





PH300F 280-*

EVALUATION DATA

型式データ

| DWG. No. | | C077-53-01 | |
|---|---|---|---|
| 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

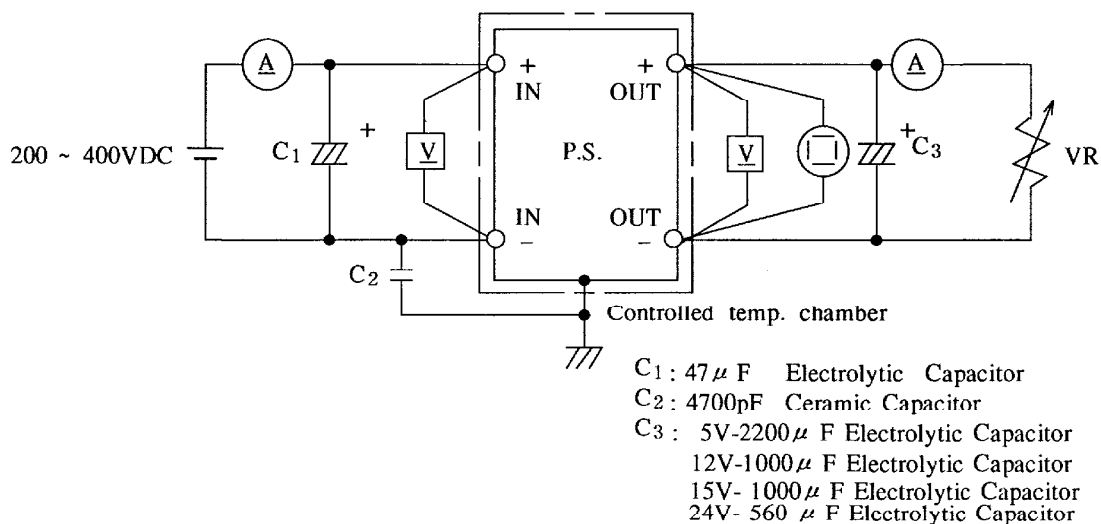
Definition

| | | |
|------------------------|-----------|------------------------|
| 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 |

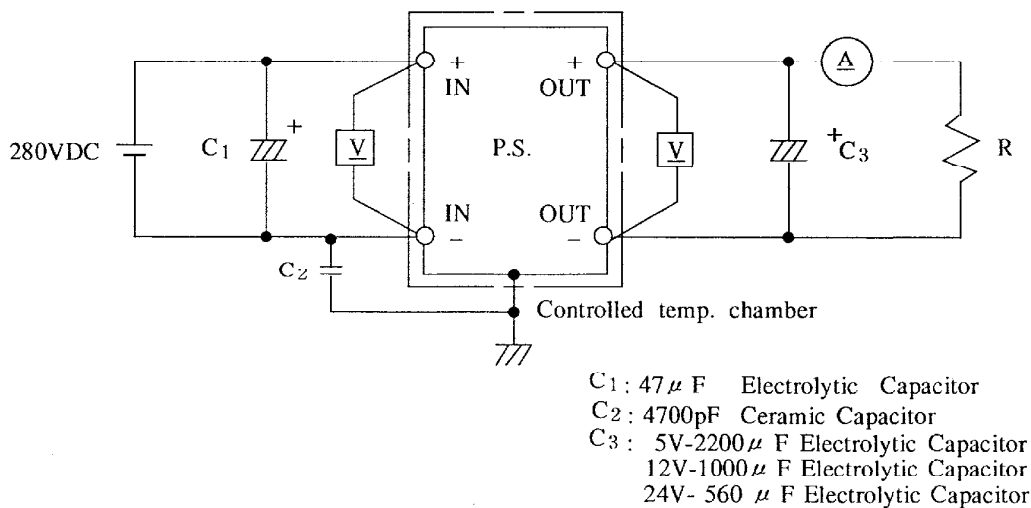
1. 評価測定方法 EVALUATION METHOD

1 - 1 測定回路 Circuits used for determination

(1) 静特性 Steady state data



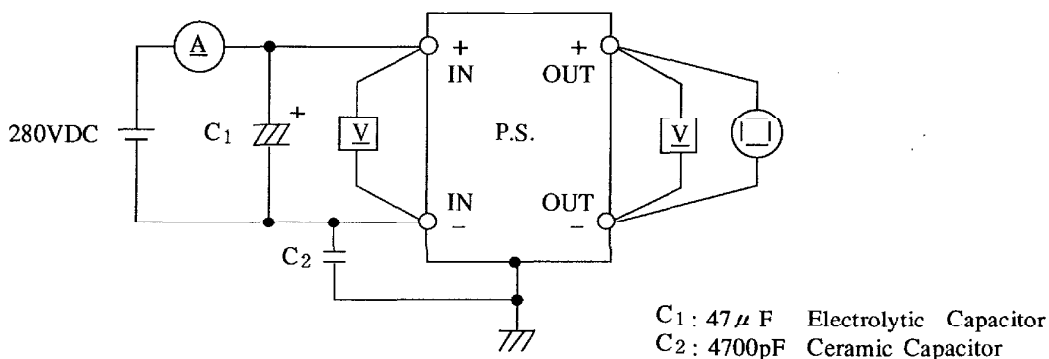
(2) 通電ドリフト特性 Warm up voltage drift characteristics



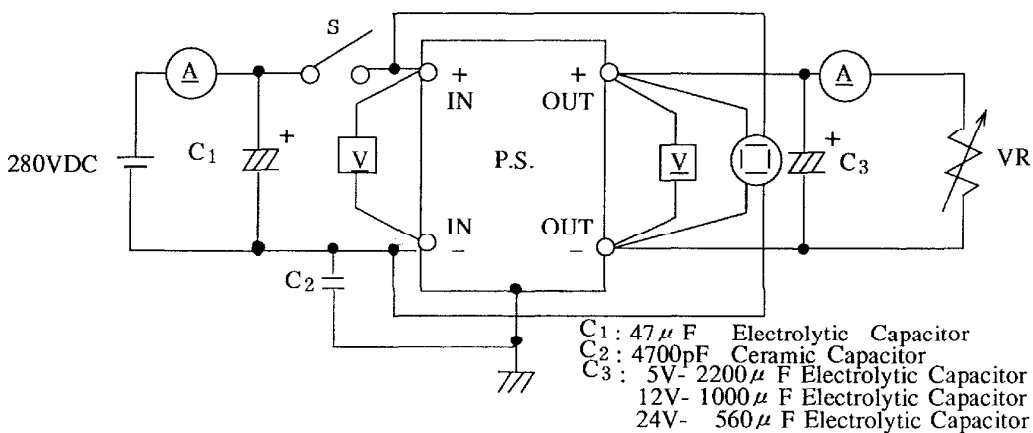
(3) 過電流保護特性 Over current protection (O.C.P.) characteristics

