PAH350S24-48

EVALUATION DATA

型式データ

DWG.NO. C175-53-01/48		
承認	査閲	担当
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DENSEI-LAMBDA

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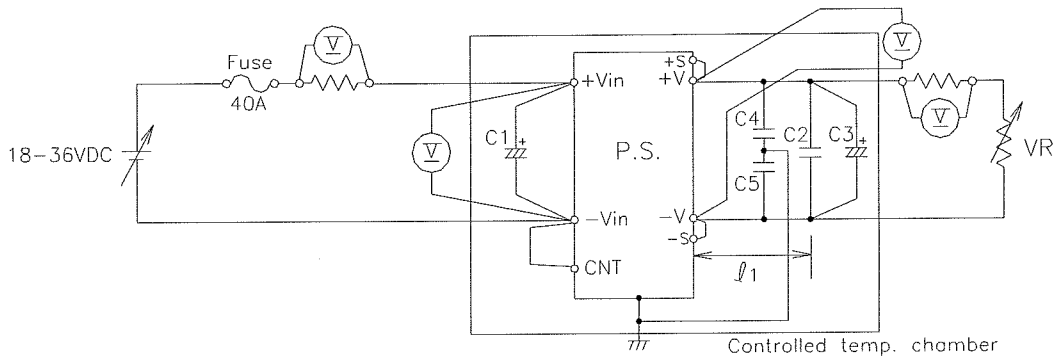
使用記号 Terminology used

	Definition	
Vin	..... 入力電圧	Input Voltage
Vout	..... 出力電圧	Output Voltage
Vcnt	..... CNT電圧	CNT Voltage
Iin	..... 入力電流	Input Current
Iout	..... 出力電流	Output Current
Tbp	..... ベースプレート温度	Baseplate Temperature

1. 測定方法　　Evaluation Method

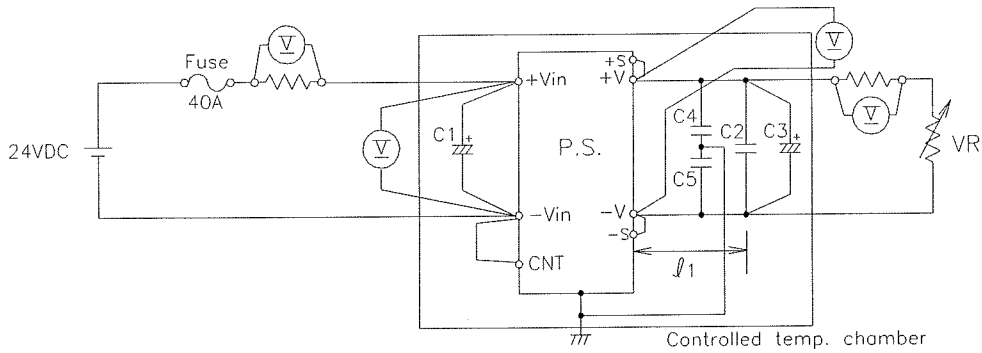
1.1 測定回路　　Circuits used for determination

(1) 静特性　Steady state data



C1: 220uF Electrolytic Capacitor x 2para　C3: 48V-120uF Electrolytic Capacitor　ℓ1: 50mm
C2: 0.1uF Ceramic Capacitor　C4,C5: 0.022uF Film Capacitor

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



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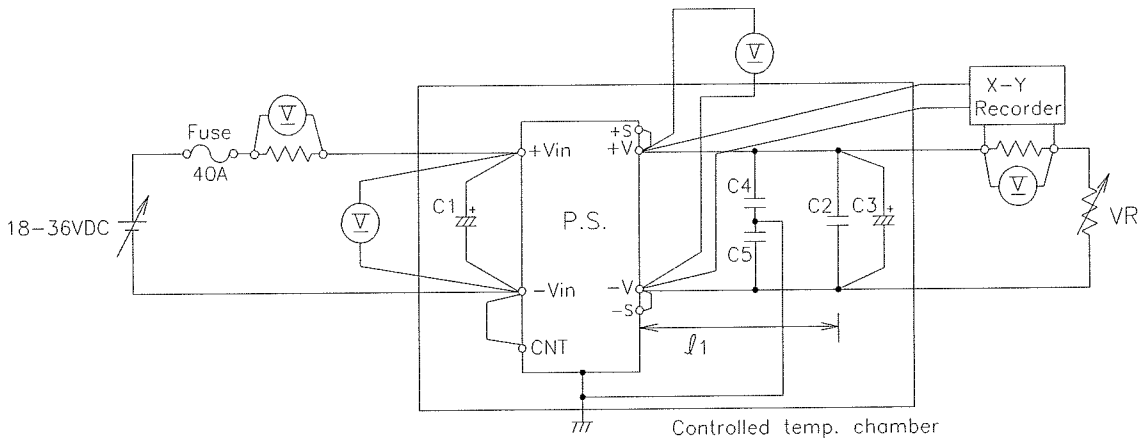
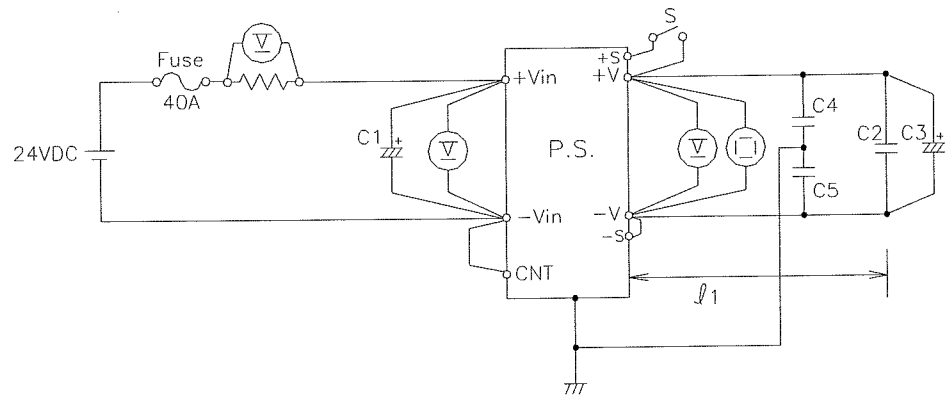
(3) 過電流保護特性　Over current protection (OCP) characteristics



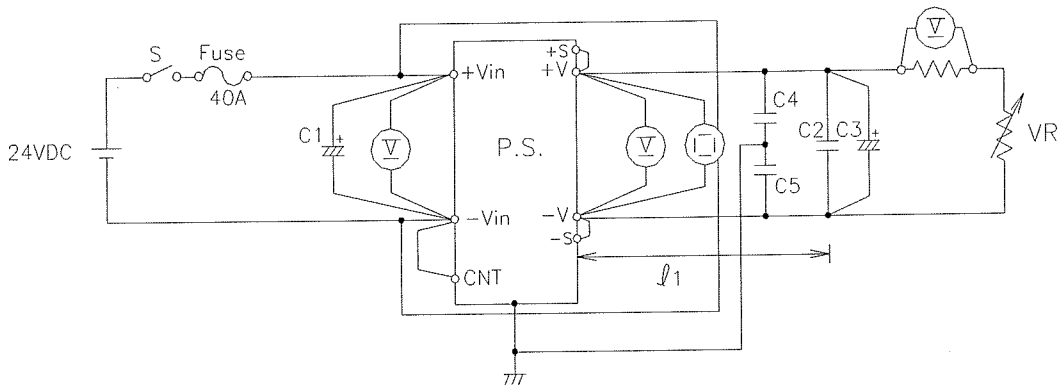
C1: 220uF Electrolytic Capacitor x 2para　C3: 48V-120uF Electrolytic Capacitor　ℓ1: 50mm
C2: 0.1uF Ceramic Capacitor　C4,C5: 0.022uF Film Capacitor

