PML12050A007V

EVALUATION DATA

型式データ

DWG.NO. C262-53-01		
承認	査閲	担当
T. Uraji 24. Oct. '12	Hirokawa 24. Oct. '12	T. Masuda 24. Oct. '12

TDK-Lambda

INDEX

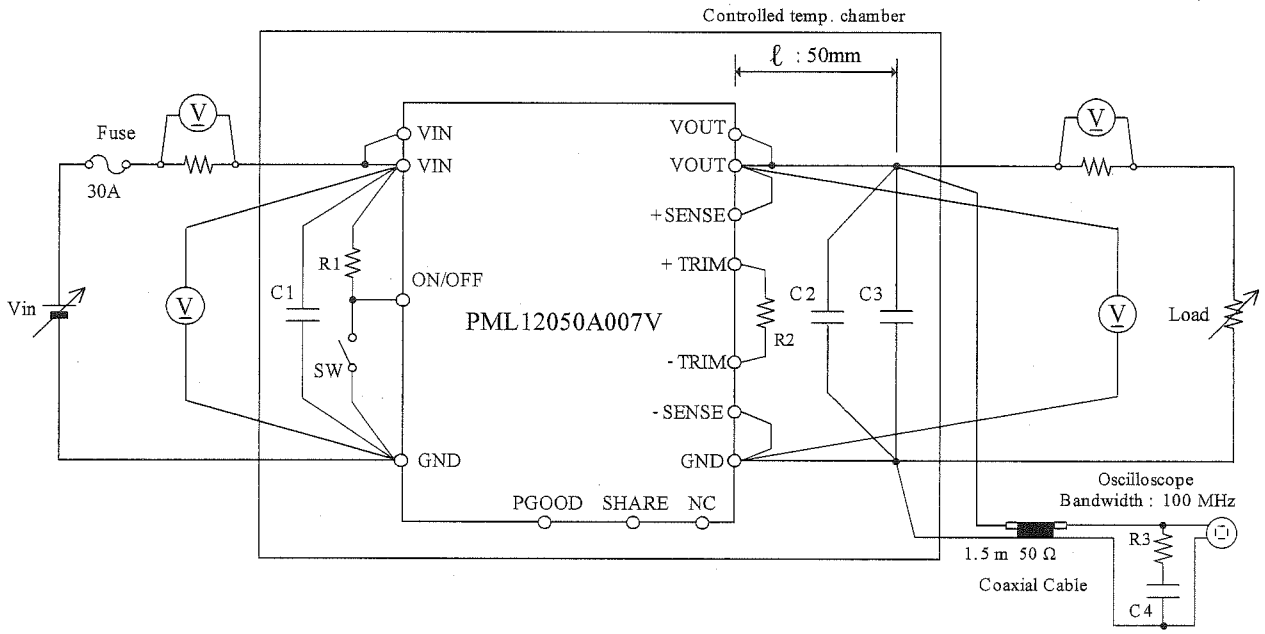
使用記号　Terminology used

	Definition		
Vin	.....	入力電圧	Input voltage
Vo	.....	出力電圧	Output voltage
V ON/OFF	.....	ON/OFF 電圧	ON/OFF voltage
Iin	.....	入力電流	Input current
Io	.....	出力電流	Output current
Ta	.....	周囲温度	Ambient temperature
Tc	.....	ケース温度	Case temperature
f	.....	周波数	Frequency

1. 評価方法　Evaluation Method

1.1 測定回路　Measurement Circuits

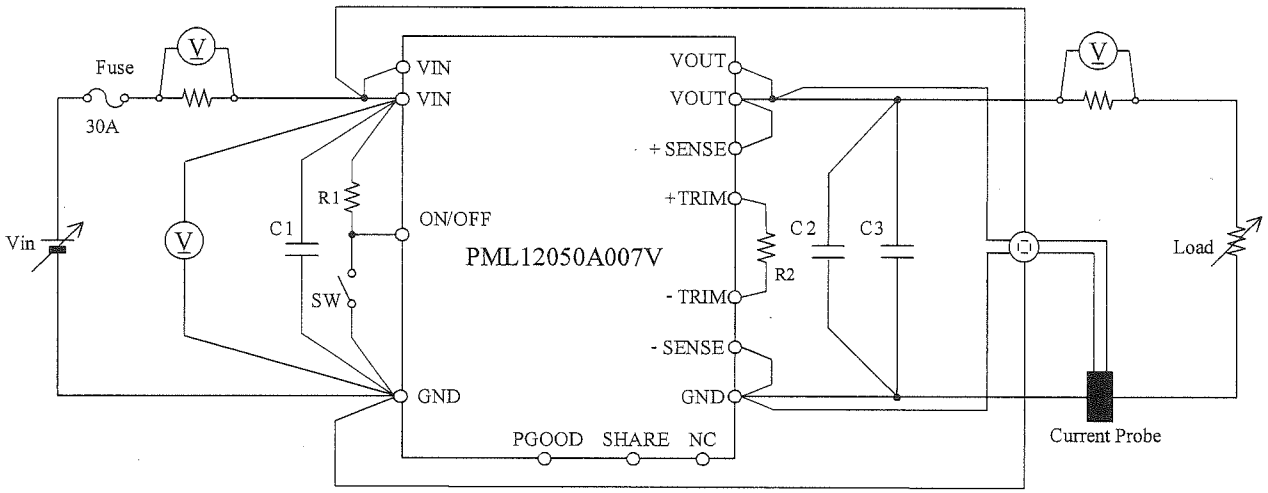
(1) 静特性、過電流保護特性、出力リップル・ノイズ波形
Steady state characteristics, Over current protection (OCP) characteristics, and Output ripple and noise waveform



C1 : 22μF Ceramic Capacitor × 7parallel
C2 : 0.1μF Ceramic Capacitor
C3 : 100μF Ceramic Capacitor × 5parallel
C4 : 4700pF Ceramic Capacitor

R1 : 4.7kΩ
R2 : Vo= 0.7V - Open
: Vo= 1.2V - 14kΩ
: Vo= 2.0V - 5.38kΩ
R3 : 50Ω

(2) 過渡応答、その他
Dynamic response characteristics, and Other characteristics



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R1 : 4.7kΩ
R2 : Vo= 0.7V - Open
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1.2 使用測定機器　　List of equipment used

	EQUIPMENT USED	MANUFACTURER	MODEL NO.
1	DC POWER SUPPLY	KIKUSUI	PWR800L
2	CARBON PLATE RHEOSTATS	YAMABISHI ELECTRIC	RC-3
3	DYNAMIC DUMMY LOAD	KEISOKU GIKEN	ELL-1005
4	DATA ACQUISITION / SWITCH UNIT	AGILENT	34970A
5	SHUNT RESISTER	YOKOGAWA ELECT.	2215
6	CONTROLLED TEMP. CHAMBER	ESPEC CORP.	SU-261
7	DIGITAL PHOSPHOR OSCILOSCOPE	TEKTRONIX	TDS3012
8	DIGITAL STORAGE OSCILLOSCOPE	YOKOGAWA ELECT.	DL9040L
9	CURRENT PROBE	YOKOGAWA ELECT.	701930
10	HYBRID RECORDER	YOKOGAWA ELECT.	MV230

2. 特性データ Characteristics

2.1 静特性 Steady state data
(1) 入力変動、負荷変動、温度変動 Line regulation, Load regulation, Temperature drift

Vo= 0.7 V

1. Line regulation and Load regulation

Conditions Tc : 25℃
Air Velocity : 1.5m/s

Io \ Vin	8VDC	12VDC	14VDC	Line regulation	
0%	0.7040V	0.7041V	0.7042V	0.2mV	0.029%
50%	0.7033V	0.7035V	0.7036V	0.3mV	0.043%
100%	0.7022V	0.7021V	0.7021V	0.1mV	0.014%
Load	1.8mV	2.0mV	2.1mV		
regulation	0.257%	0.286%	0.300%		

2. Temperature drift

Conditions Vin : 12VDC
Io : 100%
Air Velocity : 1.5m/s

Tc	-40℃	+25℃	+110℃	Temperature stability	
Vo	0.7014V	0.7021V	0.7026V	2.2mV	0.314%

Vo= 1.2 V

1. Line regulation and Load regulation

Conditions Tc : 25℃
Air Velocity : 1.5m/s

Io \ Vin	8VDC	12VDC	14VDC	Line regulation	
0%	1.2015V	1.2020V	1.2023V	0.8mV	0.067%
50%	1.2005V	1.2010V	1.2014V	0.9mV	0.075%
100%	1.1990V	1.1993V	1.1995V	0.5mV	0.042%
Load	2.5mV	2.7mV	2.8mV		
regulation	0.208%	0.225%	0.233%		

2. Temperature drift

Conditions Vin : 12VDC
Io : 100%
Air Velocity : 1.5m/s

Tc	-40℃	+25℃	+110℃	Temperature stability	
Vo	1.1977V	1.1993V	1.2035V	5.8mV	0.483%