静特性と同じ
 Same as steady state data

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



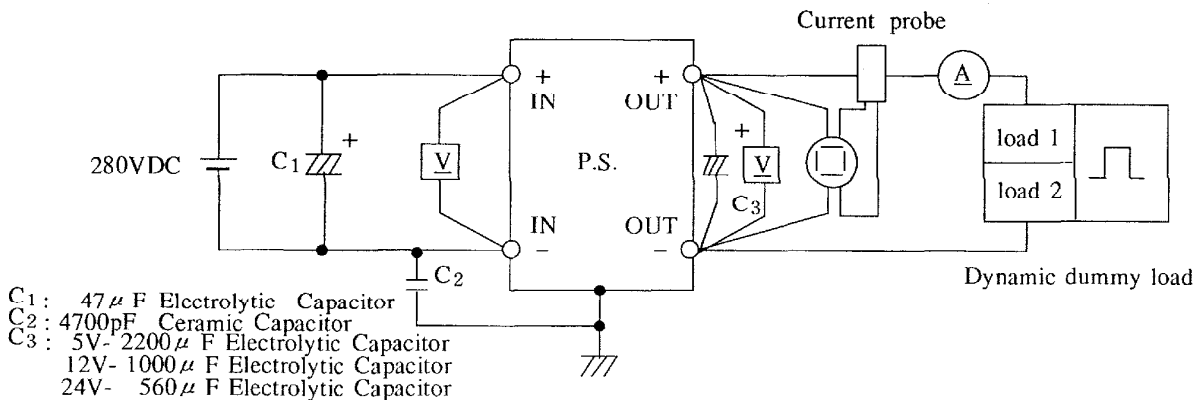
(5) 出力立上り特性 Output rise characteristics



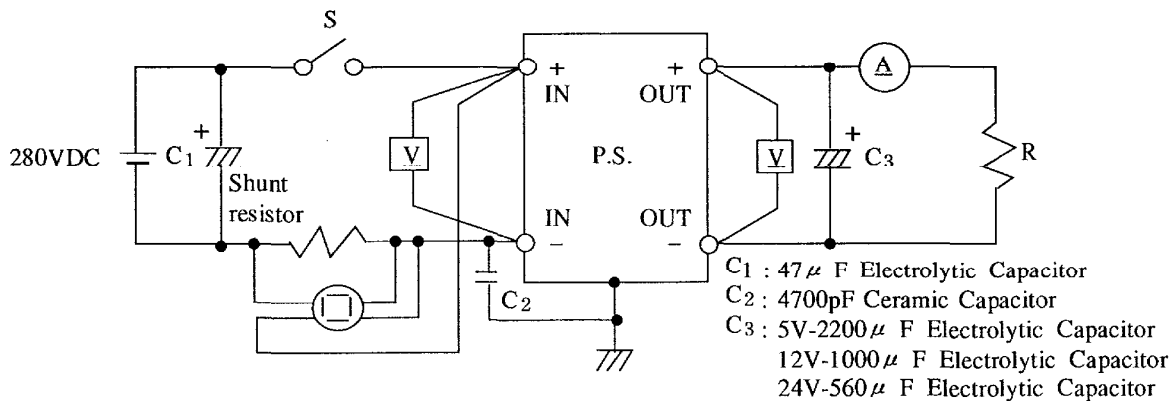
(6) 出力立下り特性 Output fall characteristics

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

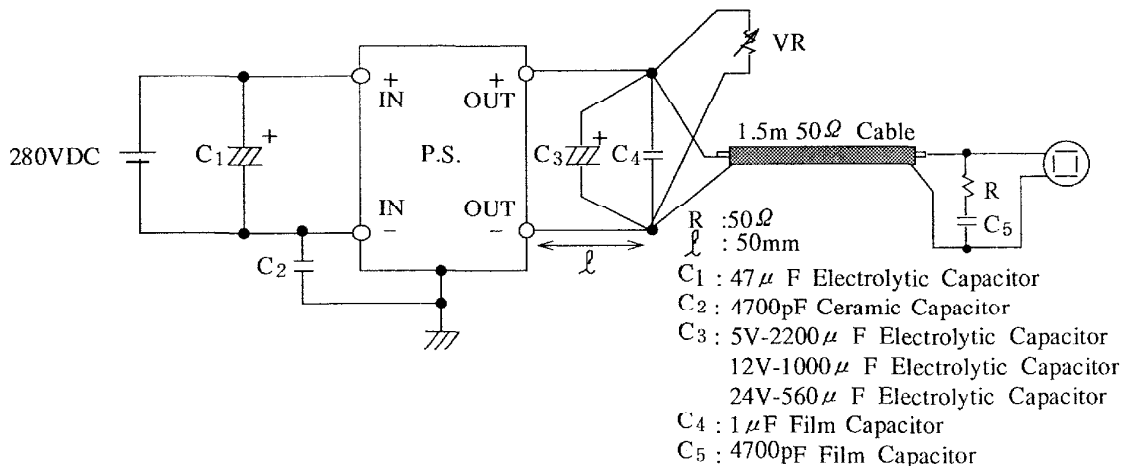


(8) 入力サージ電流 (突入電流) 波形 Inrush current waveform

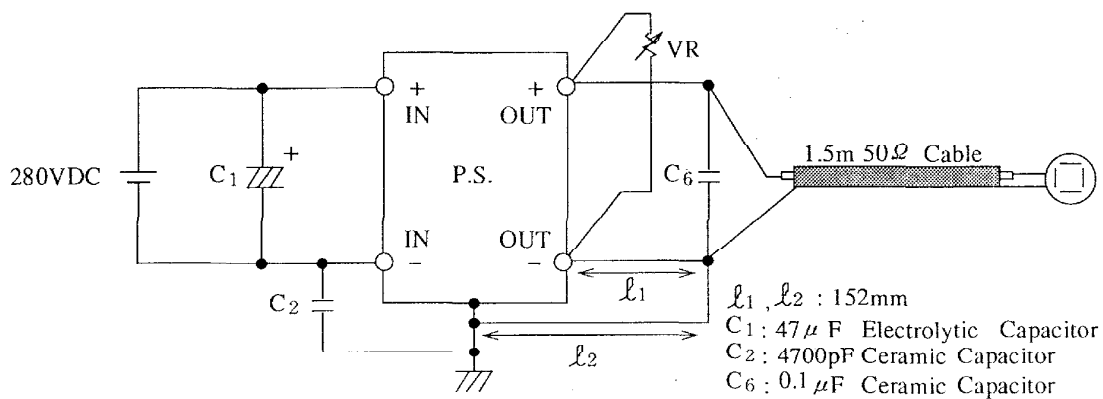


(9) 出力リップル、ノイズ波形 Output-ripple, noise waveform

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

| Iout \ Vin | 200VDC | 280VDC | 400VDC | line regulation | |
|-----------------|--------|--------|--------|-----------------|-------|
| | 0% | 5.027V | 5.027V | 5.027V | 0mV |
| 50% | 5.016V | 5.016V | 5.016V | 0mV | 0% |
| 100% | 5.006V | 5.005V | 5.006V | 1mV | 0.02% |
| Load regulation | 21mV | 22mV | 21mV | | |
| | 0.42% | 0.44% | 0.42% | | |

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

| T_p | -20°C | 25°C | 85°C | Temp. stability | |
|-----------|--------|--------|--------|-----------------|-------|
| V_{out} | 5.002V | 5.005V | 5.001V | 4mV | 0.08% |

12V

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

| Iout \ Vin | 200VDC | 280VDC | 400VDC | line regulation | |
|-----------------|---------|---------|---------|-----------------|-------|
| | 0% | 12.020V | 12.020V | 12.020V | 0mV |
| 50% | 12.012V | 12.013V | 12.013V | 1mV | 0.01% |
| 100% | 12.005V | 12.006V | 12.005V | 1mV | 0.01% |
| Load regulation | 15mV | 14mV | 15mV | | |
| | 0.13% | 0.12% | 0.13% | | |

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

| T_p | -20°C | 25°C | 85°C | Temp. stability | |
|-----------|---------|---------|---------|-----------------|-------|
| V_{out} | 11.986V | 12.006V | 12.008V | 22mV | 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 $T_p : 25^\circ\text{C}$

| Iout \ Vin | 200VDC | 280VDC | 400VDC | line regulation | |
|-----------------|--------|--------|--------|-----------------|-------|
| | 0% | 24.01V | 24.02V | 24.01V | 10mV |
| 50% | 24.01V | 24.01V | 24.01V | 0mV | 0% |
| 100% | 24.01V | 24.00V | 24.00V | 10mV | 0.04% |
| Load regulation | 0mV | 20mV | 10mV | | |
| | 0% | 0.08% | 0.04% | | |

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

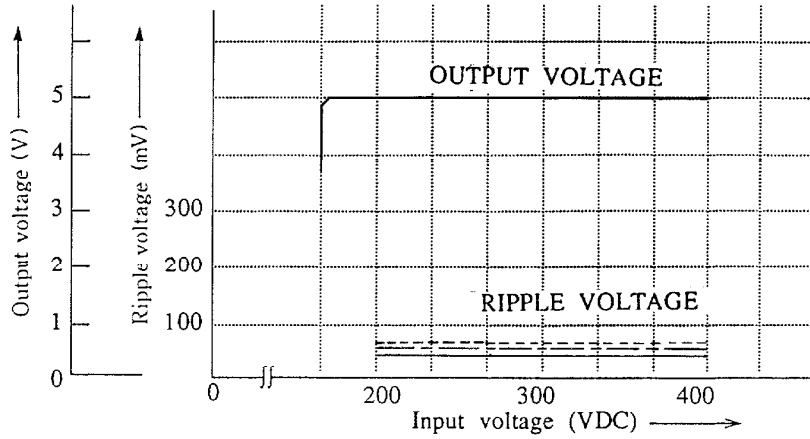
| Tp | -20°C | 25°C | 85°C | Temp. stability | |
|------|--------|--------|--------|-----------------|-------|
| Vout | 23.96V | 24.00V | 23.97V | 40mV | 0.17% |

(2) 出力電圧・リップル電圧対入力電圧

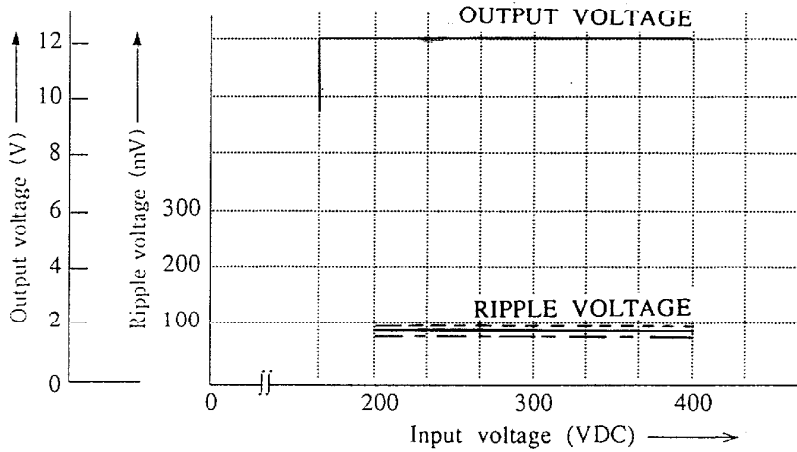
Conditions Iout : 100%
 Tp : -20°C ---
 25°C ——
 85°C ———

Output voltage and ripple voltage v.s. input voltage

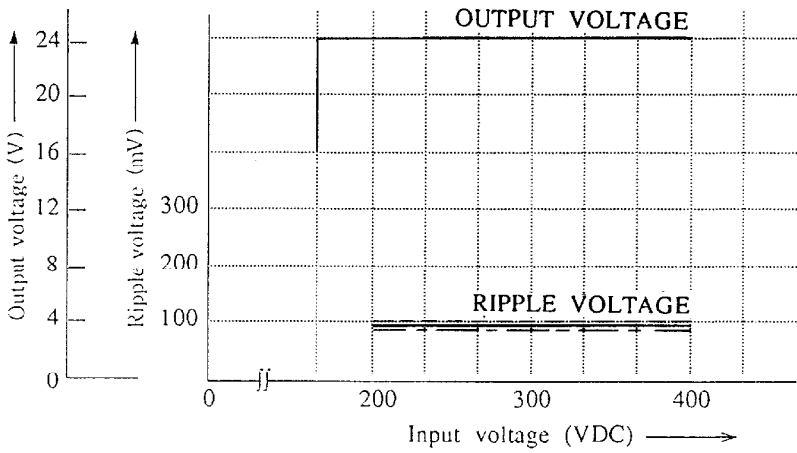
5V



12V



24V

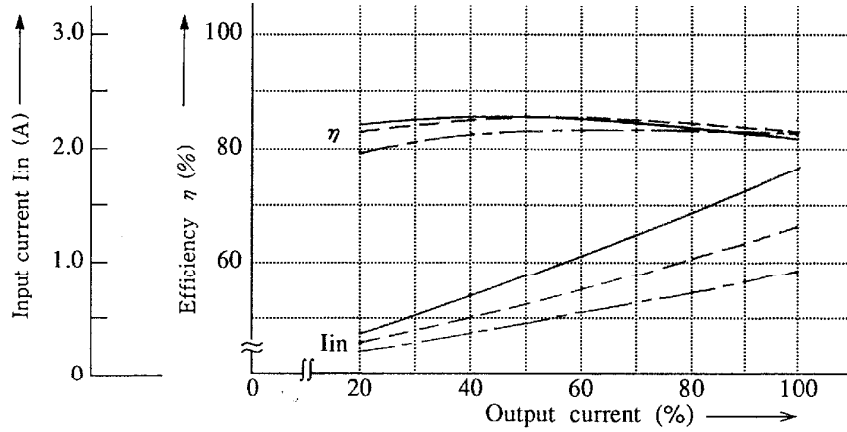


(3) 効率・入力電流対出力電流

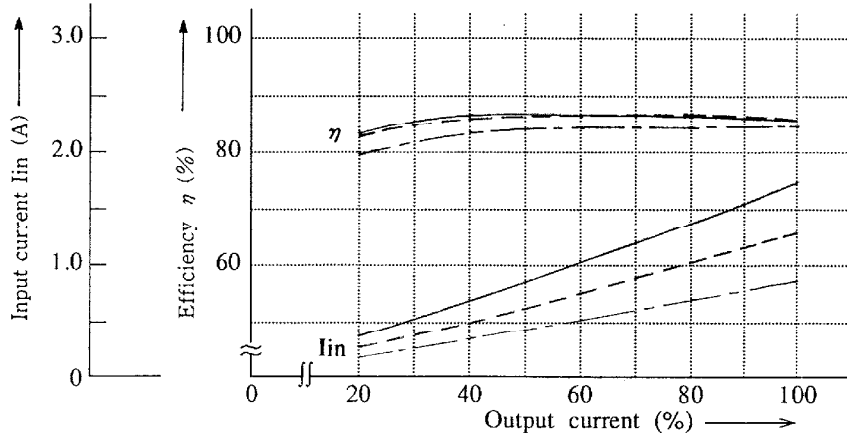
Conditions Vin : 200VDC ———
 280VDC - - - - -
 400VDC - · - - -
 Tp : 25°C

