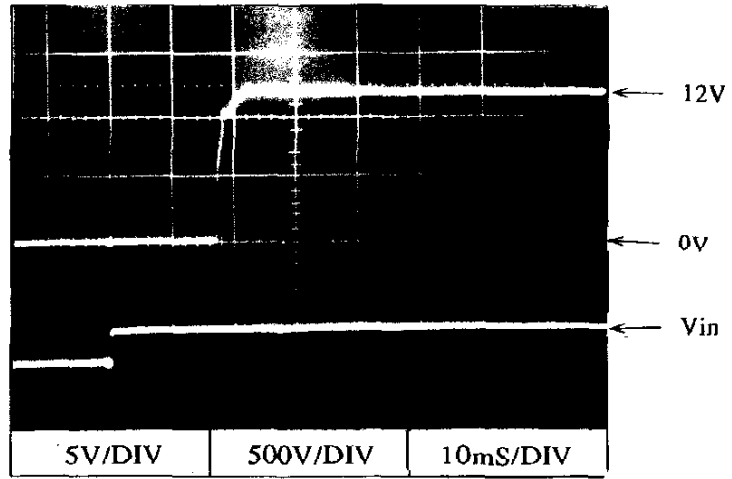
2-5 出力立上り特性 Output rise Characteristics

Conditions Vin : 280VDC
Iout : 0%
Tp : 25°C

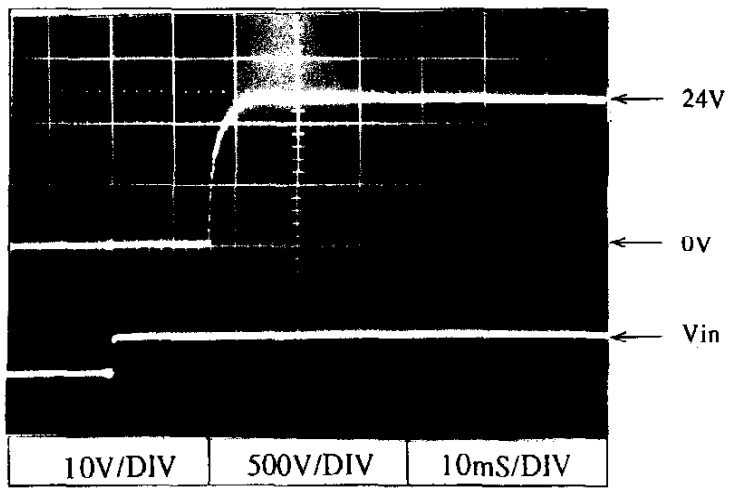
5V



12V



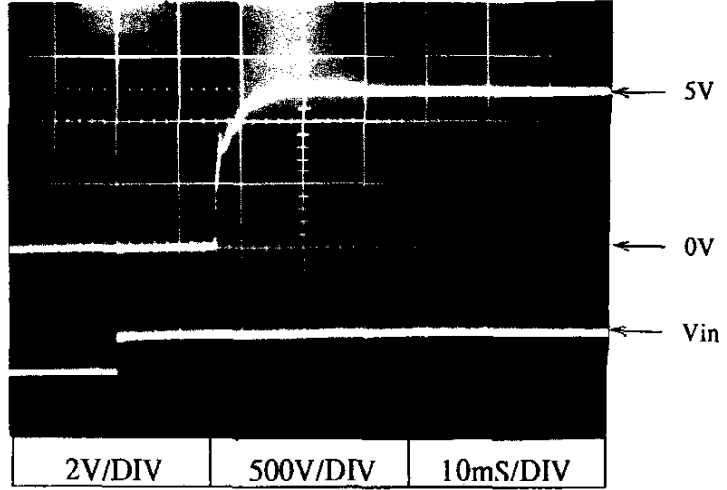
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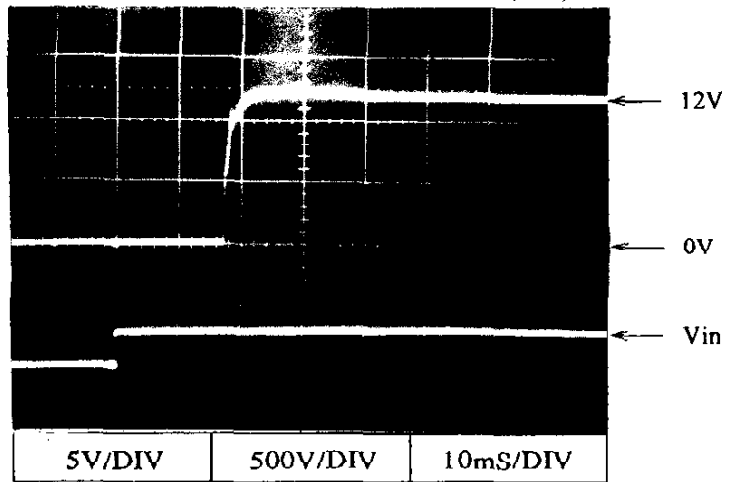
出力立上り特性 Output rise Characteristics