Vo= 2.0 V

1. Line regulation and Load regulation

Conditions Tc : 25℃
Air Velocity : 1.5m/s

Io \ Vin	8VDC	12VDC	14VDC	Line regulation	
0%	2.0065V	2.0076V	2.0084V	1.9mV	0.095%
50%	2.0047V	2.0054V	2.0061V	1.4mV	0.070%
100%	2.0031V	2.0039V	2.0046V	1.5mV	0.075%
Load	3.4mV	3.7mV	3.8mV		
regulation	0.170%	0.185%	0.190%		

2. Temperature drift

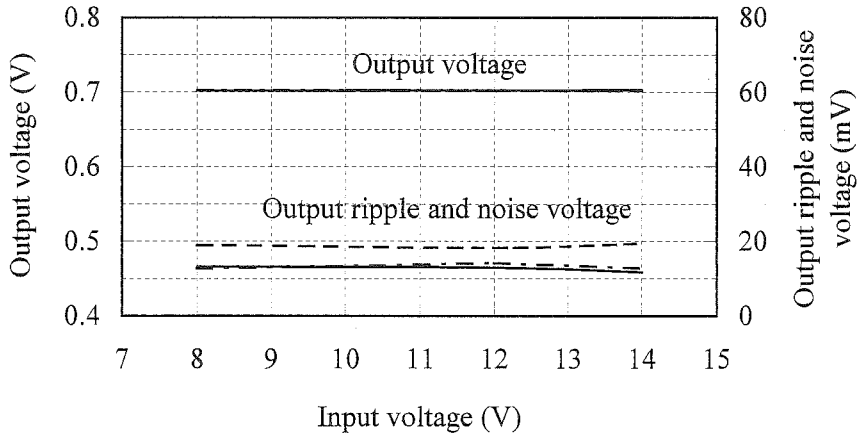
Conditions Vin : 12VDC
Io : 100%
Air Velocity : 1.5m/s

Tc	-40℃	+25℃	+110℃	Temperature stability	
Vo	2.0003V	2.0039V	2.0134V	13.1mV	0.655%

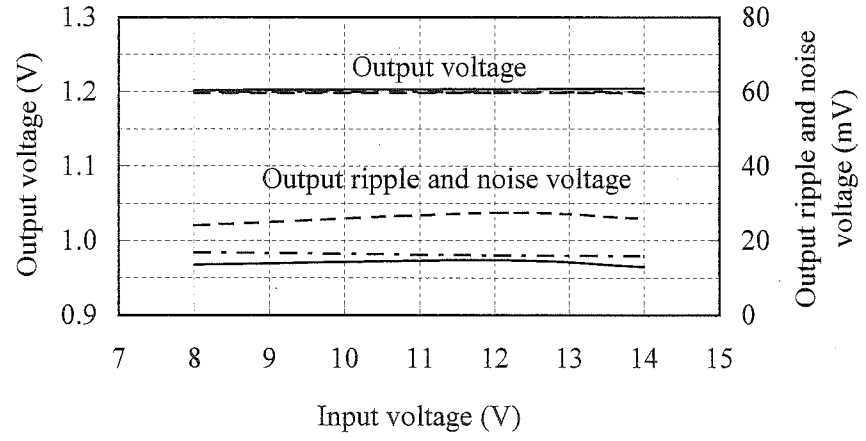
(2) 出力電圧、出力リップル・ノイズ電圧 対 入力電圧
Output voltage and Output ripple and noise voltage vs. Input voltage

Conditions Io : 100 %
Tc : -40 ℃ ----
: 25 ℃ -·-·-
: 110 ℃ ——
Air Velocity : 1.5 m/s

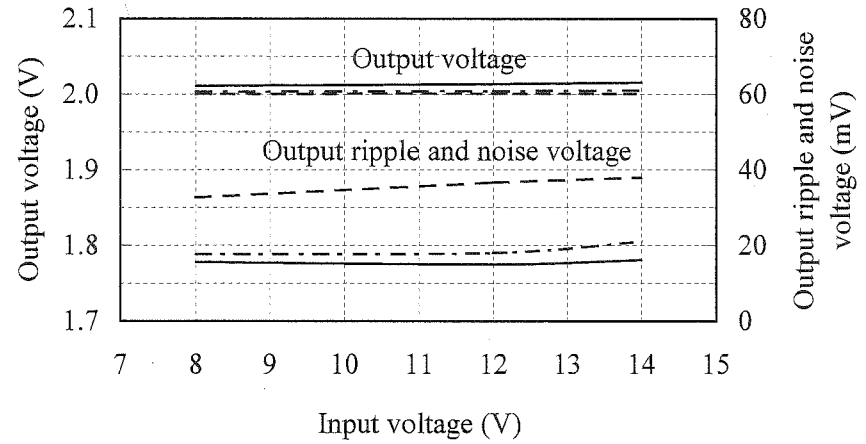
Vo= 0.7 V



Vo= 1.2 V



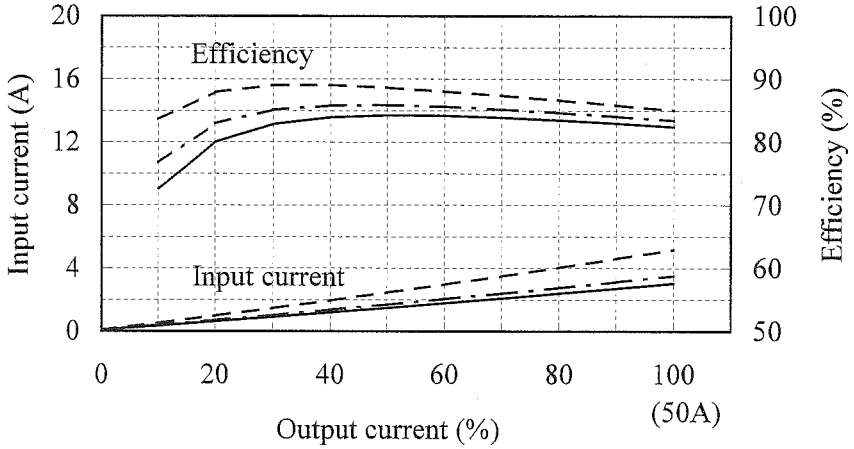
Vo= 2.0 V



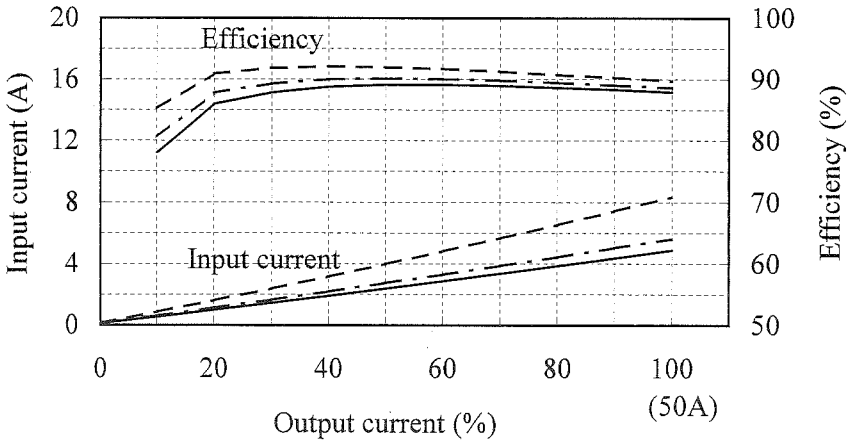
(3) 入力電流、効率 対 出力電流
Input current and Efficiency vs. Output current

Conditions Vin : 8 VDC ----
: 12 VDC -·-·-·-
: 14 VDC ———
Tc : 25 ℃
Air Velocity : 1.5 m/s