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



C1: 220uF Electrolytic Capacitor x 2para C3: 48V-120uF Electrolytic Capacitor ℓ1: 50mm
C2: 0.1uF Ceramic Capacitor C4,C5: 0.022uF Film Capacitor

(5) 出力立ち上がり特性 Output rise characteristics



C1: 220uF Electrolytic Capacitor x 2para C3: 48V-120uF Electrolytic Capacitor ℓ1: 50mm
C2: 0.1uF Ceramic Capacitor C4,C5: 0.022uF Film Capacitor

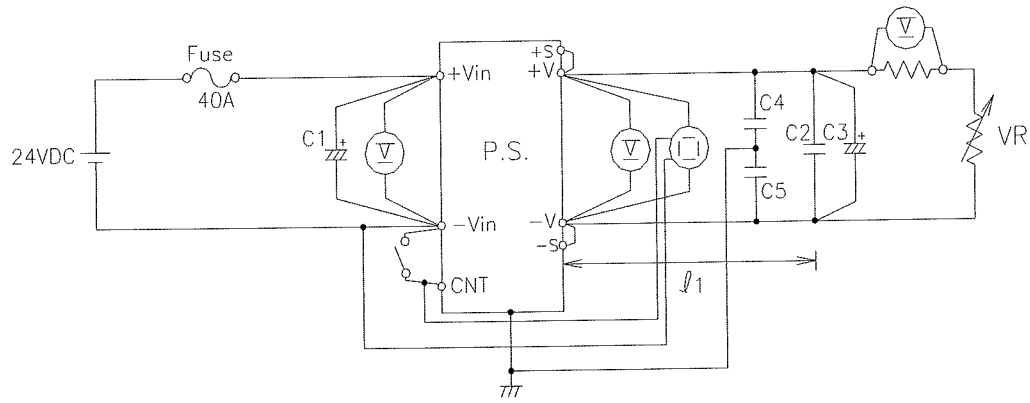
(6) 出力立ち下がり Output fall characteristics

出力立ち上がり特性と同じ

Same as output rise characteristics

(7) 出力立ち上がり特性　（ON/OFFコントロール時）

Output rise characteristics with ON/OFF CONTROL



C1: 220uF Electrolytic Capacitor x 2para　C3: 48V-120uF Electrolytic Capacitor　ℓ1: 50mm
C2: 0.1uF Ceramic Capacitor　C4,C5: 0.022uF Film Capacitor

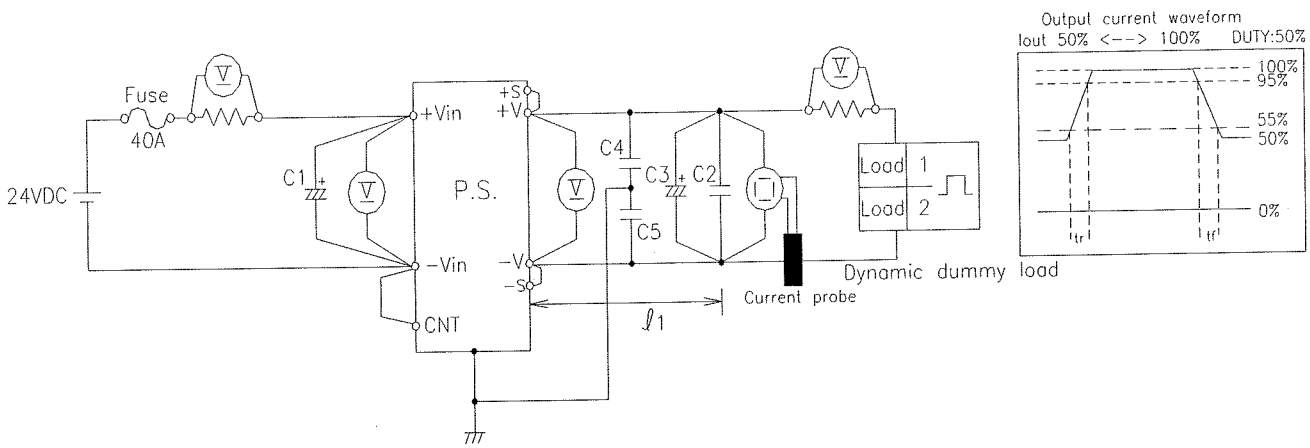
(8) 出力立ち下がり特性　（ON/OFFコントロール時）

Output fall characteristics with ON/OFF CONTROL

出力立ち上がり特性（ON/OFFコントロール時）と同じ

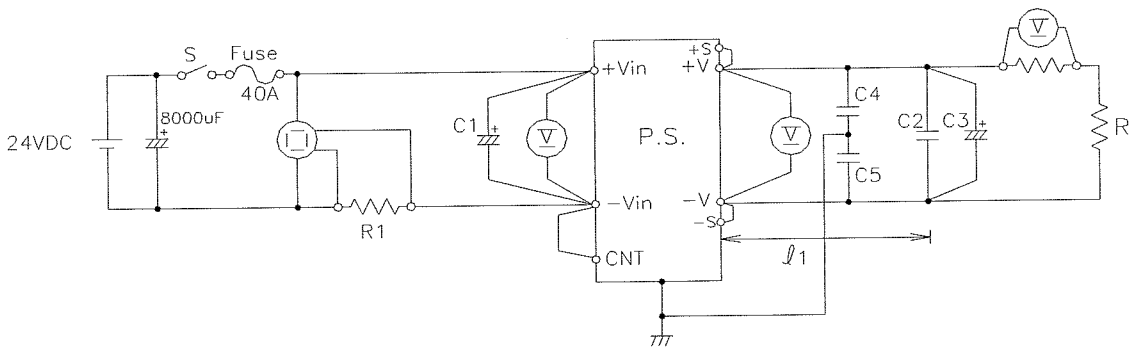
Same as output rise characteristics with ON/OFF CONTROL

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



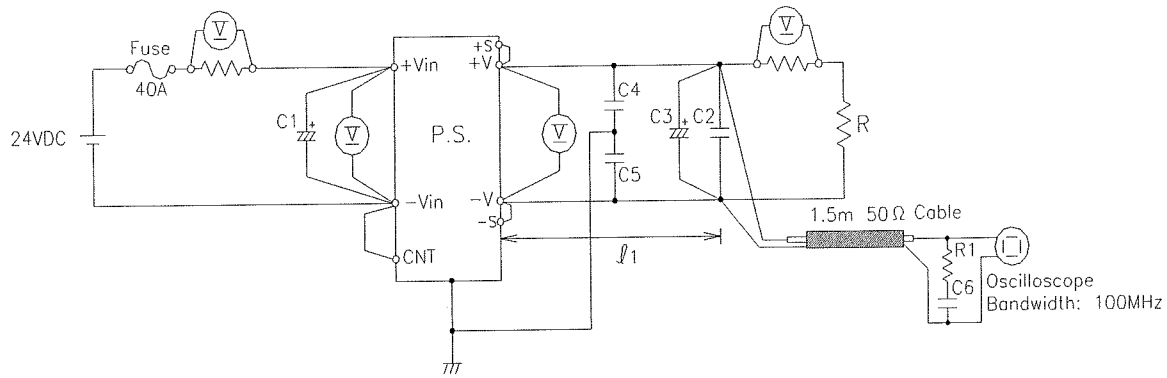
C1: 220uF Electrolytic Capacitor x 2para　C3: 48V-120uF Electrolytic Capacitor　ℓ1: 50mm
C2: 0.1uF Ceramic Capacitor　C4,C5: 0.022uF Film Capacitor

(10) 入力サージ電流（突入電流）特性　Inrush current characteristics



C1: 220uF Electrolytic Capacitor x 2para　C3: 48V−120uF Electrolytic Capacitor　R1: 0.01Ω
C2: 0.1uF Ceramic Capacitor　C4,C5: 0.022uF Film Capacitor　ℓ1: 50mm