Conditions Vin : 280VDC
Iout : 100%
Tp : 25°C

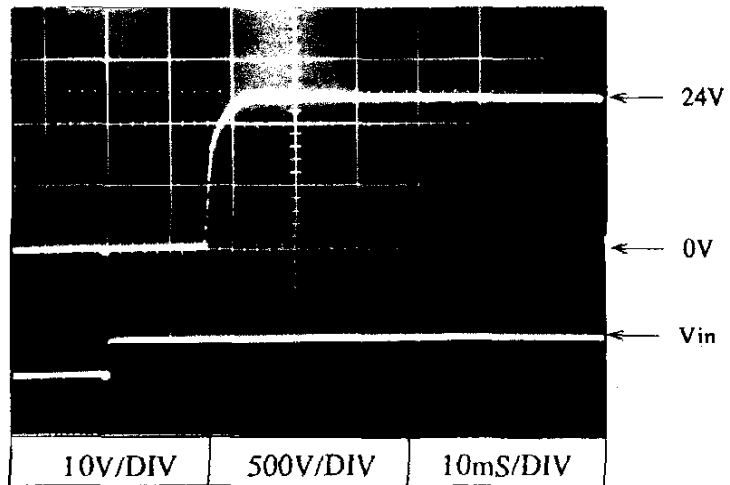
5V



12V



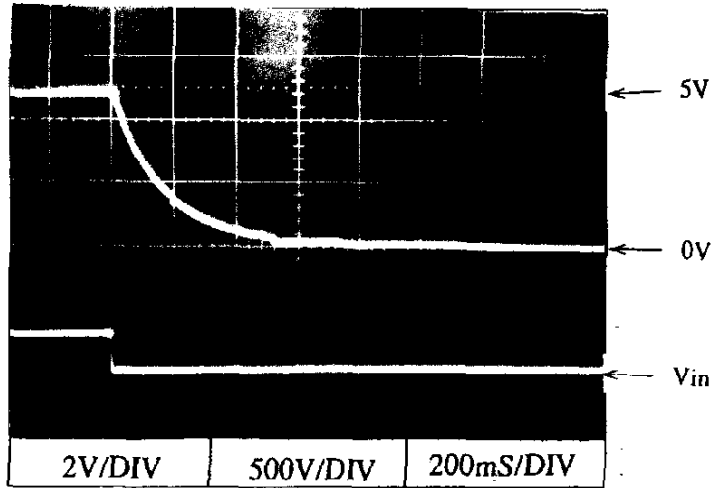
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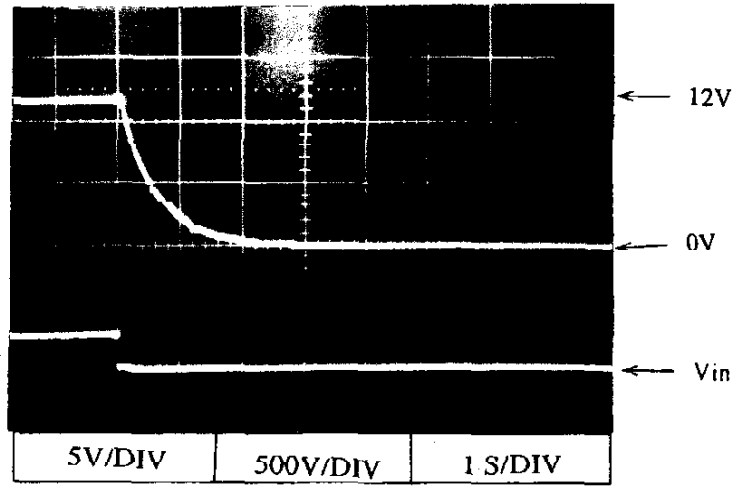
2-6 出力立下り特性 Output fall Characteristics