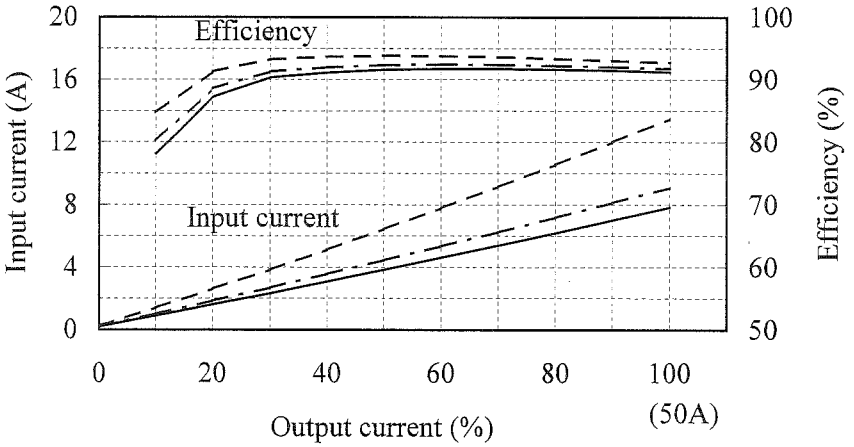
Vo= 0.7 V



Vo= 1.2 V



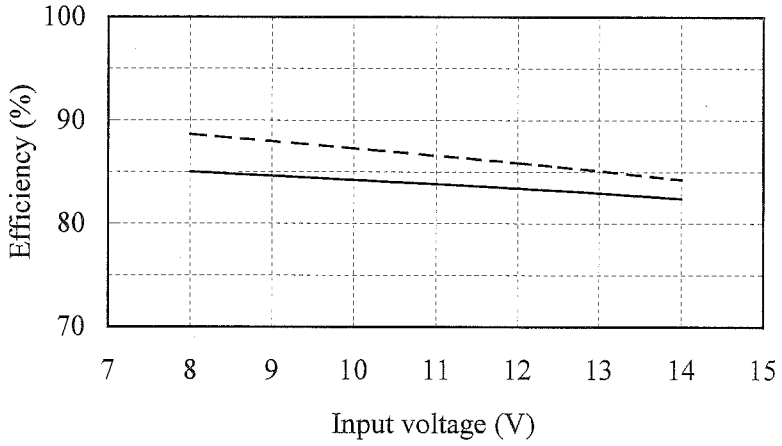
Vo= 2.0 V



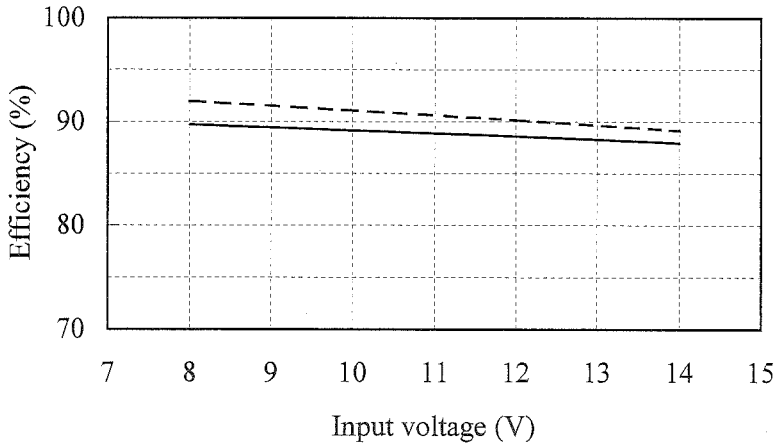
(4) 効率 対 入力電圧
Efficiency vs. Input voltage

Conditions Io : 50 % ----
: 100 % ——
Tc : 25 ℃
Air Velocity : 1.5 m/s

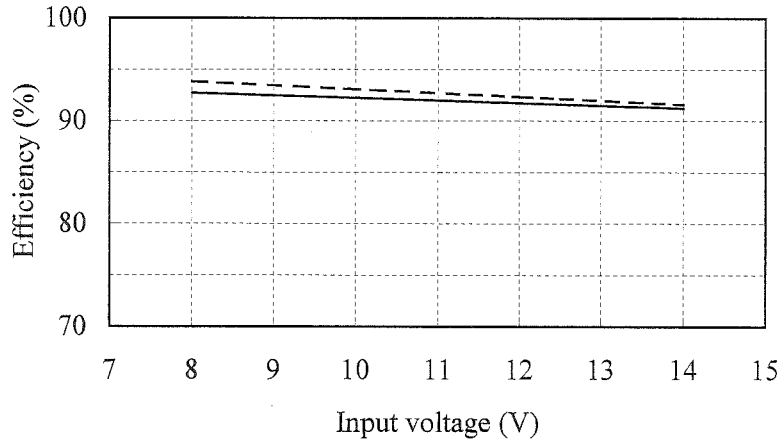
Vo= 0.7 V



Vo= 1.2 V



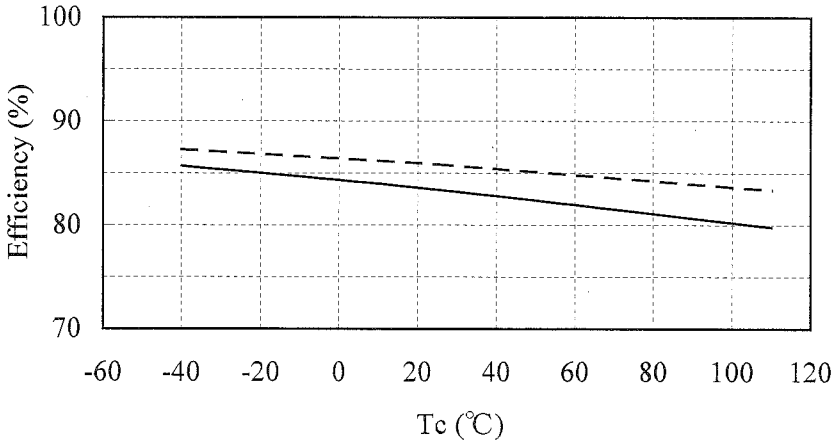
Vo= 2.0 V



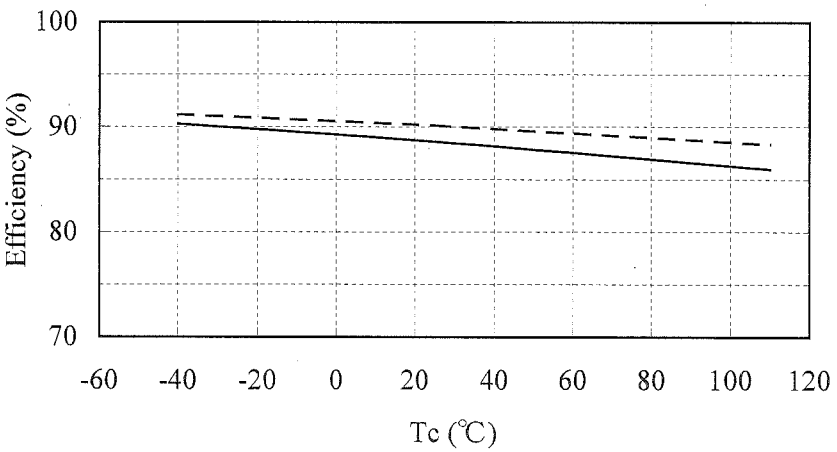
(5) 効率 対 ケース温度
Efficiency vs. Case temperature