Efficiency and input current v.s. output current

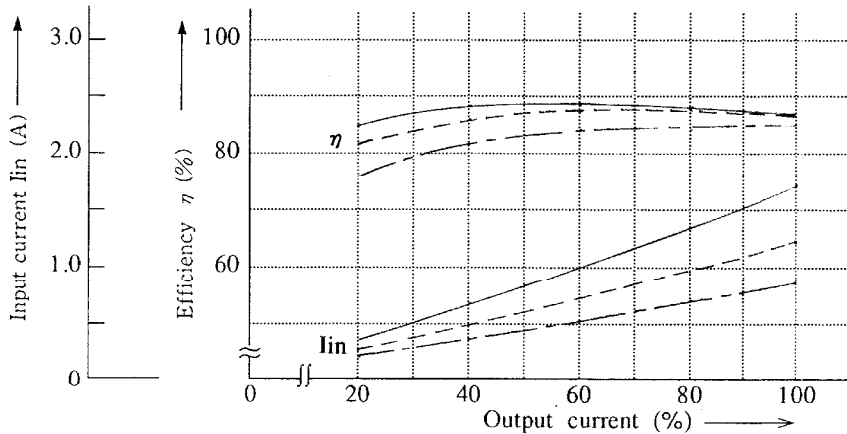
5V



12V



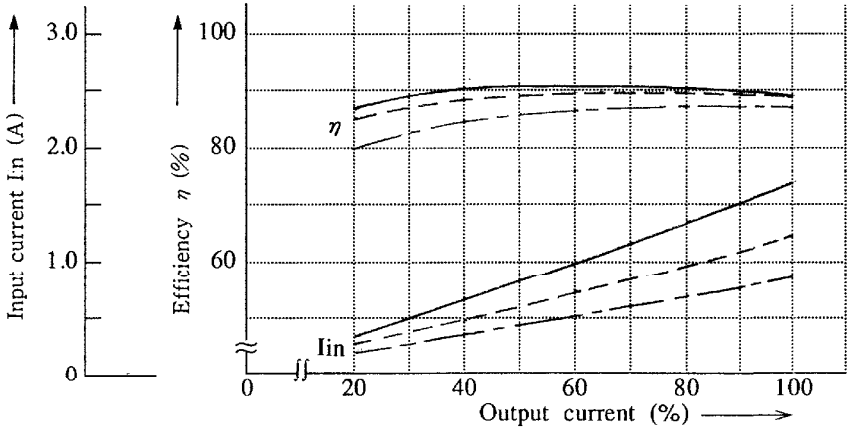
15V



PH300F280-*

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

24V

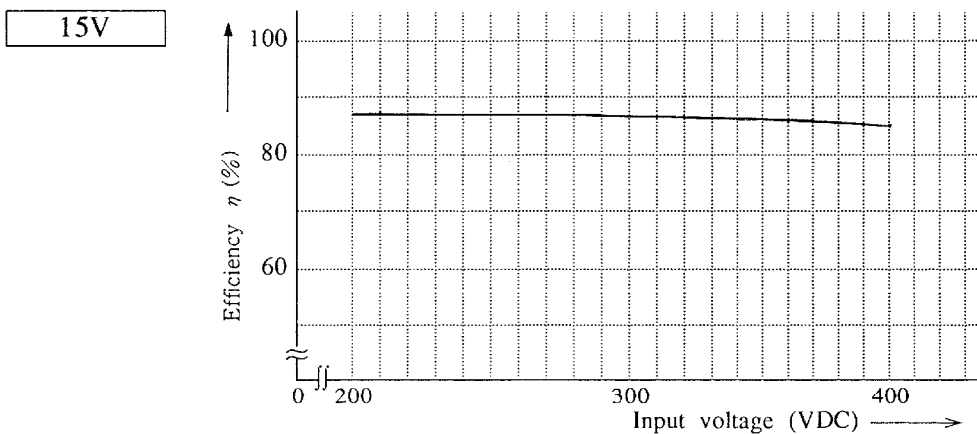
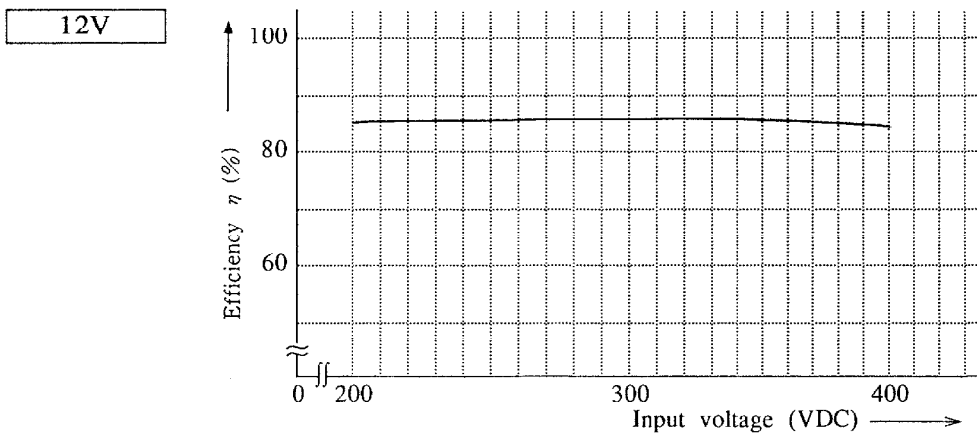
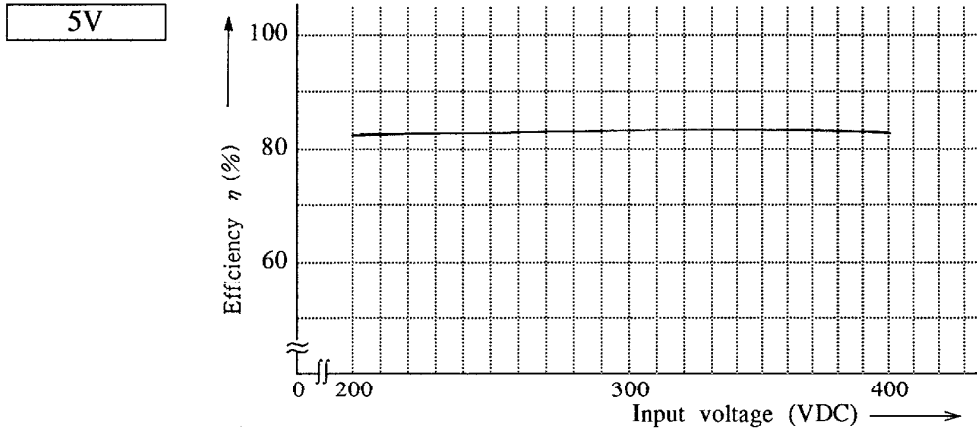


(4) 効率対入力電圧

Conditions Iout : 100% —

Efficiency v.s. input voltage

Tp : 25°C

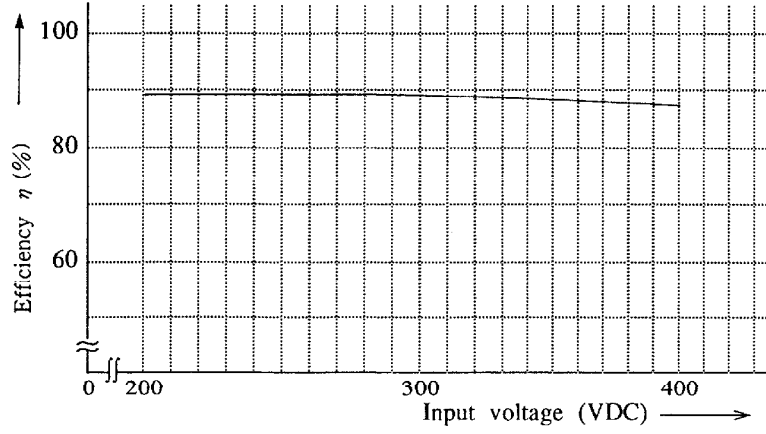


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Conditions Iout : 100% —

Tp : 25°C

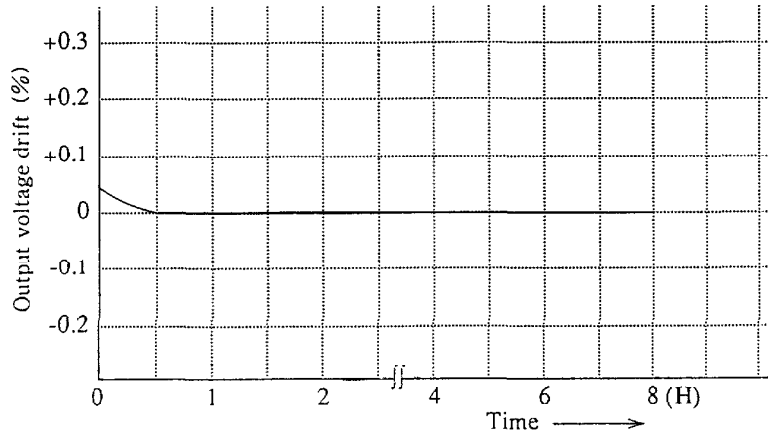
24V



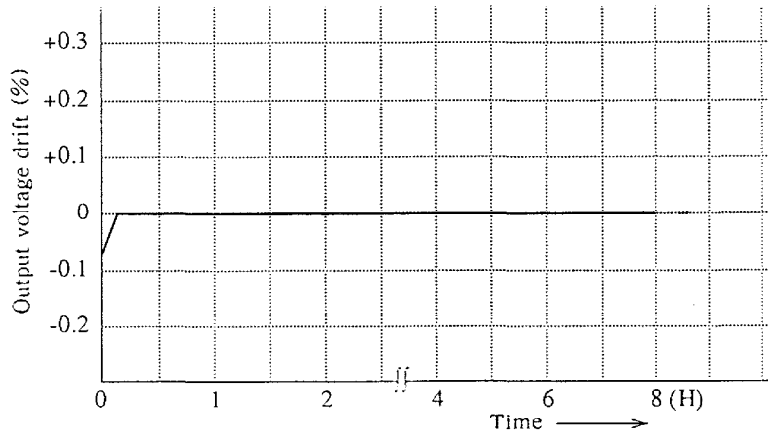
2-2 通電ドリフト特性 Warm up voltage drift Characteristics