Conditions Vin : 280VDC
Iout : 0%
Tp : 25°C

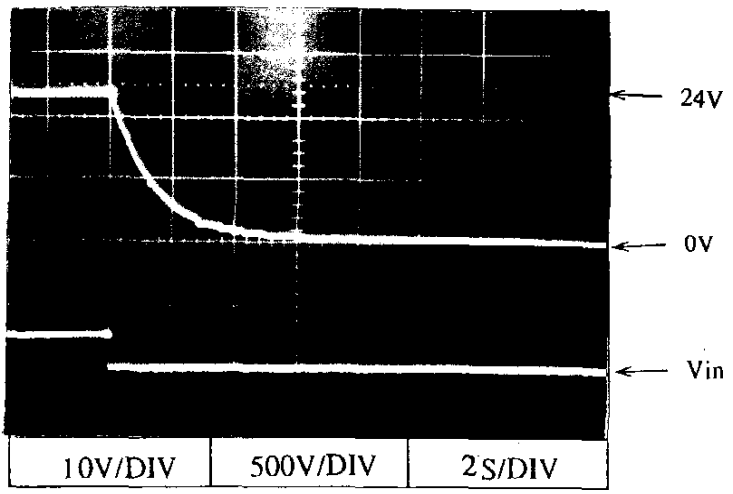
5V



12V



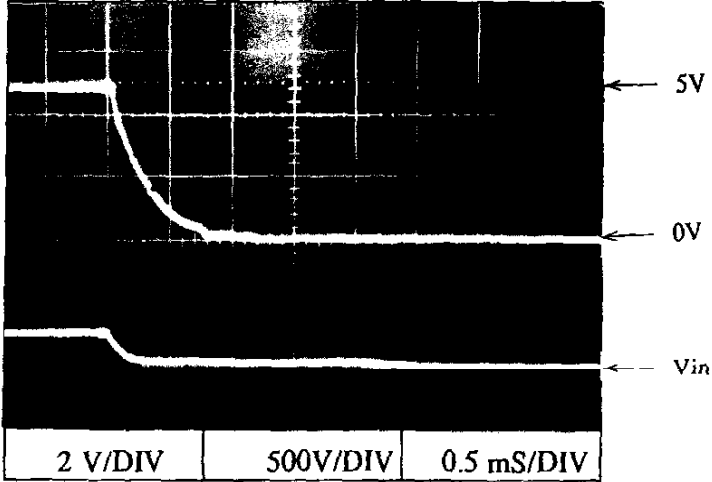
24V



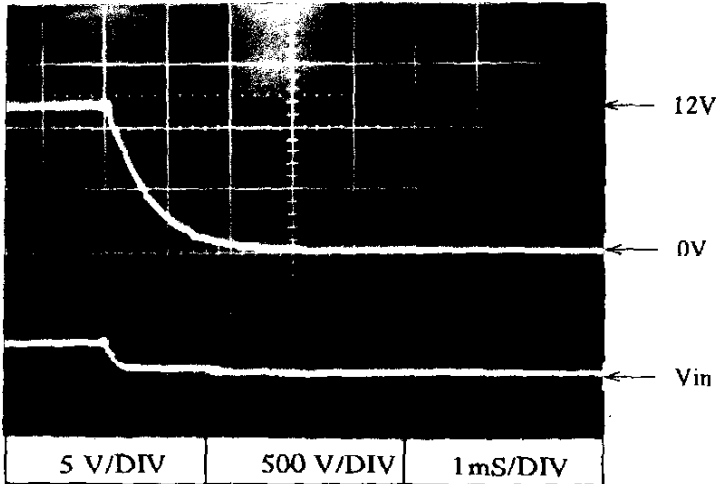
出力立下り特性 Output fall Characteristics

Conditions Vin : 280VDC
Iout : 100%
Tp : 25°C

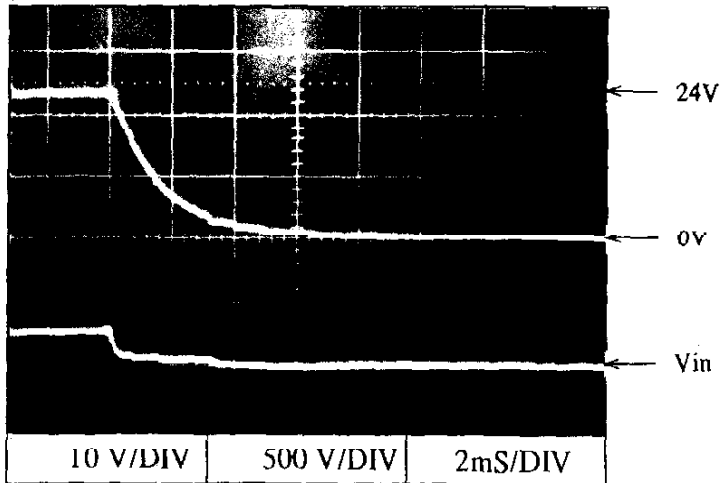
5V



12V



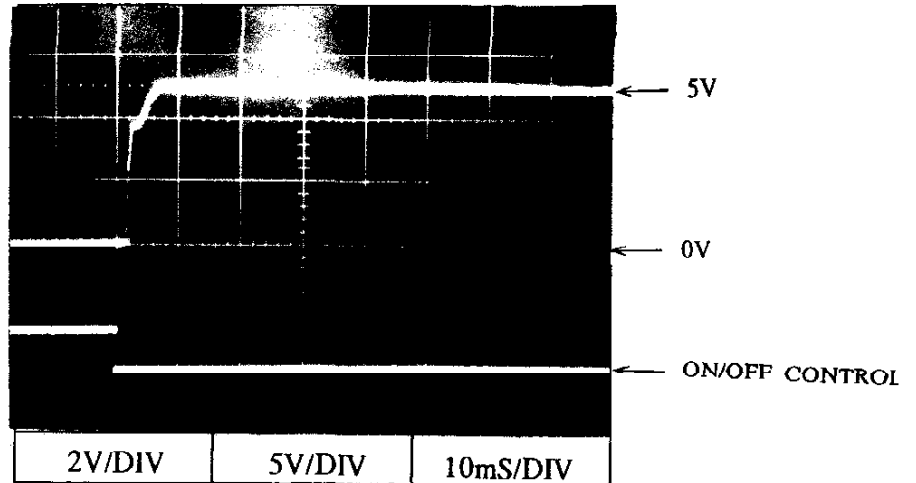
24V



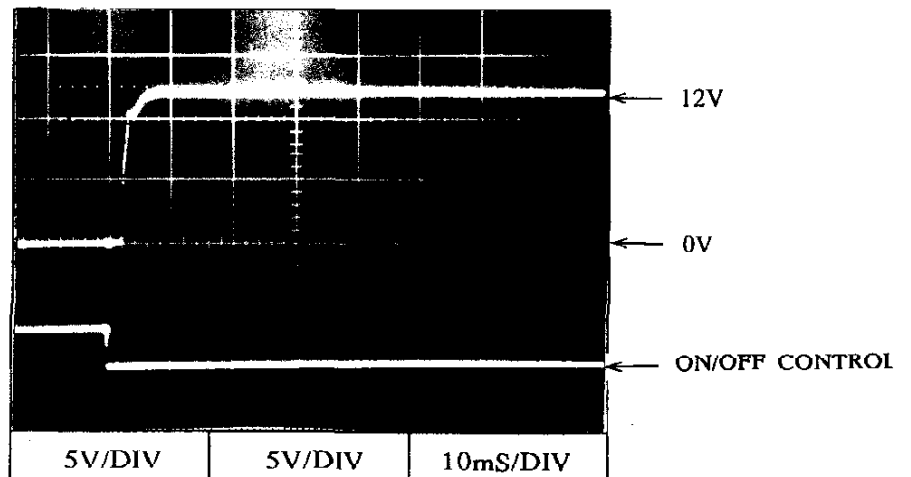
2-7 出力立上り特性(ON/OFF コントロール時)
Output rise Characteristics with ON/OFF CONTROL