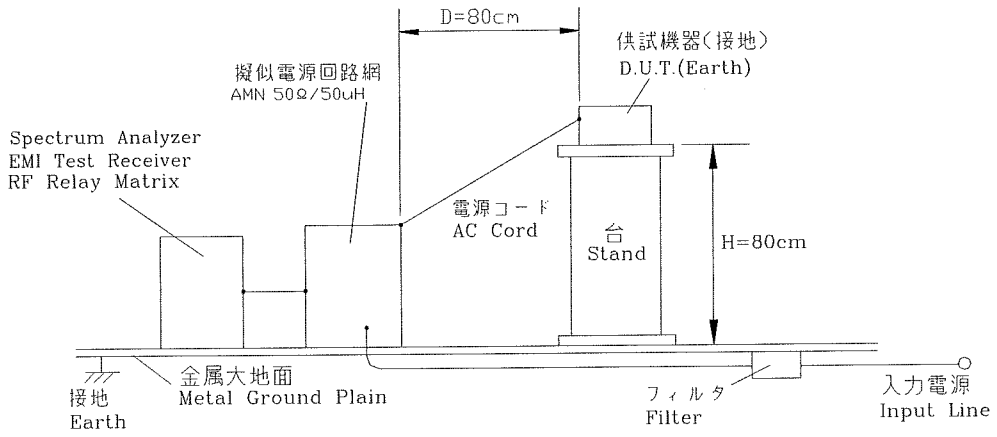
(11) 出力リップル、ノイズ波形　Output ripple and noise waveform



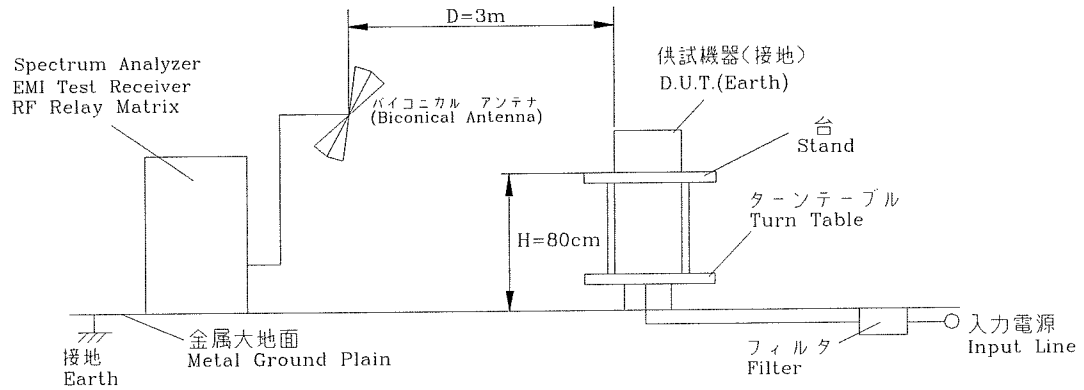
C1: 220uF Electrolytic Capacitor x 2para　C3: 48V−120uF Electrolytic Capacitor　C6: 4700pF Ceramic Capacitor
C2: 0.1uF Ceramic Capacitor　C4,C5: 0.022uF Film Capacitor　R1: 50 Ω
ℓ1: 50mm

(12) ＥＭＩ特性 Electro-Magnetic Interference characteristics

(a) 雑音端子電圧（帰還ノイズ） Conducted Emission Noise

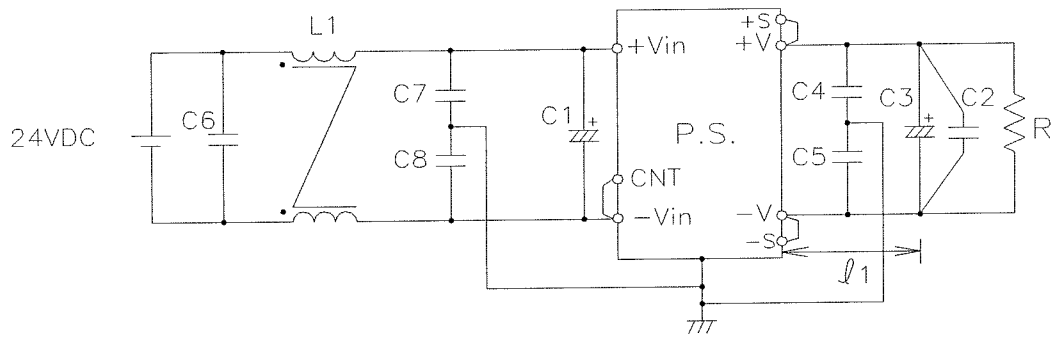


(b) 雑音電界強度（輻射ノイズ） Radiated Emission Noise



(1) VCC class A 対応対応アプリケーションシステム

VCCI class A application system



C1 : 680uF Electrolytic Capacitor x 3para
C2 : 0.1uF Ceramic Capacitor
C3 : 48V−120uF Electrolytic Capacitor
C4,C5 : 0.022uF Ceramic Capacitor
C6 : 10uF Ceramic Capacitor
C7,C8 : 0.47uF Film Capacitor
L1 : 1mH
ℓ_1 : 50mm

1. 2 使用測定機器　　List of equipment used

	EQUIPMENT USED	MANUFACTURER	MODEL NO.
1	OSCILLOSCOPE	HITACHI DENSHI	V-1100A
2	DIGITAL STORAGE OSCILLOSCOPE	IWATSU-LECROY	LT364L
3	DIGITAL MULTIMETER	ADVANTEST	R6441B
4	DATA ACQUISITION / SWITCH UNIT	AGILENT	34970A
5	CURRENT PROBE	LECROY	AP015
6	SHUNT RESISTER	YOKOGAWA ELECT.	2215
7	X-Y RECORDER	GRAPHTEC	WX3000
8	CONTROLLED TEMP. CHAMBER	TABAI ESPEC	SH-240
9	SPECTRUM ANALYZER	ROHDE & SCHWARZ	FSA
10	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESHS10
11	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESVS10
12	RF RELAY MATRIX	ROHDE & SCHWARZ	PSU
13	AMN	KYORITU DENSHI	KNW-408
14	ANTENNA(BICONICAL ANTENNA)	SCHWARZBECK	BBA9106
15	DYNAMIC DUMMY LOAD	TAKASAGO	FK-600L
16	DC POWER SUPPLY	TAKASAGO	EX-1500L

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, temperature drift

48V

1. Regulation - line and load　condition Tbp : 25℃

Iout \ Vin	18VDC	24VDC	36VDC	line regulation	
0%	47.953V	47.953V	47.956V	3mV	0.006%
50%	47.952V	47.952V	47.955V	3mV	0.006%
100%	47.952V	47.953V	47.956V	4mV	0.008%
load	1mV	1mV	1mV		
regulation	0.002%	0.002%	0.002%		