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

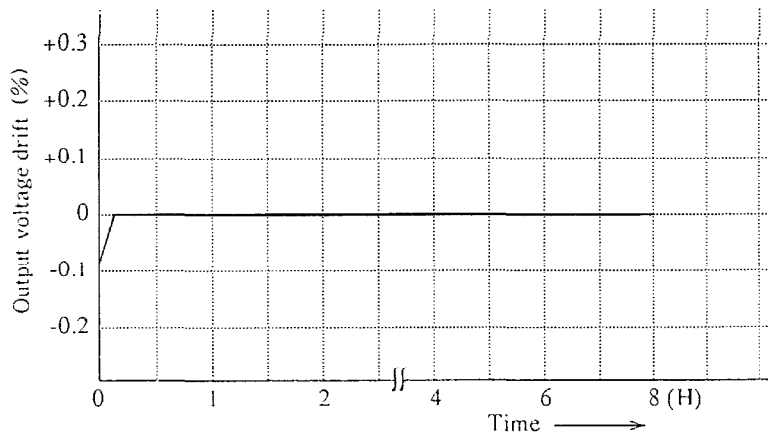
5V



12V



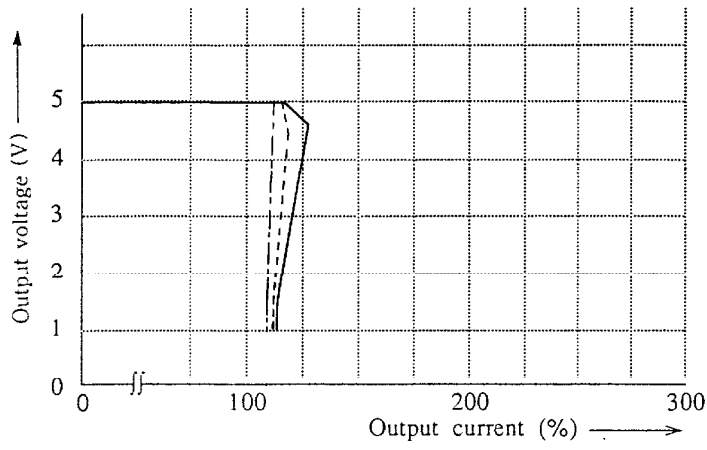
24V



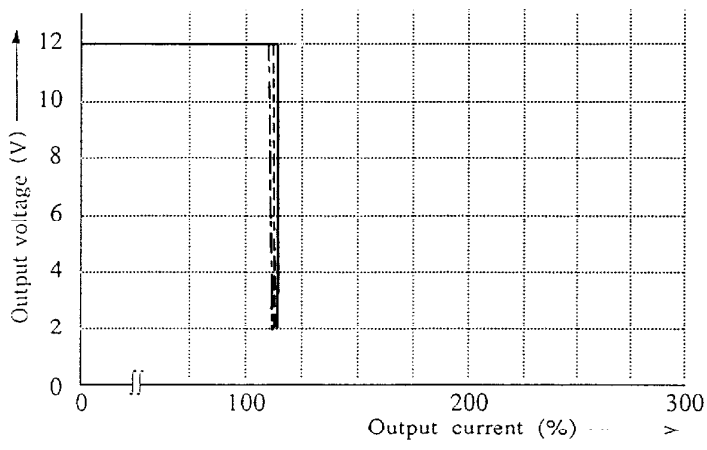
2-3 過電流保護特性 O.C.P.Characteristics

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

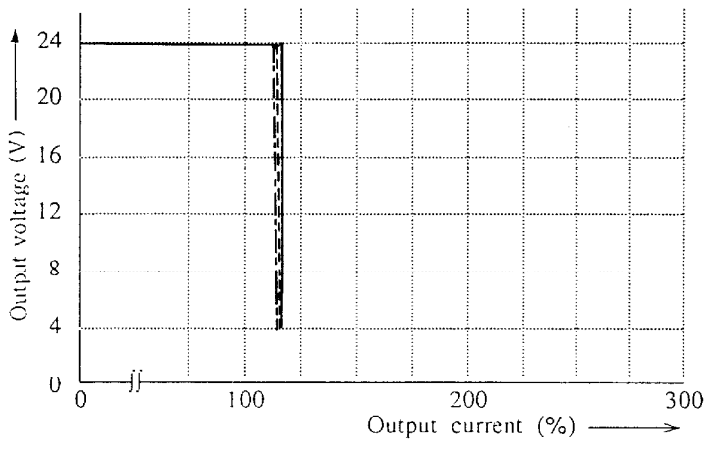
5V



12V



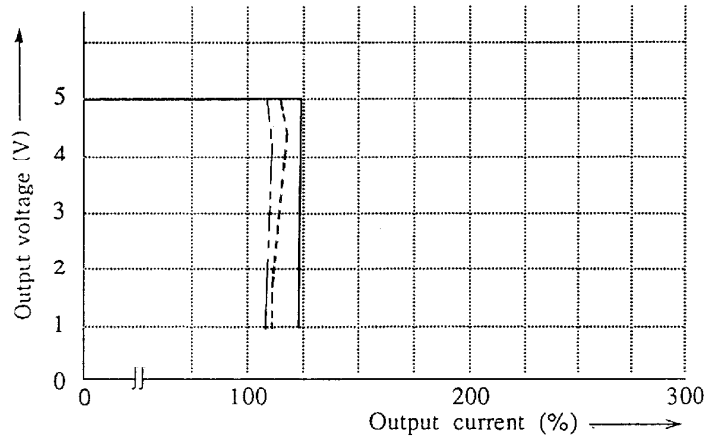
24V



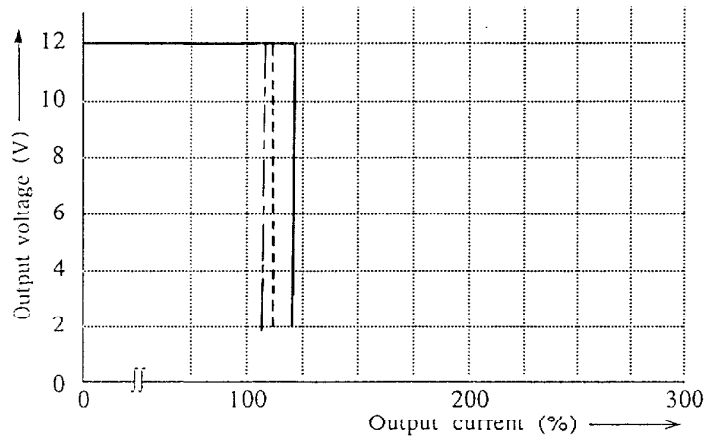
過電流保護特性 O.C.P.Characteristics

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

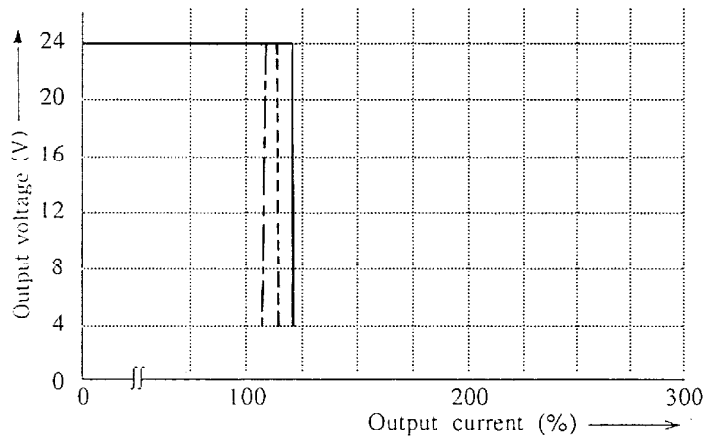
5V



12V



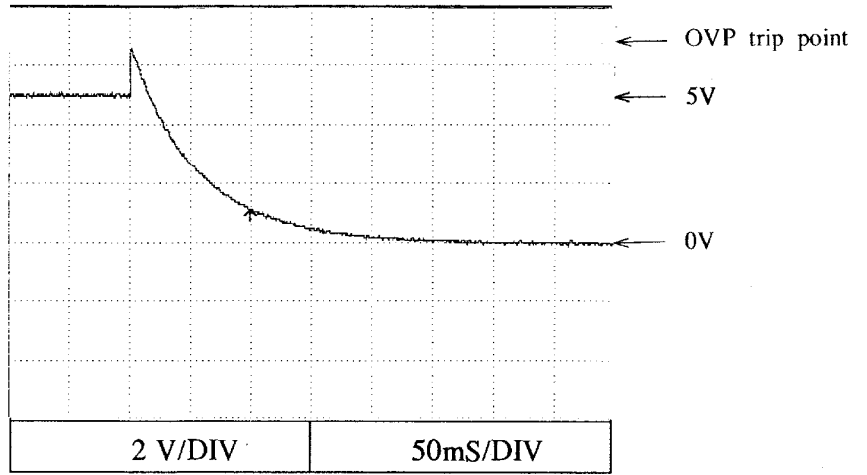
24V



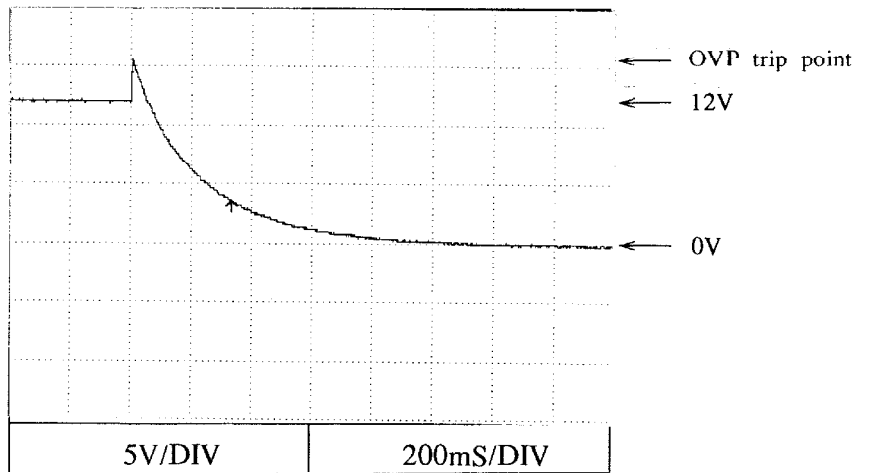
2-4 過電圧保護特性 O.V.P.Characteristics

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

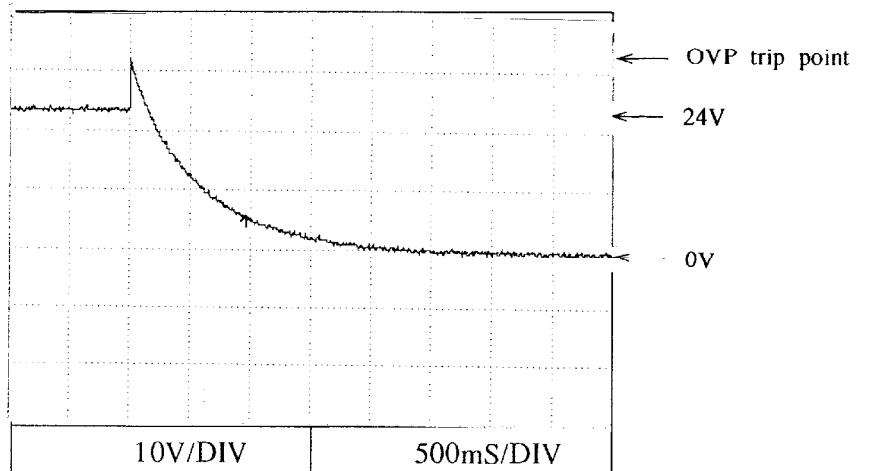
5V



12V



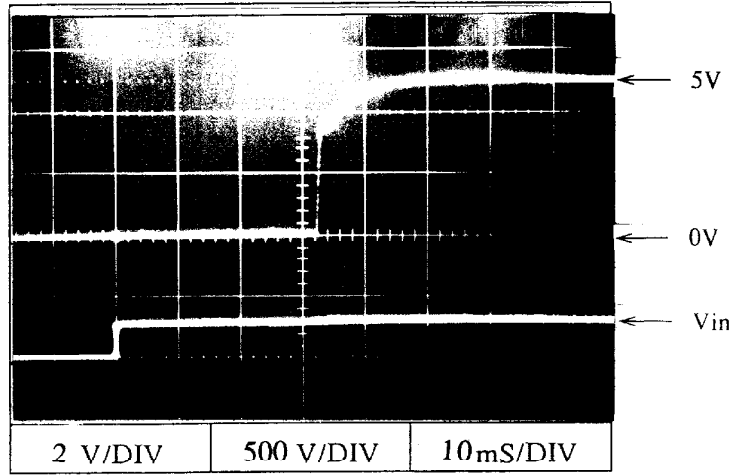
24V



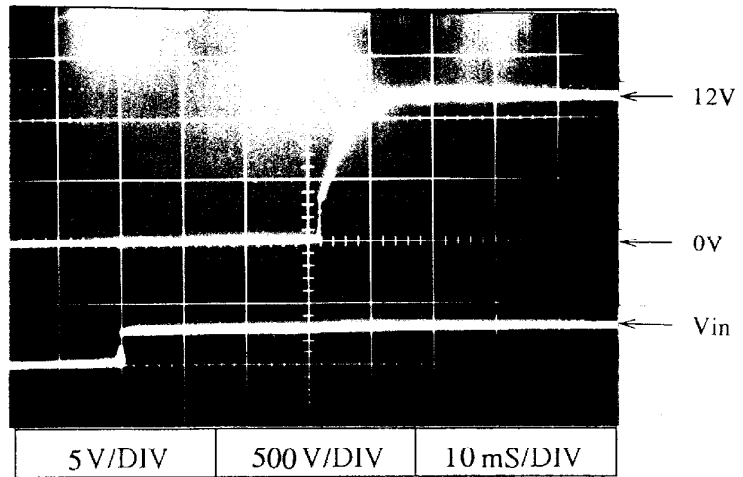
2-5 出力立上り特性 Output rise Characteristics

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

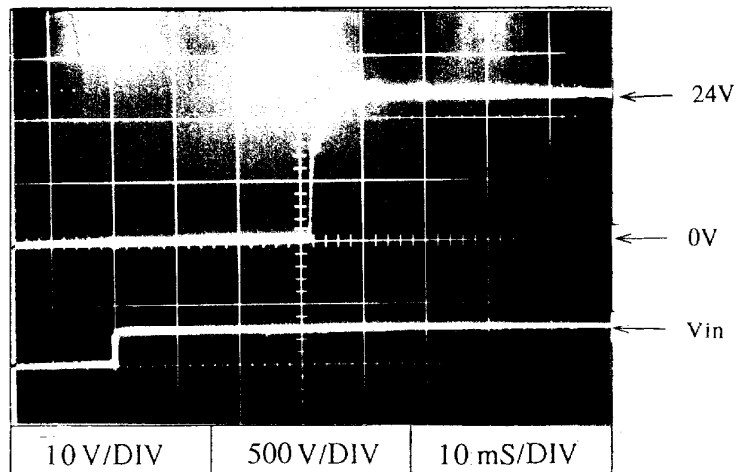
5V



12V



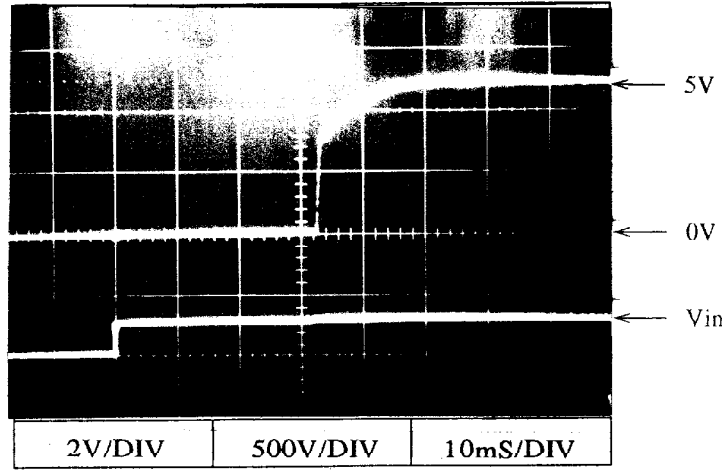
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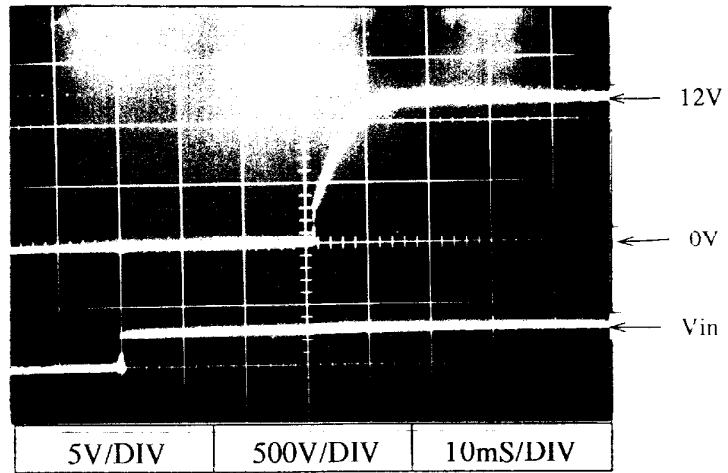
出力立上り特性 Output rise Characteristics