Conditions Vin : 12 VDC
Io : 50 % ----
: 100 % ——
Air Velocity : 1.5 m/s

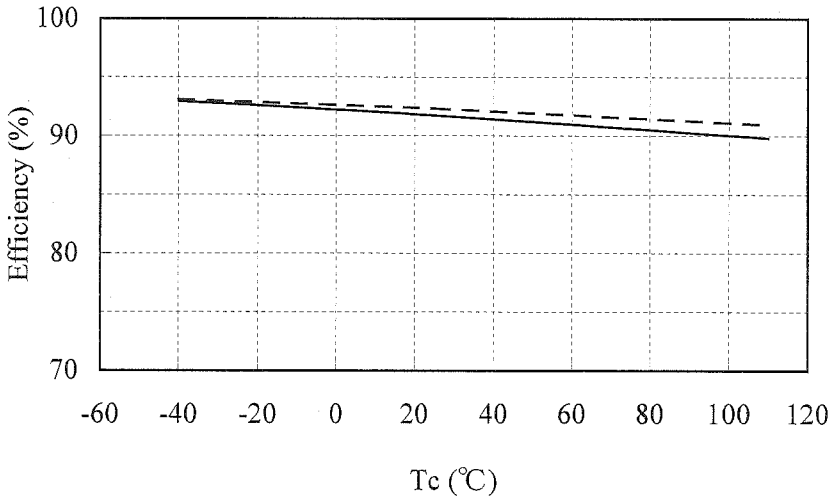
Vo= 0.7 V



Vo= 1.2 V



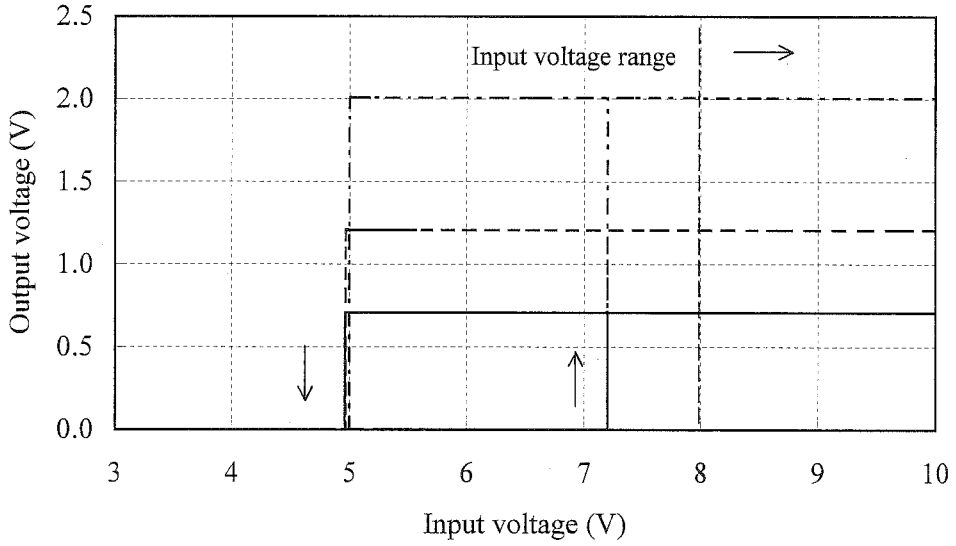
Vo= 2.0 V



(6) 起動、停止電圧特性
Start and Stop voltage characteristics

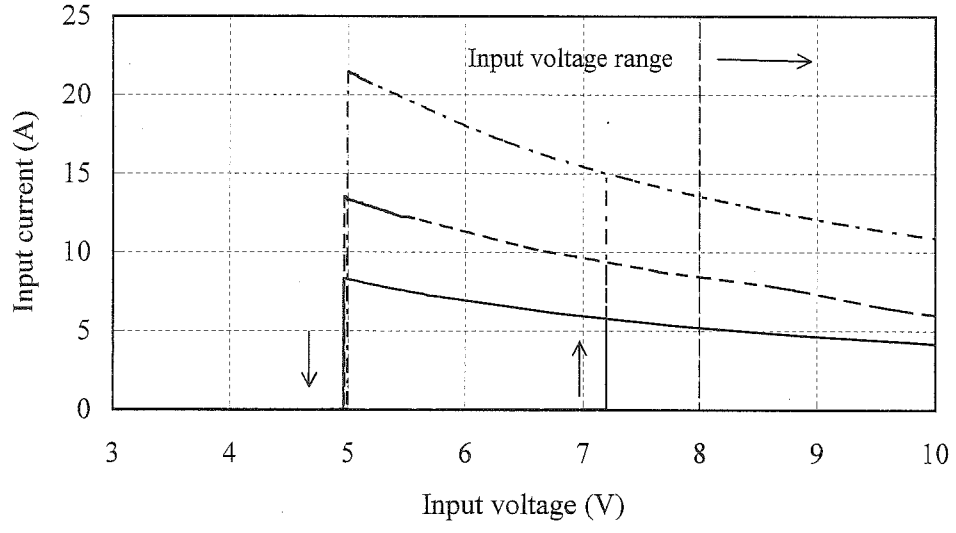
出力電圧 対 入力電圧
Output voltage vs. Input voltage

Conditions Io : 100 %
Tc : 25 ℃
Vo : 0.7 V ———
: 1.2 V – – – –
: 2.0 V —·—·—
Air Velocity : 1.5 m/s



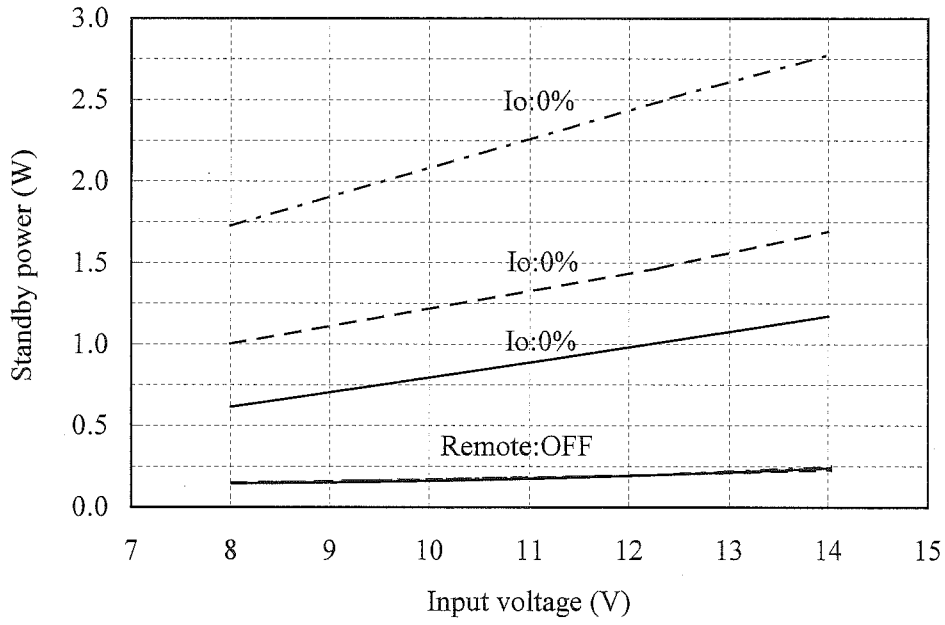
入力電流 対 入力電圧
Input current vs. Input voltage

Conditions Io : 100 %
Tc : 25 ℃
Vo : 0.7 V ———
: 1.2 V – – – –
: 2.0 V —·—·—
Air Velocity : 1.5 m/s



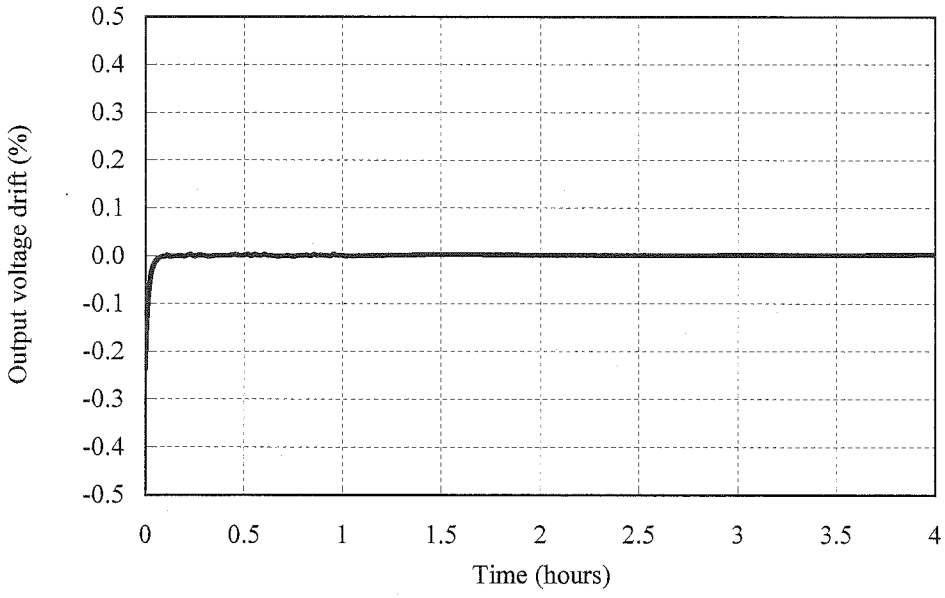
2.2 待機電力特性
Standby power characteristics

Conditions Tc : 25 ℃
Vo : 0.7 V ——
: 1.2 V - - - -
: 2.0 V -·-·-
Air Velocity : 1.5 m/s