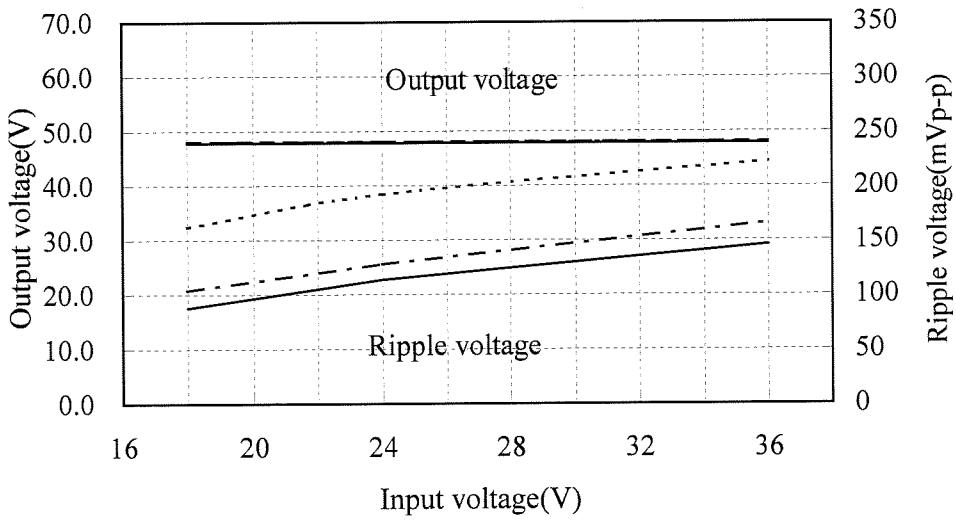
2. Temperature drift　conditions Vin : 24VDC
Iout : 100%

Tbp	-40℃	25℃	100℃	temperature stability	
Vout	48.031V	47.953V	47.857V	181mV	0.377%