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

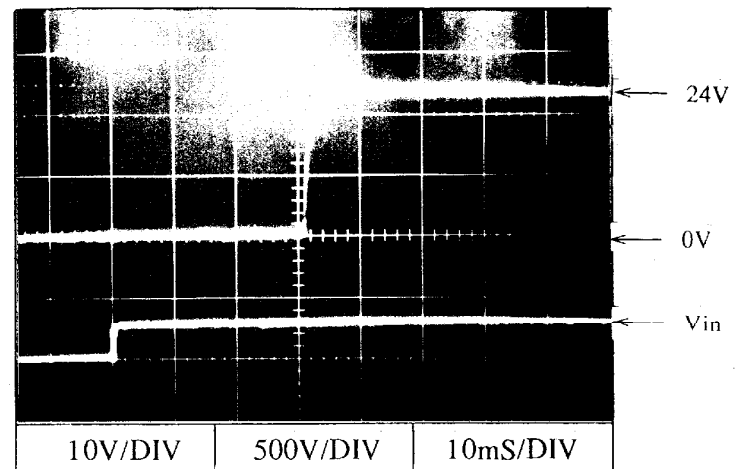
5V



12V



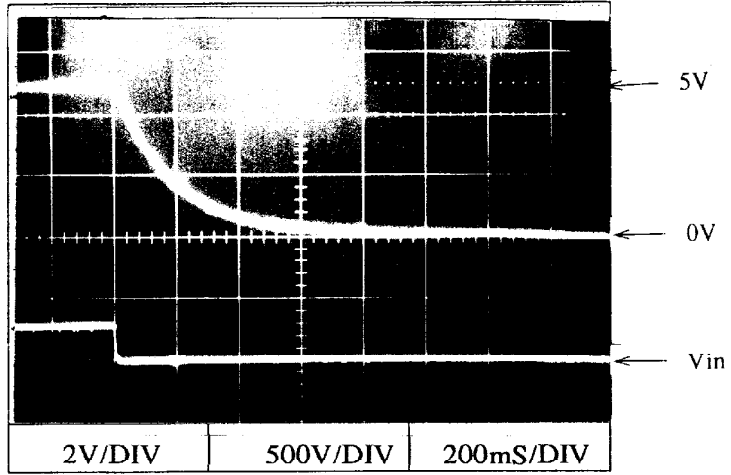
24V



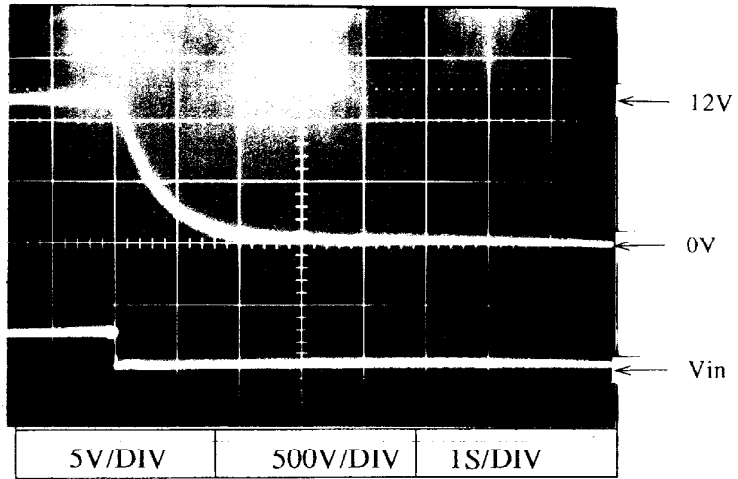
2-6 出力立下り特性 Output fall Characteristics

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

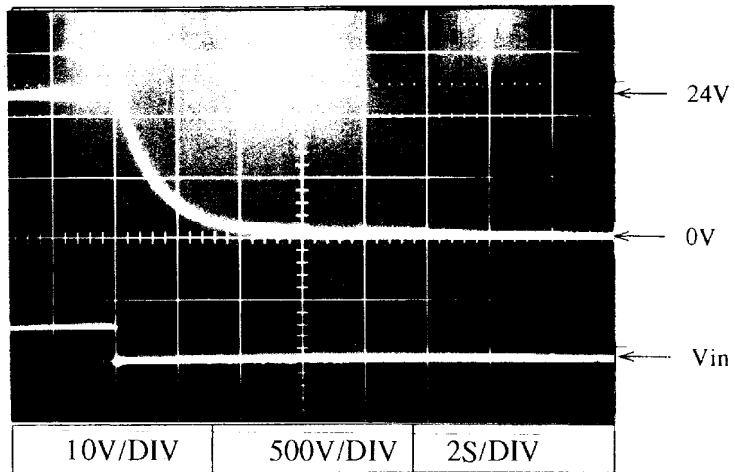
5V



12V



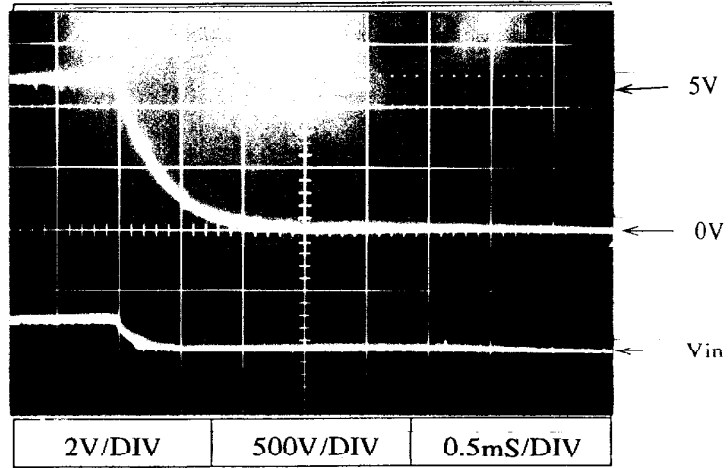
24V



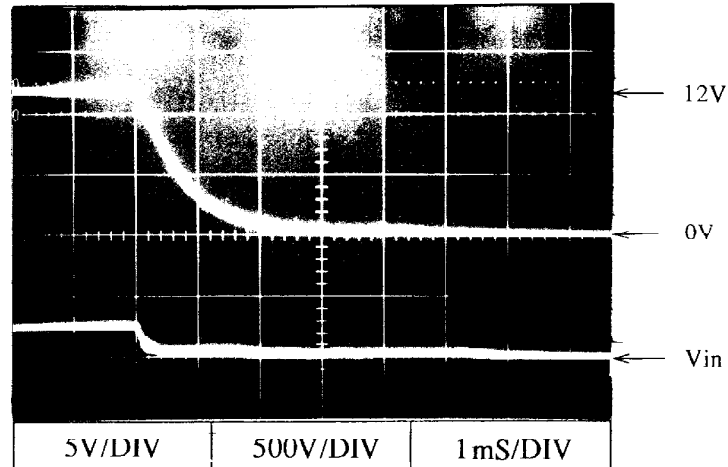
出力立下り特性 Output fall Characteristics

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

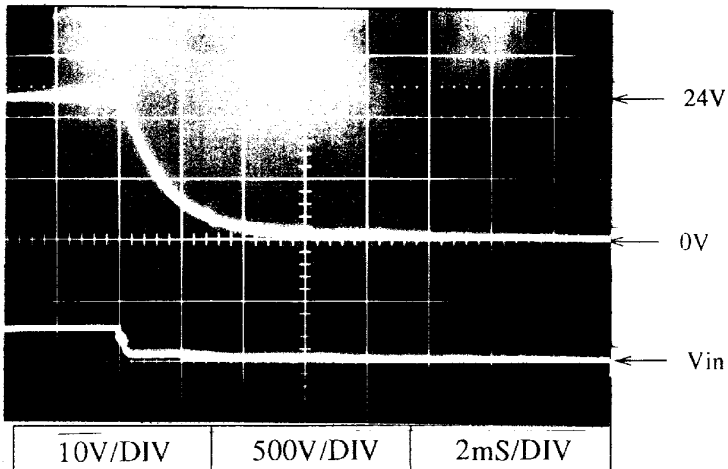
5V



12V



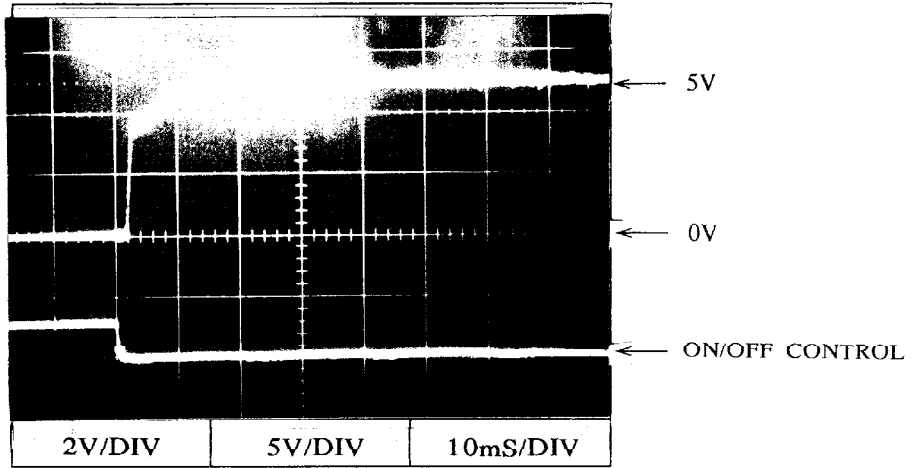
24V