Conditions Vin : 280VDC
Iout : 0%
Tp : 25°C

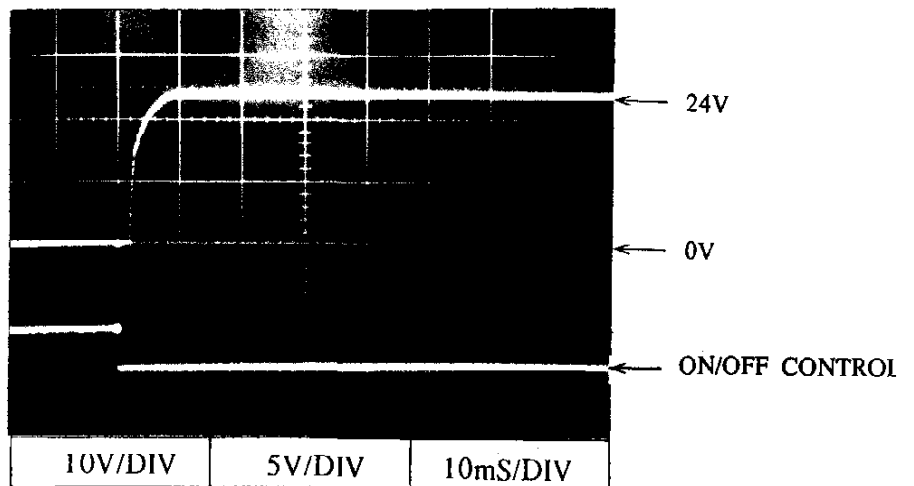
5V



12V



24V

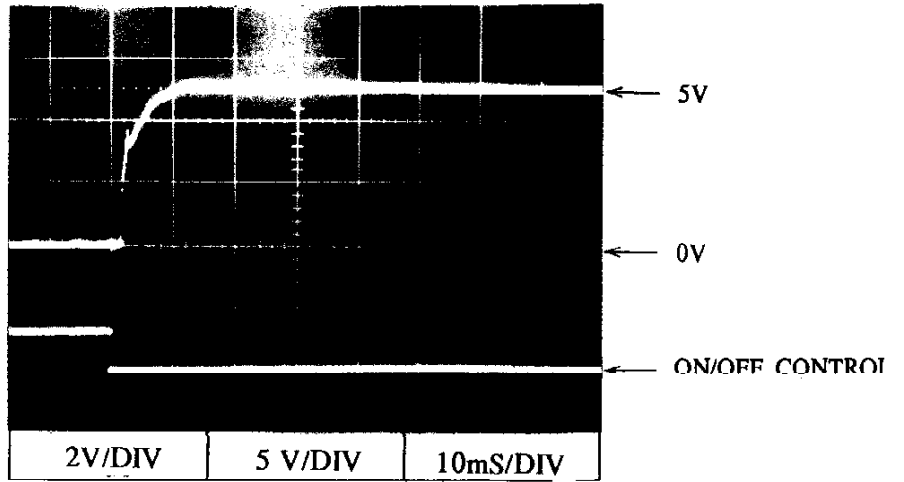


出力立上り特性(ON/OFF コントロール時)

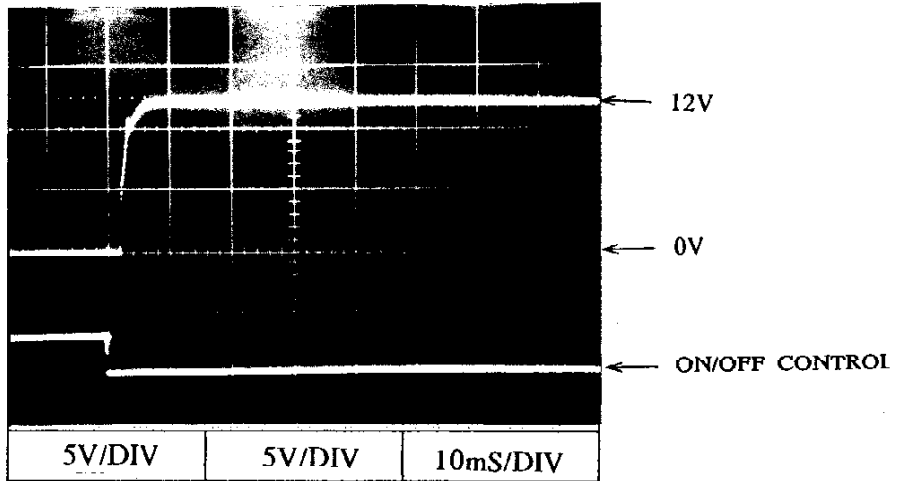
Output rise Characteristics with ON/OFF CONTROL

Conditions V_{in} : 280VDC
 I_{out} : 100%
 T_p : 25°C

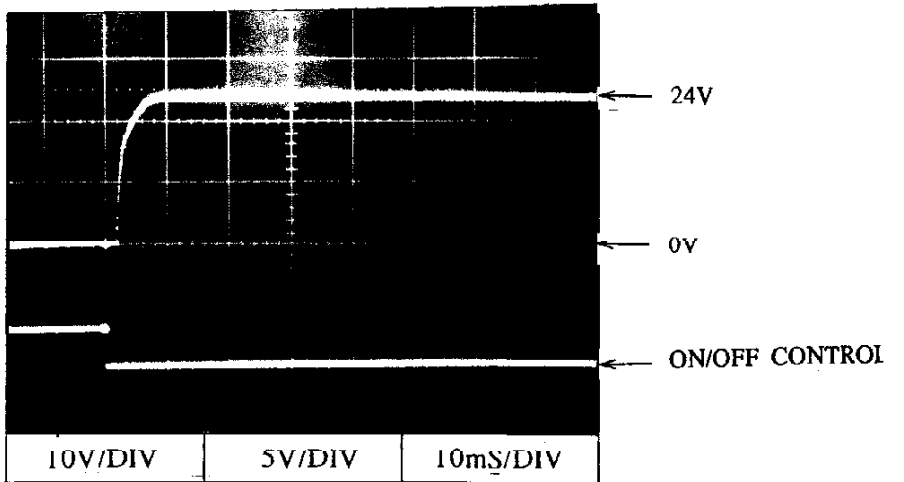
5V



12V



24V

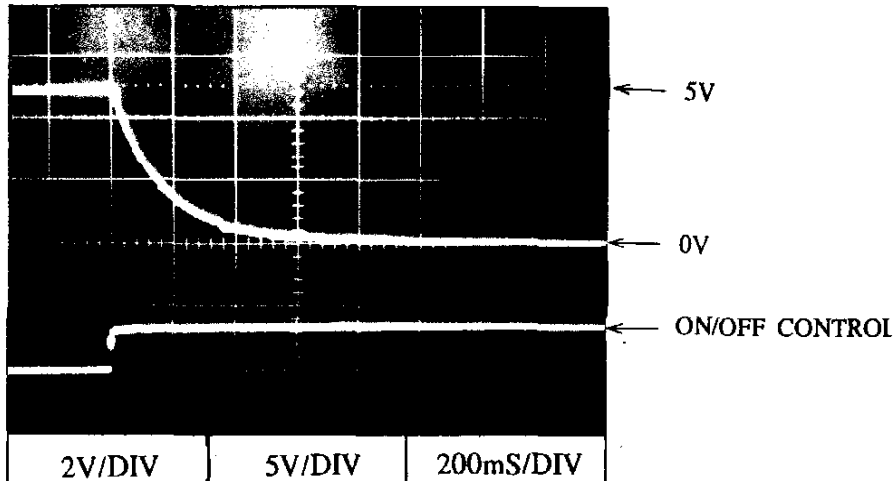


2-8 出力立下り特性(ON/OFF コントロール時)