2.1 (2) 出力電圧・リップル電圧対入力電圧
Output voltage and ripple voltage v.s. input voltage

Conditions Iout : 100 %
Tbp : -40 ℃ ----------
25 ℃ - — - —
100 ℃ ———

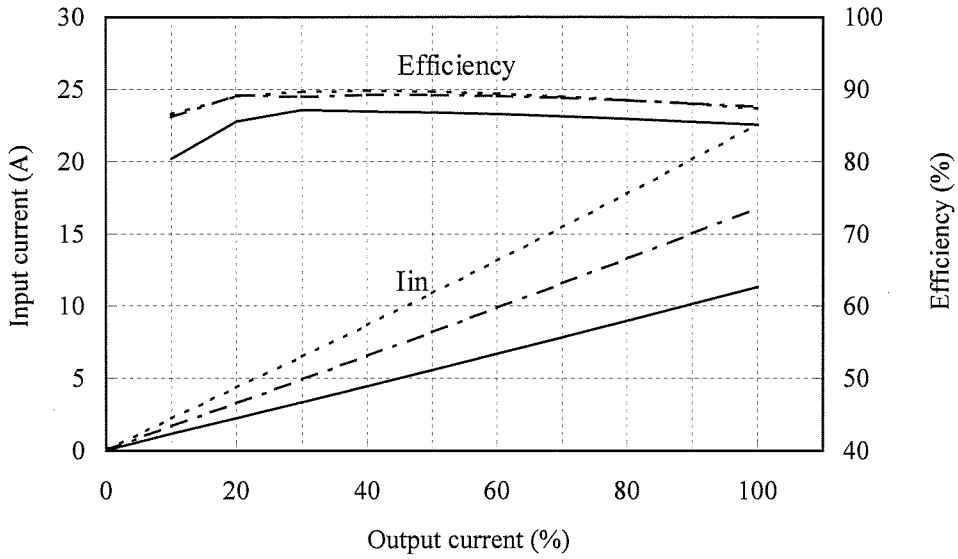
48V



2.1 (3) 効率・入力電流対出力電流
Efficiency and input current v.s. output current

Conditions Vin : 18 VDC ----------
: 24 VDC — - — - -
: 36 VDC ———
Tbp : 25 ℃

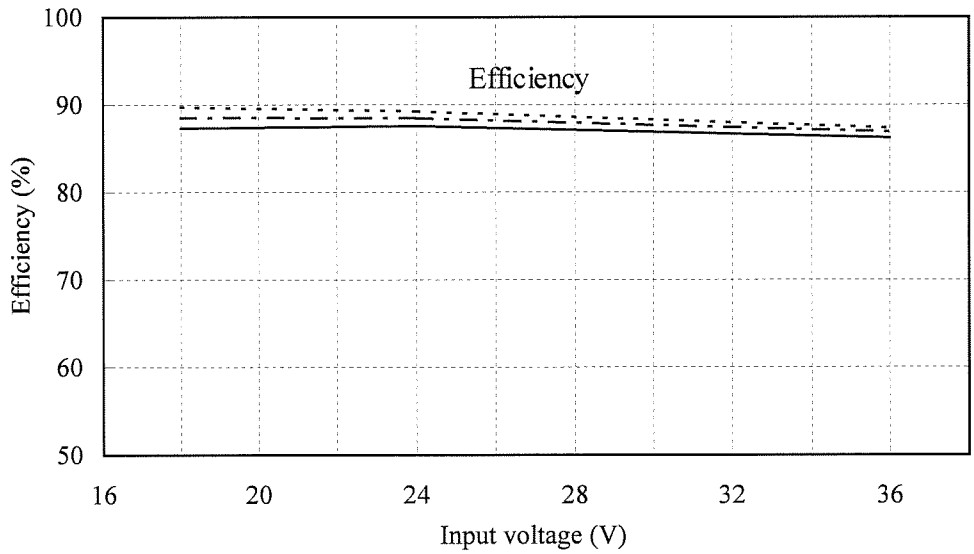
48V



2.1 (4) 効率対入力電圧
Efficiency v.s. input voltage

Conditions Iout : 50 % ----------
80 % - — - — -
100 % ————
Tbp : 25 ℃

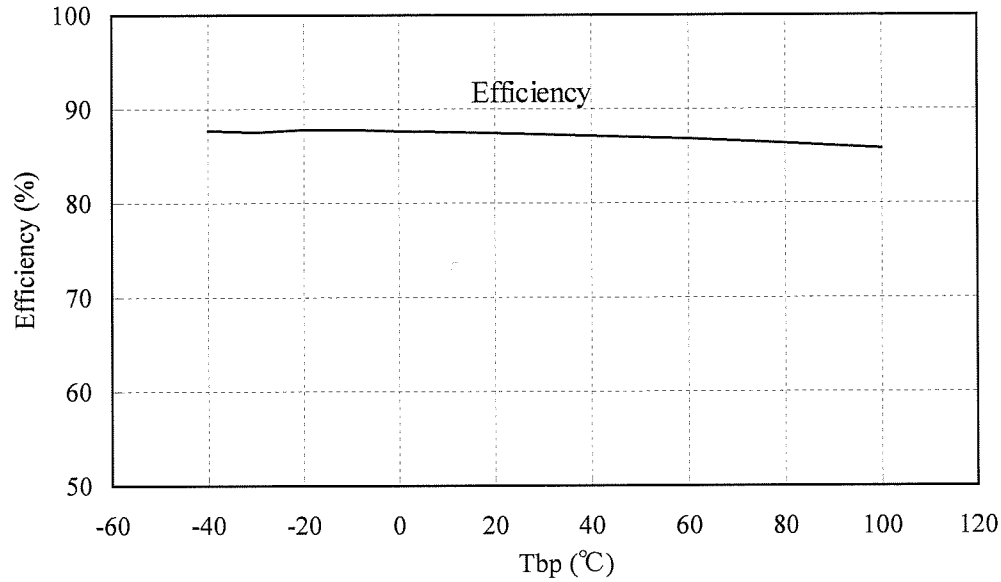
48V



2.1 (5) 効率対ベースプレート温度
Efficiency v.s. Baseplate temperature

Conditions Vin : 24 VDC
Iout : 100 %

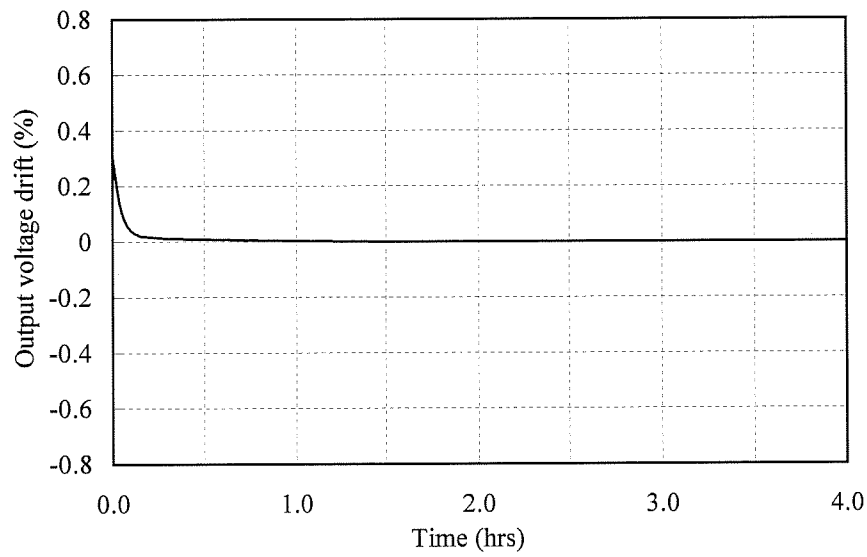
48V



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

Conditions Vin : 24 VDC
Iout : 100 %
Ta : 25 ℃

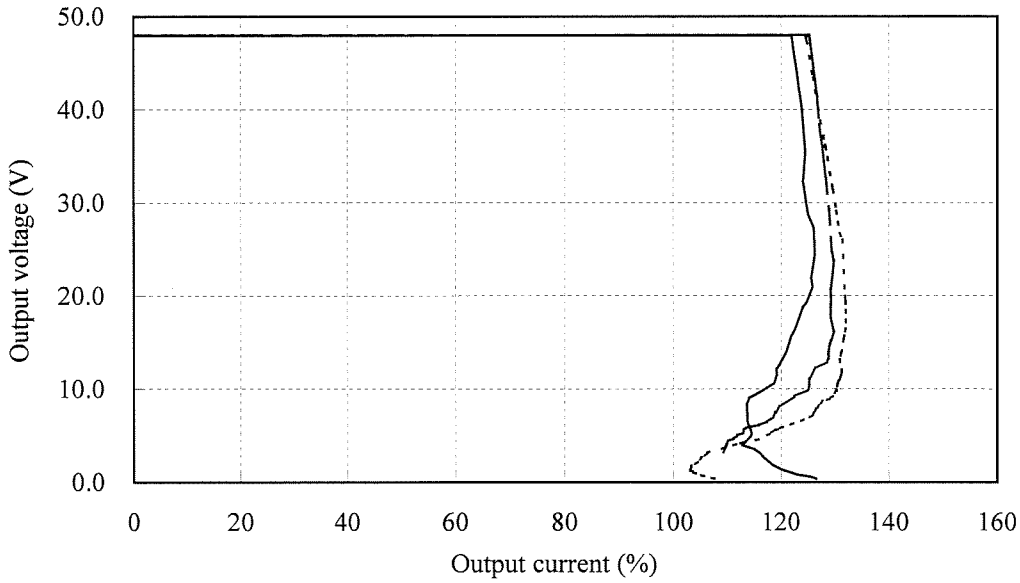
48V



2.3 過電流保護特性
Over current protection (OCP) characteristics

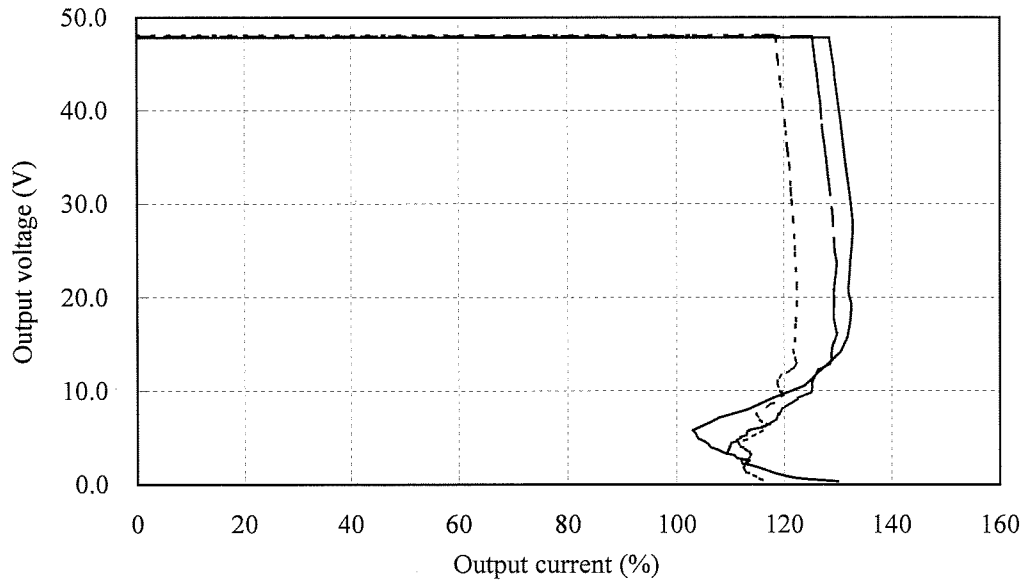
Conditions Vin : 18 VDC -------
: 24 VDC – – – – –
: 36 VDC ———
Tbp : 25 ℃