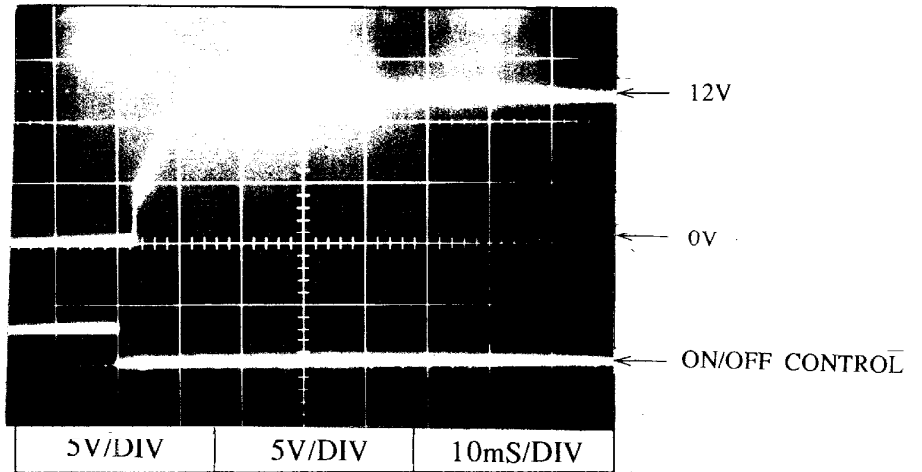
2-7 出力立上り特性(ON/OFF コントロール時)
Output rise Characteristics with ON/OFF CONTROL

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

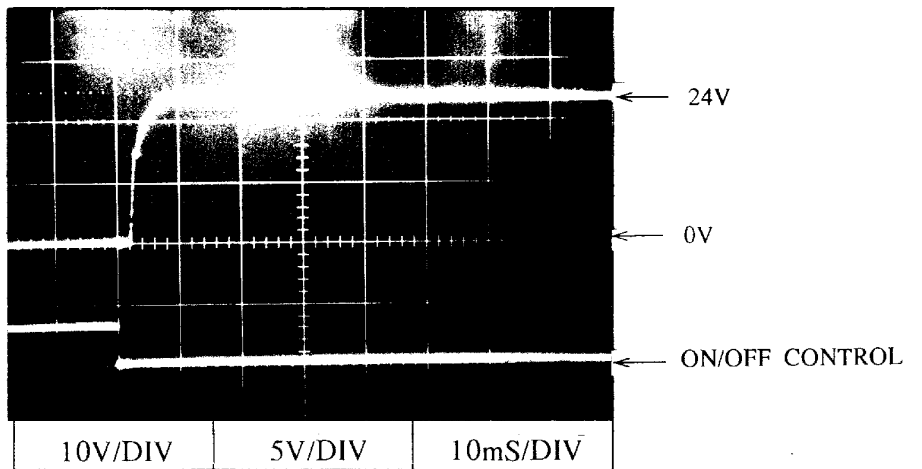
5V



12V



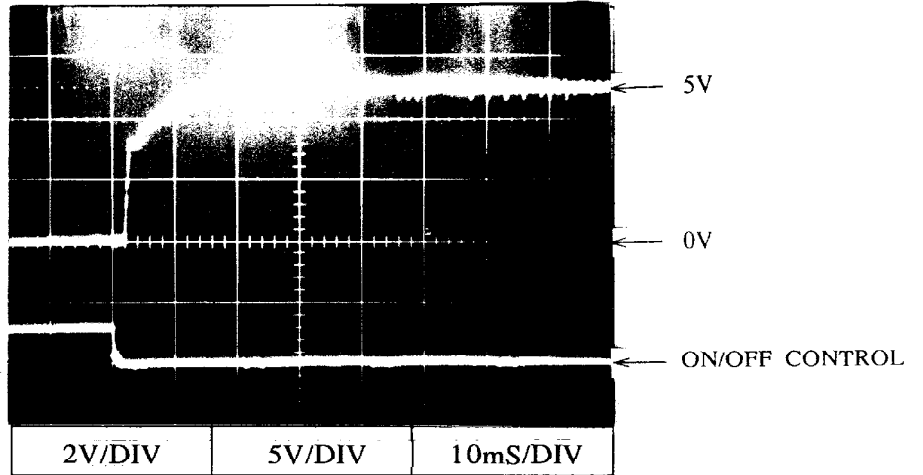
24V



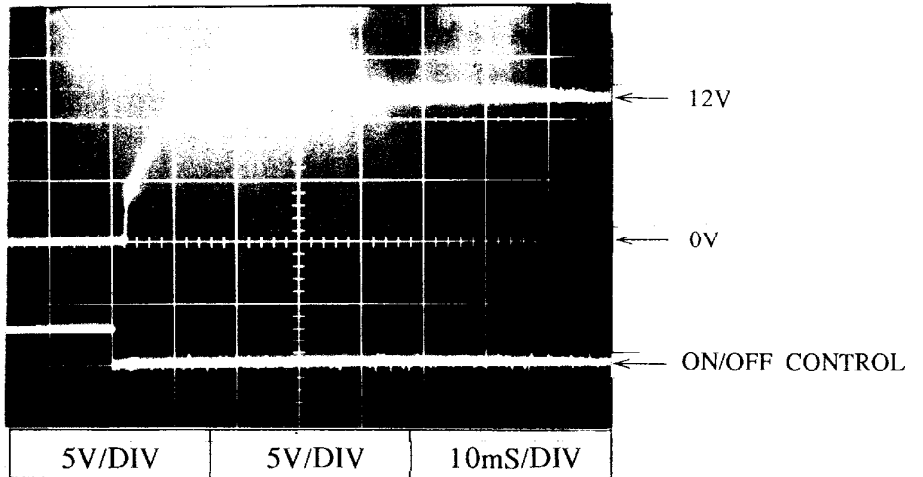
出力立上り特性(ON/OFF コントロール時)
Output rise Characteristics with ON/OFF CONTROL

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

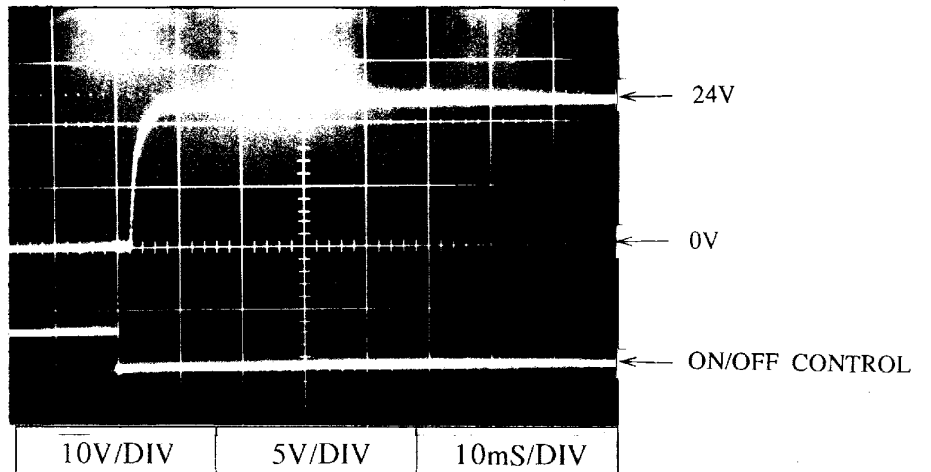
5V



12V



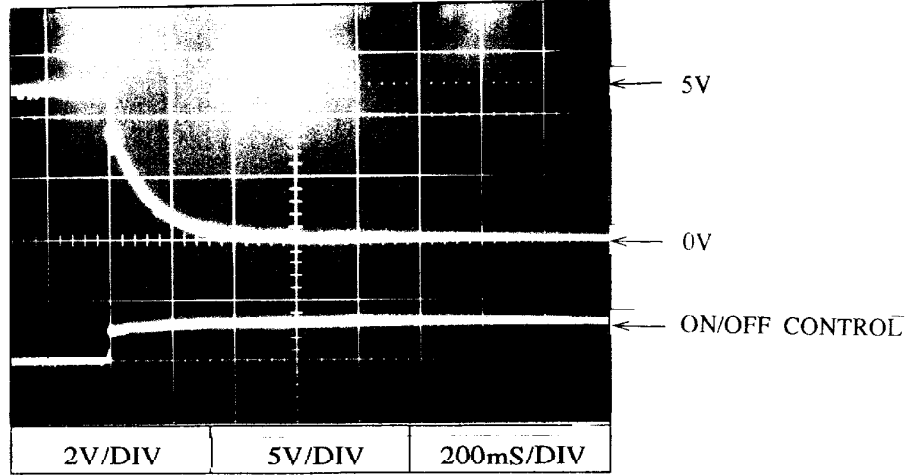
24V



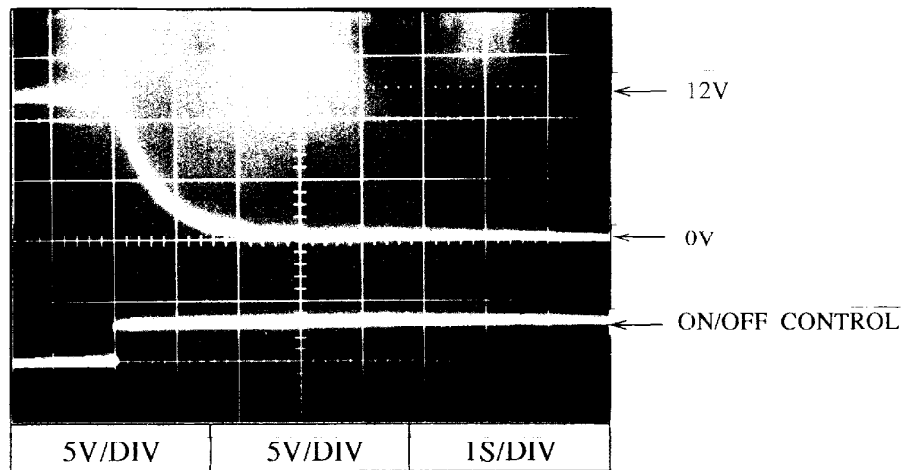
2-8 出力立下り特性(ON/OFF コントロール時)
Output fall Characteristics with ON/OFF CONTROL