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

Conditions Vin : 12 VDC
Vo : 1.2 V
Io : 100 %
Ta : 25 ℃
Air Velocity : 1.5 m/s



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

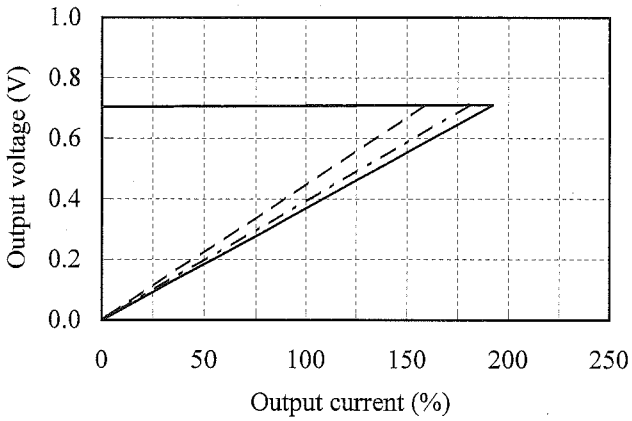
入力電圧依存性
Input voltage dependence

Conditions Vin : 8 VDC
: 12 VDC
: 14 VDC
Tc : 25 ℃
Air Velocity : 1.5 m/s

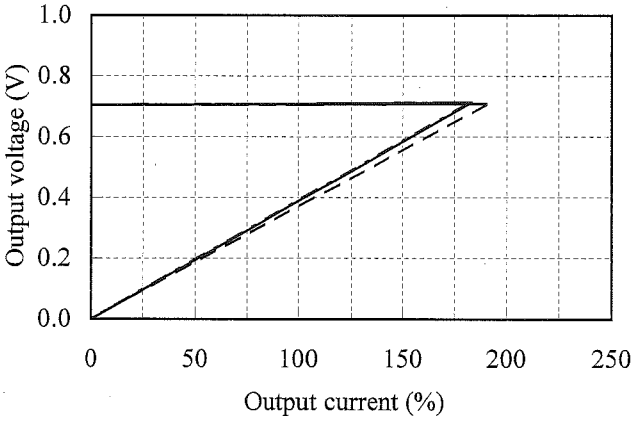
ケース温度依存性
Case temperature dependence

Conditions Vin : 12 VDC
Tc : -40 ℃
: 25 ℃
: 110 ℃
Air Velocity : 1.5 m/s

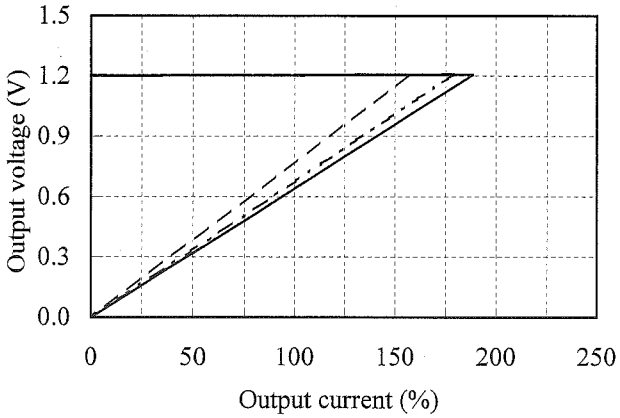
Vo= 0.7 V



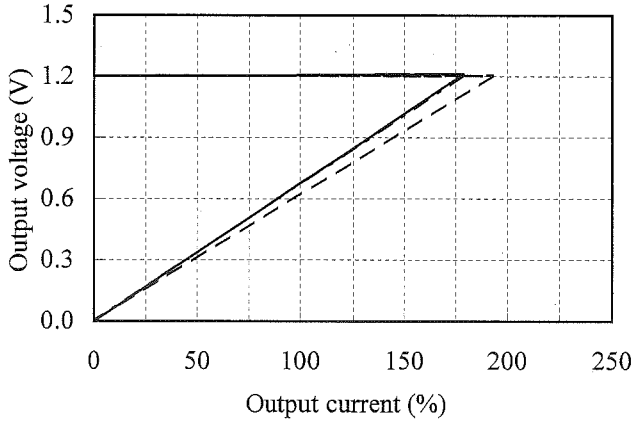
Vo= 0.7 V



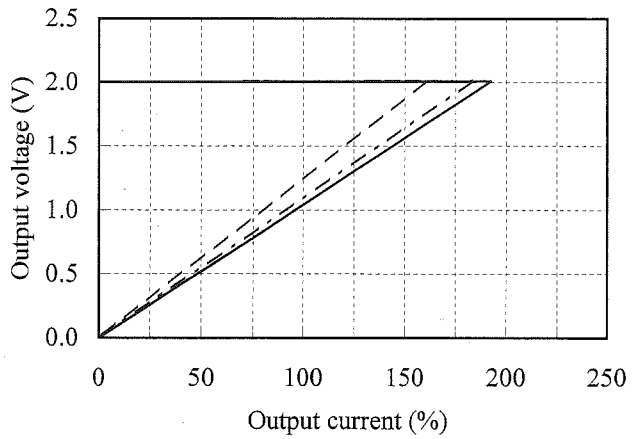
Vo= 1.2 V



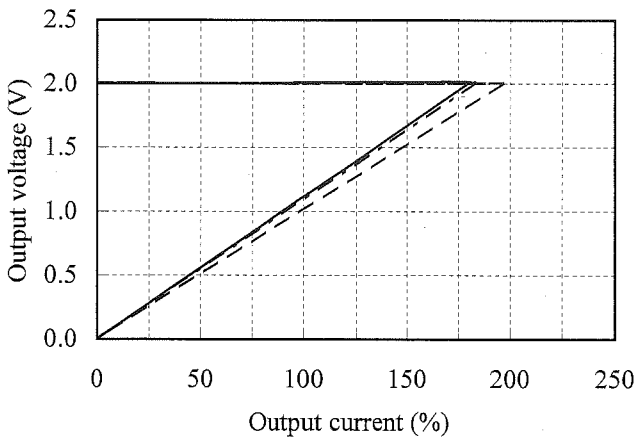
Vo= 1.2 V



Vo= 2.0 V



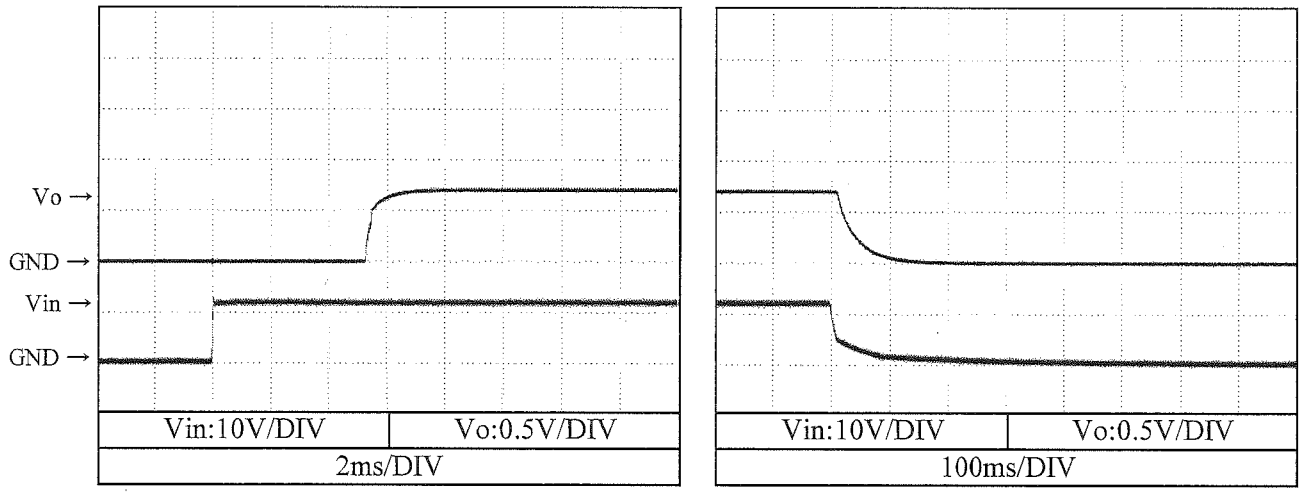
Vo= 2.0 V



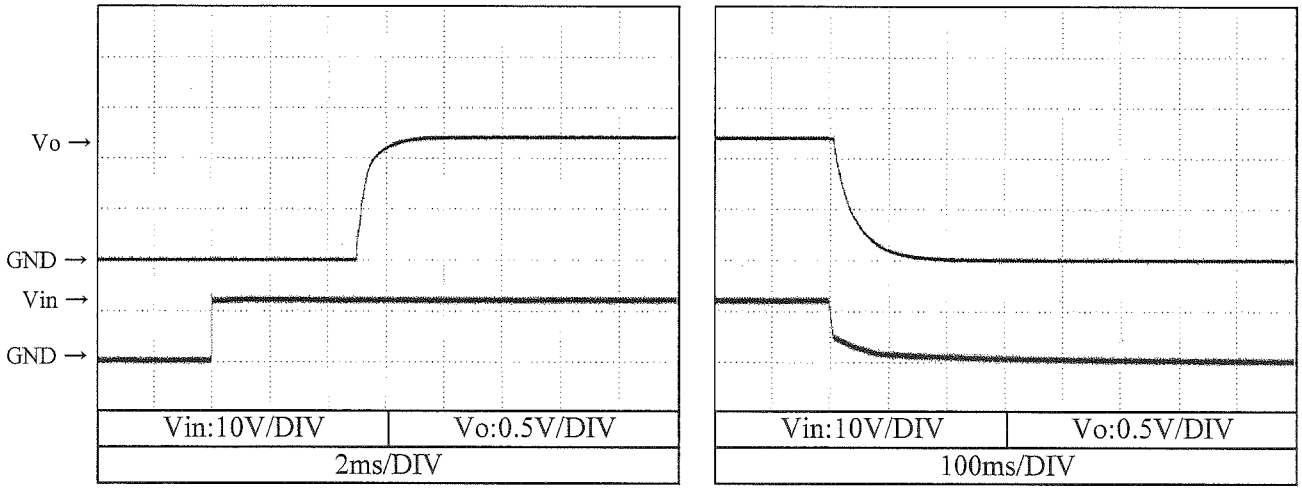
2.5 出力立ち上がり、立ち下がり特性
Output rise and fall characteristics