48V



Conditions Tbp : -40 ℃ -------
: 25 ℃ – – – – –
: 100 ℃ ———
Vin : 24 VDC

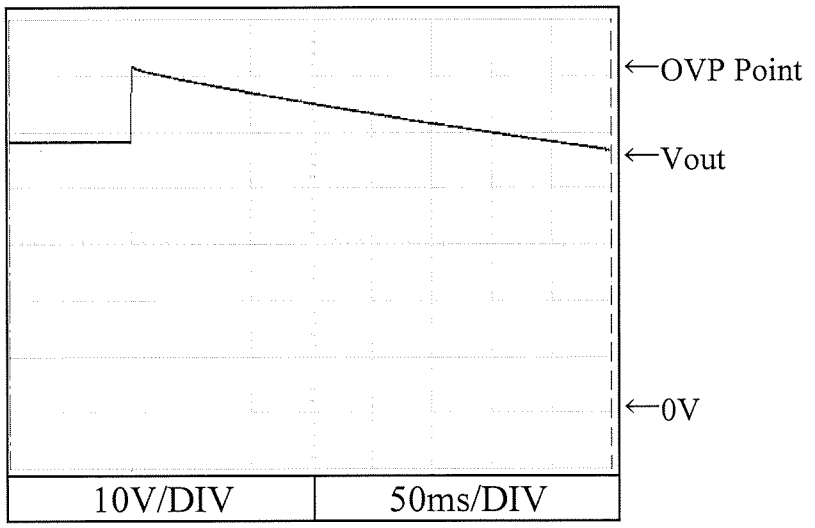
48V



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

Conditions Vin : 24 VDC
Iout : 0 %
Tbp : 25 ℃

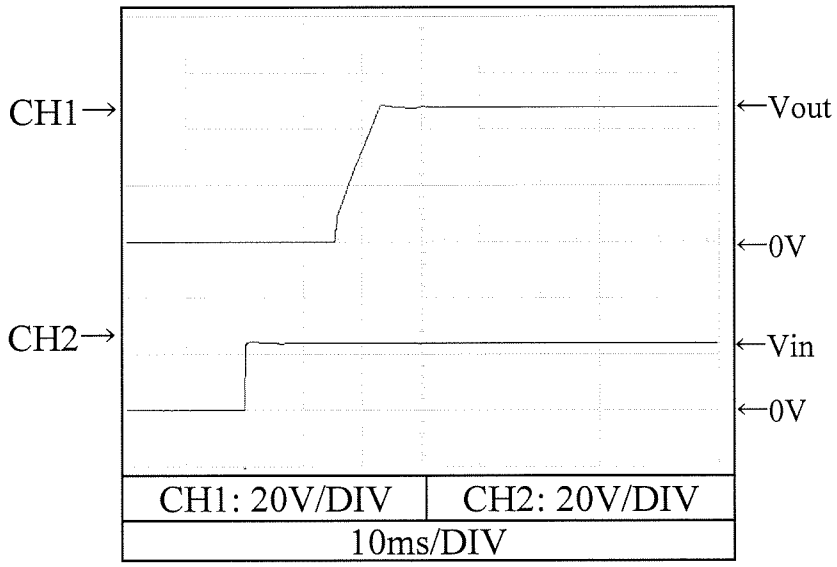
48V



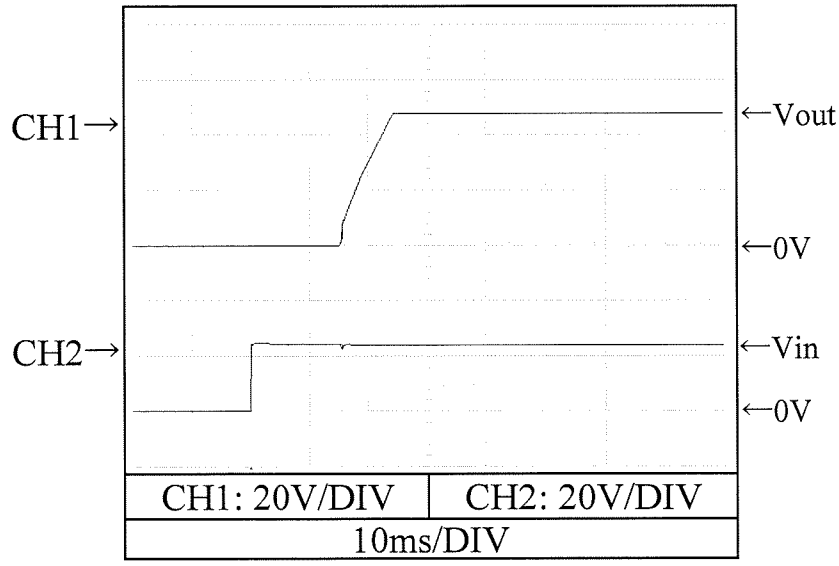
2.5 出力立ち上がり特性
Output rise characteristics

48V

Conditions Vin : 24 VDC
Iout : 0 %
Tbp : 25 ℃



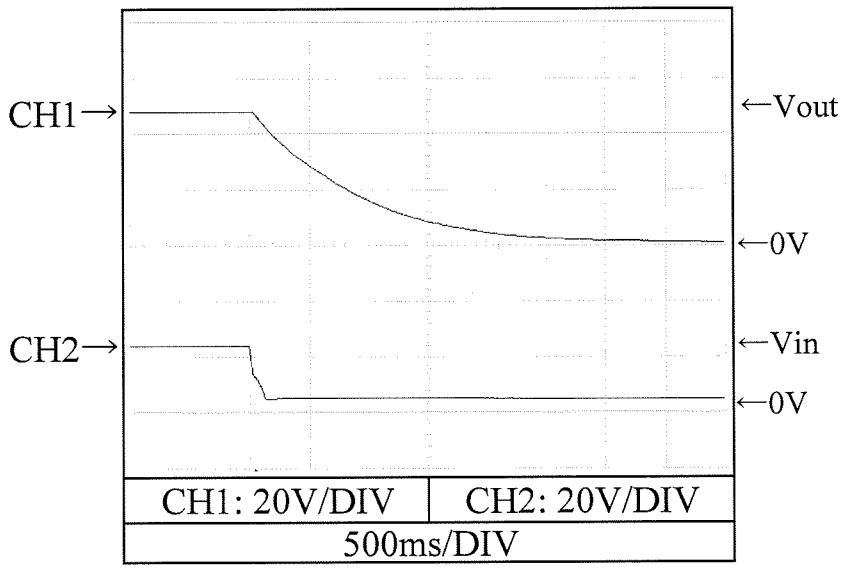
Conditions Vin : 24 VDC
Iout : 100 %
Tbp : 25 ℃



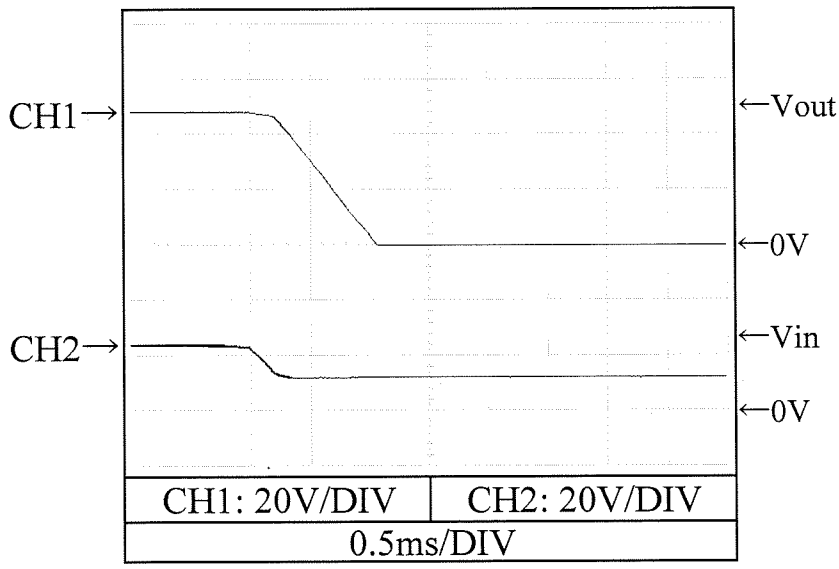
2.6 出力立ち下がり特性
Output fall characteristics

48V

Conditions Vin : 24 VDC
Iout : 0 %
Tbp : 25 ℃



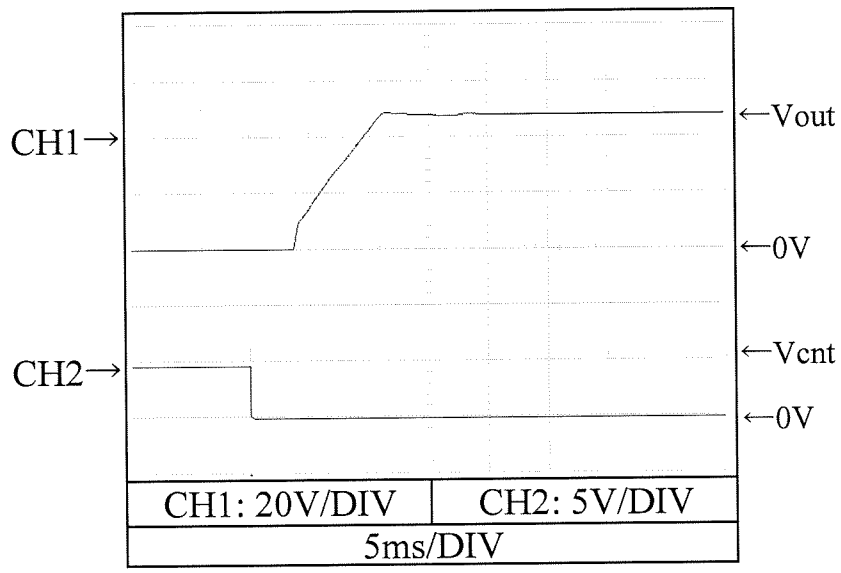
Conditions Vin : 24 VDC
Iout : 100 %
Tbp : 25 ℃