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

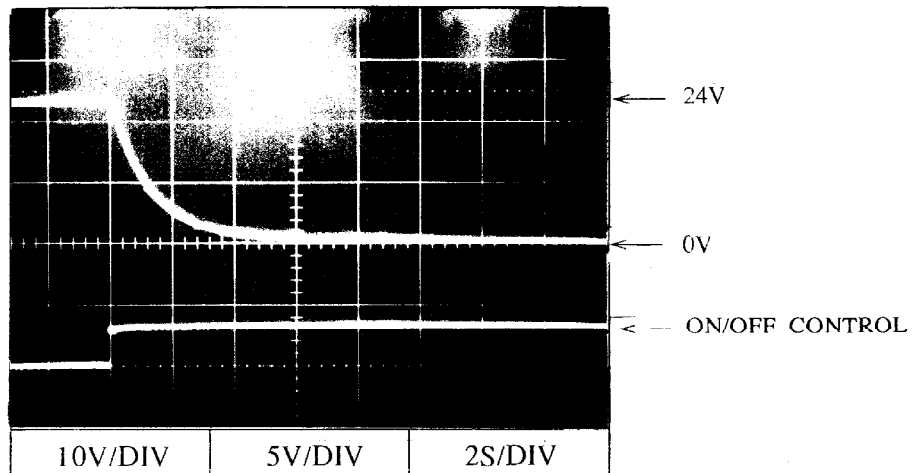
5V



12V



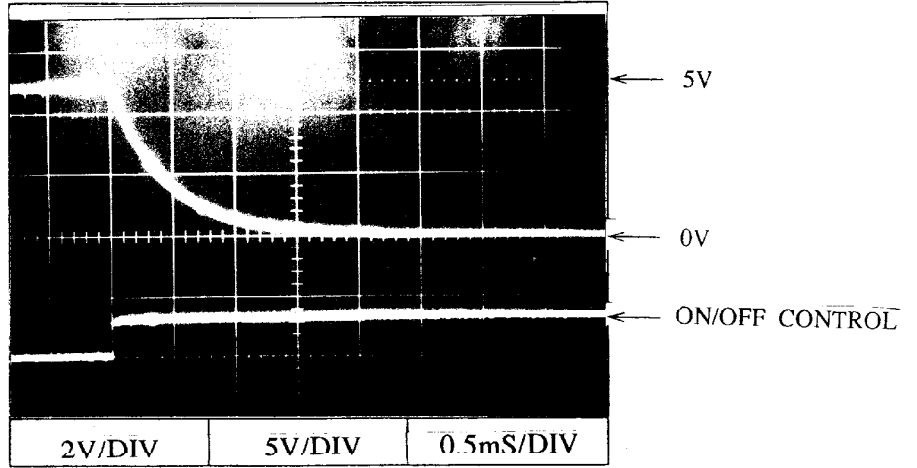
24V



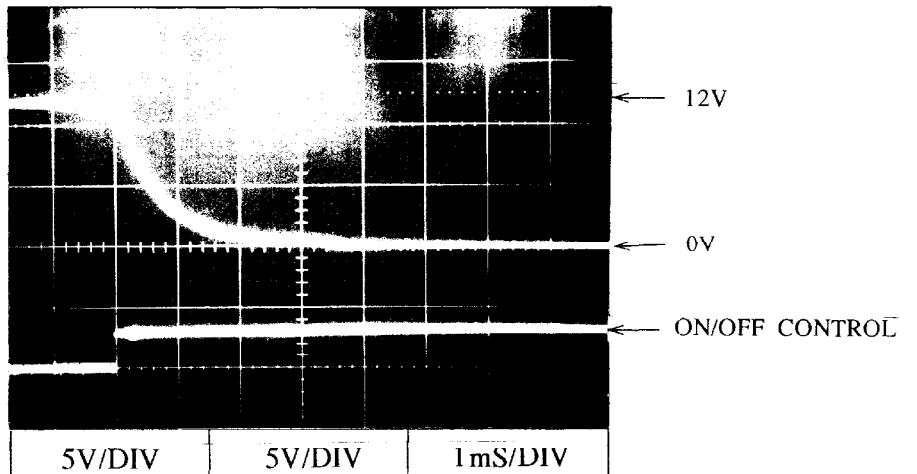
出力立下り特性(ON/OFF コントロール時)
Output fall Characteristics with ON/OFF CONTROL

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

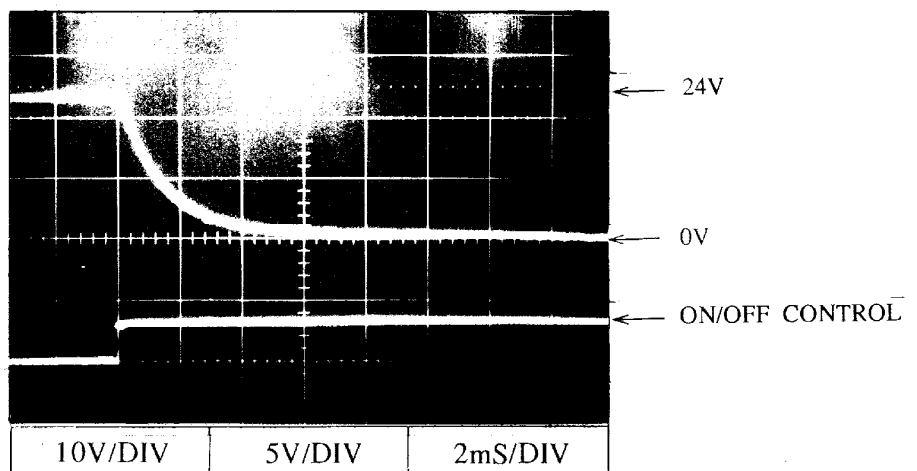
5V



12V



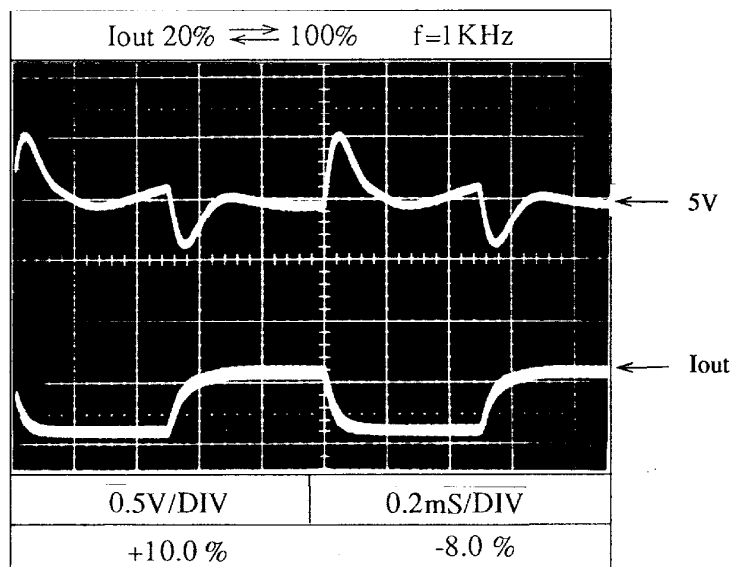
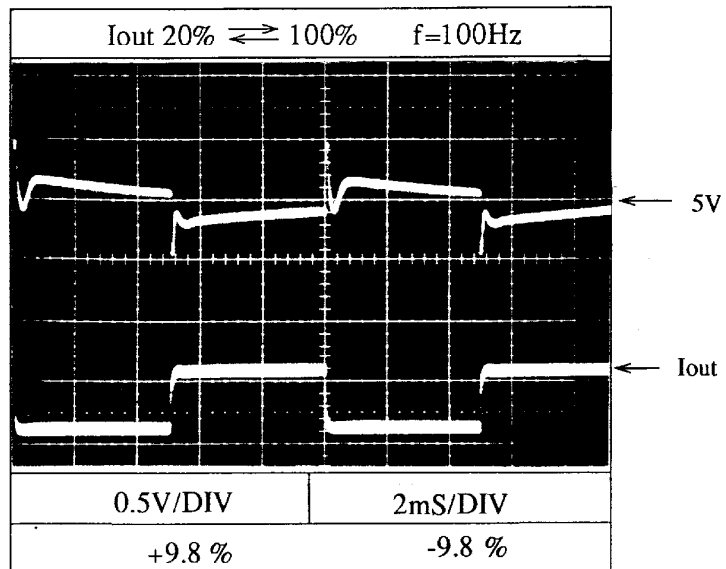
24V



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

Conditions Vin : 280VDC
Tp : 25°C

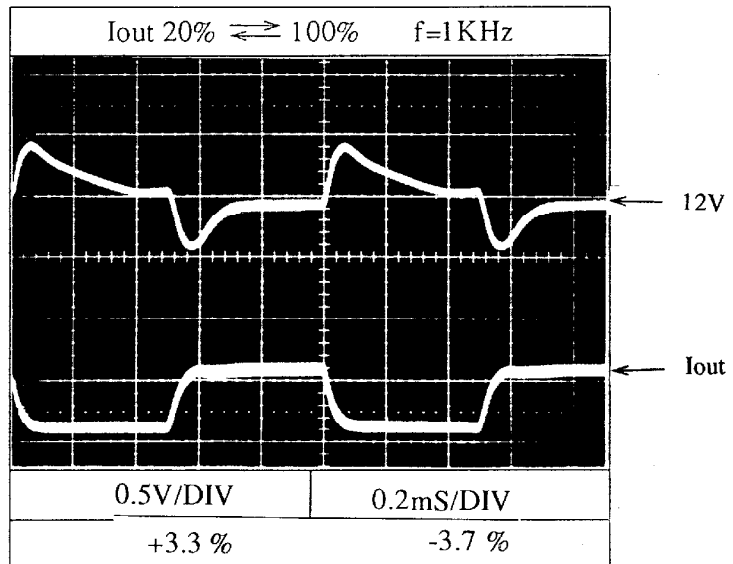
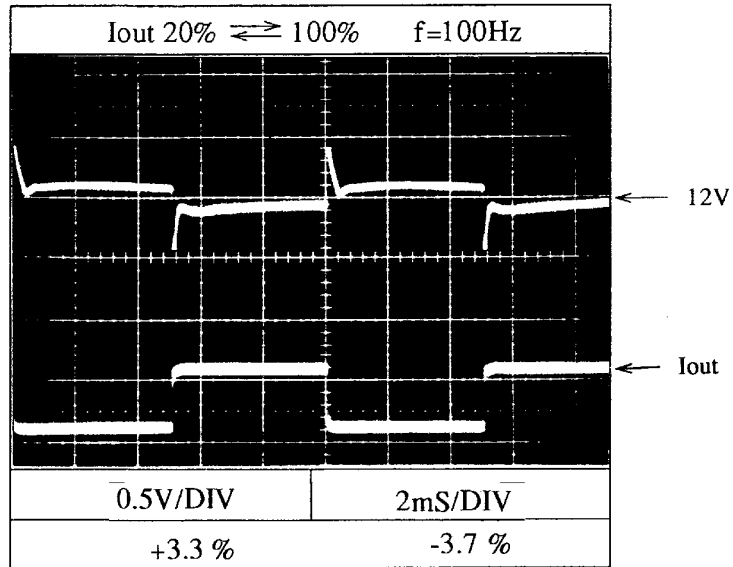
5V



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

Conditions Vin : 280VDC
Tp : 25°C

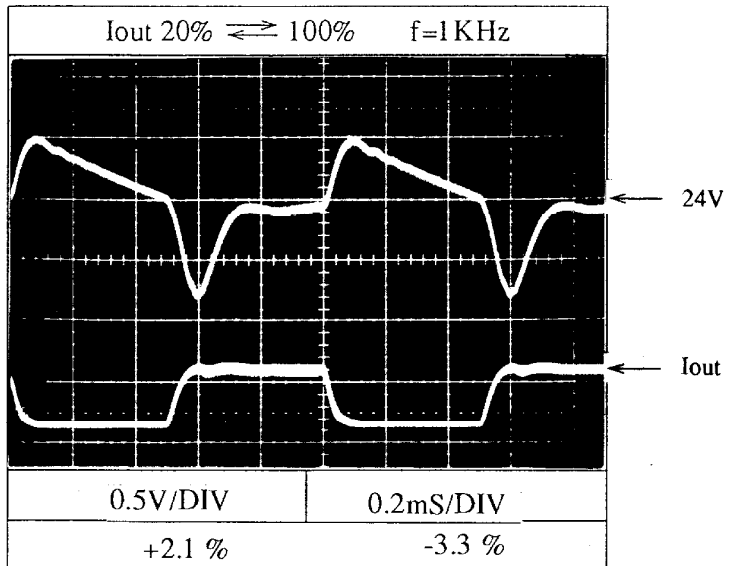
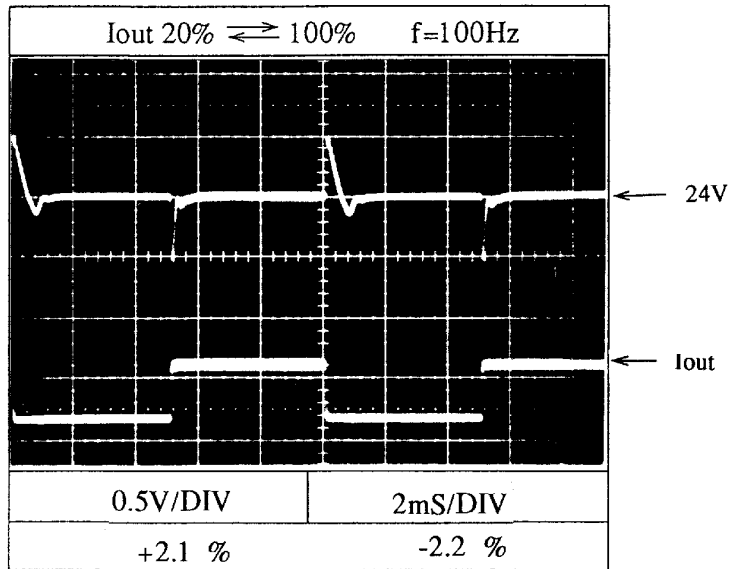
12V



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

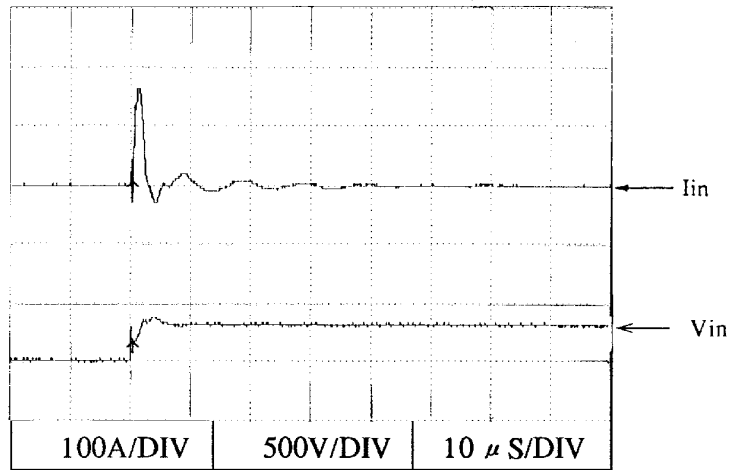
Conditions Vin : 280VDC
Tp : 25°C

24V



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

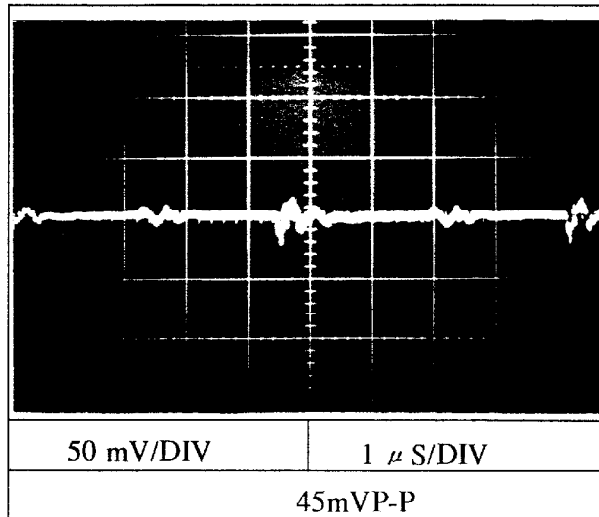
Conditions Vin : 280VDC
Iout : 100%
Tp : 25°C



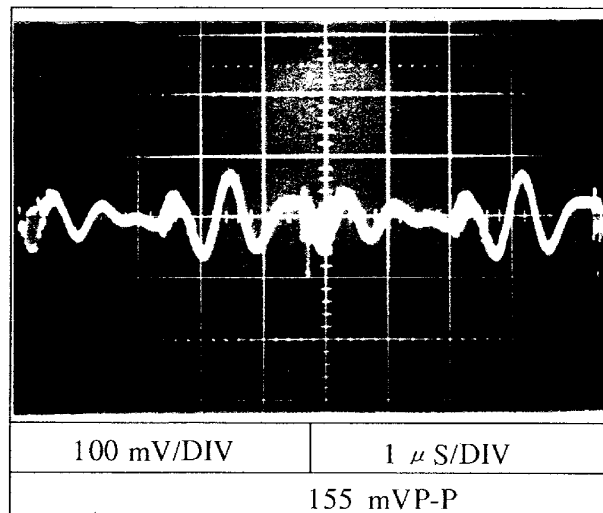
2-11 出カリプル,ノイズ波形
Output - ripple, noise waveform

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

5V
NORMAL MODE



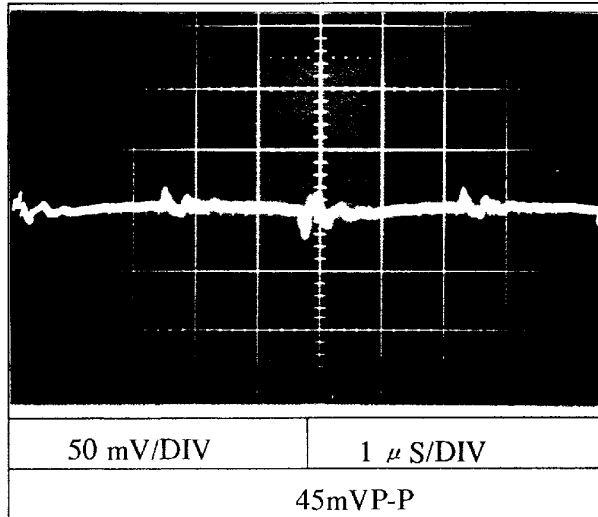
NORMAL + COMMON MODE



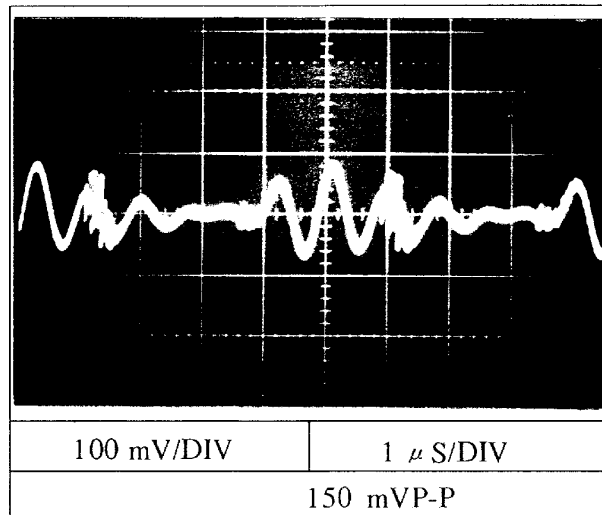
出力リップル,ノイズ波形
Output - ripple, noise waveform

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

12 V
NORMAL MODE



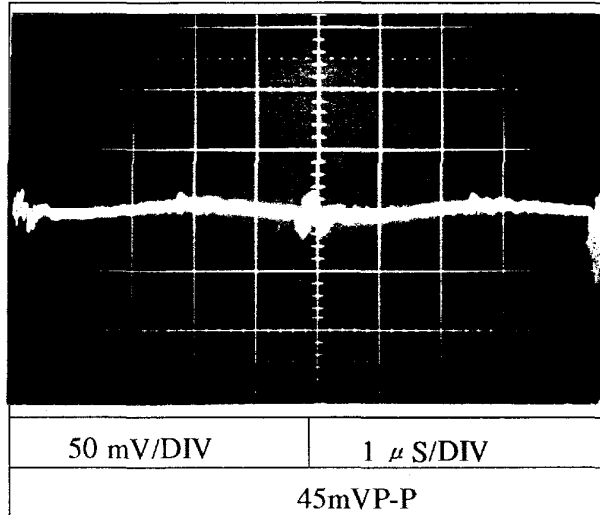
NORMAL + COMMON MODE



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

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

24 V
NORMAL MODE



NORMAL + COMMON MODE