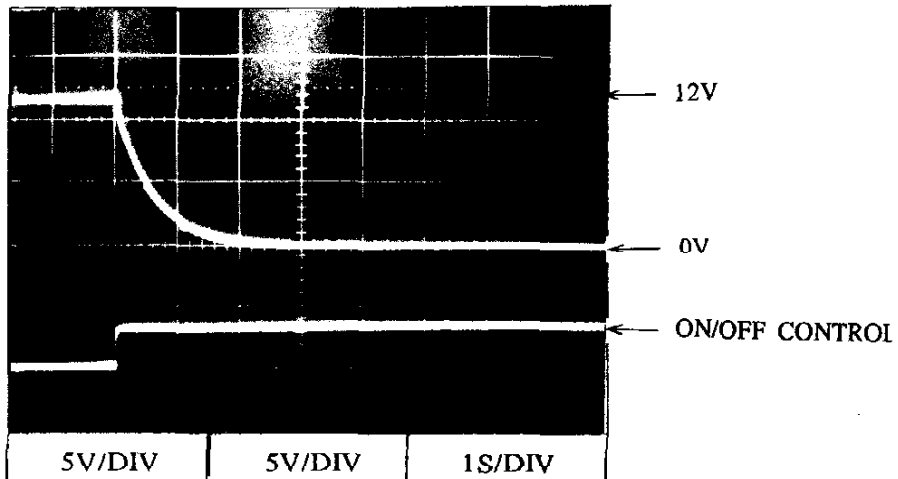
Output fall Characteristics with ON/OFF CONTROL

Conditions Vin : 280VDC
Iout : 0%
Tp : 25°C

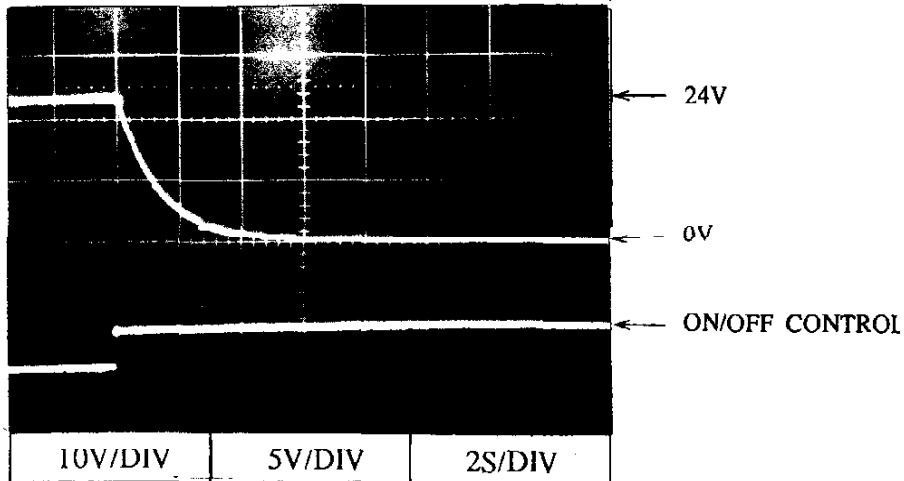
5V



12V



24V

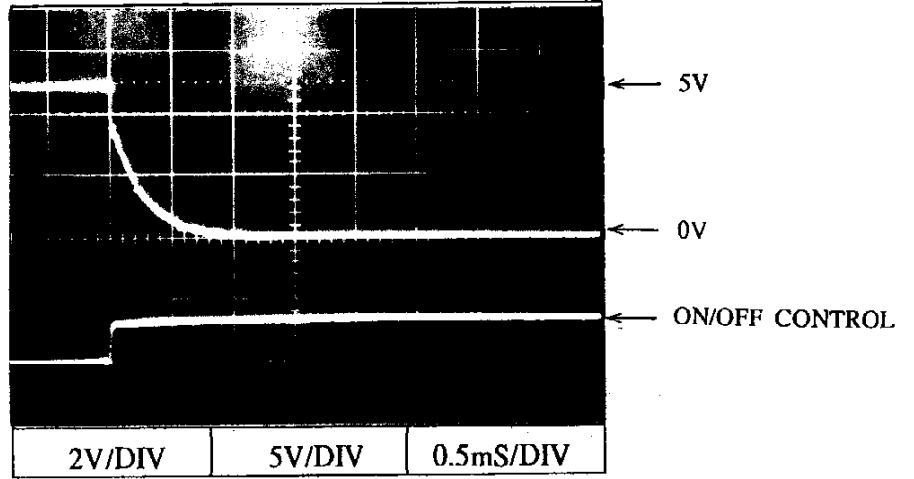


出力立下り特性(ON/OFF コントロール時)

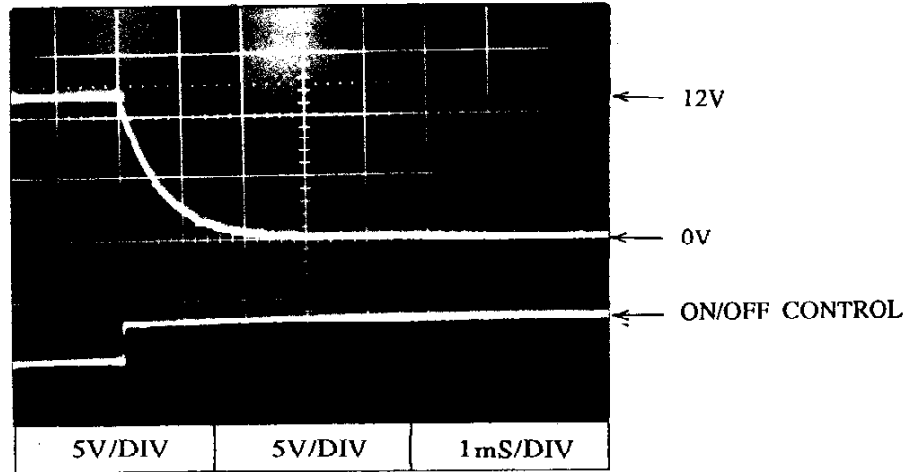
Output fall Characteristics with ON/OFF CONTROL

Conditions Vin : 280VDC
Iout : 100%
Tp : 25°C

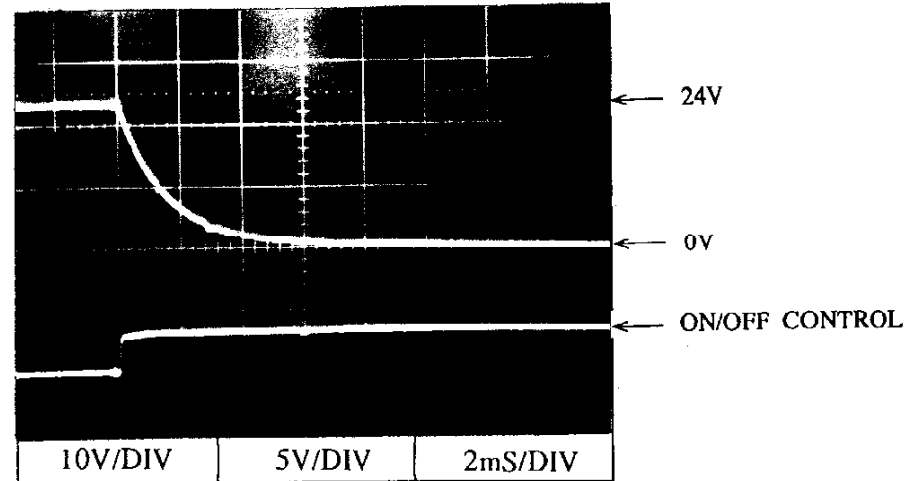
5V



12V



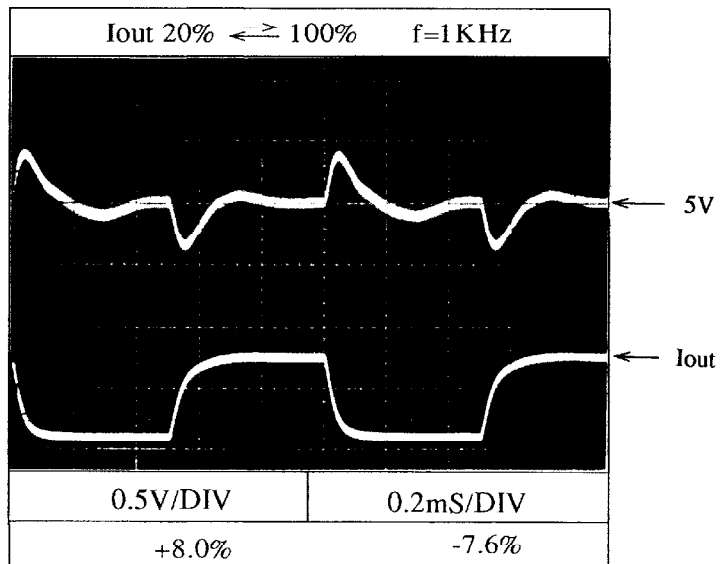
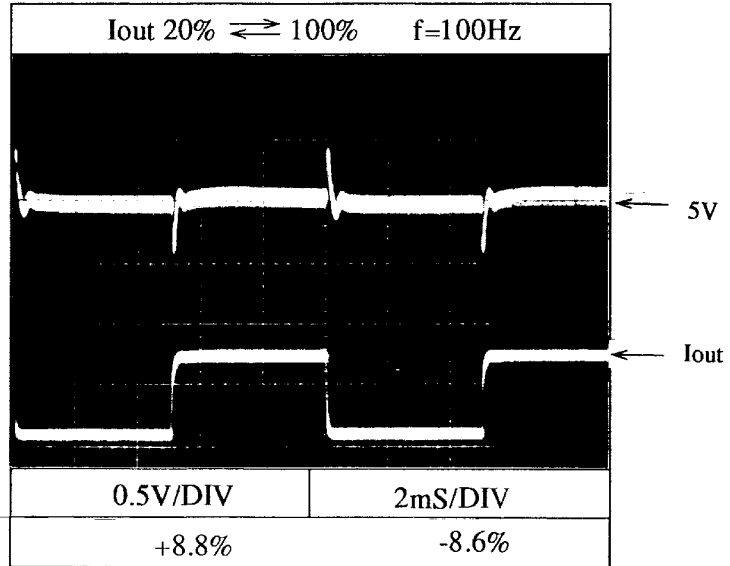
24V



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

Conditions Vin : 280VDC
Tp : 25°C

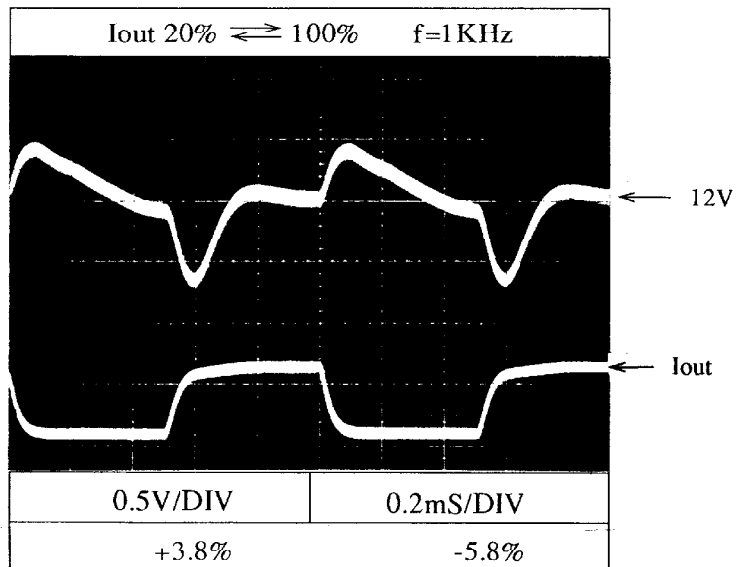
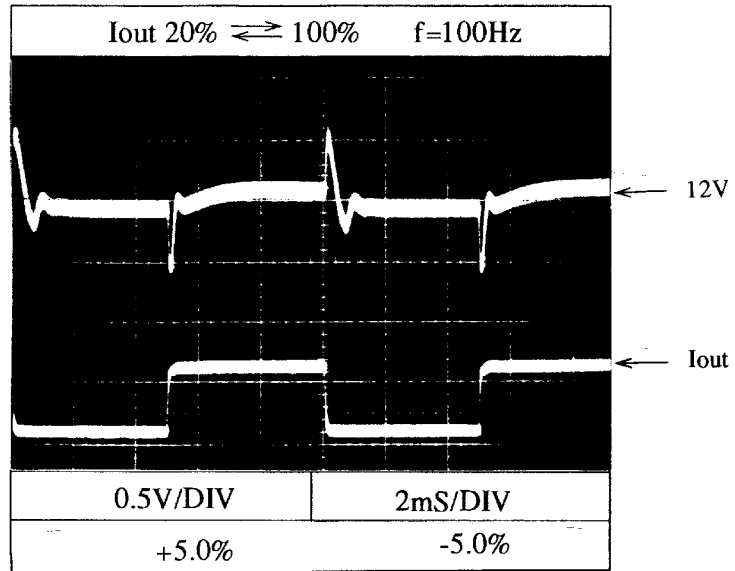
5V



過渡応答(負荷急変)特性
Dynamic load response characteristics

Conditions Vin : 280VDC
Tp : 25°C

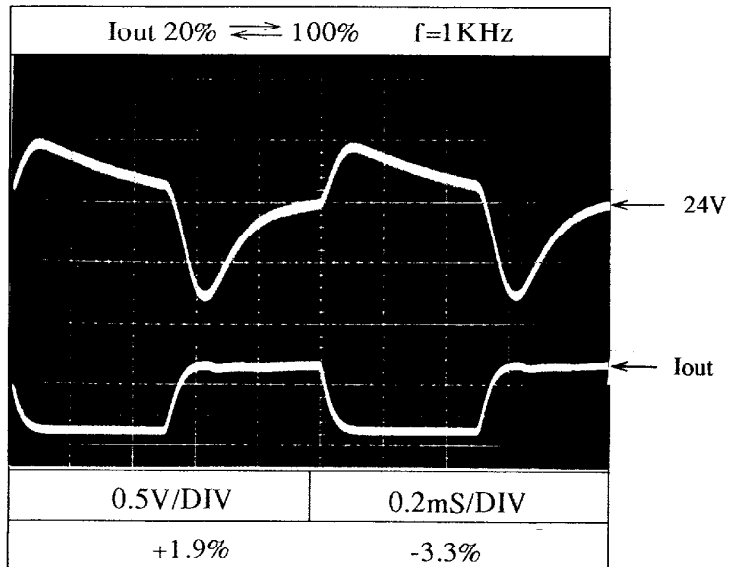
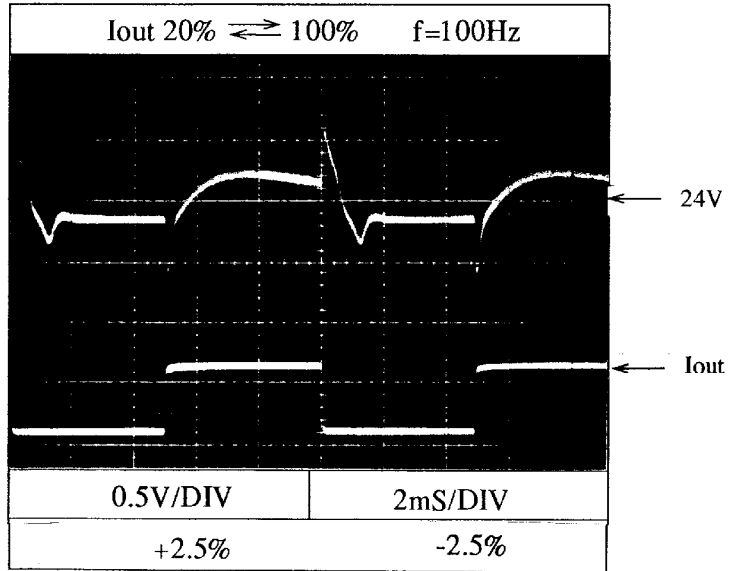
12V



過渡応答(負荷急変)特性
Dynamic load response characteristics

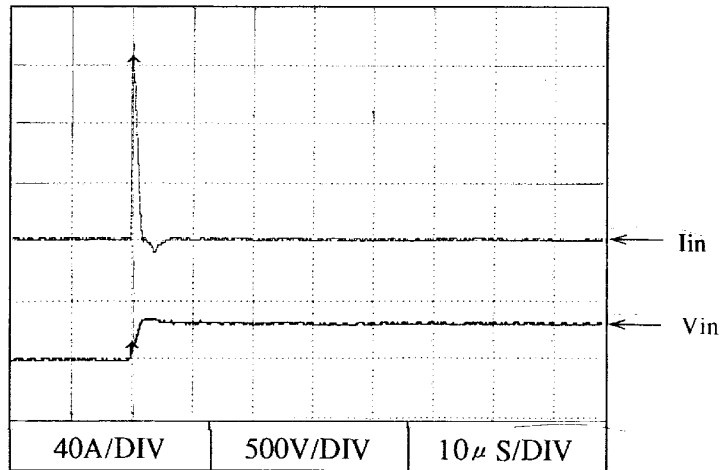
Conditions Vin : 280VDC
Tp : 25°C

24V



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

Conditions Vin : 280VDC
Iout : 100%
Tp : 25°C

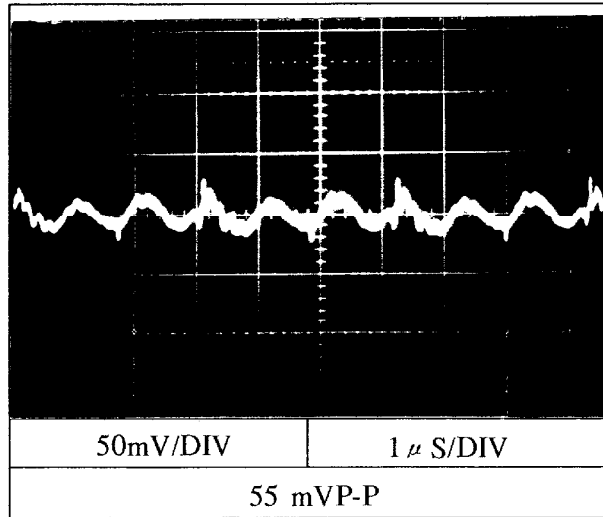


2-11 出力リップル,ノイズ波形
Output - ripple, noise waveform

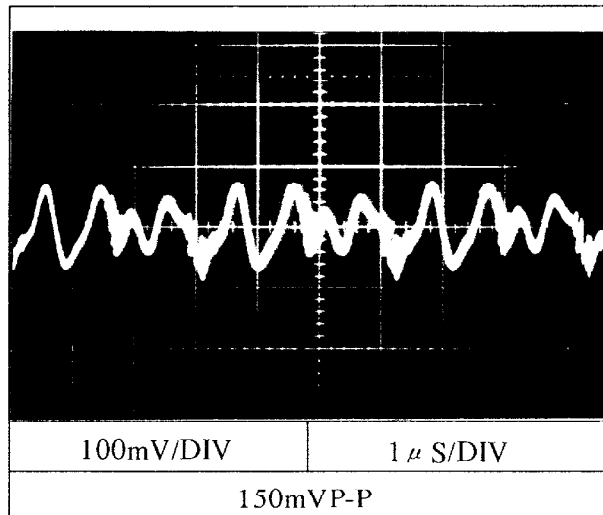
Conditions Vin : 280VDC
Iout : 100%
Tp : 25°C

5V

NORMAL MODE



NORMAL + COMMON MODE

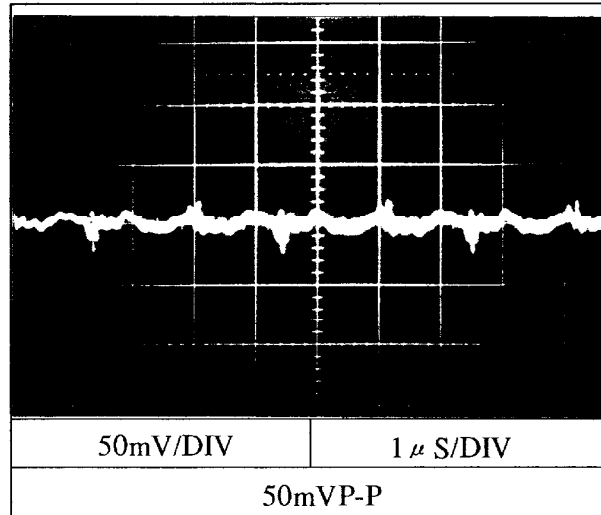


出カリップル,ノイズ波形
Output - ripple, noise waveform

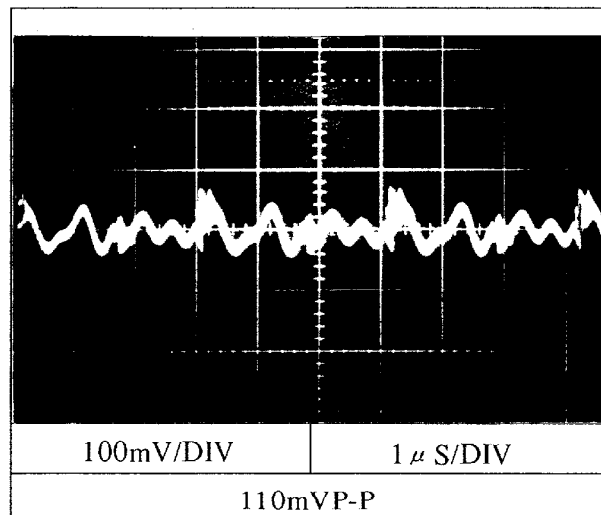
Conditions Vin : 280VDC
Iout : 100%
Tp : 25°C

12V

NORMAL MODE



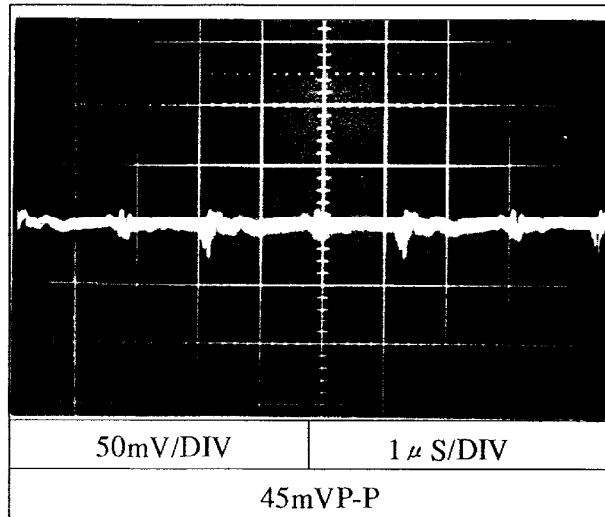
NORMAL + COMMON MODE



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

Conditions Vin : 280VDC
Iout : 100%
Tp : 25°C

24V
NORMAL MODE



NORMAL + COMMON MODE