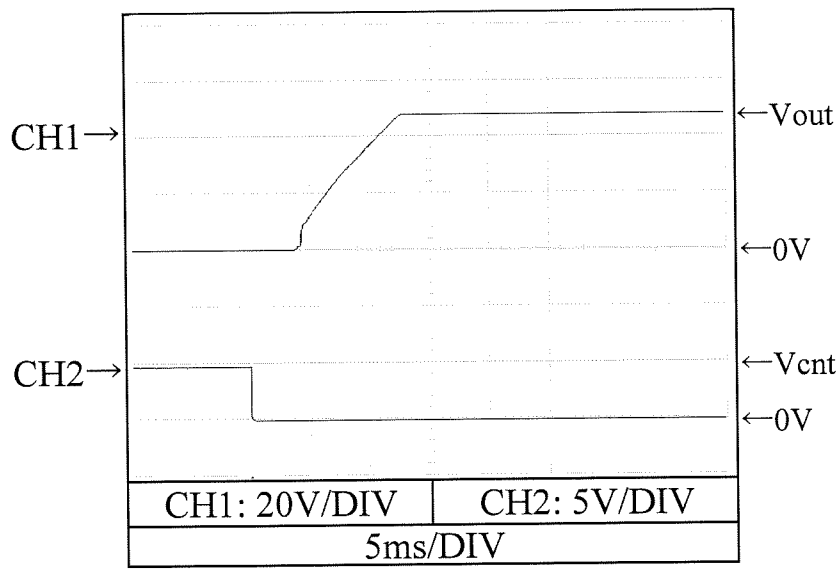
2.7 出力立ち上がり特性 （ＯＮ／ＯＦＦコントロール時）
Output rise characteristics with ON/OFF CONTROL

48V

Conditions Vin : 24 VDC
Iout : 0 %
Tbp : 25 ℃



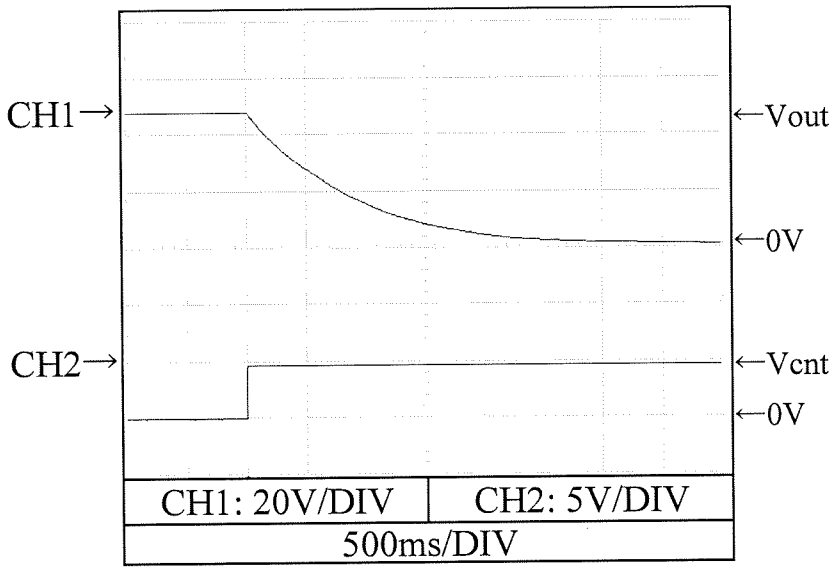
Conditions Vin : 24 VDC
Iout : 100 %
Tbp : 25 ℃



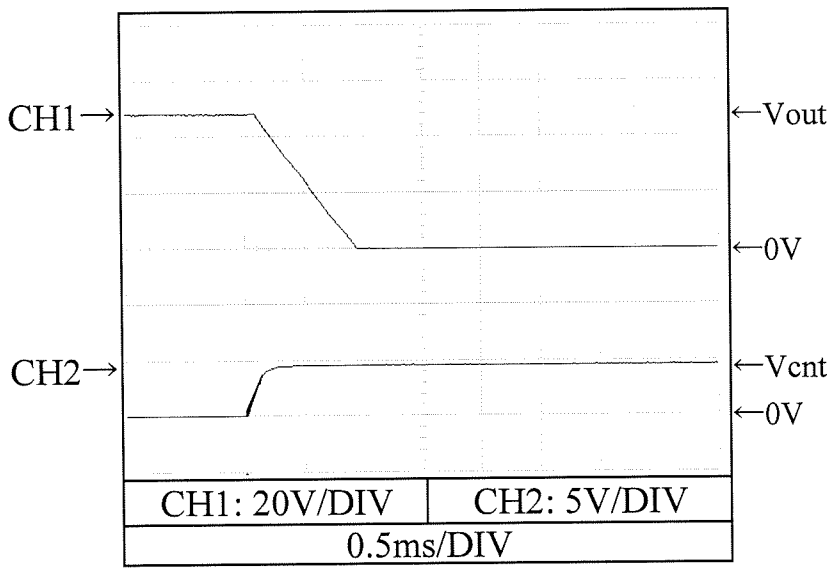
2.8 出力立ち下がり特性 （ＯＮ／ＯＦＦコントロール時）
Output fall characteristics with ON/OFF CONTROL

48V

Conditions Vin : 24 VDC
Iout : 0 %
Tbp : 25 ℃



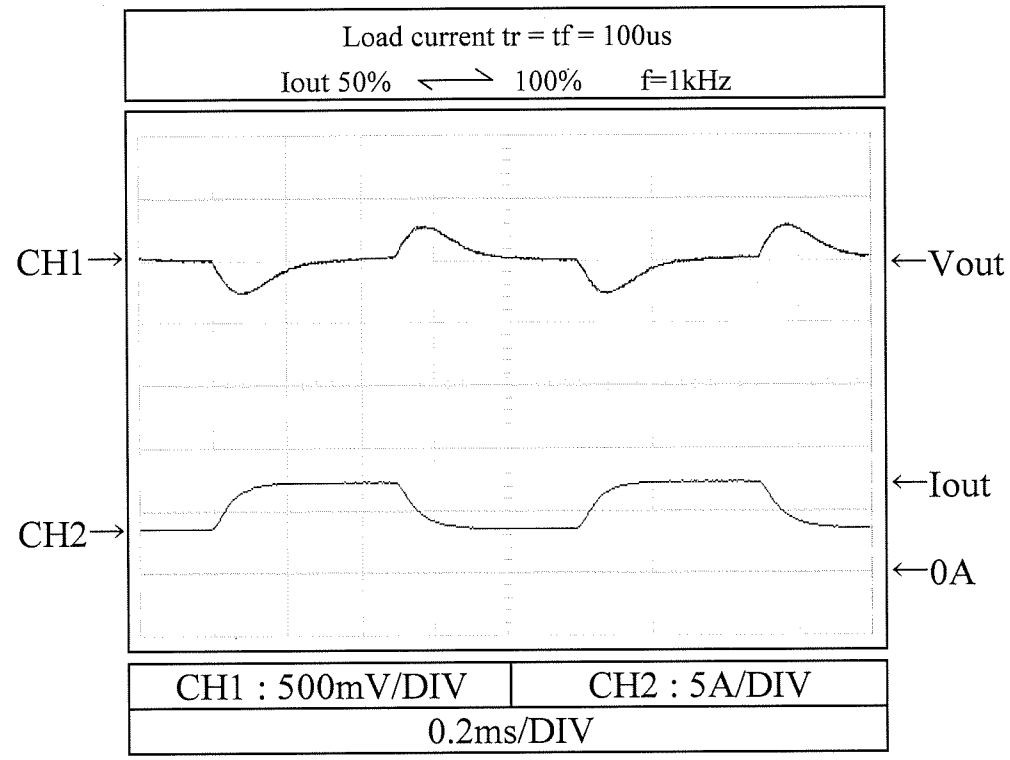
Conditions Vin : 24 VDC
Iout : 100 %
Tbp : 25 ℃