Conditions Vin : 12 VDC
Io : 0 %
Tc : 25 ℃
Air Velocity : 1.5 m/s

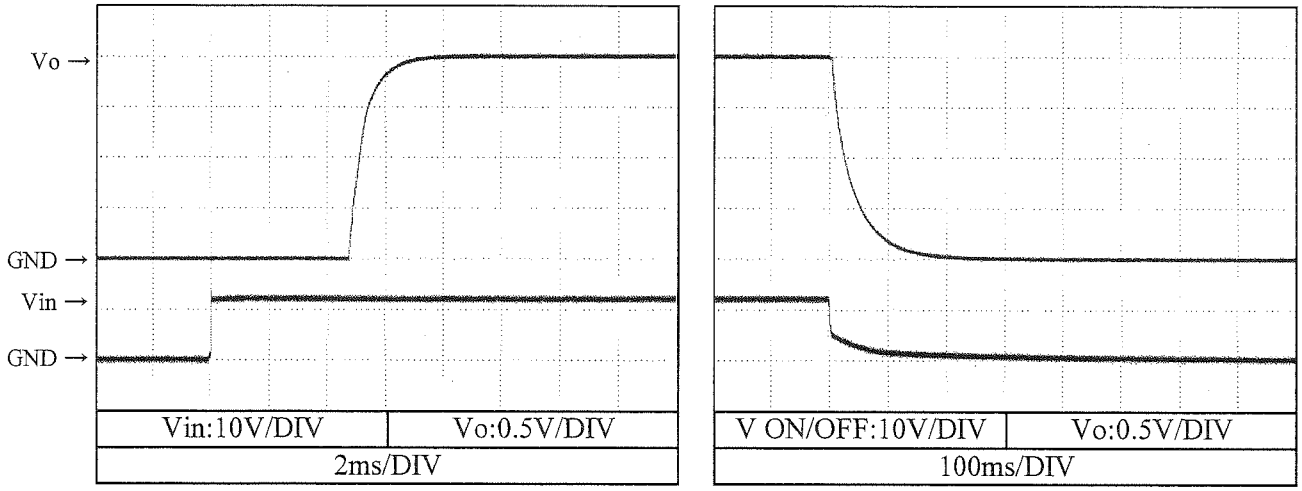
Vo= 0.7 V



Vo= 1.2 V



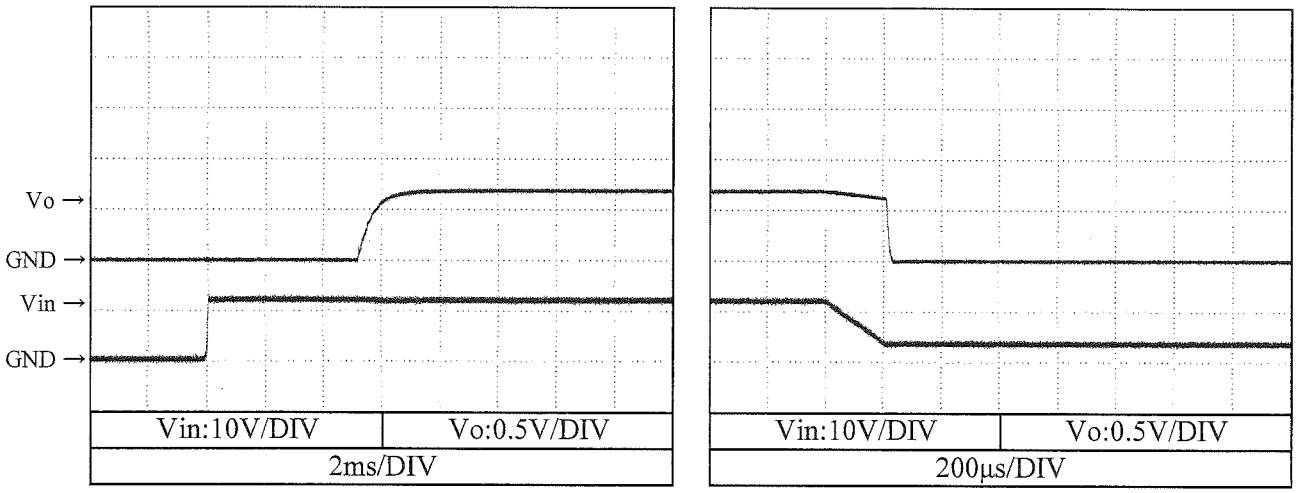
Vo= 2.0 V



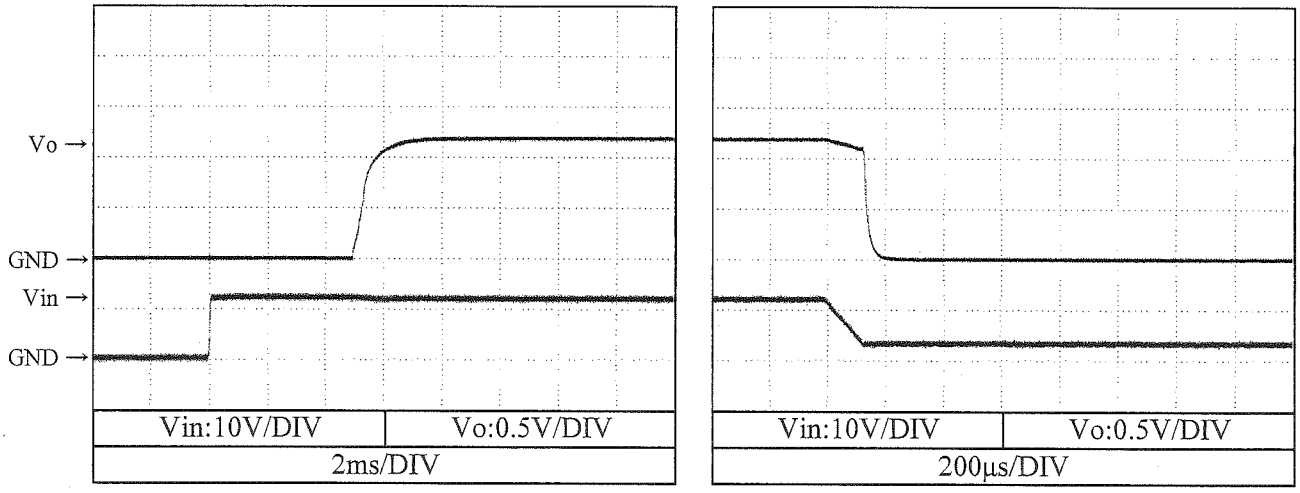
2.5 出力立ち上がり、立ち下がり特性
Output rise and fall characteristics

Conditions Vin : 12 VDC
Io : 100 %
Tc : 25 ℃
Air Velocity : 1.5 m/s

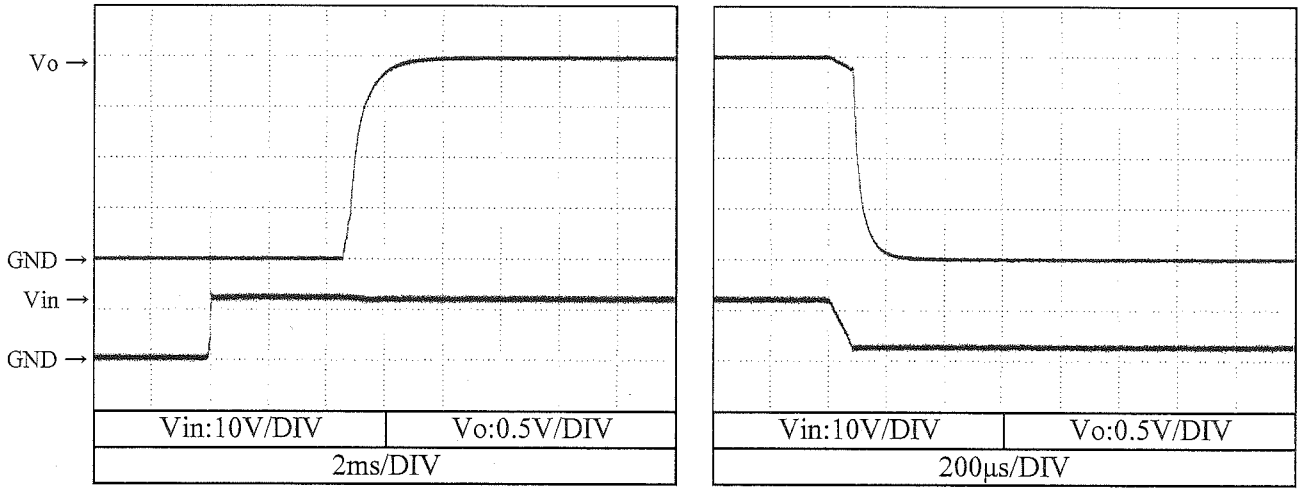
Vo= 0.7 V



Vo= 1.2 V



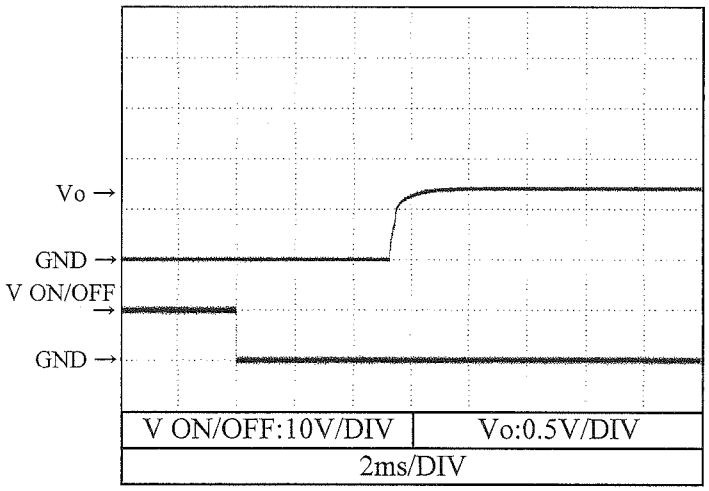
Vo= 2.0 V

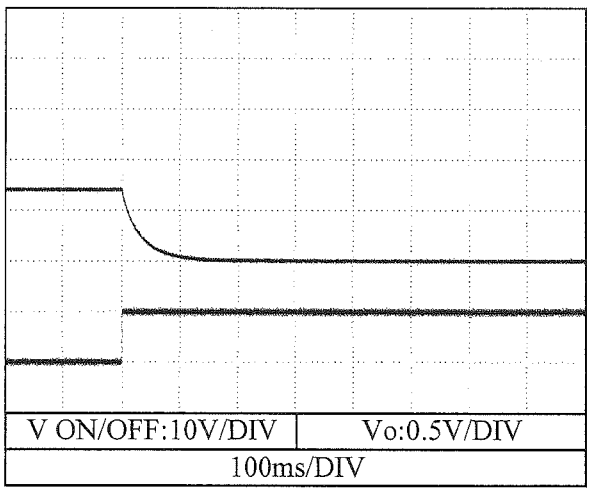


2.5 出力立ち上がり、立ち下がり特性 （リモートON/OFF時）
Output rise and fall characteristics with Remote ON/OFF

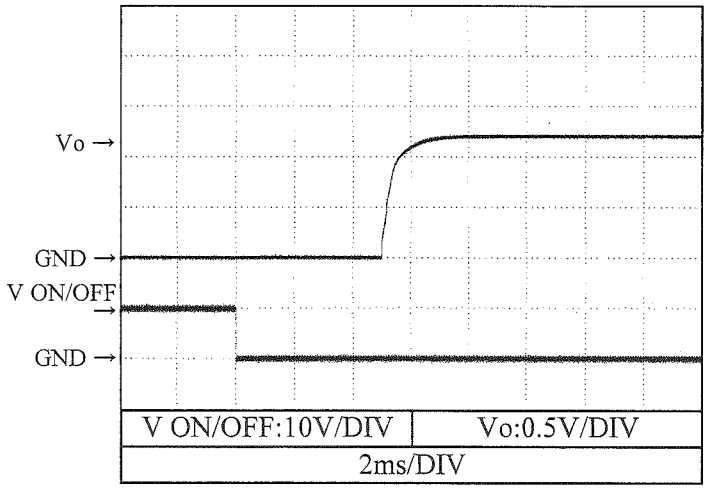
Conditions Vin : 12 VDC
Io : 0 %
Tc : 25 ℃
Air Velocity : 1.5 m/s

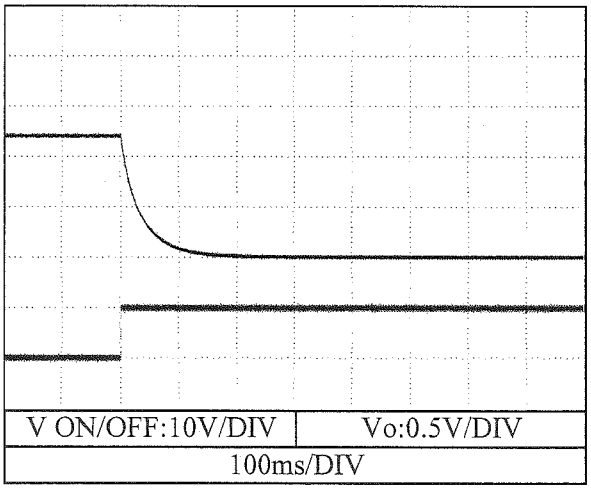
Vo= 0.7 V



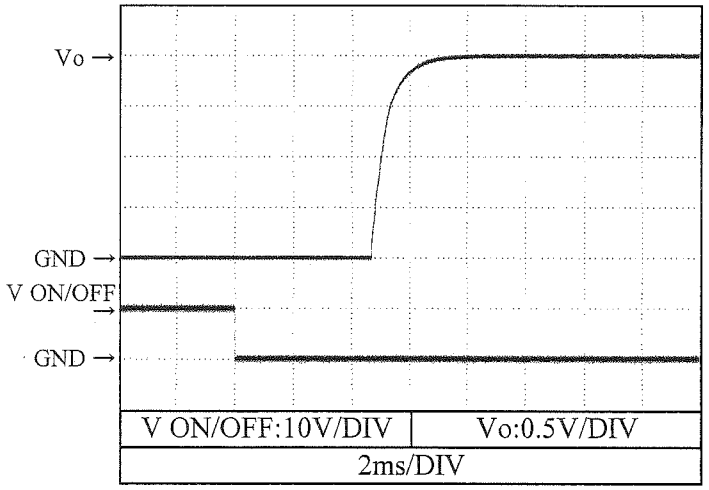


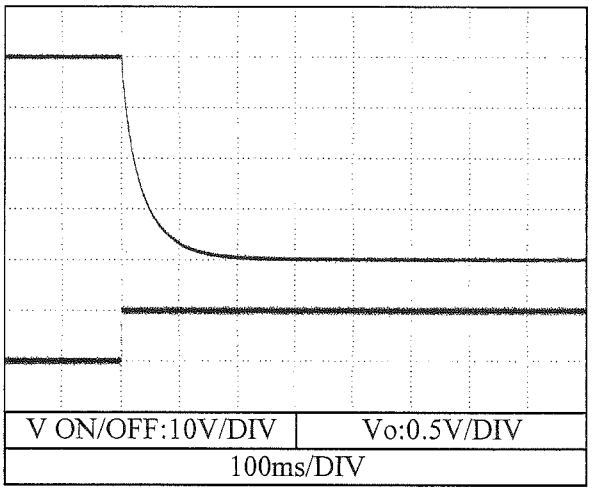
Vo= 1.2 V





Vo= 2.0 V

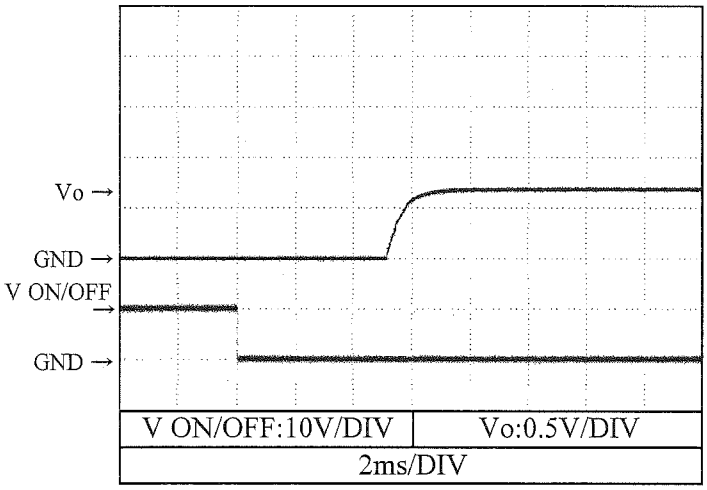


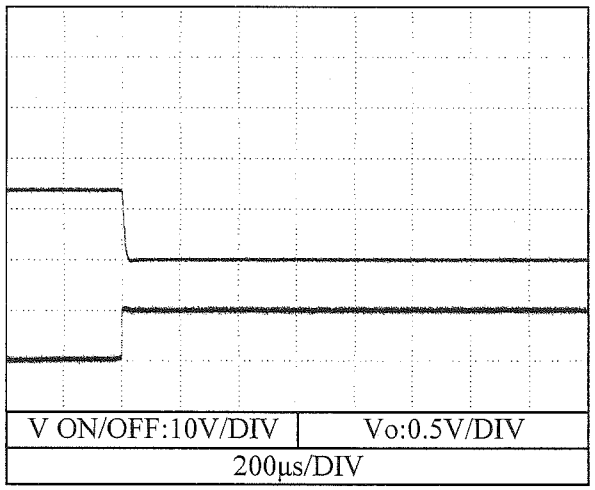


2.5 出力立ち上がり、立ち下がり特性 （リモートON/OFF時）
Output rise and fall characteristics with Remote ON/OFF

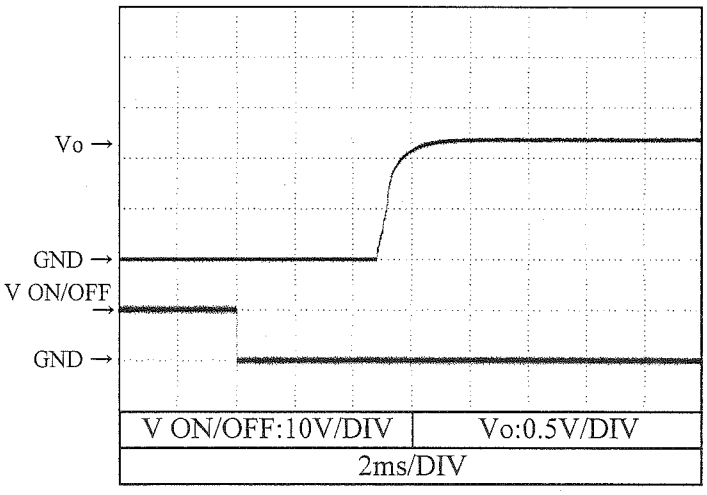
Conditions Vin : 12 VDC
Io : 100 %
Tc : 25 ℃
Air Velocity : 1.5 m/s

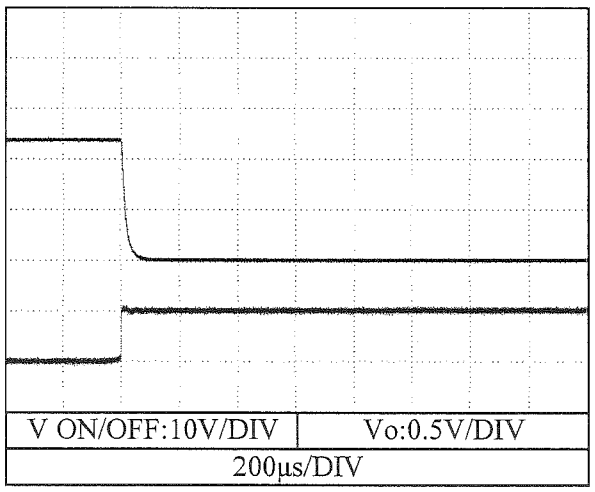
Vo= 0.7 V



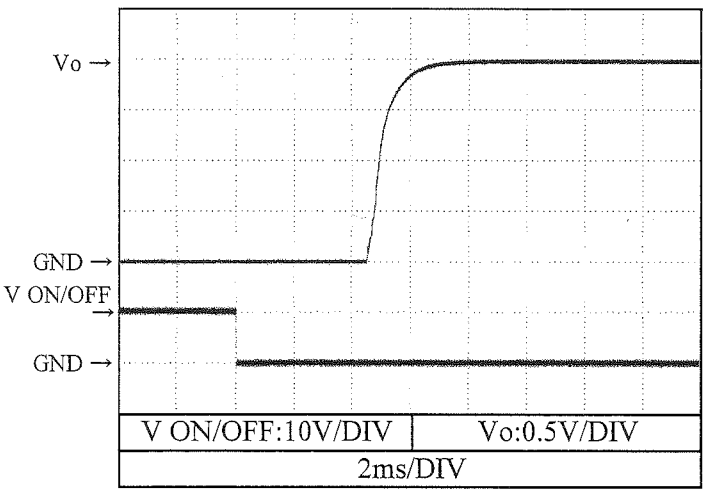


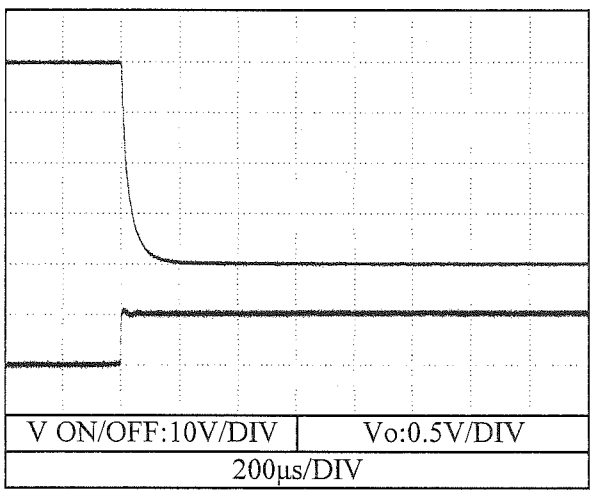
Vo= 1.2 V





Vo= 2.0 V

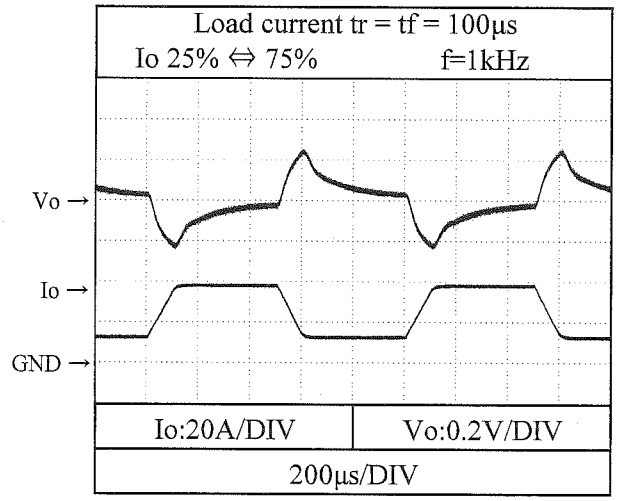




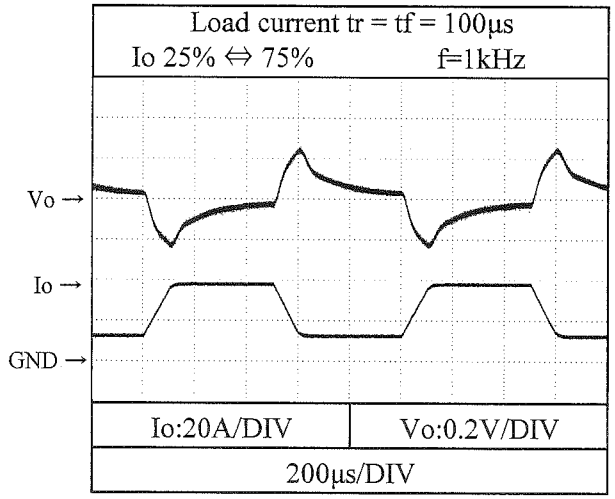
2.6 過渡応答（負荷急変）特性
Dynamic load response characteristics

Conditions Vin : 12 VDC
Tc : 25 ℃
Air Velocity : 1.5 m/s

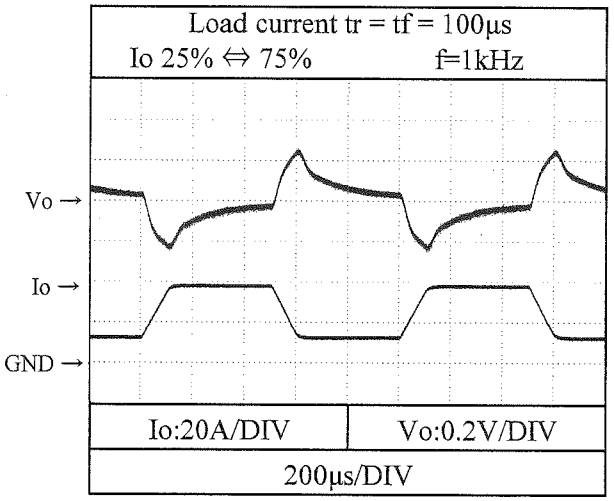
Vo=0.7V



Vo=1.2V



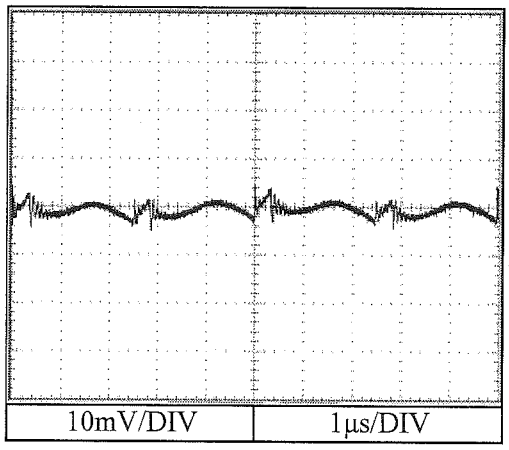
Vo=2.0V



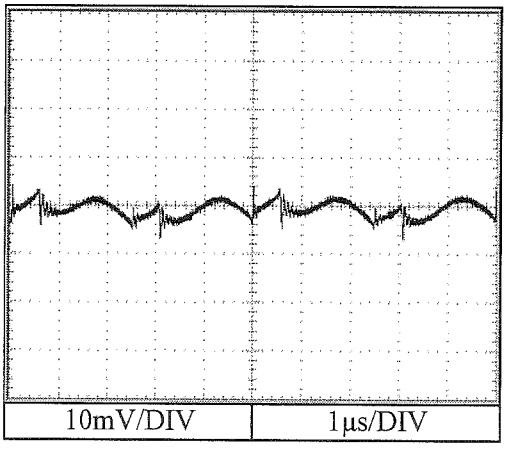
2.7 出力リップル・ノイズ波形
Output ripple and noise waveform

Conditions Vin : 12 VDC
Io : 100 %
Tc : 25 ℃
Air Velocity : 1.5 m/s

Vo=0.7V



Vo=1.2V



Vo=2.0V