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

Conditions Vin : 24 VDC
Tbp : 25 ℃

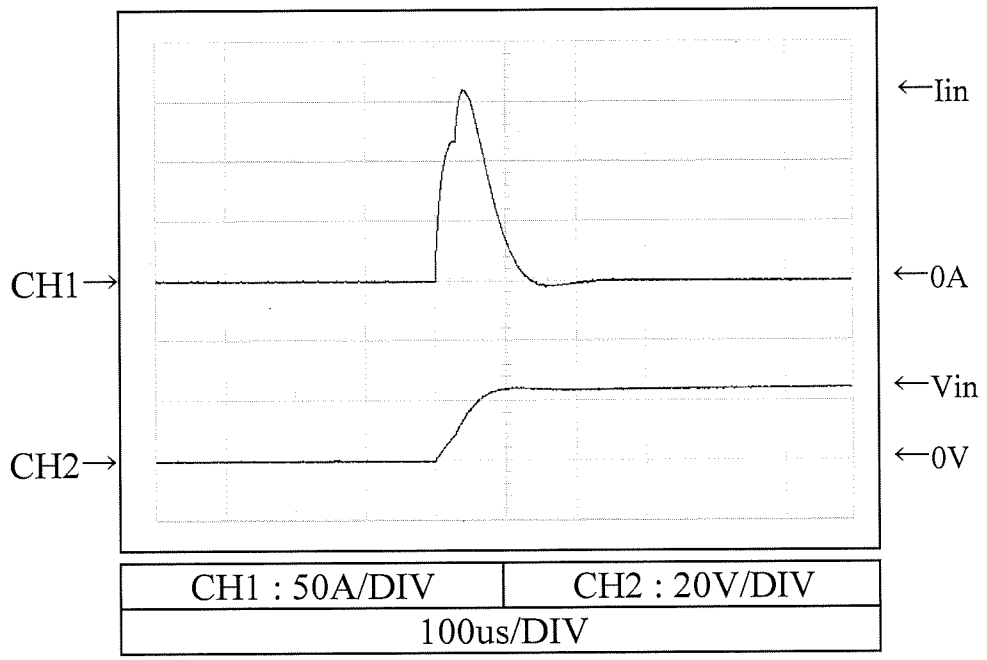
48V



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

Conditions Vin : 24 VDC
Iout : 100 %
Tbp : 25 ℃

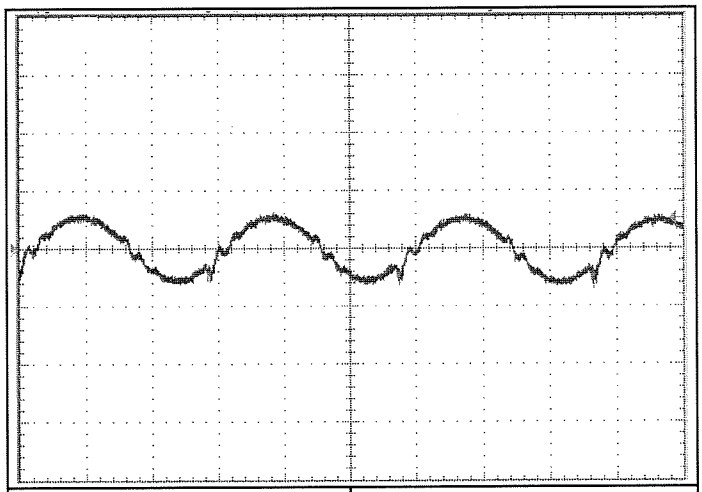
48V



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

Conditions Vin : 24 VDC
Iout : 100 %
Tbp : 25 ℃

48V



100mV/DIV	1 μ s/DIV
128mVp-p	

2. 12 EMI特性

Electro-Magnetic Interference characteristics

(a) 雑音端子電圧（帰還ノイズ）

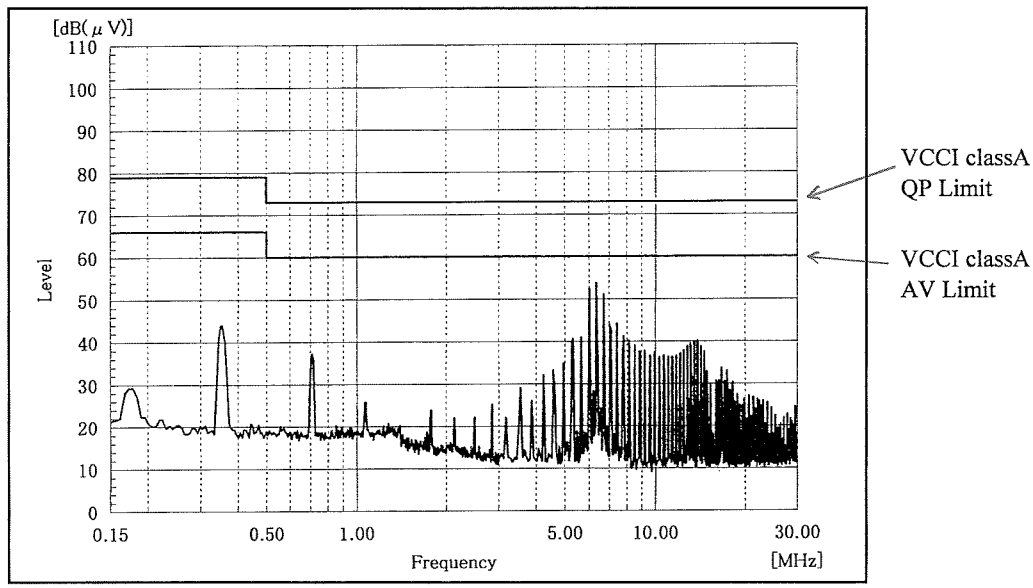
Conducted Emission

(1) VCCI class A 対応アプリケーションシステム

VCCI class A application system

Conditions Vin : 24 VDC
Iout : 100 %
Tbp : 25 ℃

48V



2. 12 EMI特性

Electro-Magnetic Interference characteristics

(b) 雑音電界強度（輻射ノイズ）

Radiated Emission

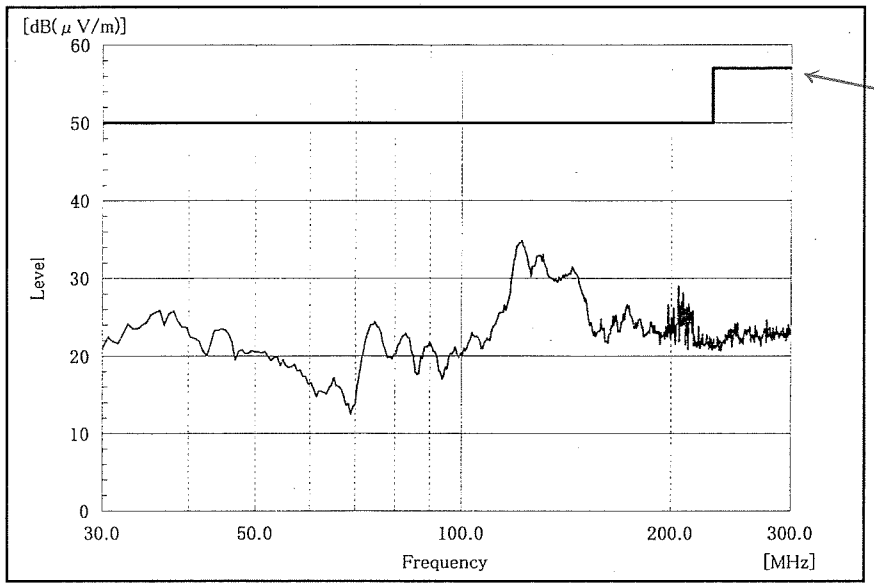
(1) VCCI class A 対応アプリケーションシステム

VCCI class A application system

Conditions Vin : 24 VDC
Iout : 100 %
Tbp : 25 ℃

48V

HORIZONTAL:



VERTICAL: