

**CCG60-48-xx**

**EVALUATION DATA**

型式データ

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## 2. 特性データ Characteristics

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## 使用記号 Terminology used

|                 | 定義         | Definition          |
|-----------------|------------|---------------------|
| V <sub>in</sub> | ..... 入力電圧 | Input voltage       |
| V <sub>o</sub>  | ..... 出力電圧 | Output voltage      |
| V <sub>RC</sub> | ..... RC電圧 | RC voltage          |
| I <sub>in</sub> | ..... 入力電流 | Input current       |
| I <sub>o</sub>  | ..... 出力電流 | Output current      |
| T <sub>a</sub>  | ..... 周囲温度 | Ambient temperature |
| f               | ..... 周波数  | Frequency           |

※ 当社測定条件における結果であり、参考値としてお考え願います。

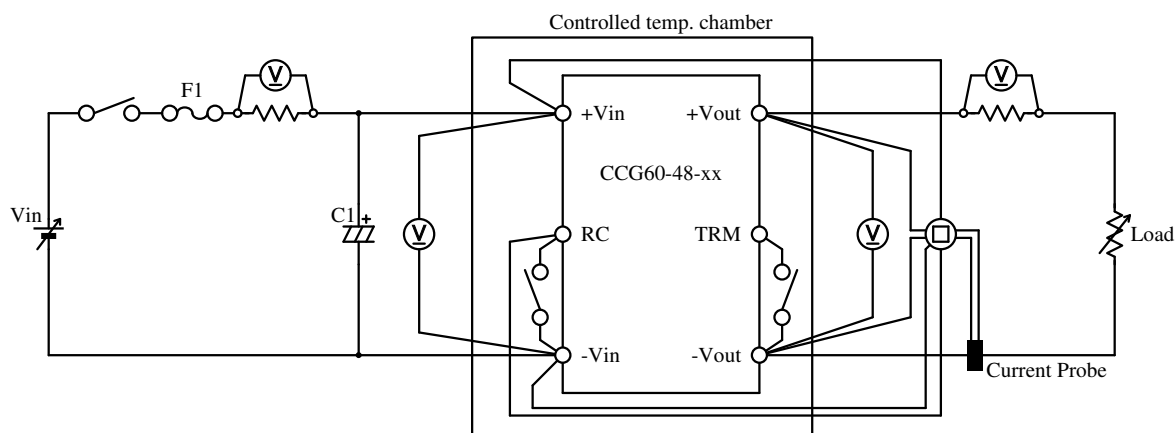
Test results are reference data based on our measurement condition.

## 1. 測定方法 Evaluation Method

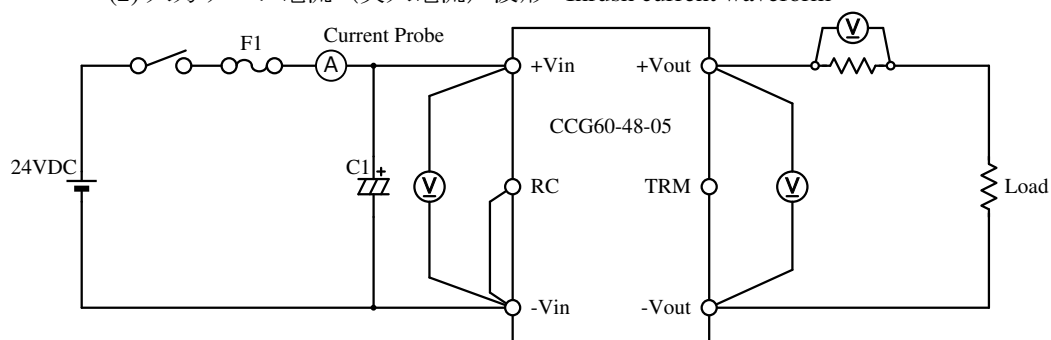
### 1-1. 測定回路 Measurement Circuits

#### (1) 静特性、待機電力特性、通電ドリフト特性、その他特性

Steady state, Standby power, Warm up voltage drift and Other characteristics



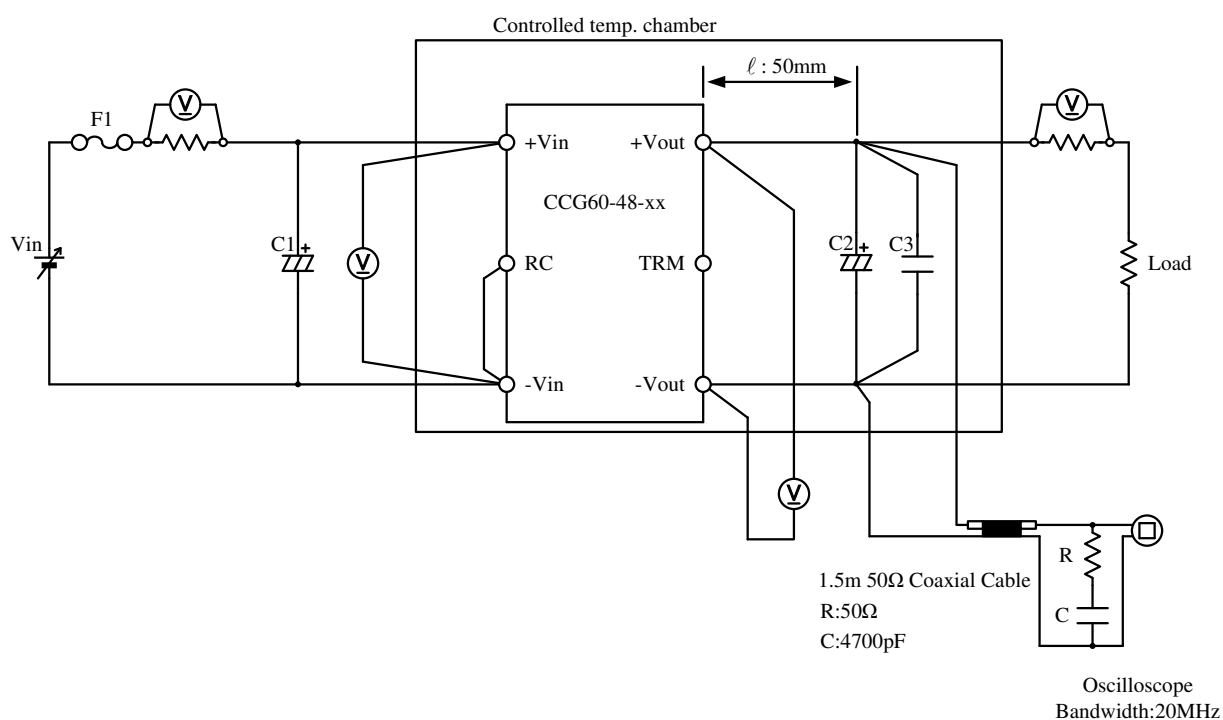
#### (2) 入力サージ電流（突入電流）波形 Inrush current waveform



CCG60-48-xxの入力サージ電流特性はCCG60-48-05と同等です。

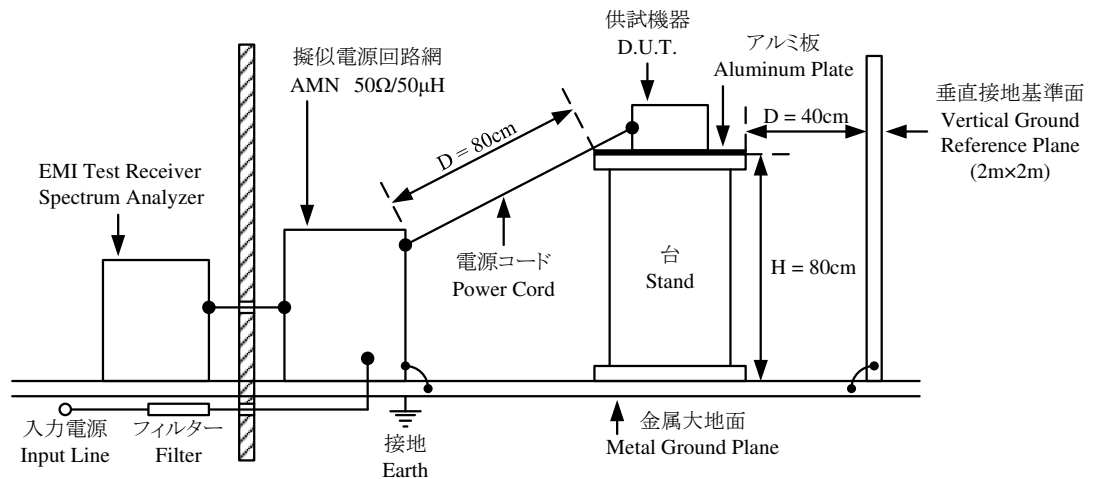
CCG60-48-xx have the same Inrush current characteristics as CCG60-48-05 data.

#### (3) 出力リップルノイズ電圧、波形 Output ripple and noise voltage and waveform

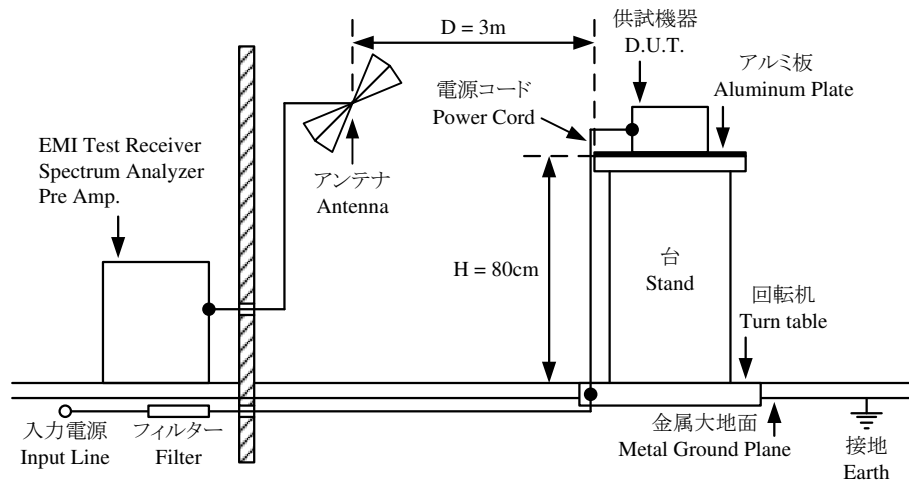


## (4) EMI特性 Electro-Magnetic Interference characteristics

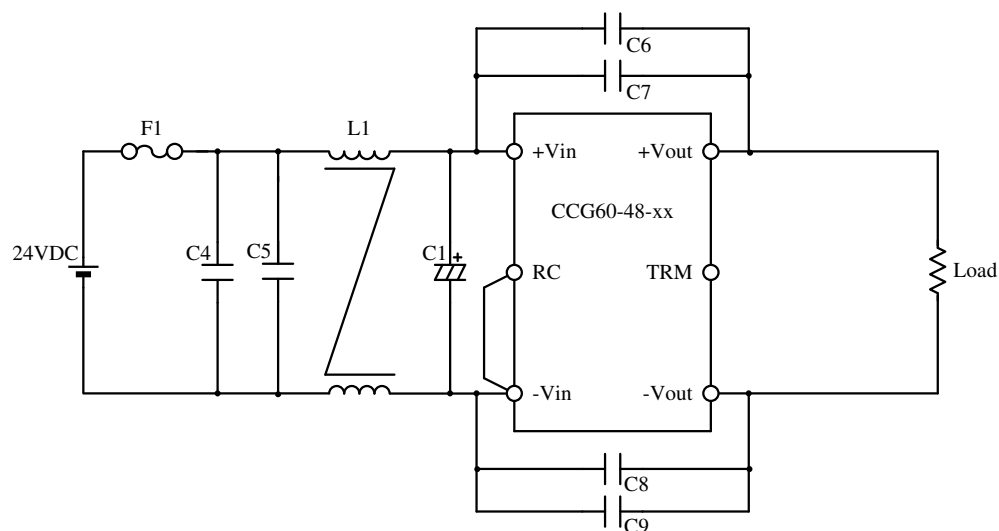
## (a) 雑音端子電圧(帰還ノイズ) Conducted Emission Noise



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



## VCCI class A 対応アプリケーション VCCI class A application system



\*詳細な周辺パラメータ情報(参照用)

The detailed peripheral parameter information ( for reference )

|    | SYMBOL         | PRODUCT TYPE           | ITEM DESCRIPTION   | NOTE             | MANUFACTURE      |
|----|----------------|------------------------|--------------------|------------------|------------------|
| 1  | F1             | Fuse                   | 25CF10A            | 150V, 10A        | SOC              |
| 2  | C1             | Electrolytic Cap.      | EKZN101ELL560MJC5S | 100V, 56 $\mu$ F | Nippon Chemi-Con |
| 3  | C2             | 3.3V Model             | HHXC250ARA471MJC5G | 25V, 470 $\mu$ F | Nippon Chemi-Con |
| 4  |                | 5V Model               | HHXC250ARA471MJC5G | 25V, 470 $\mu$ F | Nippon Chemi-Con |
| 5  |                | 12V Model              | HHXC350ARA151MJA0G | 35V, 150 $\mu$ F | Nippon Chemi-Con |
| 6  |                | 15V Model              | HHXC630GRA101MJC5G | 63V, 100 $\mu$ F | Nippon Chemi-Con |
| 7  |                | 24V Model              | HHXC800ARA820MJC5G | 80V, 82 $\mu$ F  | Nippon Chemi-Con |
| 8  | C3             | Ceramic Cap.           | C3216X7R1H106K     | 50V, 10 $\mu$ F  | TDK              |
| 9  | C4,C5          | Ceramic Cap.           | GRM32EC72A106K     | 100V, 10 $\mu$ F | MURATA           |
| 10 | C6, C7, C8, C9 | Ceramic Cap.           | C3225X7S3D222K     | 2kV, 2200pF      | TDK              |
| 11 | L1             | Common Mode Choke Coil | SRF1206A-102Y      | 12.5 $\mu$ H, 6A | BOURNS           |

## 1-2. 使用測定機器 List of equipment used

|    | EQUIPMENT USED                        | MANUFACTURER    | MODEL NO.       |
|----|---------------------------------------|-----------------|-----------------|
| 1  | DIGITAL STORAGE OSCILLOSCOPE          | YOKOGAWA ELECT. | DL1740EL        |
| 2  | DIGITAL MULTIMETER                    | AGILENT         | 34970A          |
| 3  | CURRENT PROBE                         | YOKOGAWA ELECT. | 701931, 701932  |
| 4  | SHUNT RESISTER                        | YOKOGAWA ELECT. | 2215            |
| 5  | DYNAMIC DUMMY LOAD                    | KIKUSUI         | PLZ-164WL       |
| 6  | DC POWER SUPPLY                       | KIKUSUI         | PWR400L         |
| 7  | CONTROLLED TEMP. CHAMBER              | ESPEC           | SU-261          |
| 8  | EMI TEST RECEIVER / SPECTRUM ANALYZER | ROHDE & SCHWARZ | ESR3            |
| 9  | PRE AMP.                              | SONOMA          | 310N            |
| 10 | AMN                                   | KIKUSUI         | KNW-242C        |
| 11 | ANTENNA                               | SCHWARZBECK     | BBA9106/VHA9103 |
| 12 | ANTENNA                               | SCHWARZBECK     | UHALP9107       |

## 2. 特性データ Characteristics

### 2-1. 静特性 Steady state characteristics

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

**3.3V**

#### 1. Regulation - line and load

Condition Ta : 25 °C

| Io \ Vin        | 18VDC   | 24VDC   | 48VDC   | 76VDC   | Line regulation |        |
|-----------------|---------|---------|---------|---------|-----------------|--------|
| 0%              | 3.3140V | 3.3141V | 3.3140V | 3.3137V | 0.4mV           | 0.012% |
| 50%             | 3.3124V | 3.3125V | 3.3124V | 3.3122V | 0.3mV           | 0.009% |
| 100%            | 3.3109V | 3.3110V | 3.3108V | 3.3107V | 0.3mV           | 0.009% |
| Load regulation | 3.1mV   | 3.1mV   | 3.2mV   | 3.0mV   |                 |        |
|                 | 0.094%  | 0.094%  | 0.097%  | 0.091%  |                 |        |

#### 2. Temperature drift

Conditions Vin : 48 VDC

Io : 100 %

| Ta | -40°C   | 25°C    | 85°C    | Temperature stability |        |
|----|---------|---------|---------|-----------------------|--------|
| Vo | 3.3106V | 3.3108V | 3.3112V | 0.6mV                 | 0.018% |

**5V**

#### 1. Regulation - line and load

Condition Ta : 25 °C

| Io \ Vin        | 18VDC   | 24VDC   | 48VDC   | 76VDC   | Line regulation |        |
|-----------------|---------|---------|---------|---------|-----------------|--------|
| 0%              | 4.9932V | 4.9935V | 4.9931V | 4.9922V | 1.3mV           | 0.026% |
| 50%             | 4.9922V | 4.9926V | 4.9922V | 4.9912V | 1.4mV           | 0.028% |
| 100%            | 4.9916V | 4.9919V | 4.9914V | 4.9906V | 1.3mV           | 0.026% |
| Load regulation | 1.6mV   | 1.6mV   | 1.7mV   | 1.6mV   |                 |        |
|                 | 0.032%  | 0.032%  | 0.034%  | 0.032%  |                 |        |

#### 2. Temperature drift

Conditions Vin : 48 VDC

Io : 100 %

| Ta | -40°C   | 25°C    | 85°C    | Temperature stability |        |
|----|---------|---------|---------|-----------------------|--------|
| Vo | 4.9830V | 4.9914V | 5.0021V | 19.1mV                | 0.382% |

**12V**

#### 1. Regulation - line and load

Condition Ta : 25 °C

| Io \ Vin        | 18VDC    | 24VDC    | 48VDC    | 76VDC    | Line regulation |        |
|-----------------|----------|----------|----------|----------|-----------------|--------|
| 0%              | 12.0259V | 12.0266V | 12.0258V | 12.0229V | 3.7mV           | 0.031% |
| 50%             | 12.0252V | 12.0258V | 12.0256V | 12.0229V | 2.9mV           | 0.024% |
| 100%            | 12.0252V | 12.0256V | 12.0252V | 12.0225V | 3.1mV           | 0.026% |
| Load regulation | 0.7mV    | 1.0mV    | 0.6mV    | 0.4mV    |                 |        |
|                 | 0.006%   | 0.008%   | 0.005%   | 0.003%   |                 |        |

#### 2. Temperature drift

Conditions Vin : 48 VDC

Io : 100 %

| Ta | -40°C    | 25°C     | 85°C     | Temperature stability |        |
|----|----------|----------|----------|-----------------------|--------|
| Vo | 12.0357V | 12.0252V | 12.0300V | 10.5mV                | 0.088% |

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

**15V**

## 1. Regulation - line and load

Condition Ta : 25 °C

| Io \ Vin        | 18VDC    | 24VDC    | 48VDC    | 76VDC    | Line regulation |        |
|-----------------|----------|----------|----------|----------|-----------------|--------|
| 0%              | 15.0341V | 15.0353V | 15.0345V | 15.0320V | 3.3mV           | 0.022% |
| 50%             | 15.0338V | 15.0352V | 15.0344V | 15.0320V | 3.2mV           | 0.021% |
| 100%            | 15.0346V | 15.0354V | 15.0346V | 15.0321V | 3.3mV           | 0.022% |
| Load regulation | 0.8mV    | 0.2mV    | 0.2mV    | 0.1mV    |                 |        |
|                 | 0.005%   | 0.001%   | 0.001%   | 0.001%   |                 |        |

## 2. Temperature drift

Conditions Vin : 48 VDC

Io : 100 %

| Ta | -40°C    | 25°C     | 85°C     | Temperature stability |        |
|----|----------|----------|----------|-----------------------|--------|
| Vo | 15.0083V | 15.0346V | 15.0572V | 48.9mV                | 0.326% |

**24V**

## 1. Regulation - line and load

Condition Ta : 25 °C

| Io \ Vin        | 18VDC    | 24VDC    | 48VDC    | 76VDC    | Line regulation |        |
|-----------------|----------|----------|----------|----------|-----------------|--------|
| 0%              | 24.0417V | 24.0432V | 24.0435V | 24.0427V | 1.8mV           | 0.008% |
| 50%             | 24.0408V | 24.0426V | 24.0436V | 24.0434V | 2.8mV           | 0.012% |
| 100%            | 24.0406V | 24.0425V | 24.0435V | 24.0441V | 3.5mV           | 0.015% |
| Load regulation | 1.1mV    | 0.7mV    | 0.1mV    | 1.4mV    |                 |        |
|                 | 0.007%   | 0.005%   | 0.001%   | 0.009%   |                 |        |

## 2. Temperature drift

Conditions Vin : 48 VDC

Io : 100 %

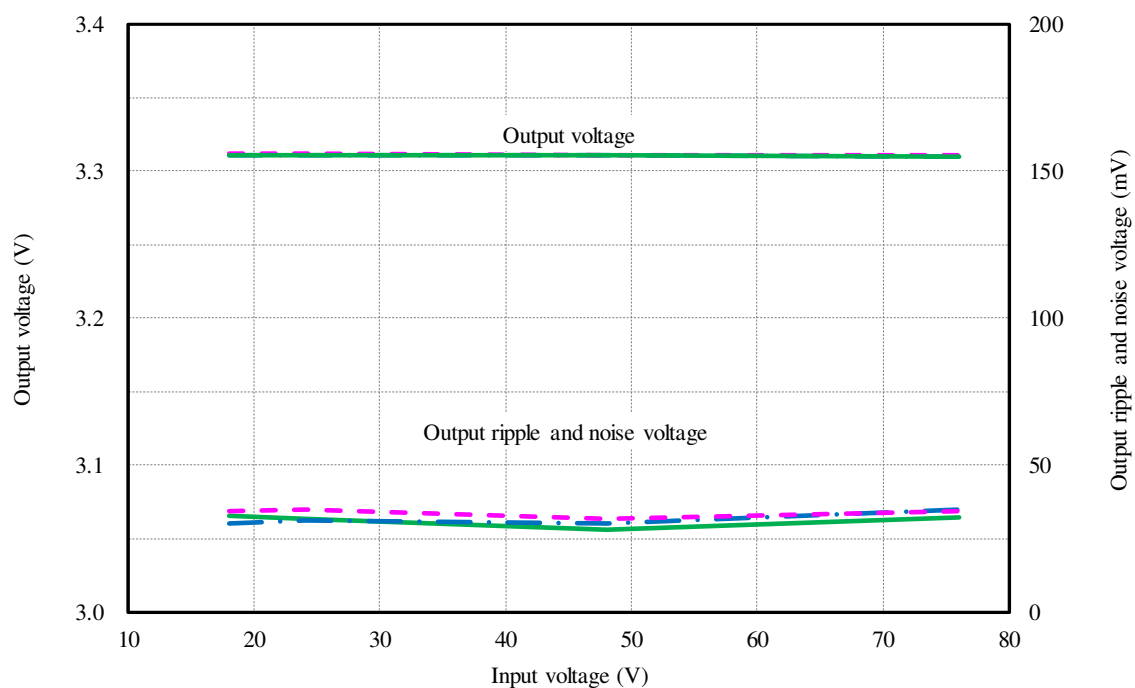
| Ta | -40°C    | 25°C     | 85°C     | Temperature stability |        |
|----|----------|----------|----------|-----------------------|--------|
| Vo | 23.9212V | 24.0435V | 24.0330V | 122.3mV               | 0.815% |

## (2) 出力電圧・出力リップルノイズ電圧 対 入力電圧

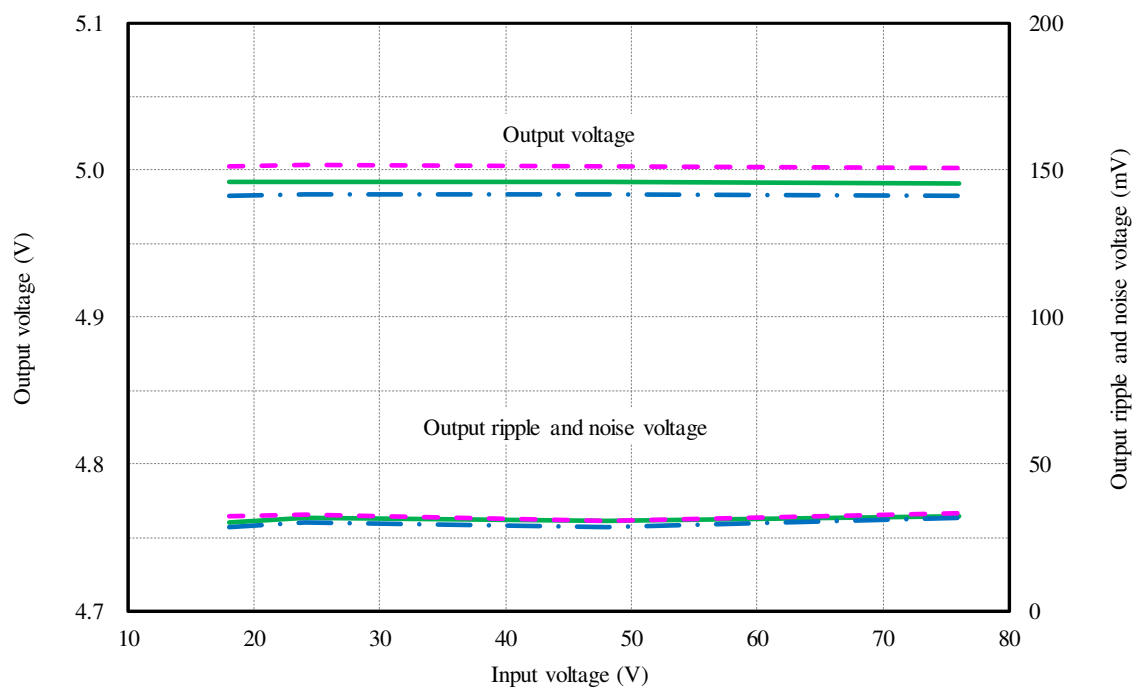
Output voltage and Output ripple and noise voltage vs. Input voltage

Conditions     $I_o$  : 100 %  
                    $T_a$  : -40 °C  
                      : 25 °C  
                      : 85 °C

3.3V



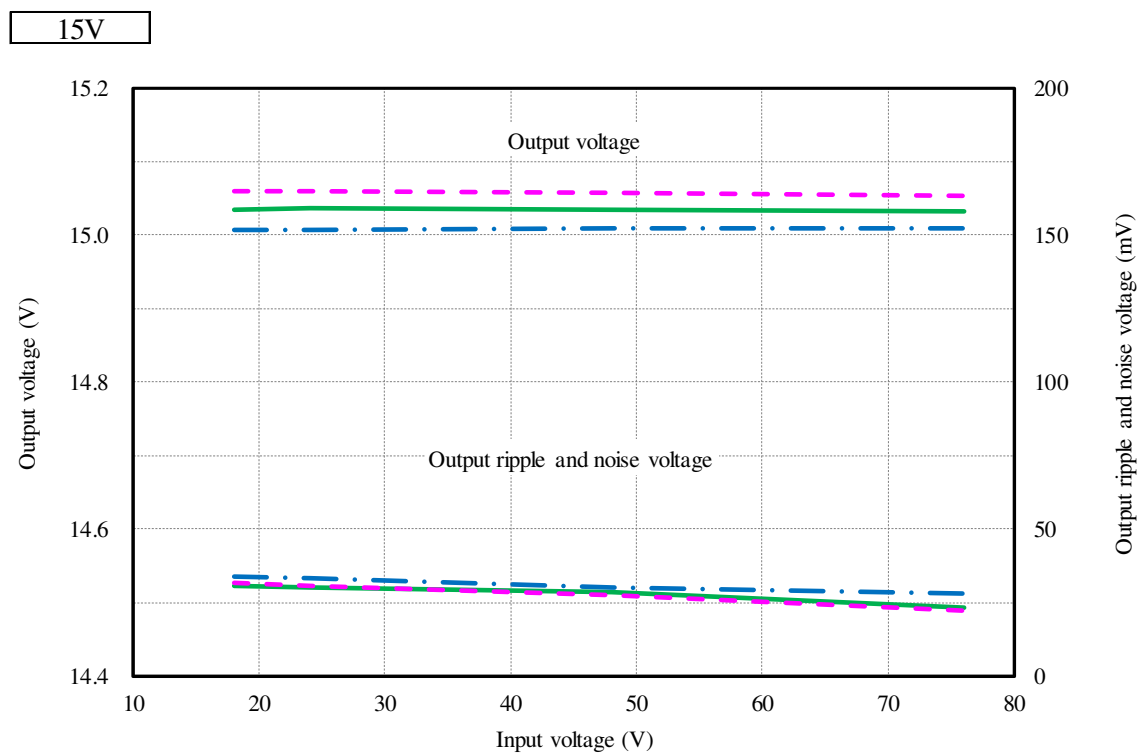
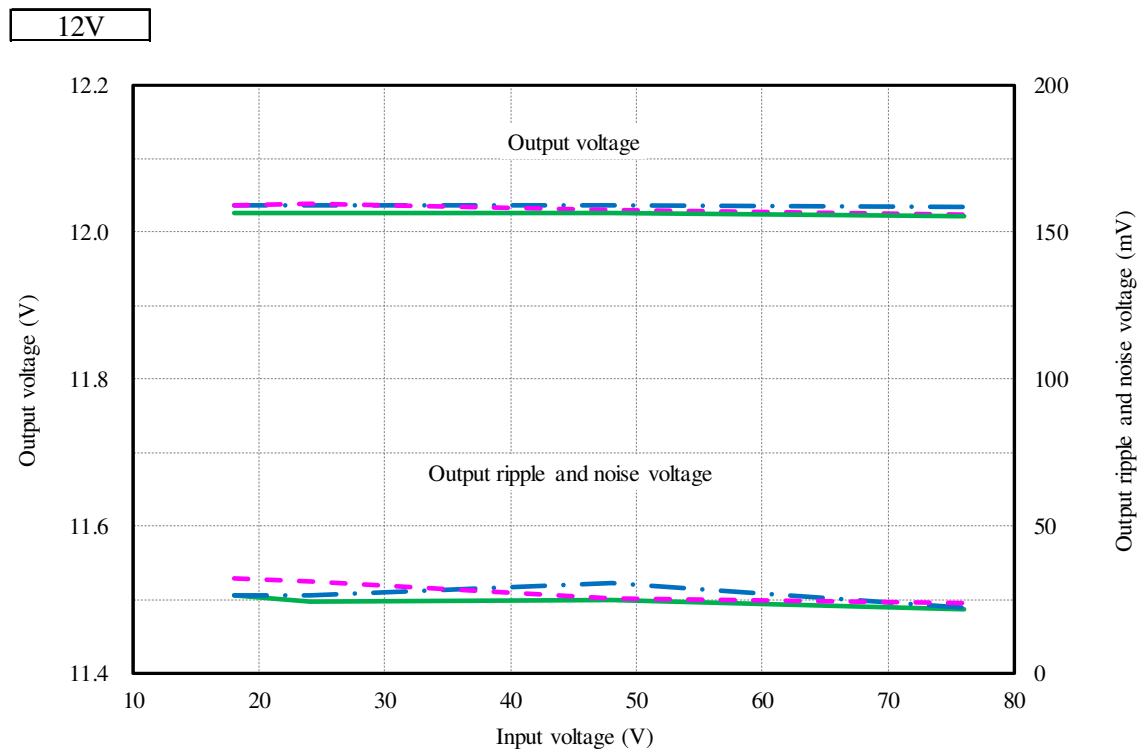
5V



## (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

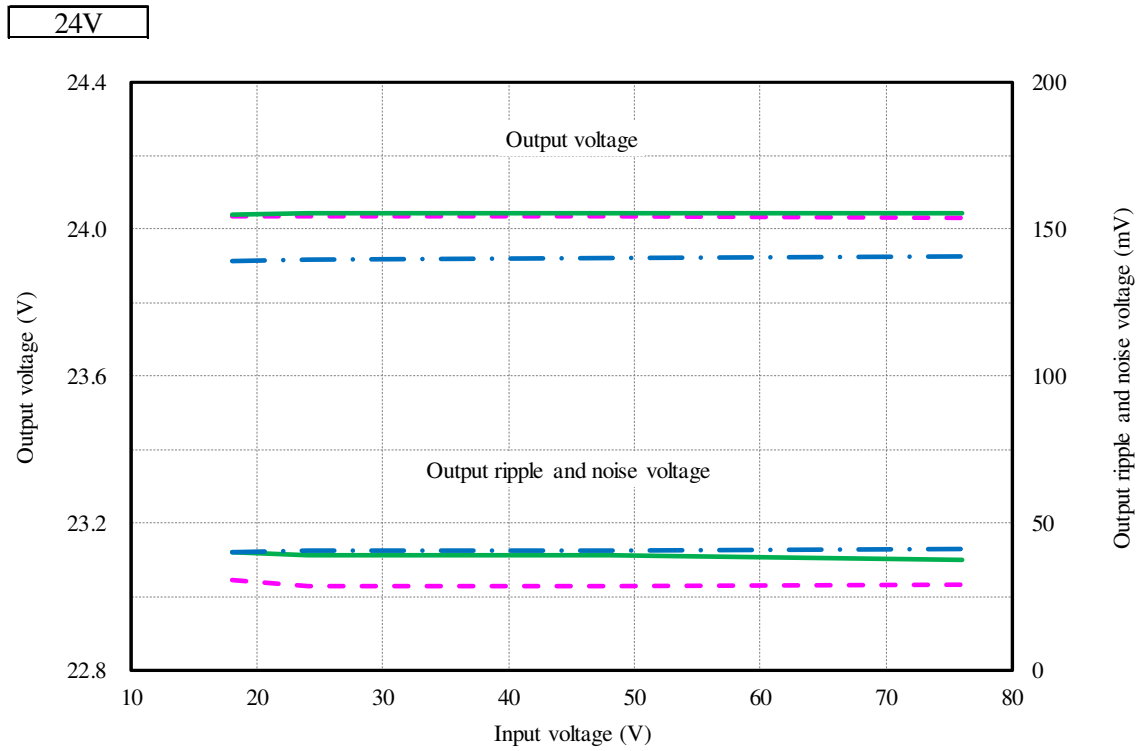
Conditions     $I_o$  : 100 %  
                    $T_a$  : -40 °C  
                      : 25 °C  
                      : 85 °C



## (2) 出力電圧・出力リップルノイズ電圧 対 入力電圧

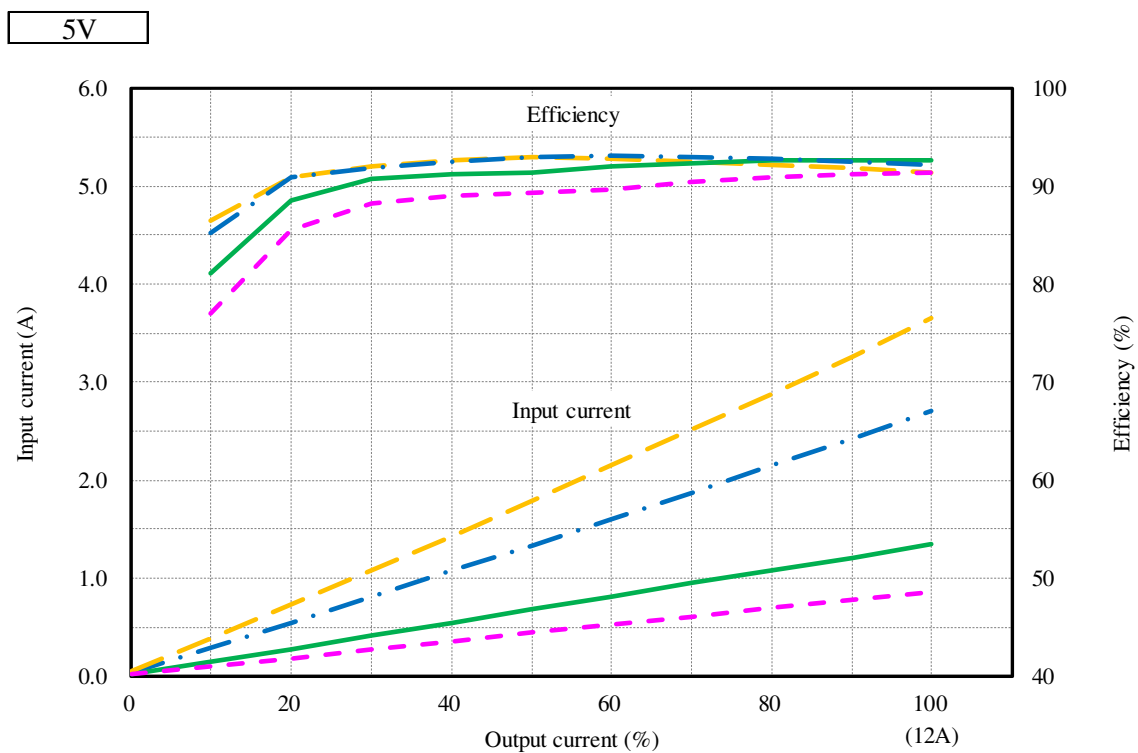
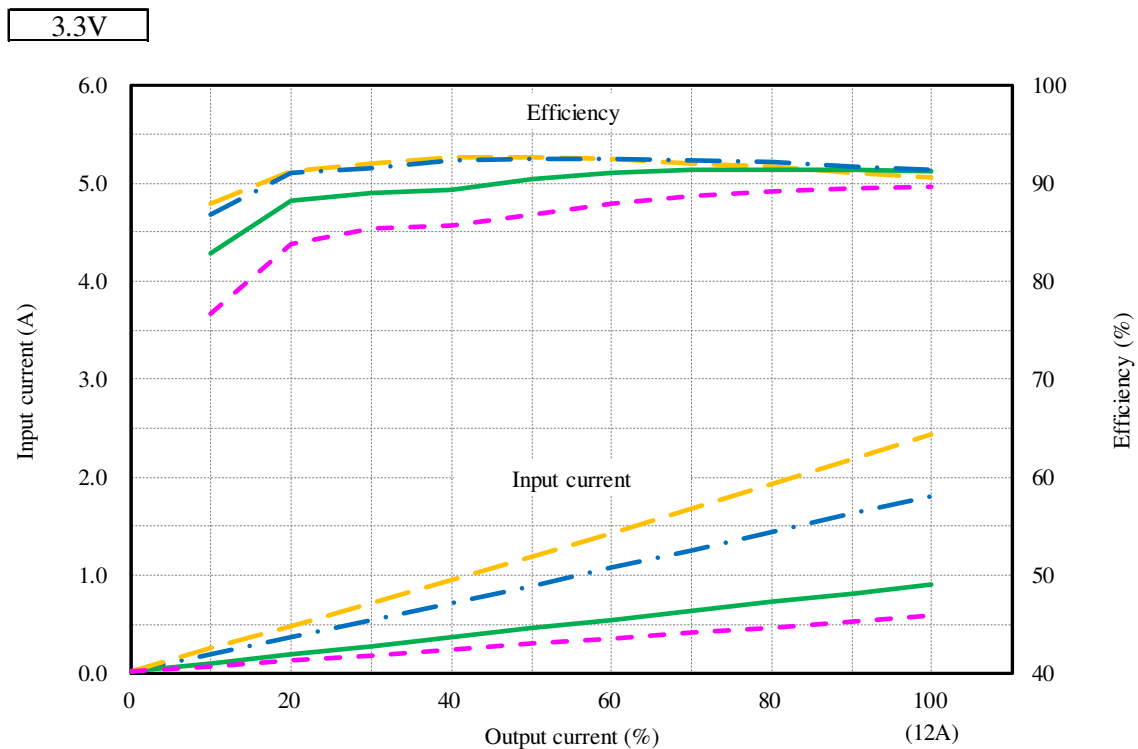
Output voltage and Output ripple and noise voltage vs. Input voltage

Conditions     $I_o$  : 100 %  
                    $T_a$  : -40 °C  
                       : 25 °C  
                       : 85 °C



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

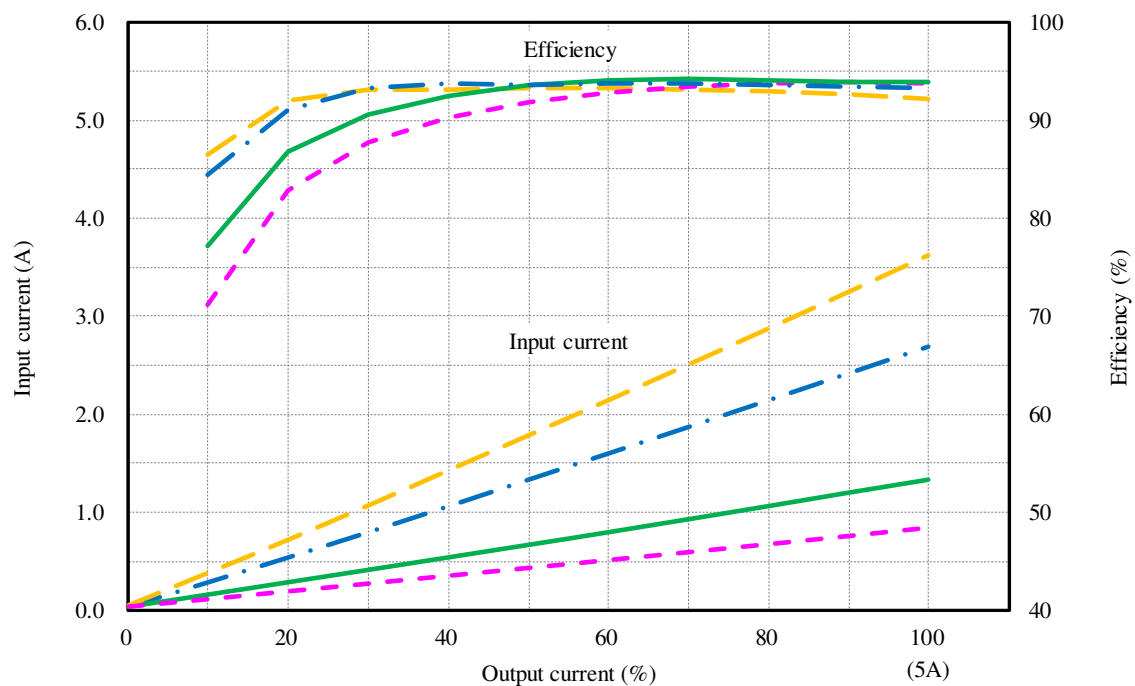
Conditions Vin : 18 VDC ————  
 : 24 VDC - · - · -  
 : 48 VDC ————  
 : 76 VDC - - - -  
 Ta : 25 °C



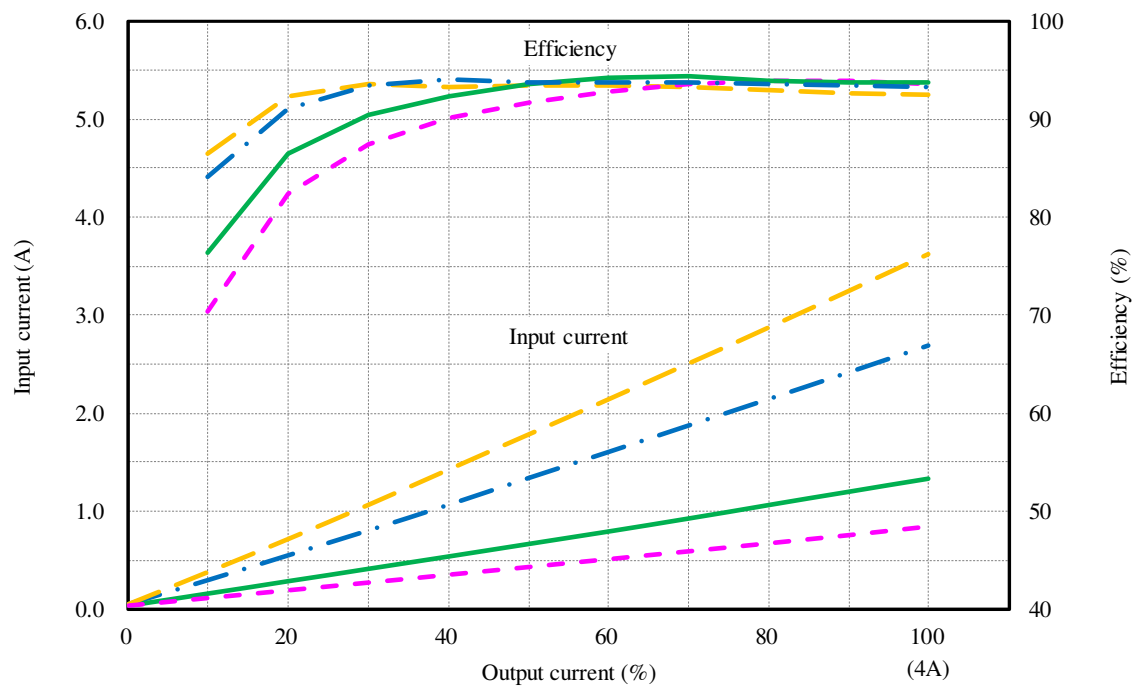
## (3) 入力電流・効率 対 出力電流 Input current and Efficiency vs. Output current

Conditions Vin : 18 VDC ————  
 : 24 VDC - · - · -  
 : 48 VDC ————  
 : 76 VDC - - - -  
 Ta : 25 °C

12V

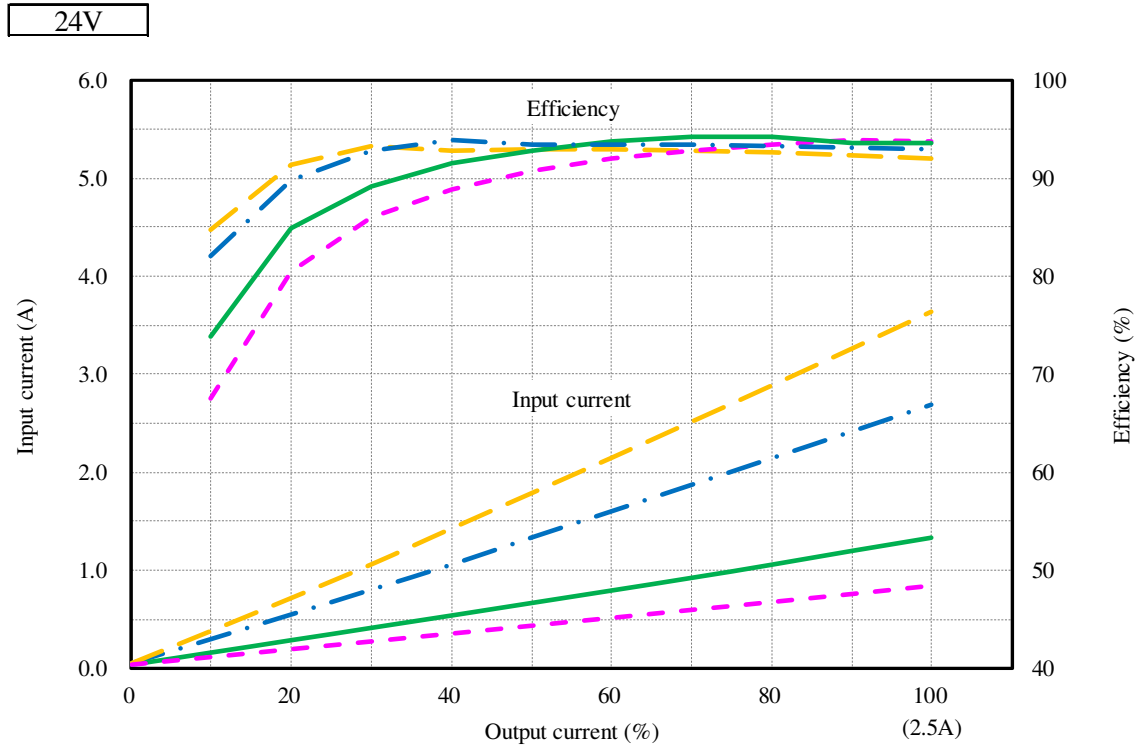


15V



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

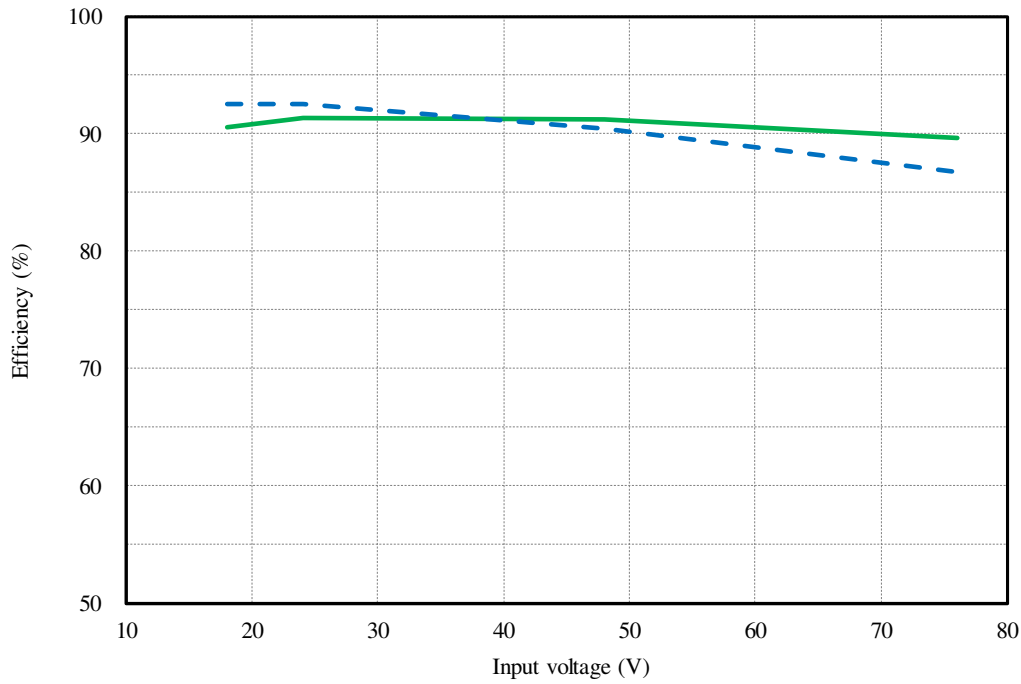
Conditions Vin : 18 VDC ————  
 : 24 VDC - · - · -  
 : 48 VDC ————  
 : 76 VDC - - - -  
 Ta : 25 °C



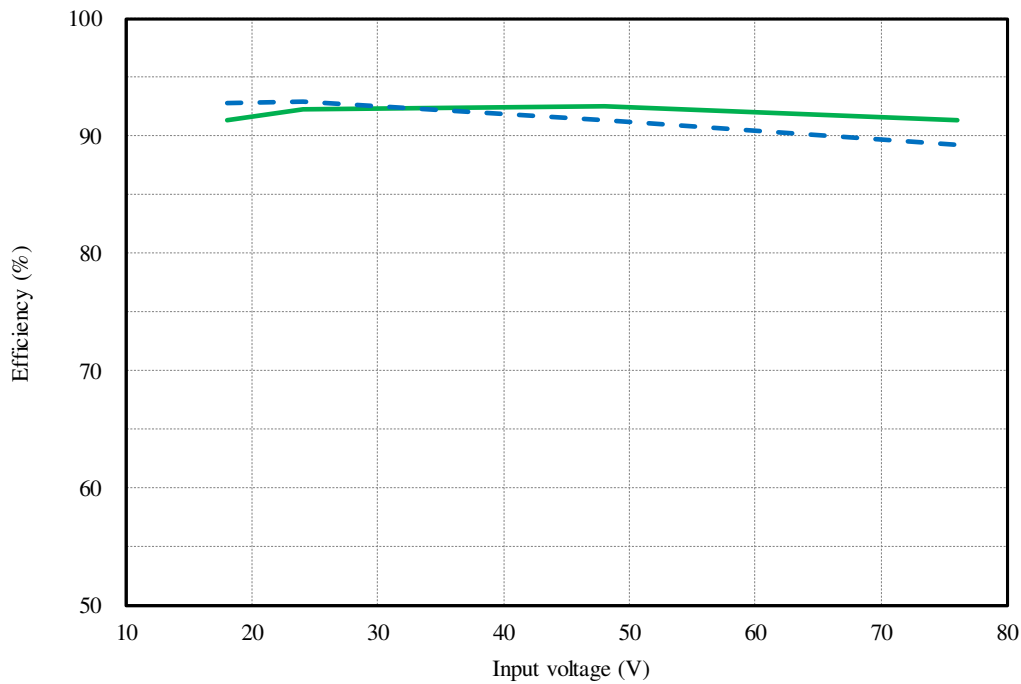
(4) 効率 対 入力電圧 Efficiency vs. Input voltage

Conditions    Io : 50 %    ---  
                      : 100 %    —  
                      Ta : 25 °C

3.3V



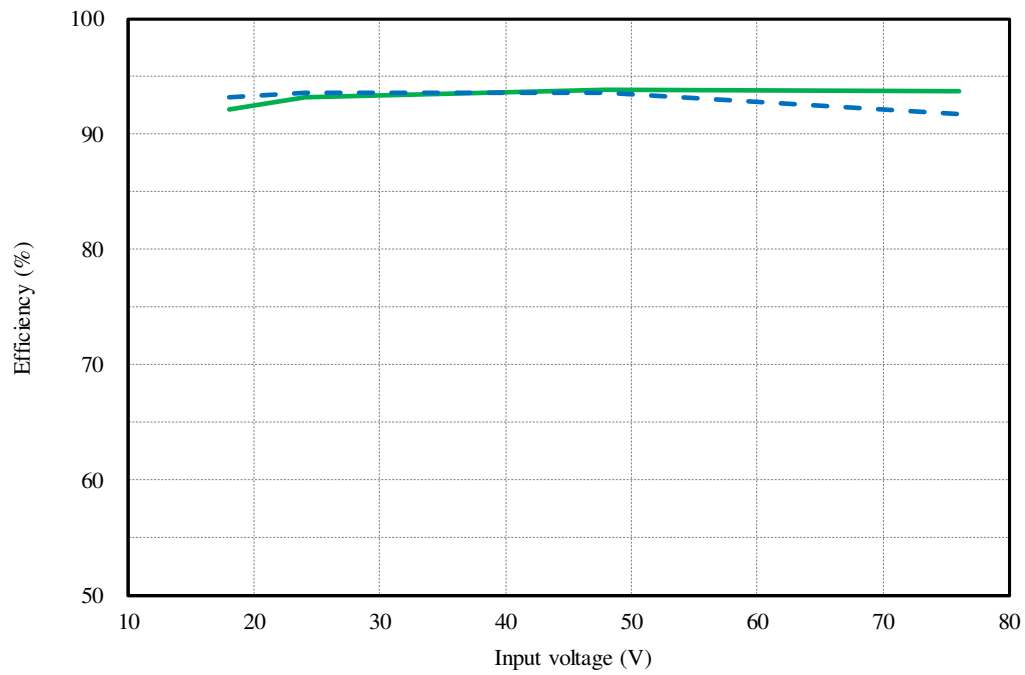
5V



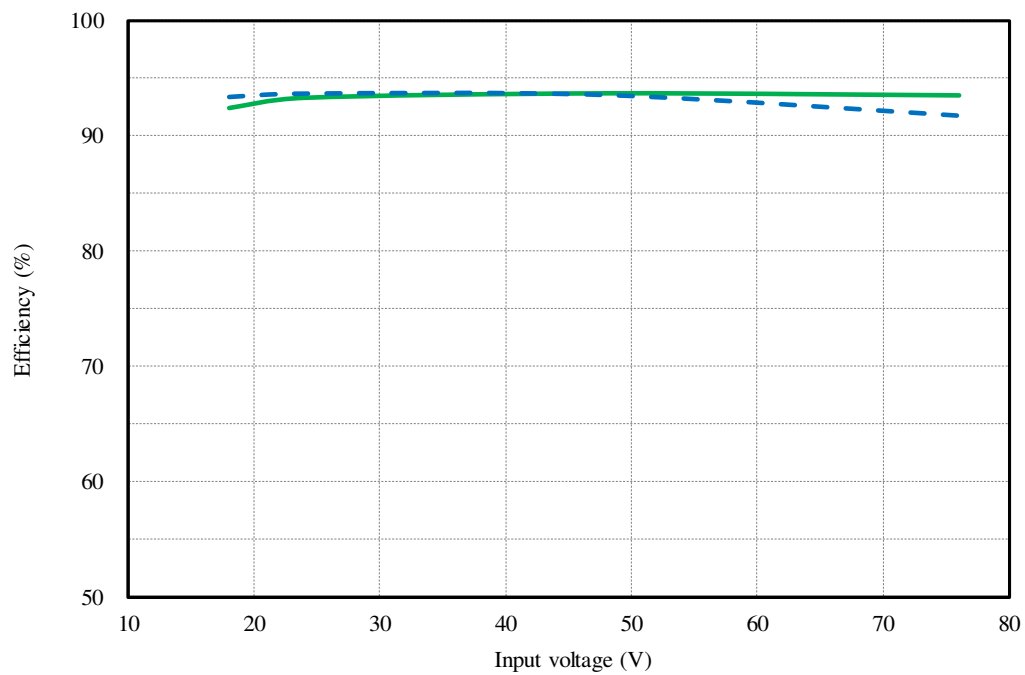
## (4) 効率 対 入力電圧 Efficiency vs. Input voltage

Conditions     $I_o$  : 50 %    ---  
                              : 100 %    —  
                               $T_a$  : 25 °C

12V

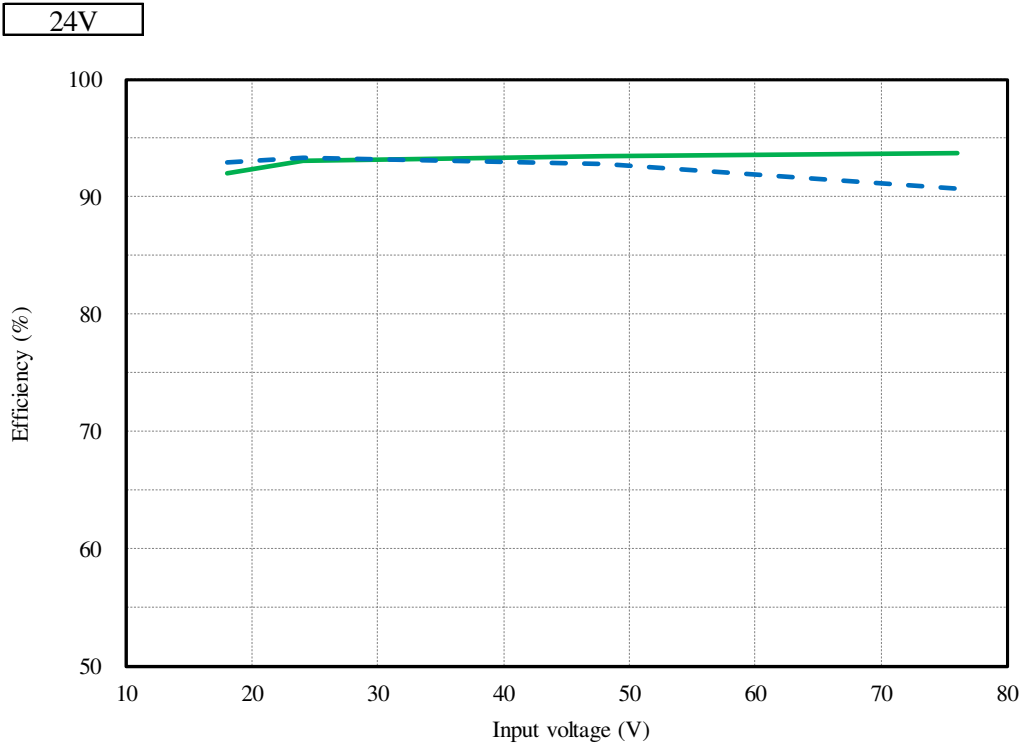


15V



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

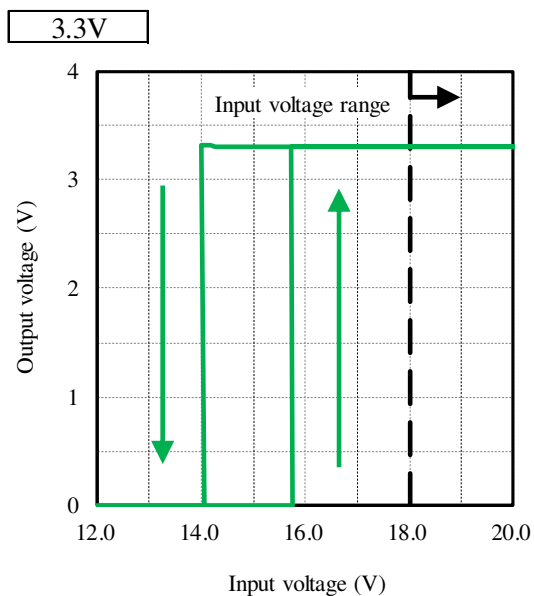
Conditions    Io   :   50 %    - - - - -  
                              :   100 %    —————  
                              Ta   :   25 °C



## (5) 起動・遮断電圧特性 Start up and Drop out voltage characteristics

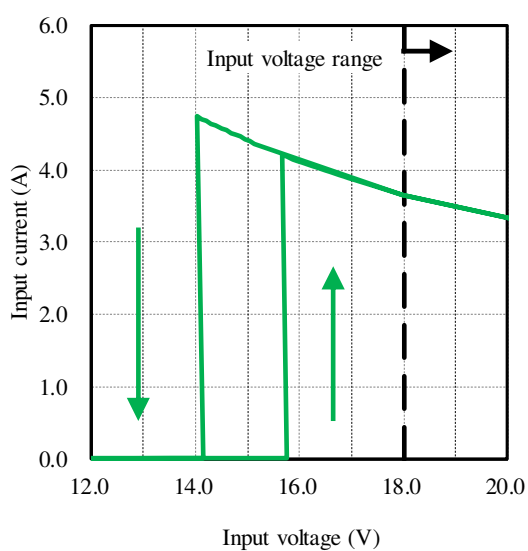
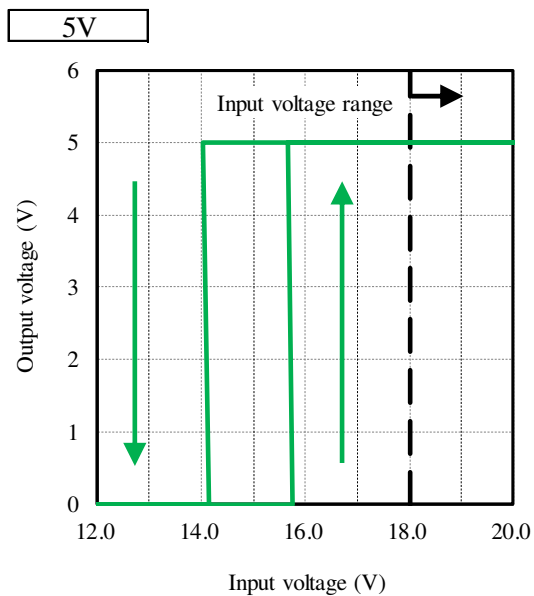
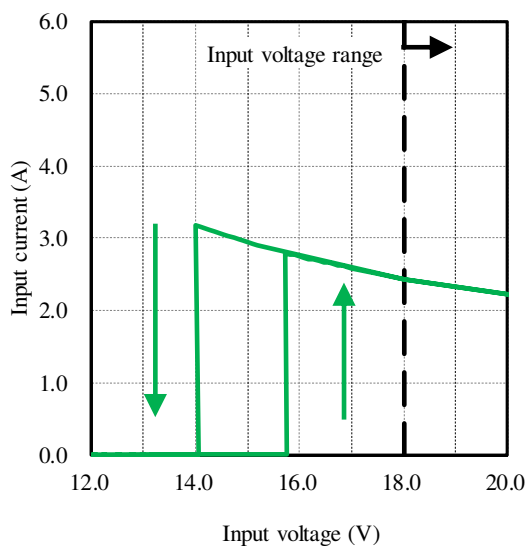
出力電圧 対 入力電圧  
Output voltage vs. Input voltage

Conditions  $I_o$  : 100 %  
 $T_a$  : 25 °C



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

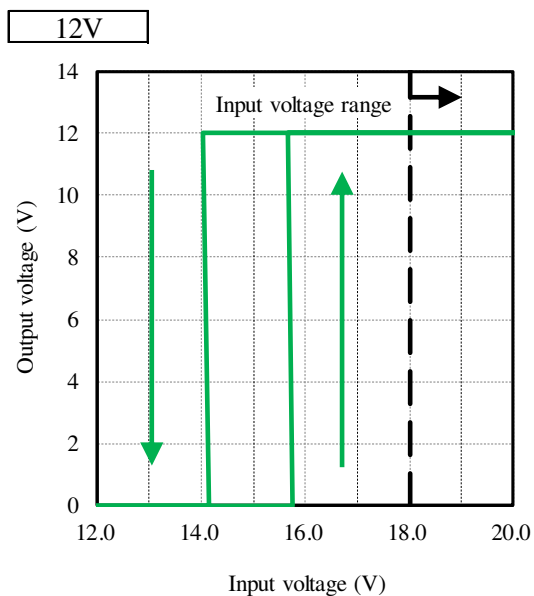
Conditions  $I_o$  : 100 %  
 $T_a$  : 25 °C



## (5) 起動・遮断電圧特性 Start up and Drop out voltage characteristics

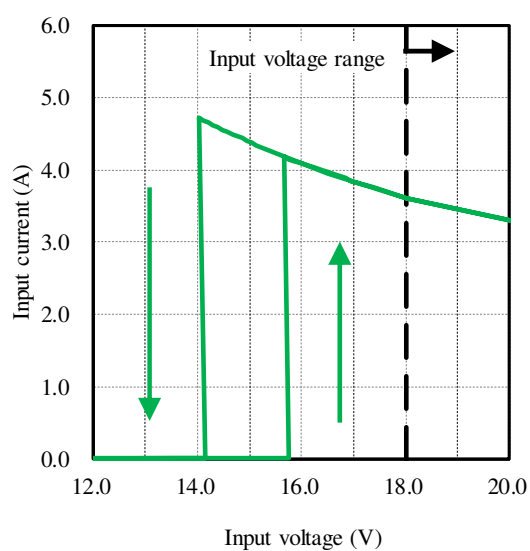
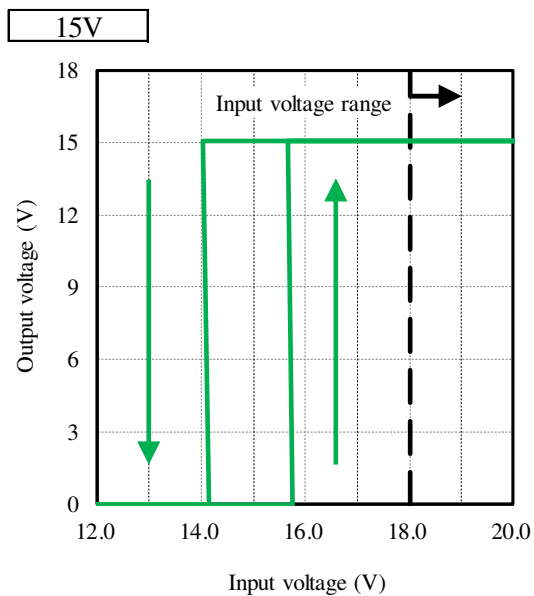
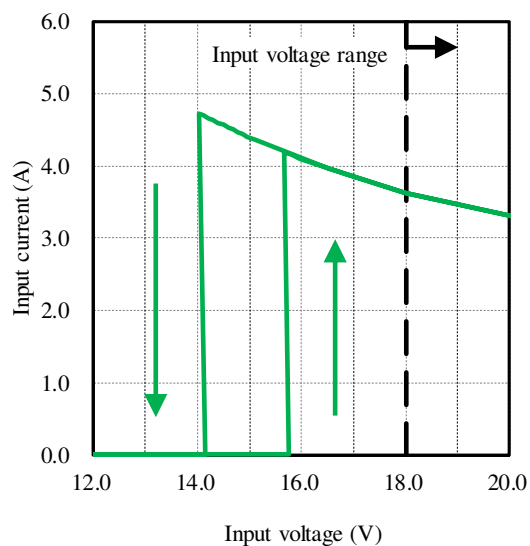
出力電圧 対 入力電圧  
Output voltage vs. Input voltage

Conditions  $I_o$  : 100 %  
 $T_a$  : 25 °C



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

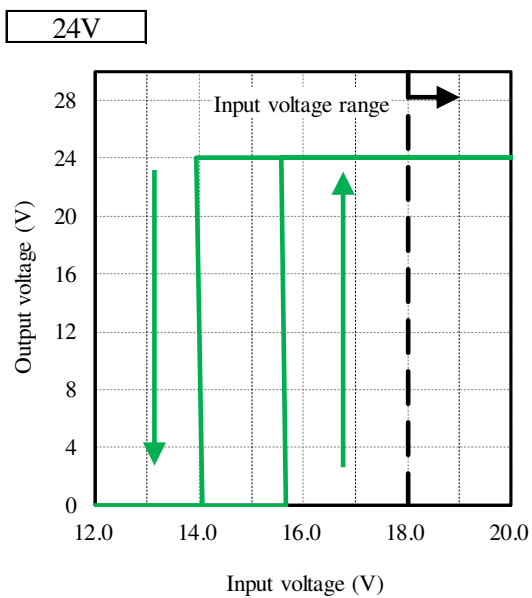
Conditions  $I_o$  : 100 %  
 $T_a$  : 25 °C



## (5) 起動・遮断電圧特性 Start up and Drop out voltage characteristics

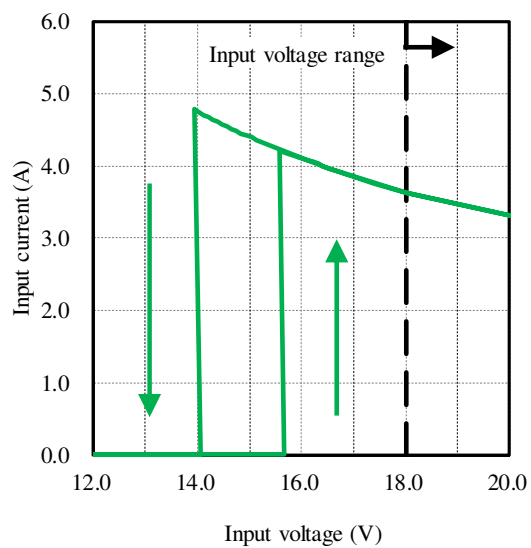
出力電圧 対 入力電圧  
Output voltage vs. Input voltage

Conditions  $I_o$  : 100 %  
 $T_a$  : 25 °C



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

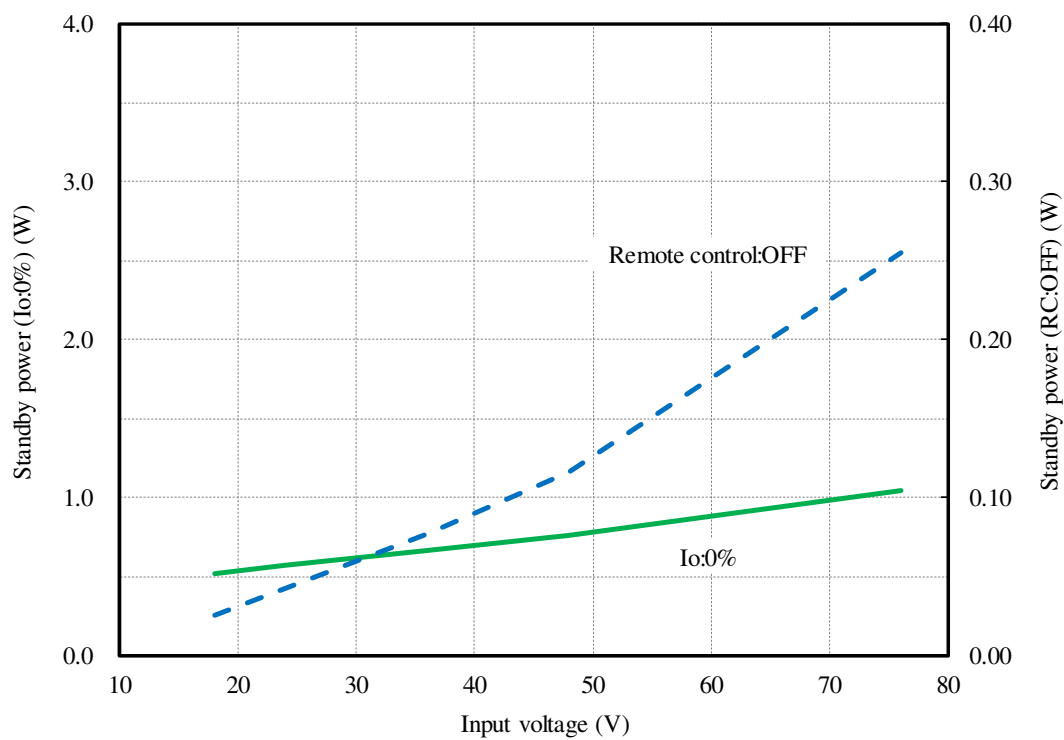
Conditions  $I_o$  : 100 %  
 $T_a$  : 25 °C



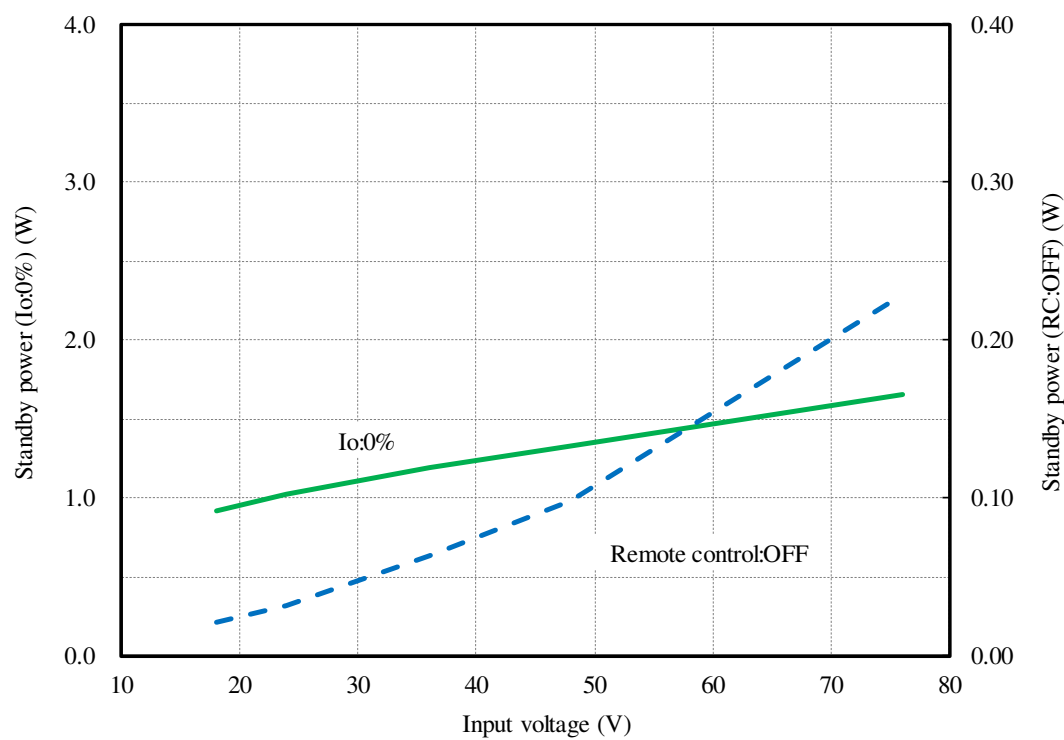
## 2-2. 待機電力特性 Standby power characteristics

Condition Ta : 25 °C

3.3V

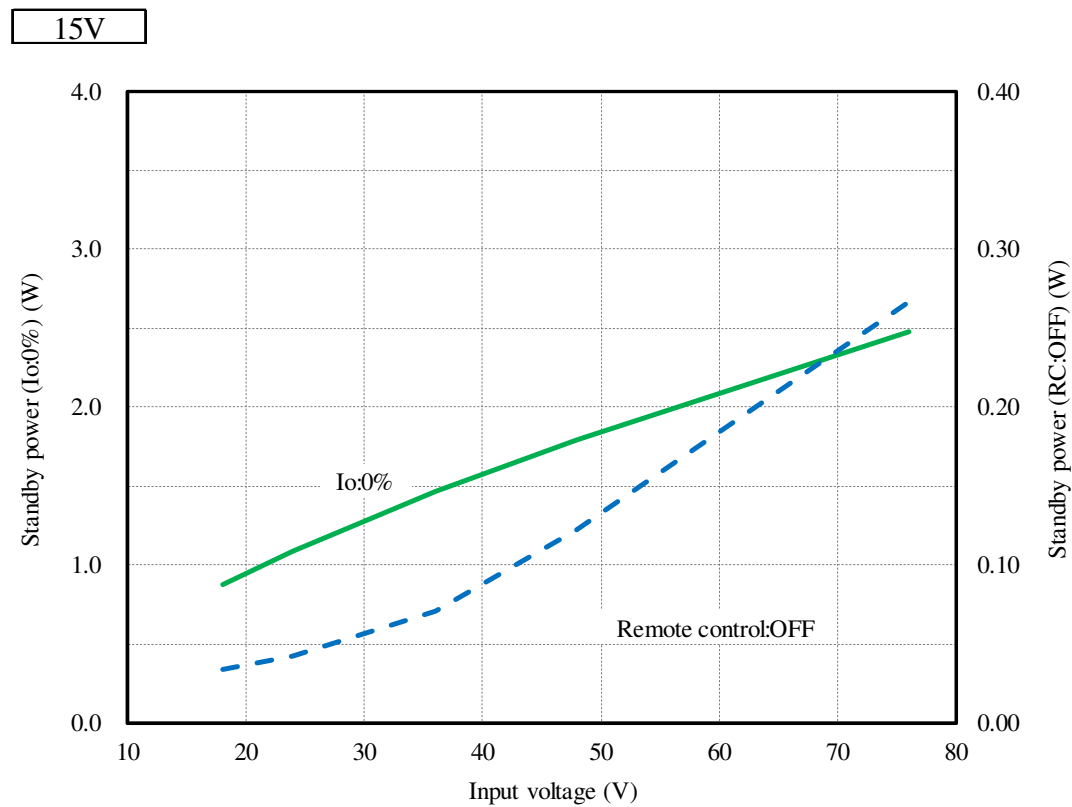
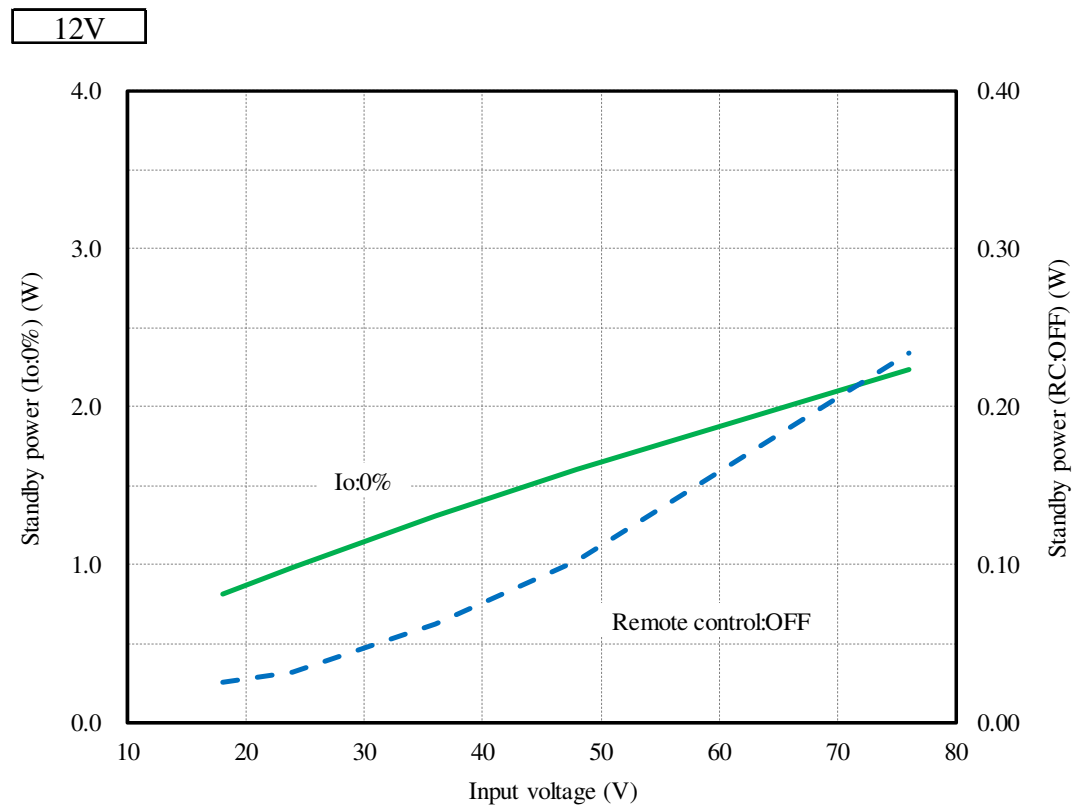


5V



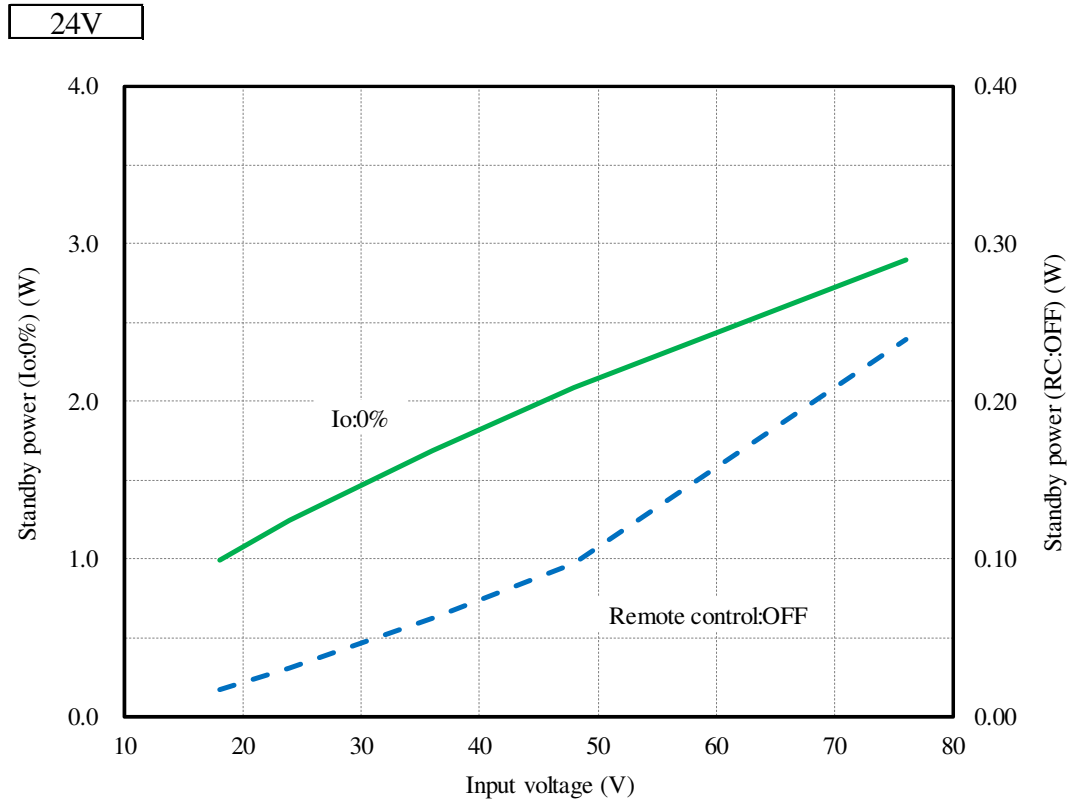
## 2-2. 待機電力特性 Standby power characteristics

Condition Ta : 25 °C



## 2-2. 待機電力特性 Standby power characteristics

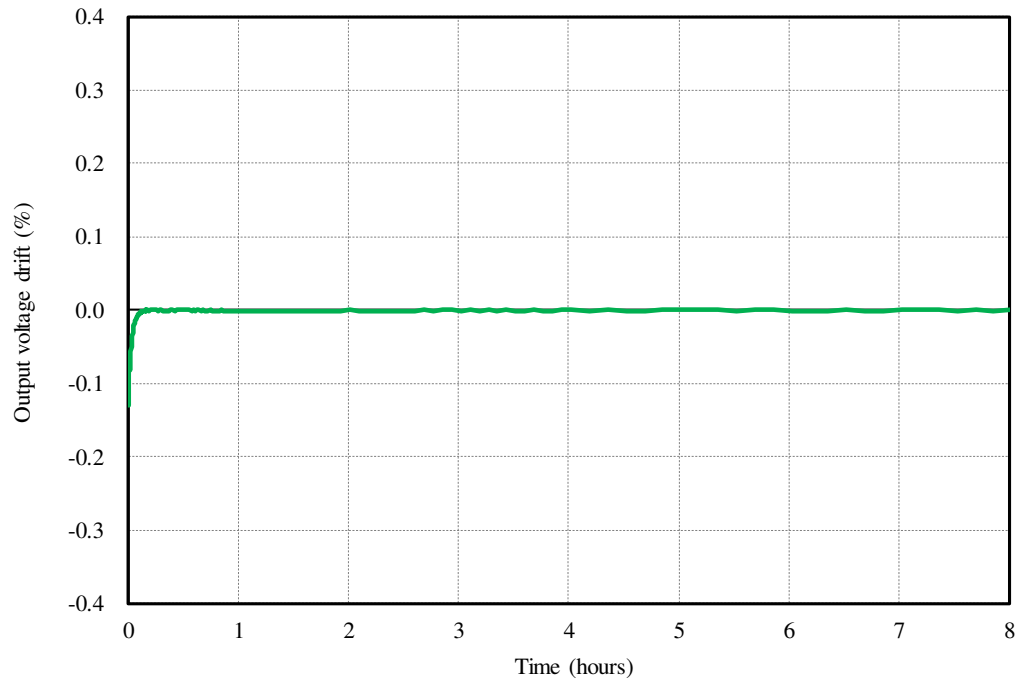
Condition Ta : 25 °C



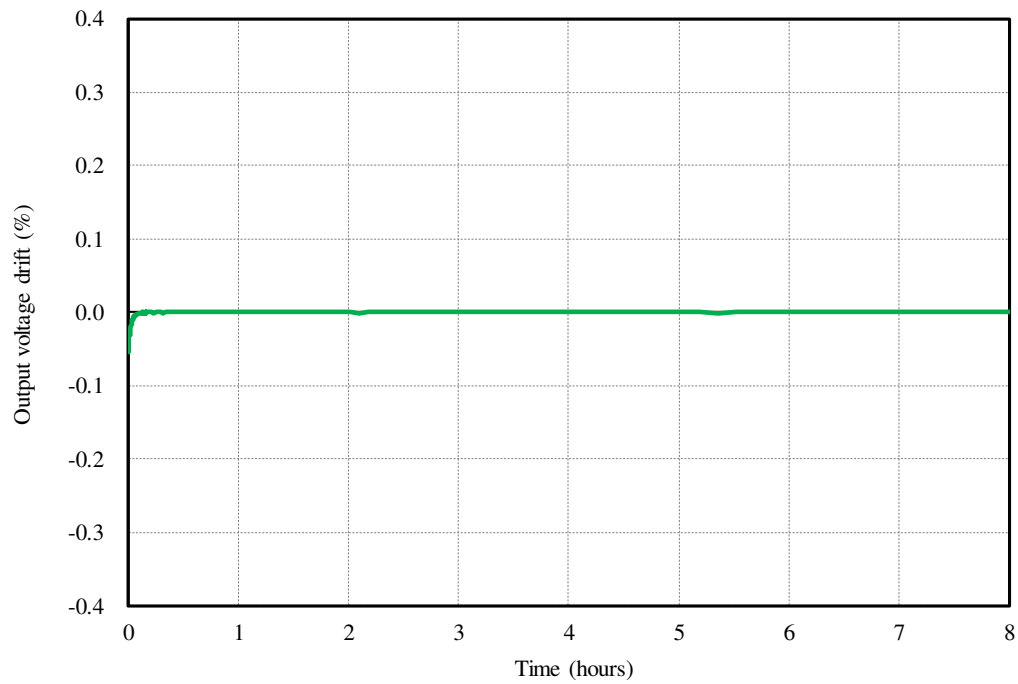
## 2-3. 通電ドリフト特性 Warm up voltage drift characteristics

Conditions  $V_{in}$  : 48 VDC  
 $I_o$  : 100 %  
 $T_a$  : 25 °C

3.3V



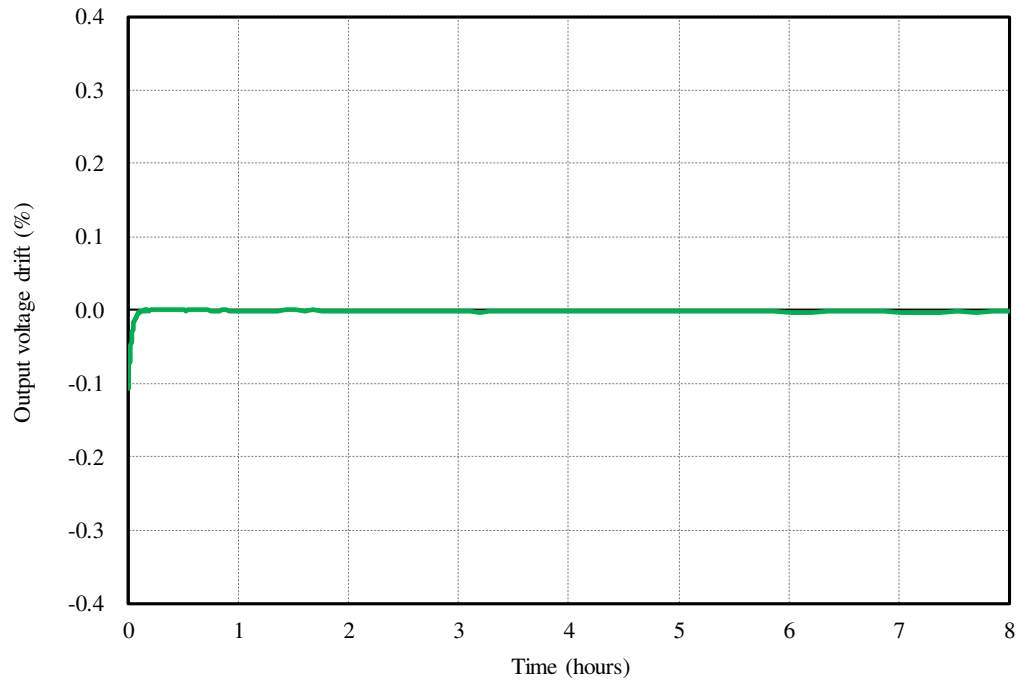
5V



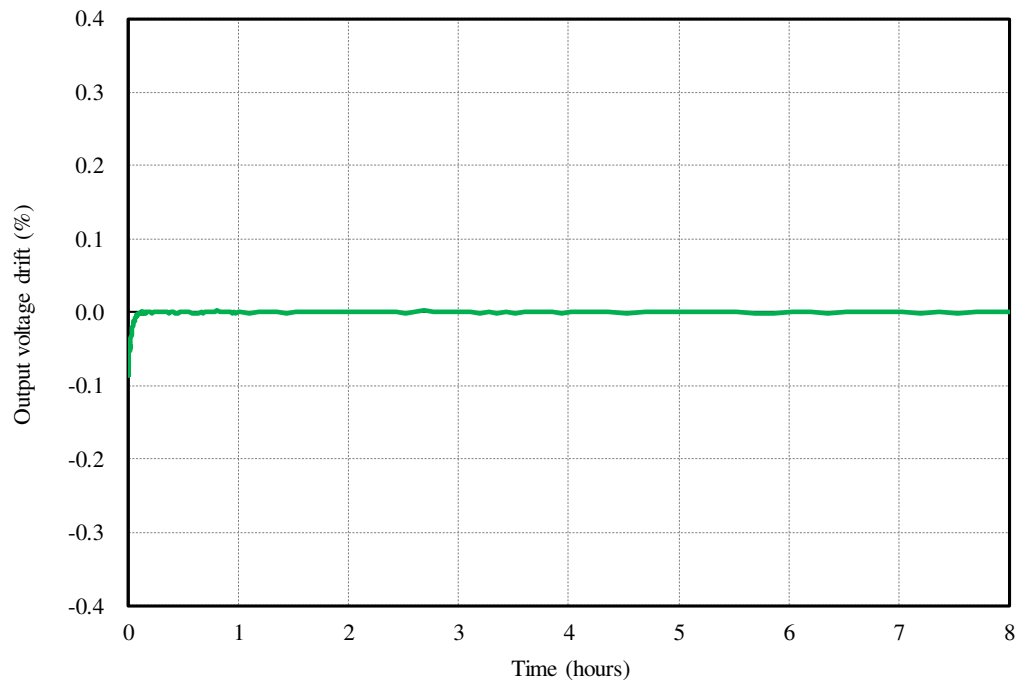
## 2-3. 通電ドリフト特性 Warm up voltage drift characteristics

Conditions  $V_{in}$  : 48 VDC  
 $I_o$  : 100 %  
 $T_a$  : 25 °C

12V

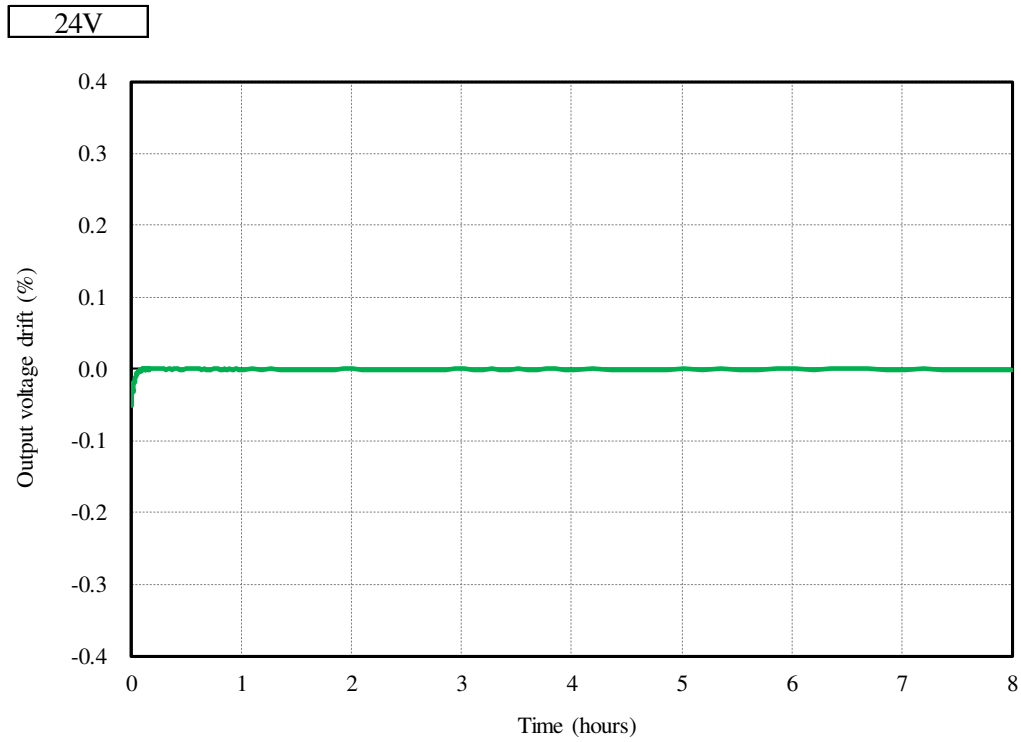


15V



## 2-3. 通電ドリフト特性 Warm up voltage drift characteristics

Conditions  $V_{in}$  : 48 VDC  
 $I_o$  : 100 %  
 $T_a$  : 25 °C



## 2-4. 過電流保護特性 Over current protection (OCP) characteristics

入力電圧依存性

Input voltage dependence

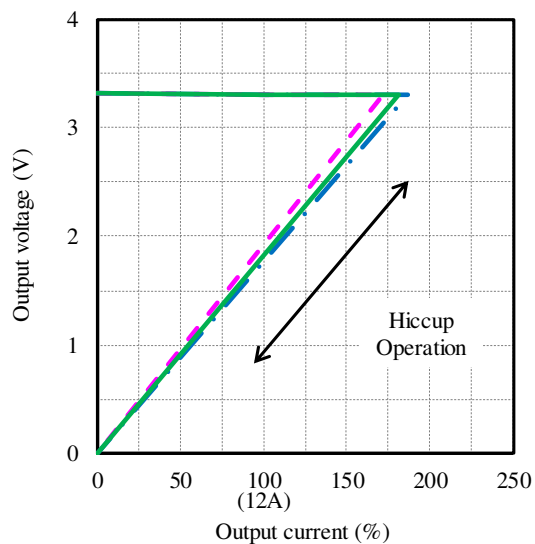
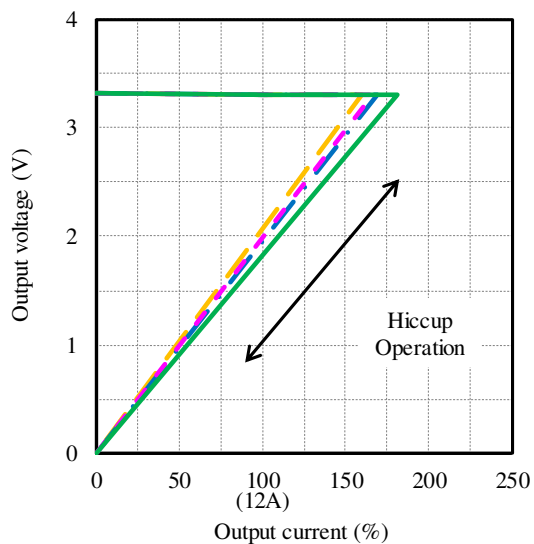
周囲温度依存性

Ambient temperature dependence

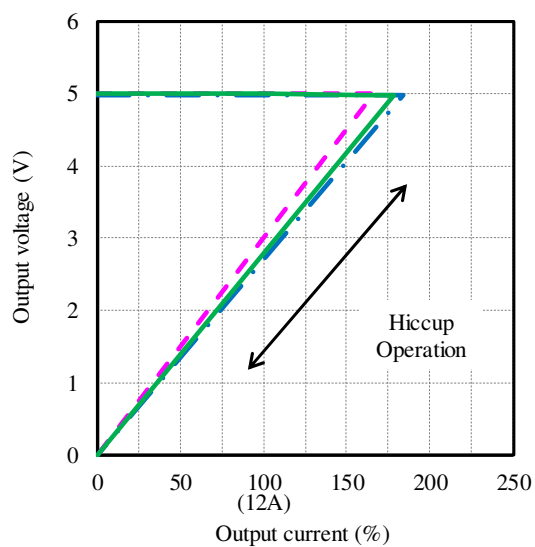
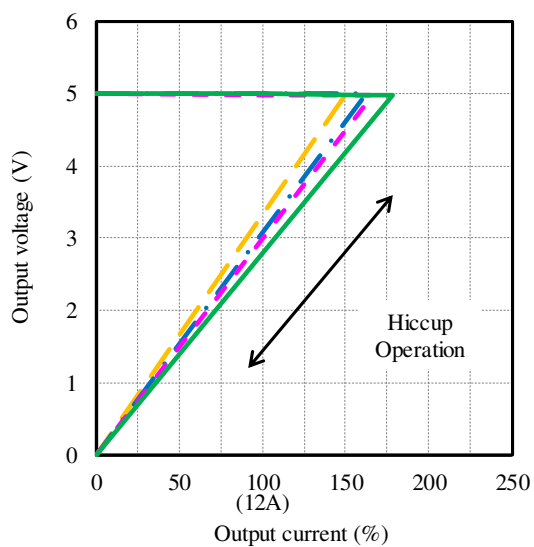
Conditions Vin : 18 VDC ———  
 : 24 VDC - · - · -  
 : 48 VDC ———  
 : 76 VDC - · - · -  
 Ta : 25 °C

Conditions Vin : 48 VDC  
 Ta : -40 °C - · - · -  
 : 25 °C ———  
 : 85 °C - · - · -

3.3V



5V



## 2-4. 過電流保護特性 Over current protection (OCP) characteristics

入力電圧依存性

Input voltage dependence

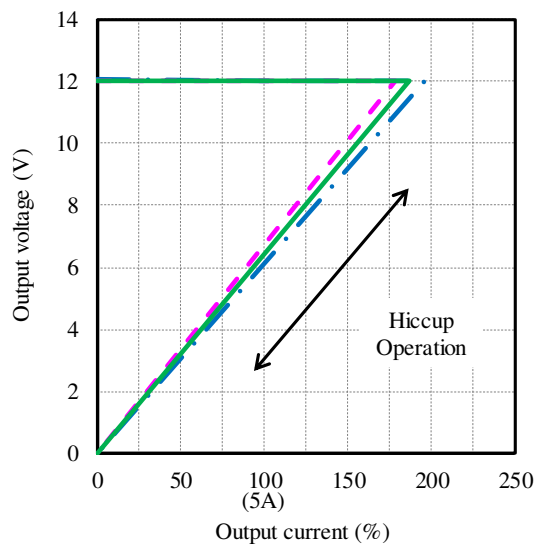
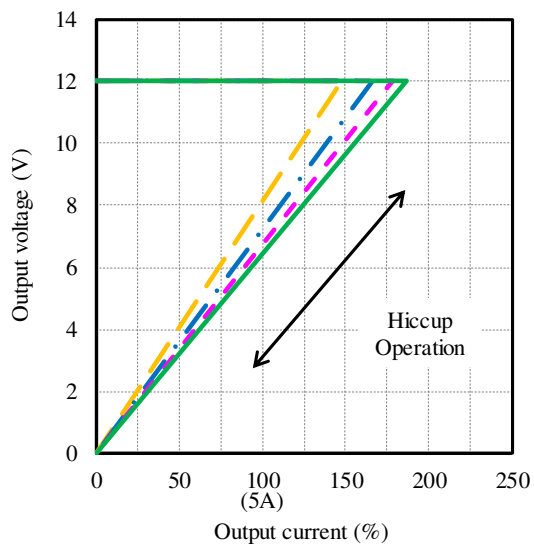
周囲温度依存性

Ambient temperature dependence

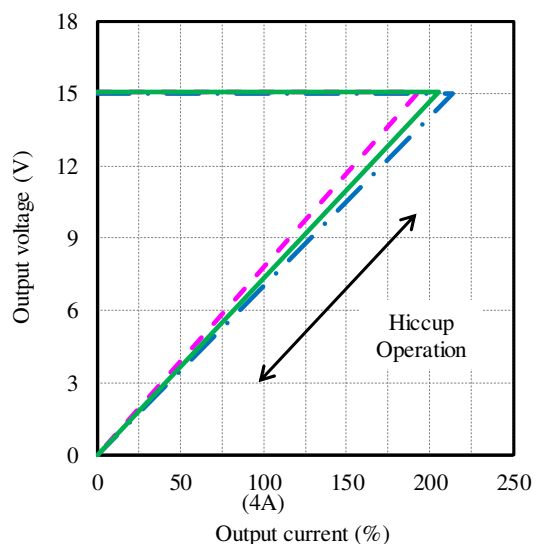
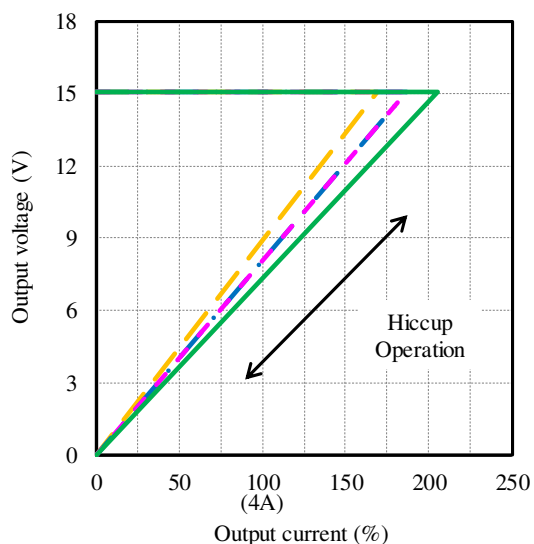
Conditions Vin : 18 VDC ———  
 : 24 VDC - · - · -  
 : 48 VDC ———  
 : 76 VDC - · - · -  
 Ta : 25 °C

Conditions Vin : 48 VDC  
 Ta : -40 °C - · - · -  
 : 25 °C ———  
 : 85 °C - · - · -

12V



15V



## 2-4. 過電流保護特性 Over current protection (OCP) characteristics

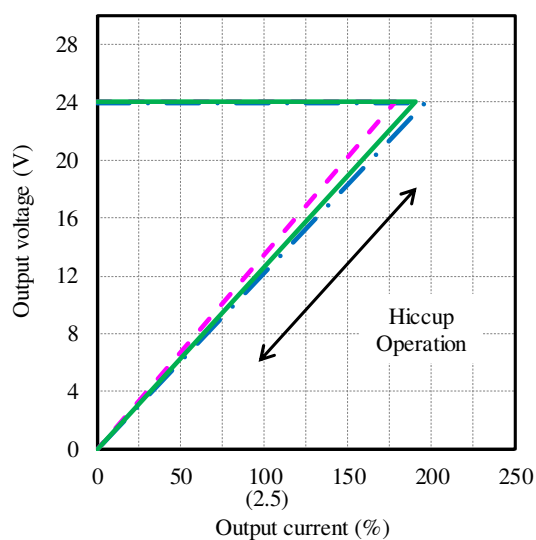
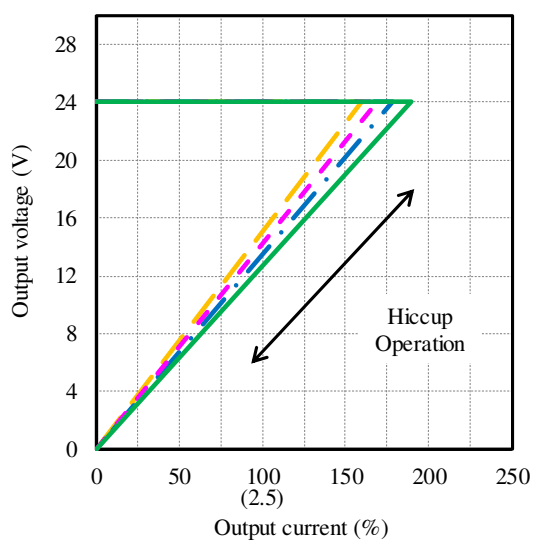
入力電圧依存性  
Input voltage dependence

周囲温度依存性  
Ambient temperature dependence

Conditions Vin : 18 VDC ———  
: 24 VDC - · - · -  
: 48 VDC ———  
: 76 VDC - - - - -  
Ta : 25 °C

Conditions Vin : 48 VDC  
Ta : -40 °C - · - · -  
: 25 °C ———  
: 85 °C - - - - -

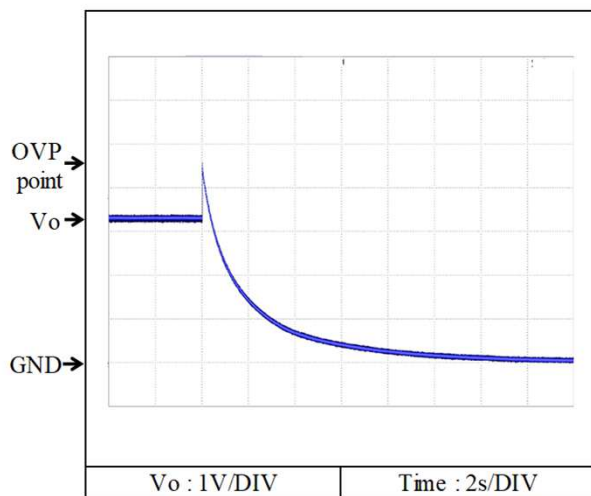
24V



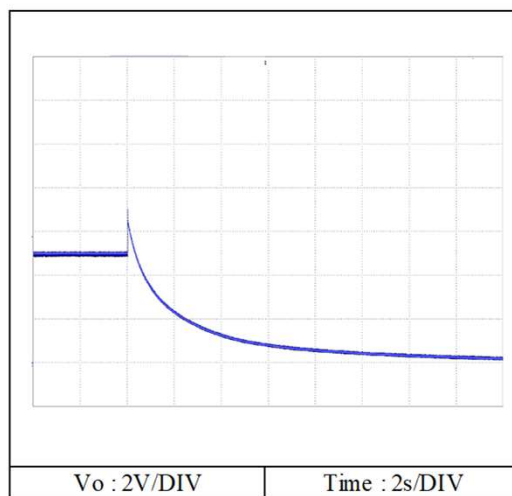
## 2-5. 過電圧保護特性 Over voltage protection (OVP) characteristics

Conditions  $V_{in}$  : 48 VDC $I_o$  : 0 % $T_a$  : 25 °C

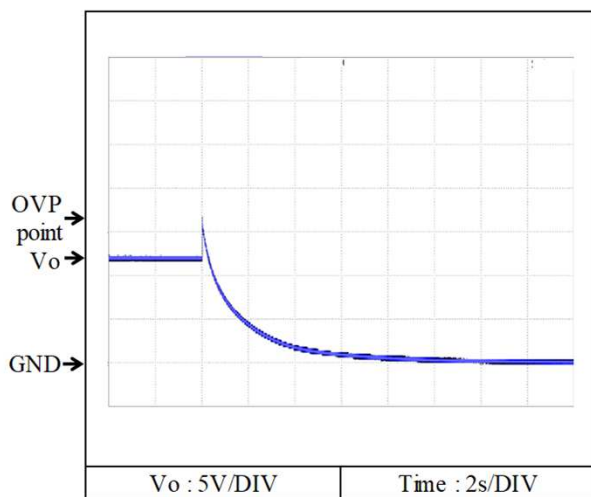
3.3V



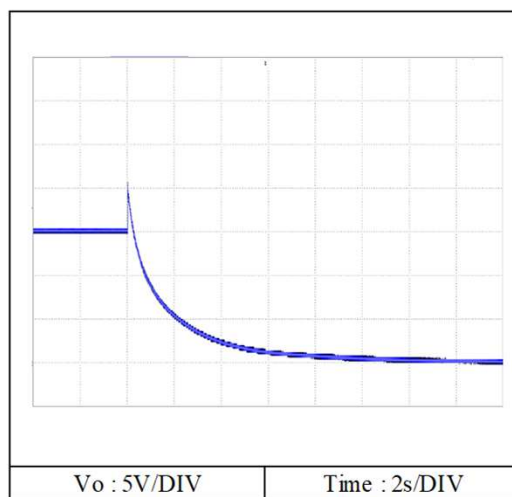
5V



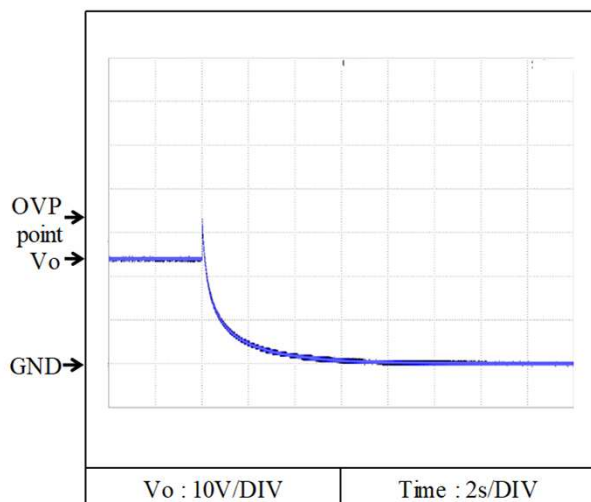
12V



15V



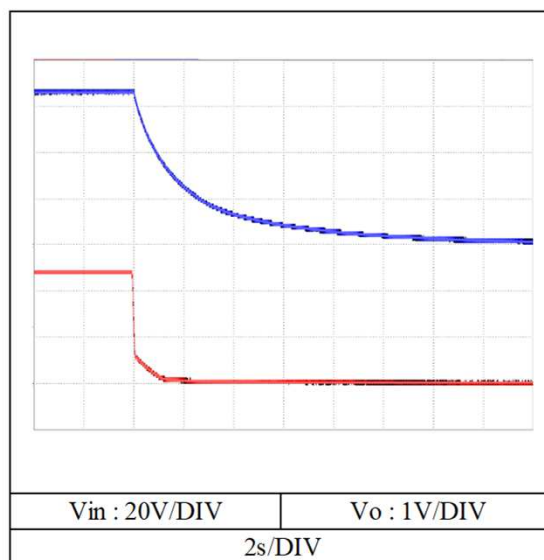
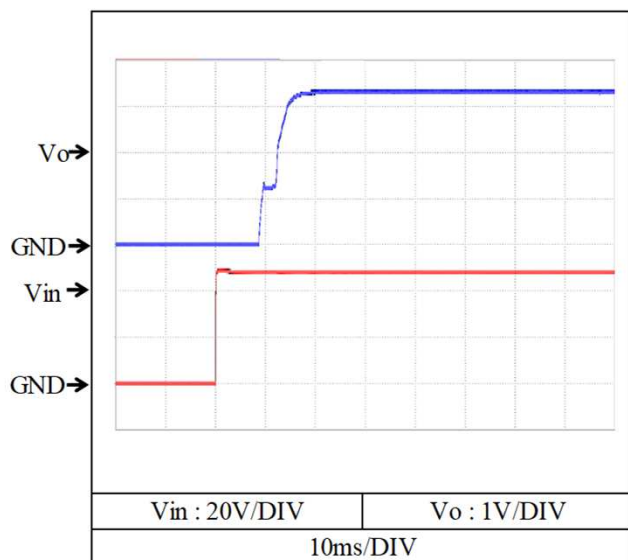
24V



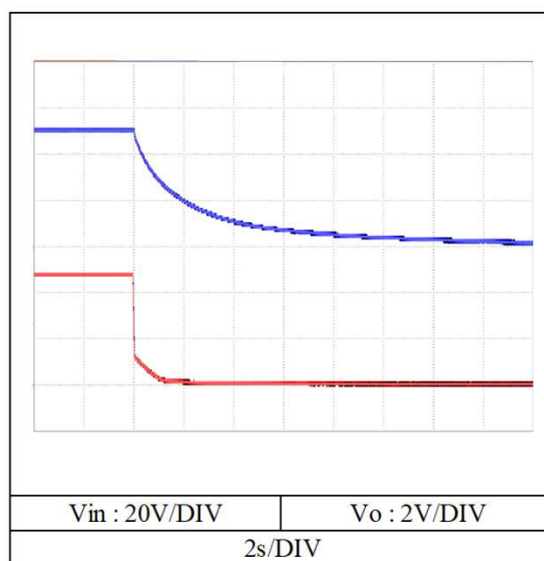
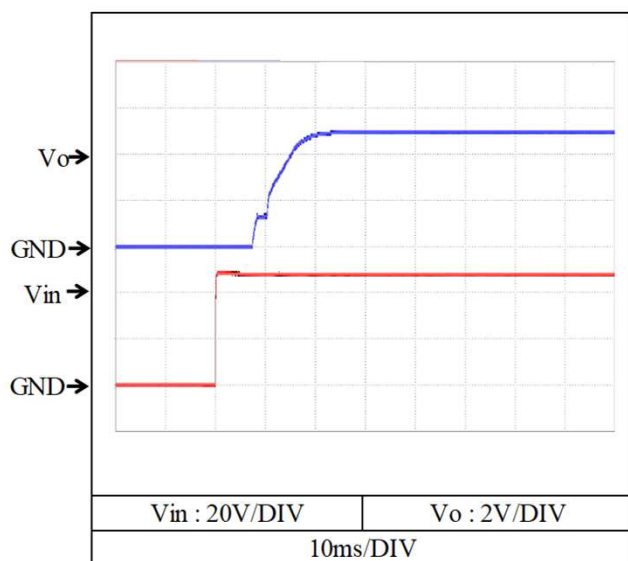
## 2-6. 出力立ち上がり・立ち下がり特性 Output rise and fall characteristics

Conditions  $V_{in}$  : 48 VDC $I_o$  : 0 % $T_a$  : 25 °C

3.3V



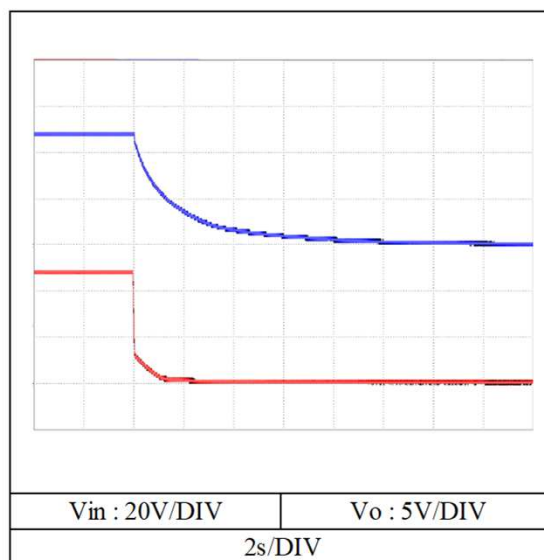
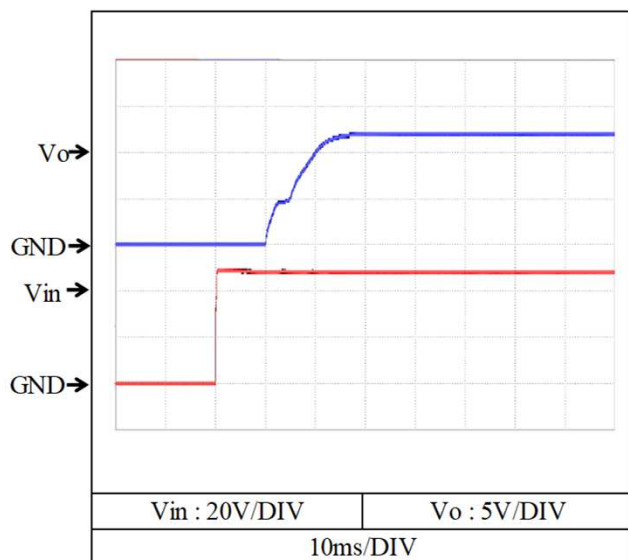
5V



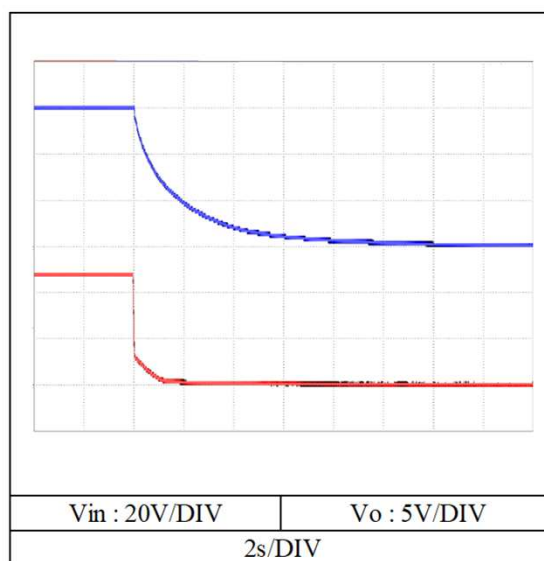
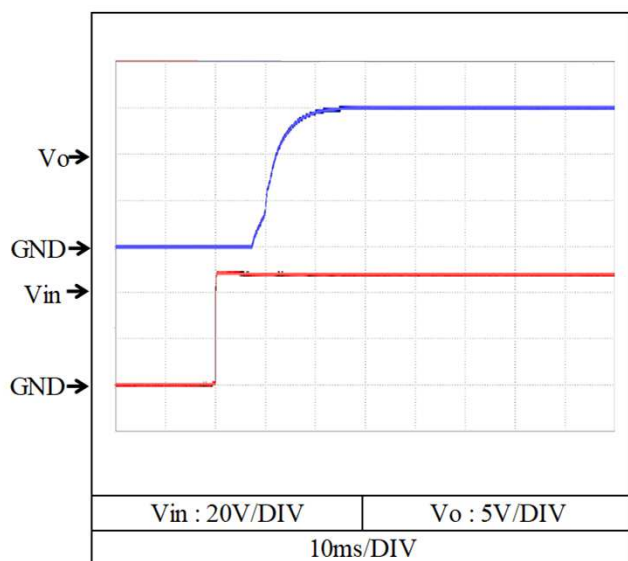
## 2-6. 出力立ち上がり・立ち下がり特性 Output rise and fall characteristics

Conditions  $V_{in}$  : 48 VDC $I_o$  : 0 % $T_a$  : 25 °C

12V



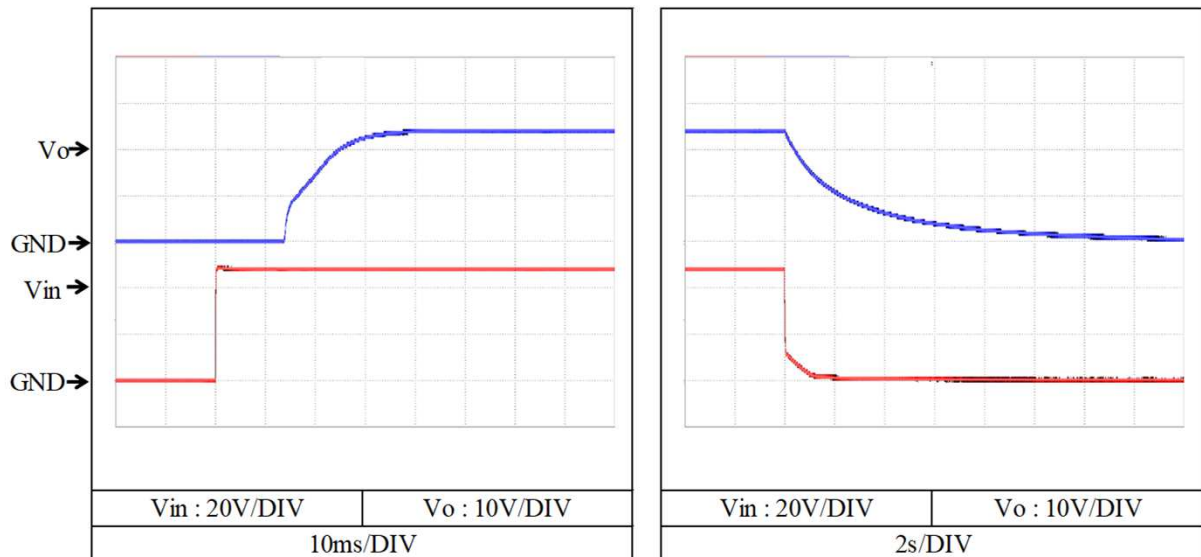
15V



## 2-6. 出力立ち上がり・立ち下がり特性 Output rise and fall characteristics

Conditions  $V_{in}$  : 48 VDC $I_o$  : 0 % $T_a$  : 25 °C

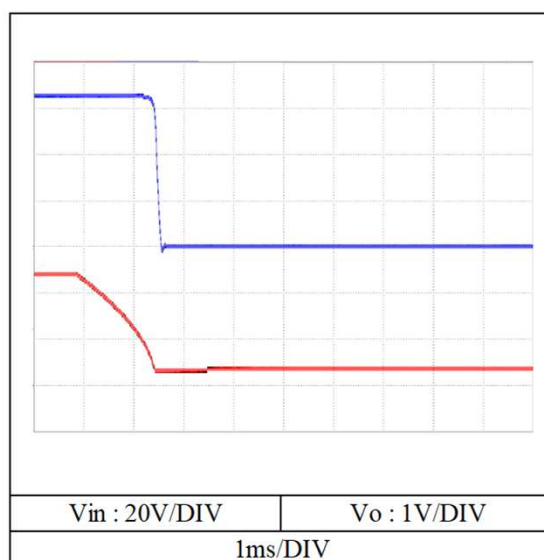
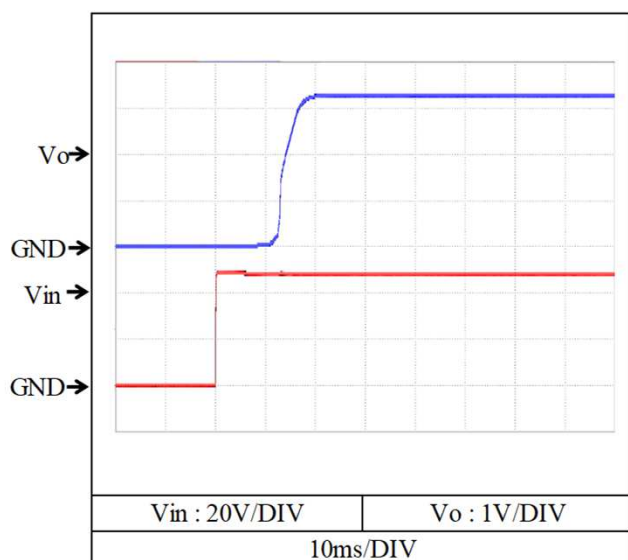
24V



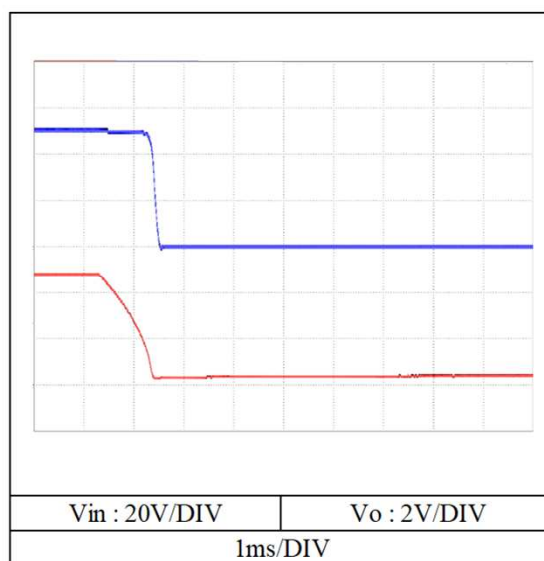
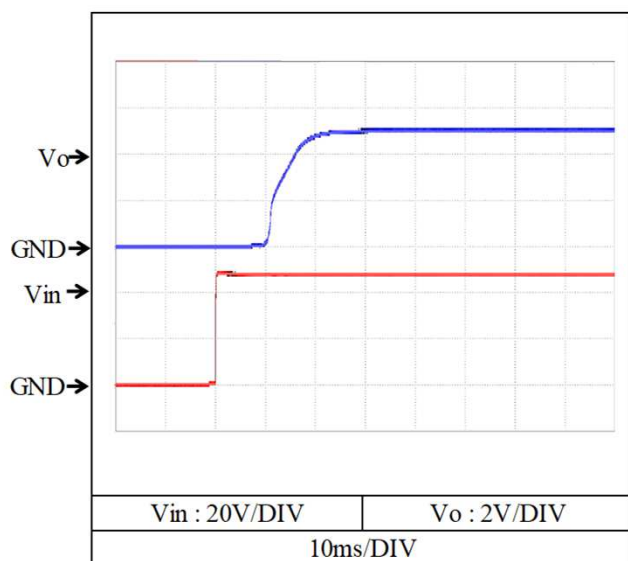
## 2-6. 出力立ち上がり・立ち下がり特性 Output rise and fall characteristics

Conditions  $V_{in}$  : 48 VDC $I_o$  : 100 % $T_a$  : 25 °C

3.3V



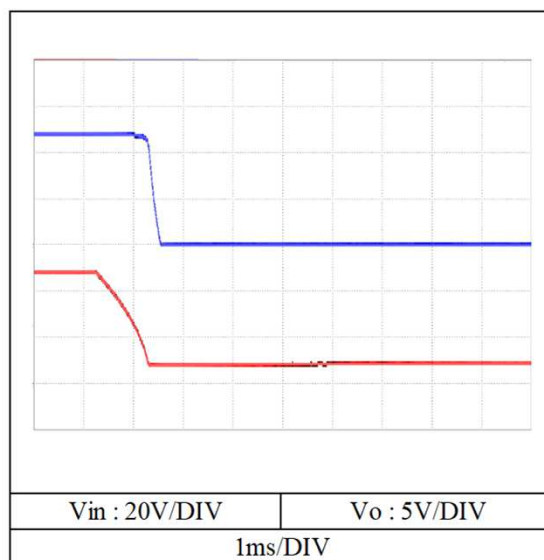
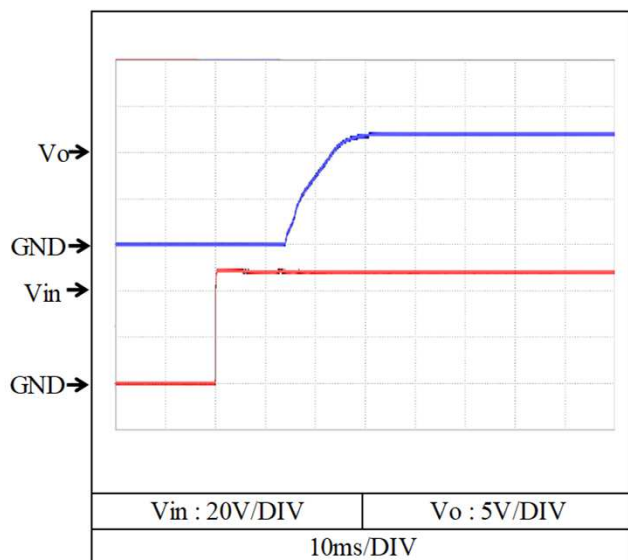
5V



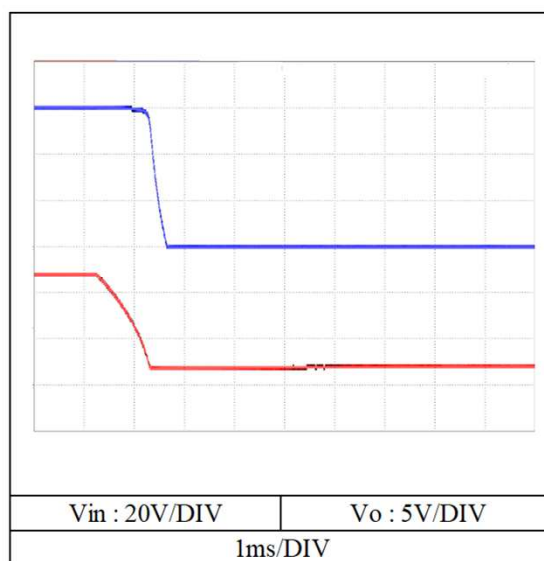
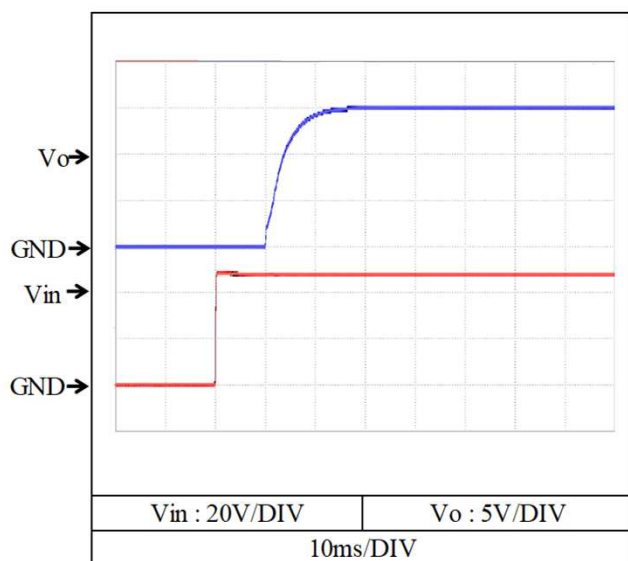
## 2-6. 出力立ち上がり・立ち下がり特性 Output rise and fall characteristics

Conditions  $V_{in}$  : 48 VDC $I_o$  : 100 % $T_a$  : 25 °C

12V



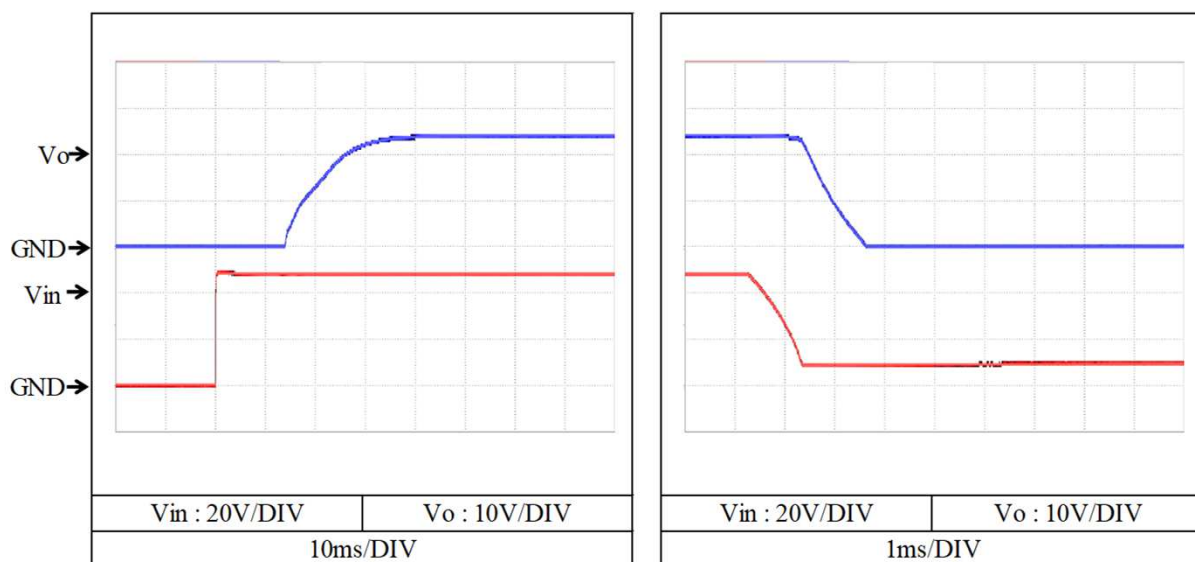
15V



## 2-6. 出力立ち上がり・立ち下がり特性 Output rise and fall characteristics

Conditions  $V_{in}$  : 48 VDC $I_o$  : 100 % $T_a$  : 25 °C

24V

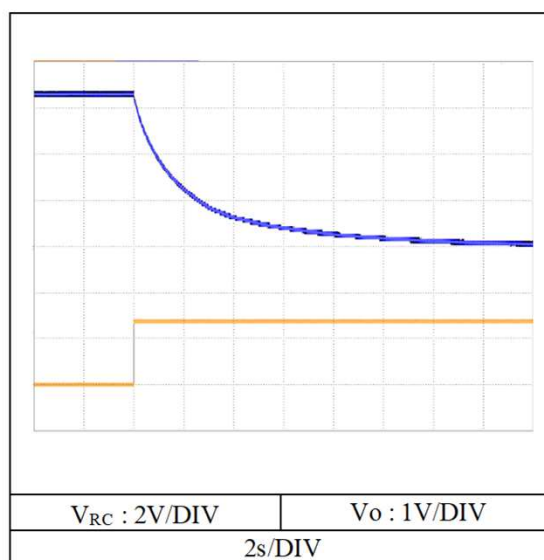
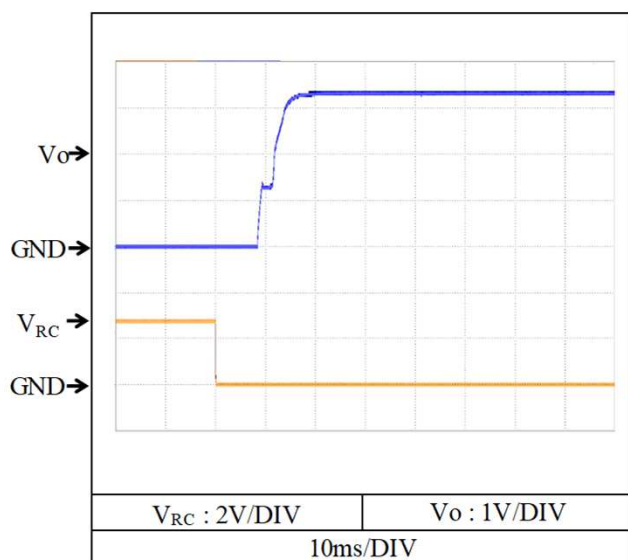


## 2-6. 出力立ち上がり・立ち下がり特性 (リモートON/OFFコントロール時)

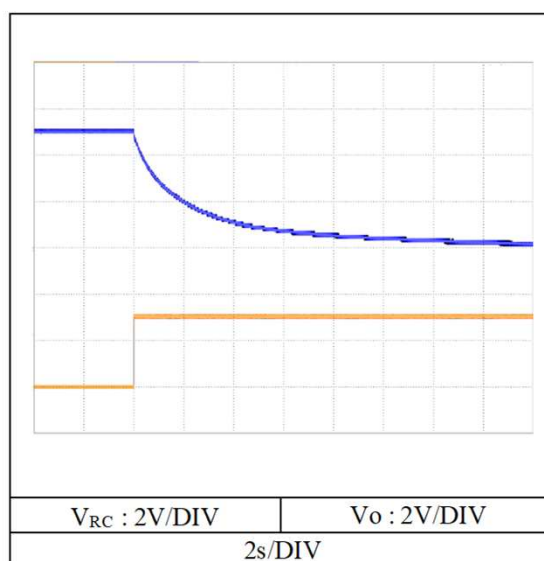
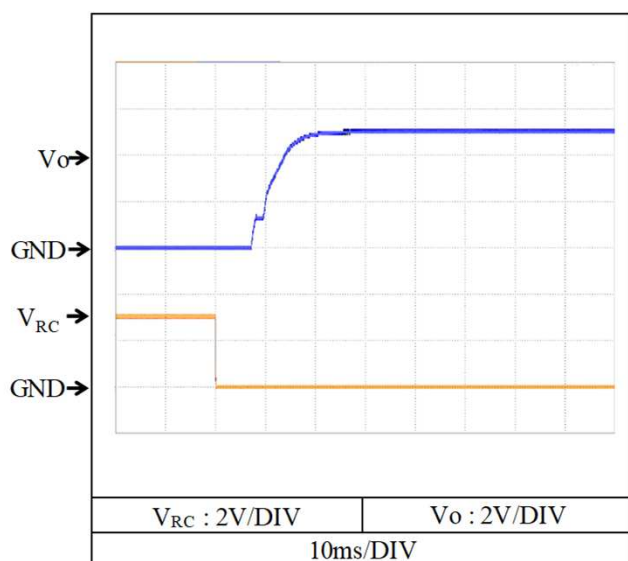
Output rise and fall characteristics with REMOTE ON/OFF CONTROL

Conditions  $V_{in}$  : 48 VDC $I_o$  : 0 % $T_a$  : 25 °C

3.3V



5V

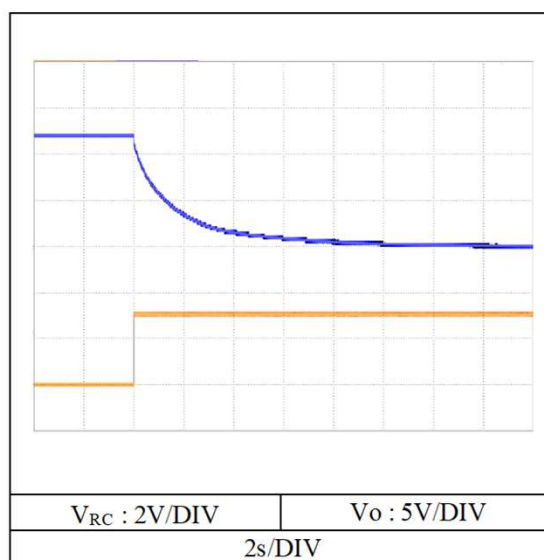
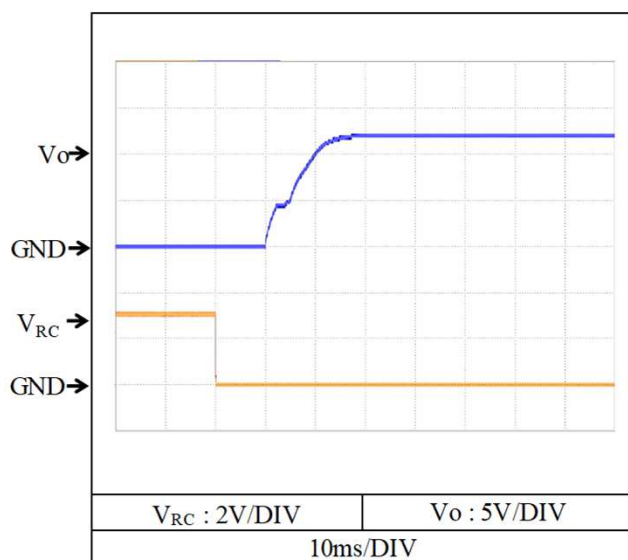


## 2-6. 出力立ち上がり・立ち下がり特性 (リモートON/OFFコントロール時)

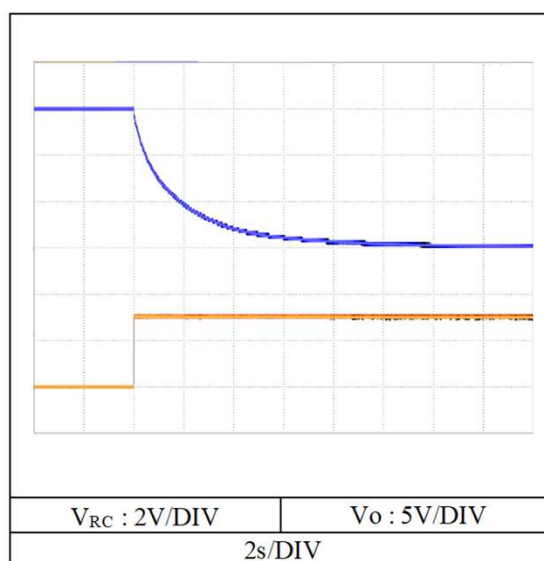
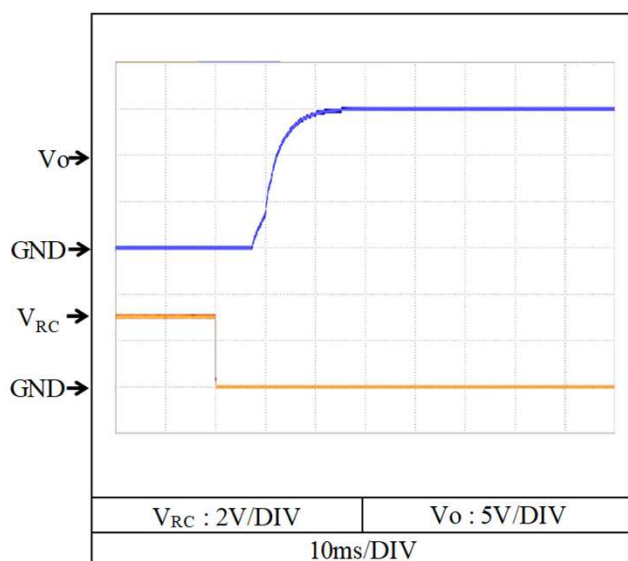
Output rise and fall characteristics with REMOTE ON/OFF CONTROL

Conditions  $V_{in}$  : 48 VDC $I_o$  : 0 % $T_a$  : 25 °C

12V



15V

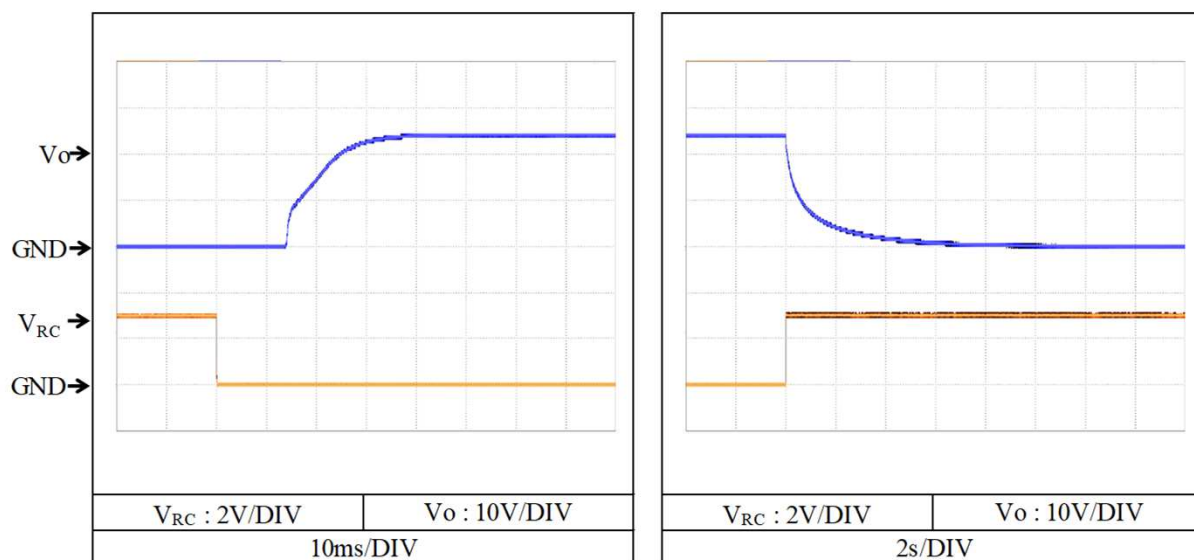


## 2-6. 出力立ち上がり・立ち下がり特性 (リモートON/OFFコントロール時)

Output rise and fall characteristics with REMOTE ON/OFF CONTROL

Conditions  $V_{in}$  : 48 VDC $I_o$  : 0 % $T_a$  : 25 °C

24V

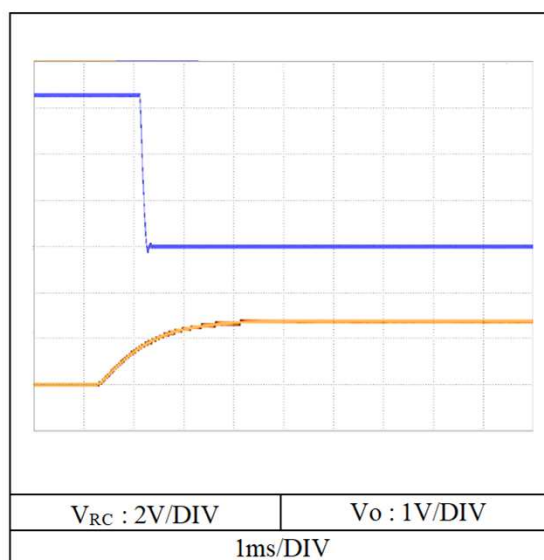
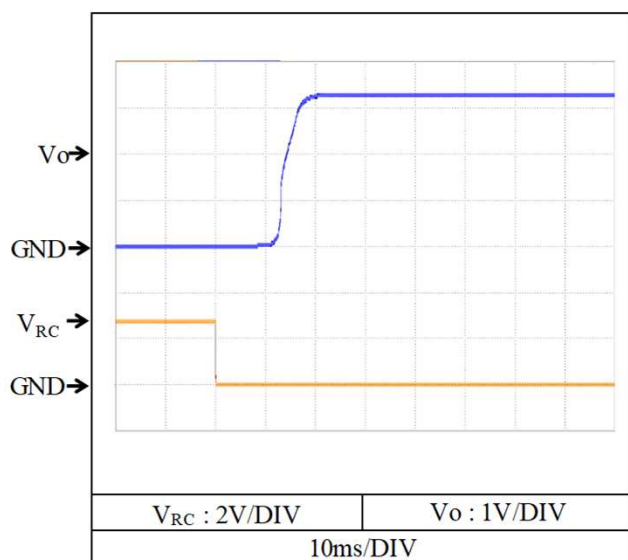


## 2-6. 出力立ち上がり・立ち下がり特性 (リモートON/OFFコントロール時)

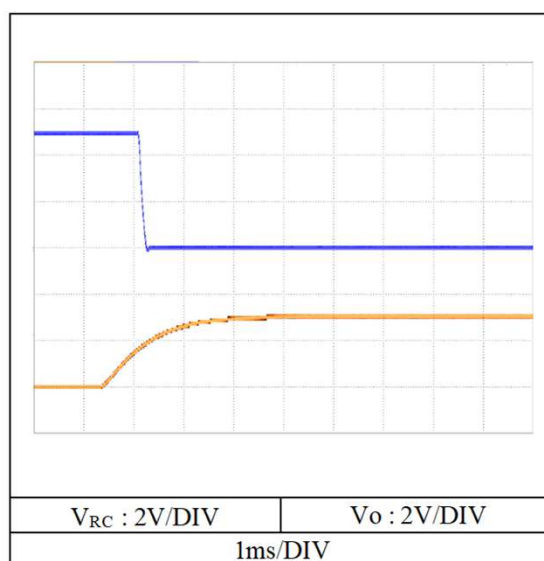
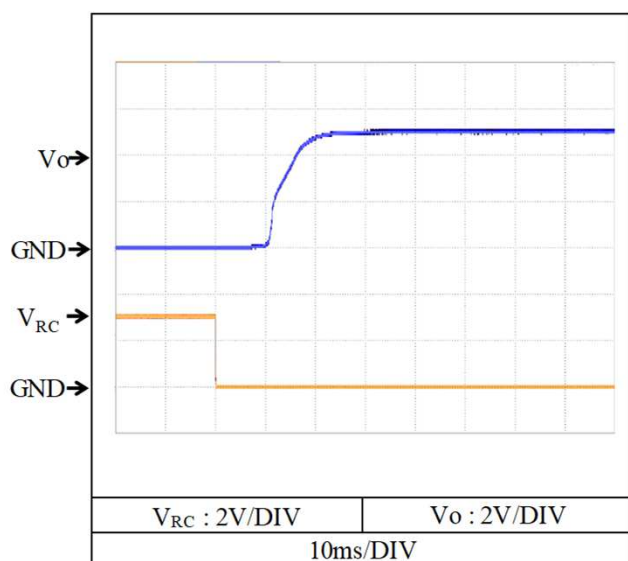
Output rise and fall characteristics with REMOTE ON/OFF CONTROL

Conditions  $V_{in}$  : 48 VDC $I_o$  : 100 % $T_a$  : 25 °C

3.3V



5V

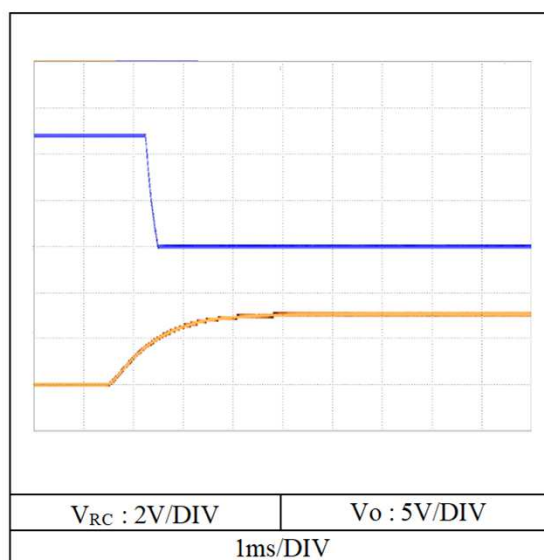
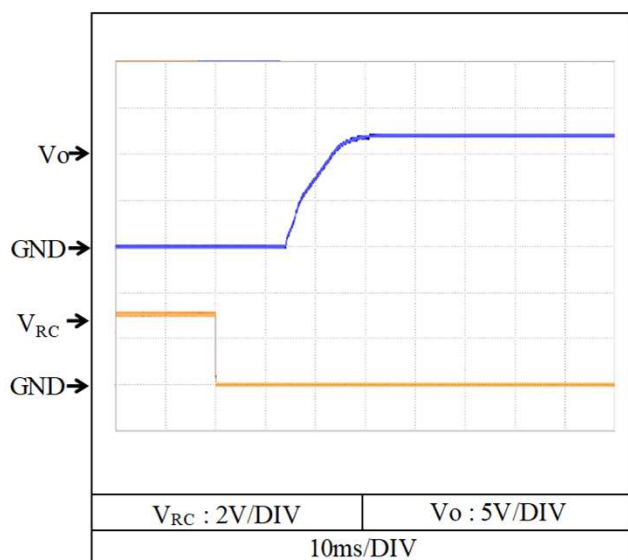


## 2-6. 出力立ち上がり・立ち下がり特性 (リモートON/OFFコントロール時)

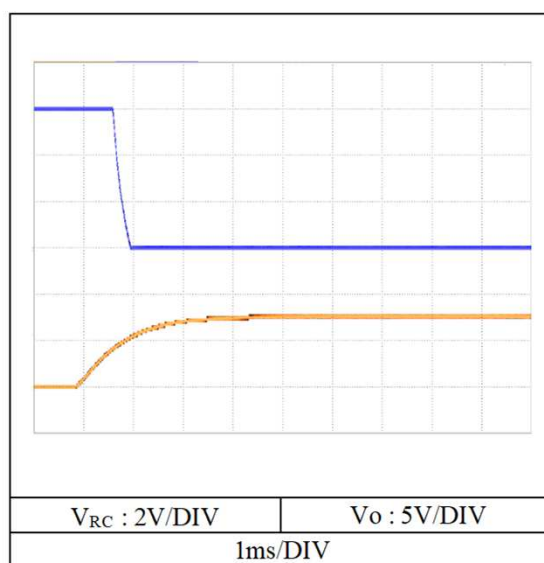
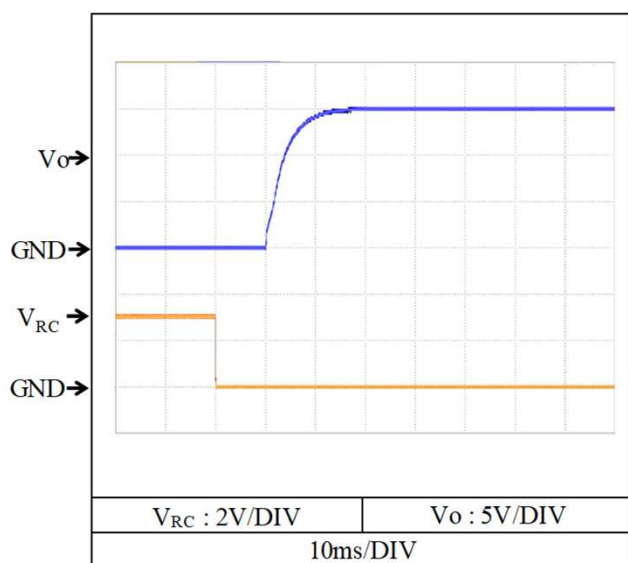
Output rise and fall characteristics with REMOTE ON/OFF CONTROL

Conditions  $V_{in}$  : 48 VDC $I_o$  : 100 % $T_a$  : 25 °C

12V



15V

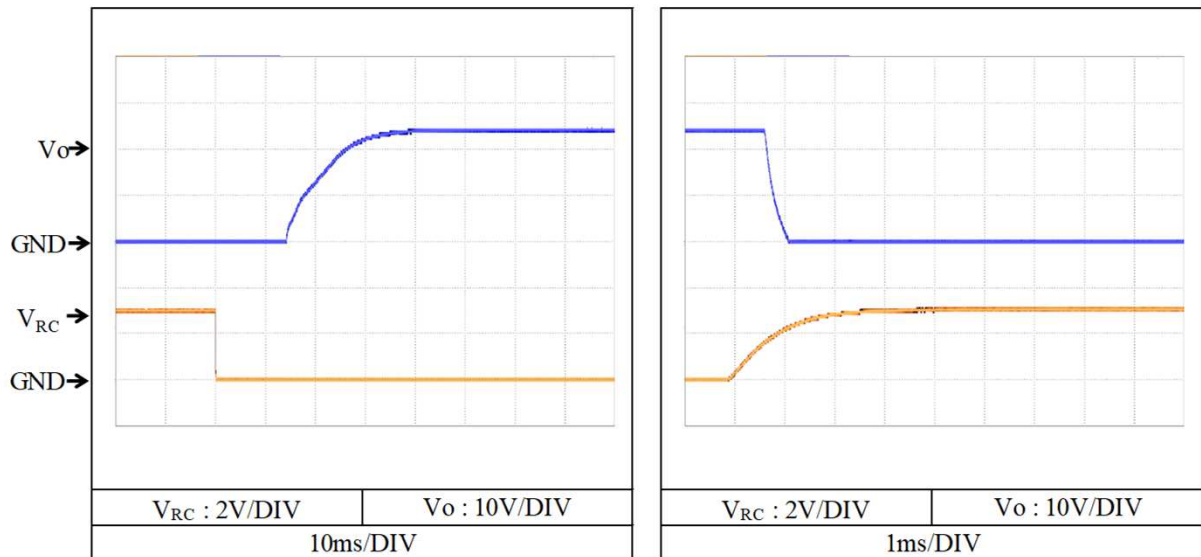


## 2-6. 出力立ち上がり・立ち下がり特性 (リモートON/OFFコントロール時)

Output rise and fall characteristics with REMOTE ON/OFF CONTROL

Conditions  $V_{in}$  : 48 VDC $I_o$  : 100 % $T_a$  : 25 °C

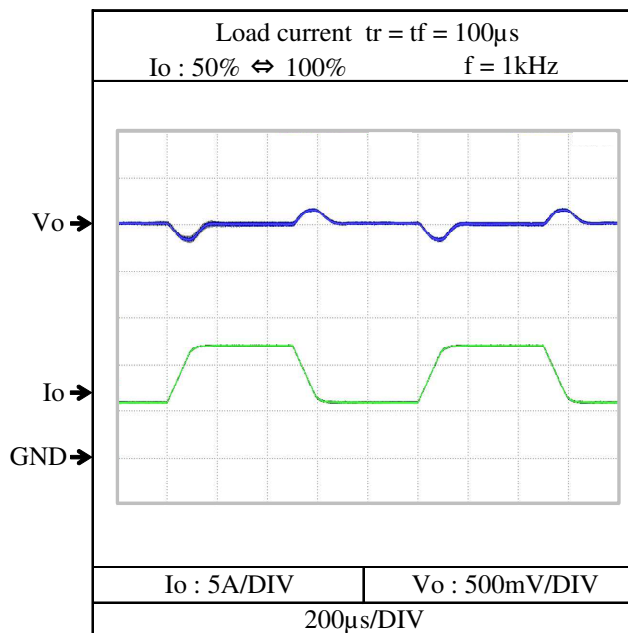
24V



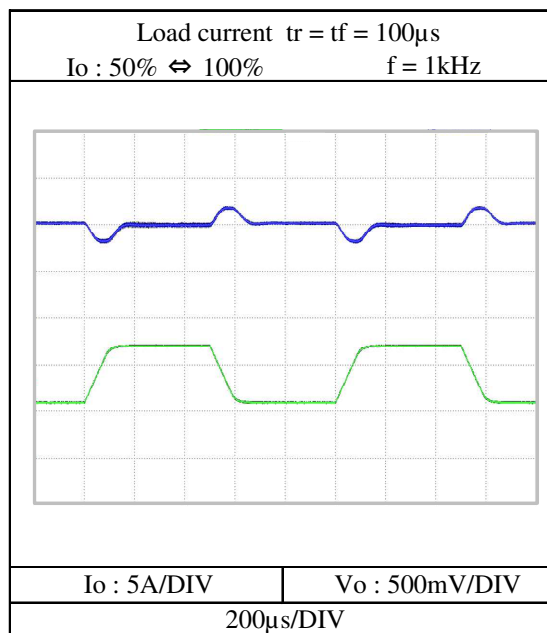
## 2-7. 過渡応答(負荷急変)特性 Dynamic load response characteristics

Conditions  $V_{in}$  : 48 VDC $T_a$  : 25 °C

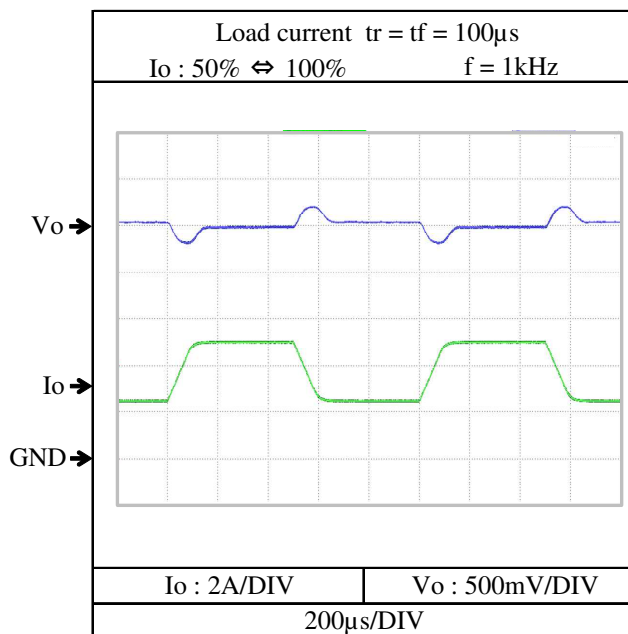
3.3V



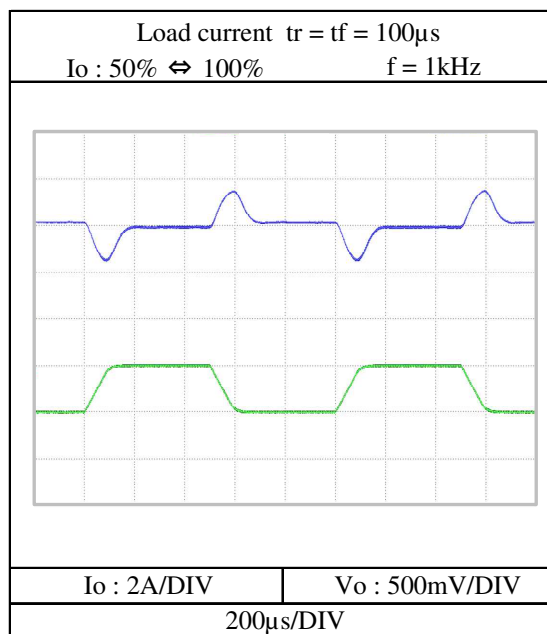
5V



12V



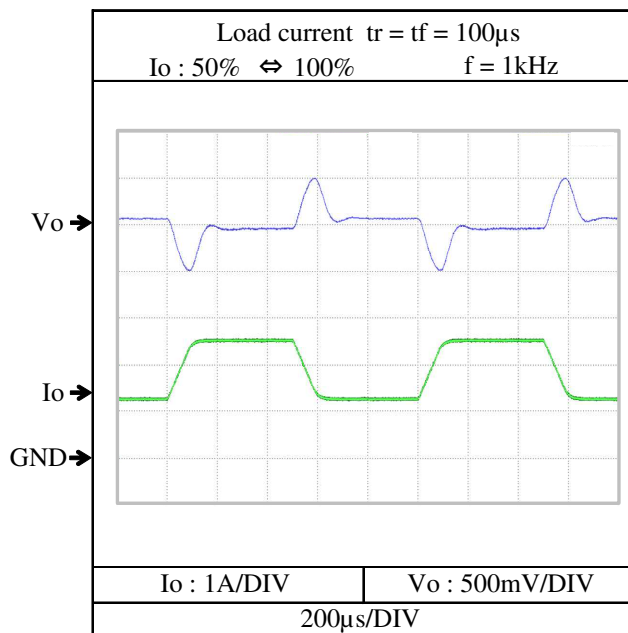
15V



## 2-7. 過渡応答(負荷急変)特性 Dynamic load response characteristics

Conditions  $V_{in}$  : 48 VDC $T_a$  : 25 °C

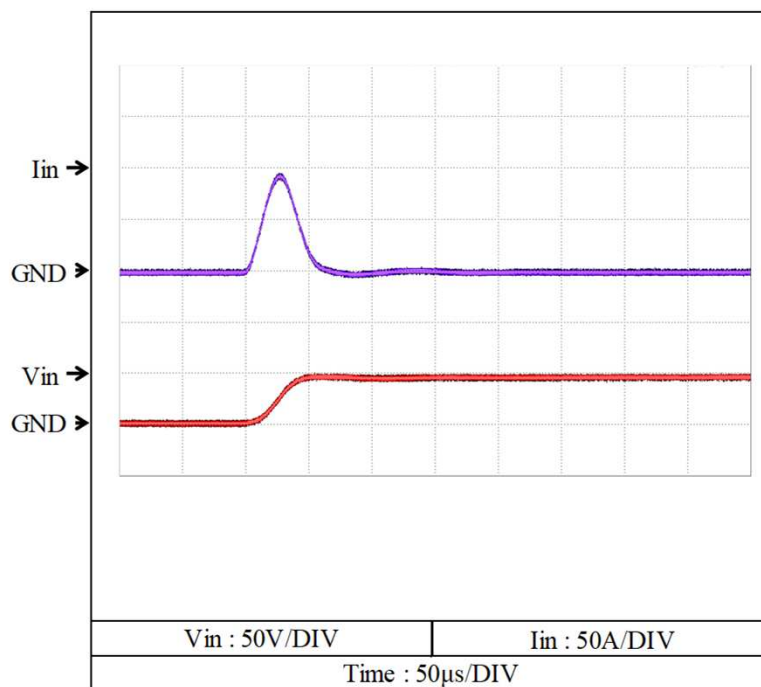
24V



## 2-8. 入力サージ電流(突入電流)特性 Inrush current characteristics

Conditions  $V_{in}$  : 48 VDC $I_o$  : 100 % $T_a$  : 25 °C

CCG60-48-05

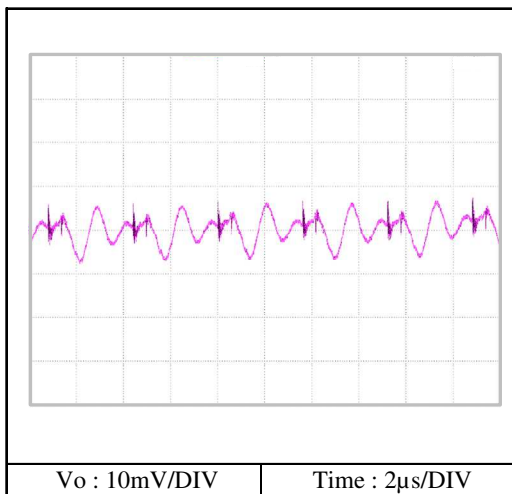


CCG60-48-xxの入力サージ電流特性は CCG60-48-05 と同等です。  
CCG60-48-xx have the same Inrush current characteristics as CCG60-48-05 data.

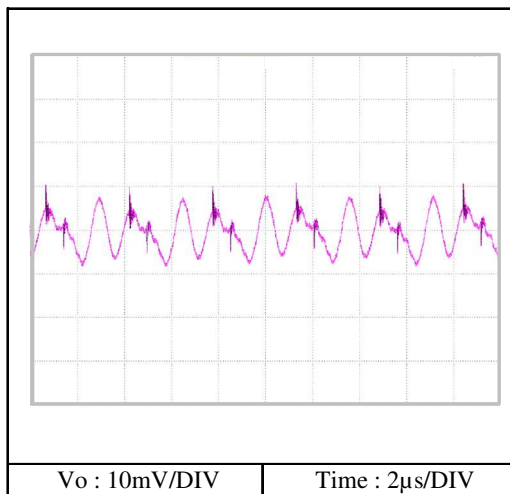
## 2-9. 出力リップルノイズ波形 Output ripple and noise waveform

Conditions Vin : 48 VDC  
Io : 100 %  
Ta : 25 °C

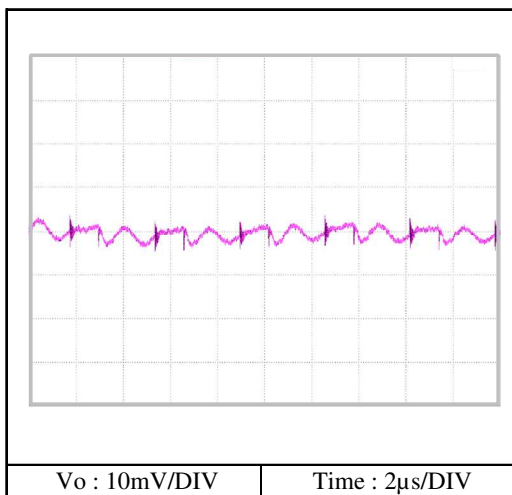
3.3V



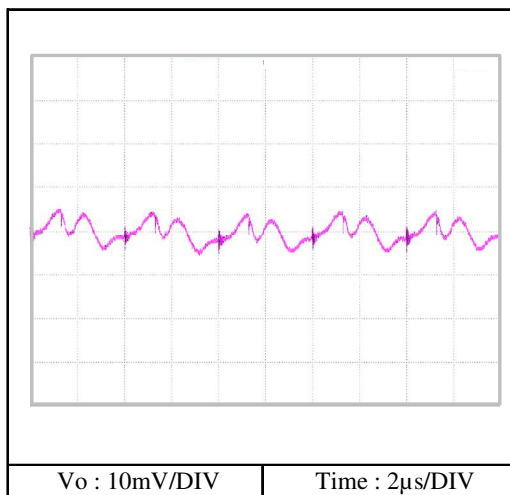
5V



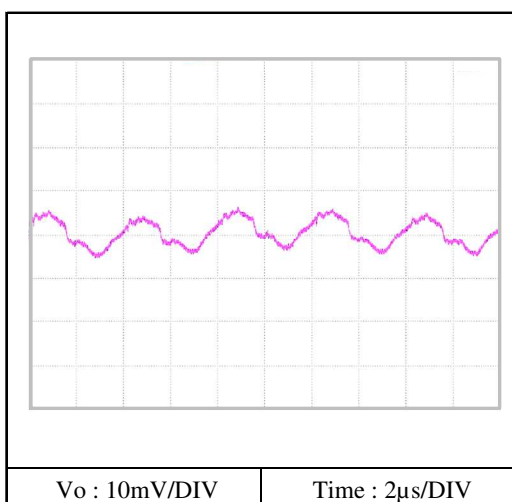
12V



15V



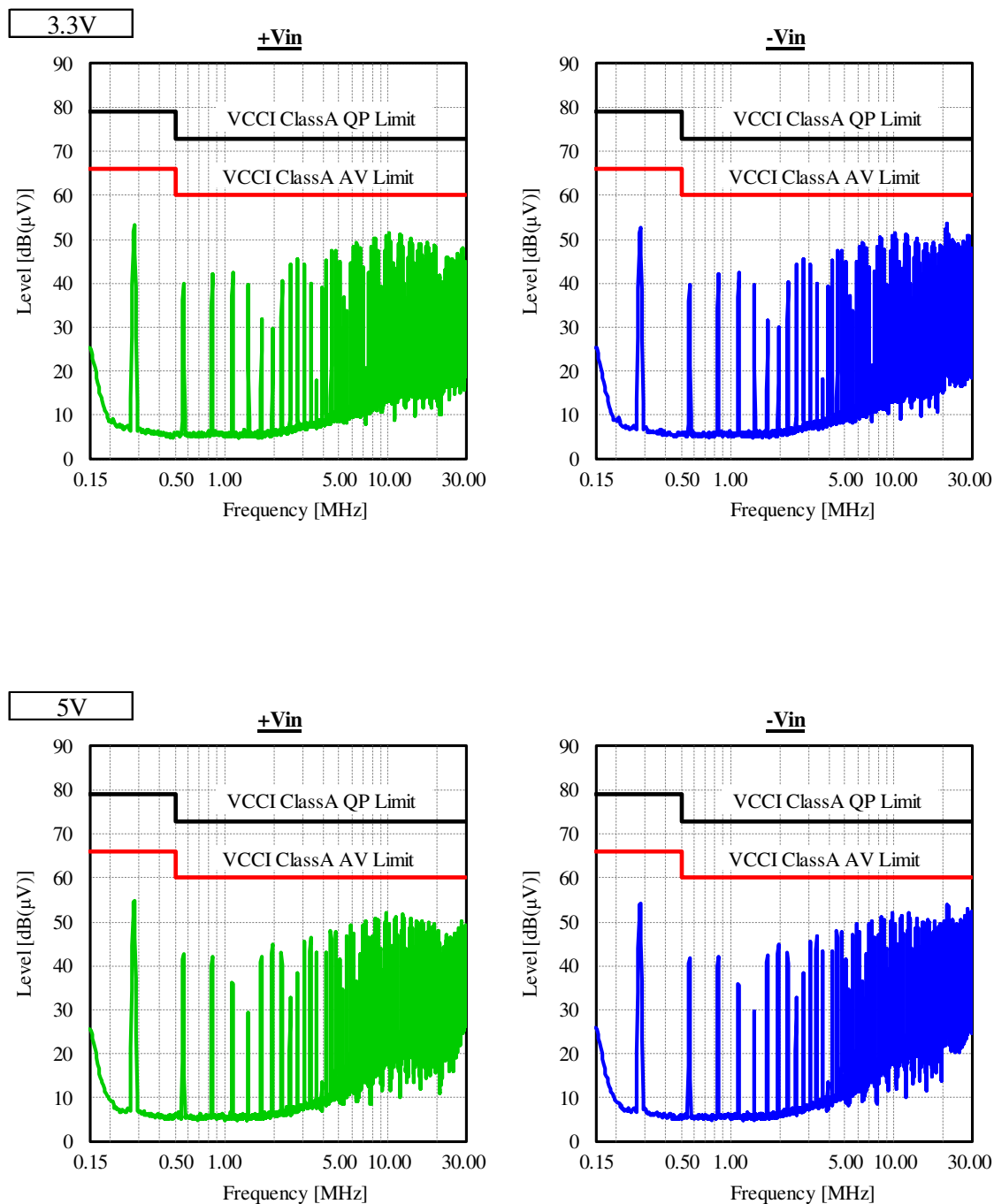
24V



## 2-10. EMI特性 Electro-Magnetic Interference characteristics

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

Conditions  $V_{in}$  : 48 VDC  
 $I_o$  : 100 %  
 $T_a$  : 25 °C



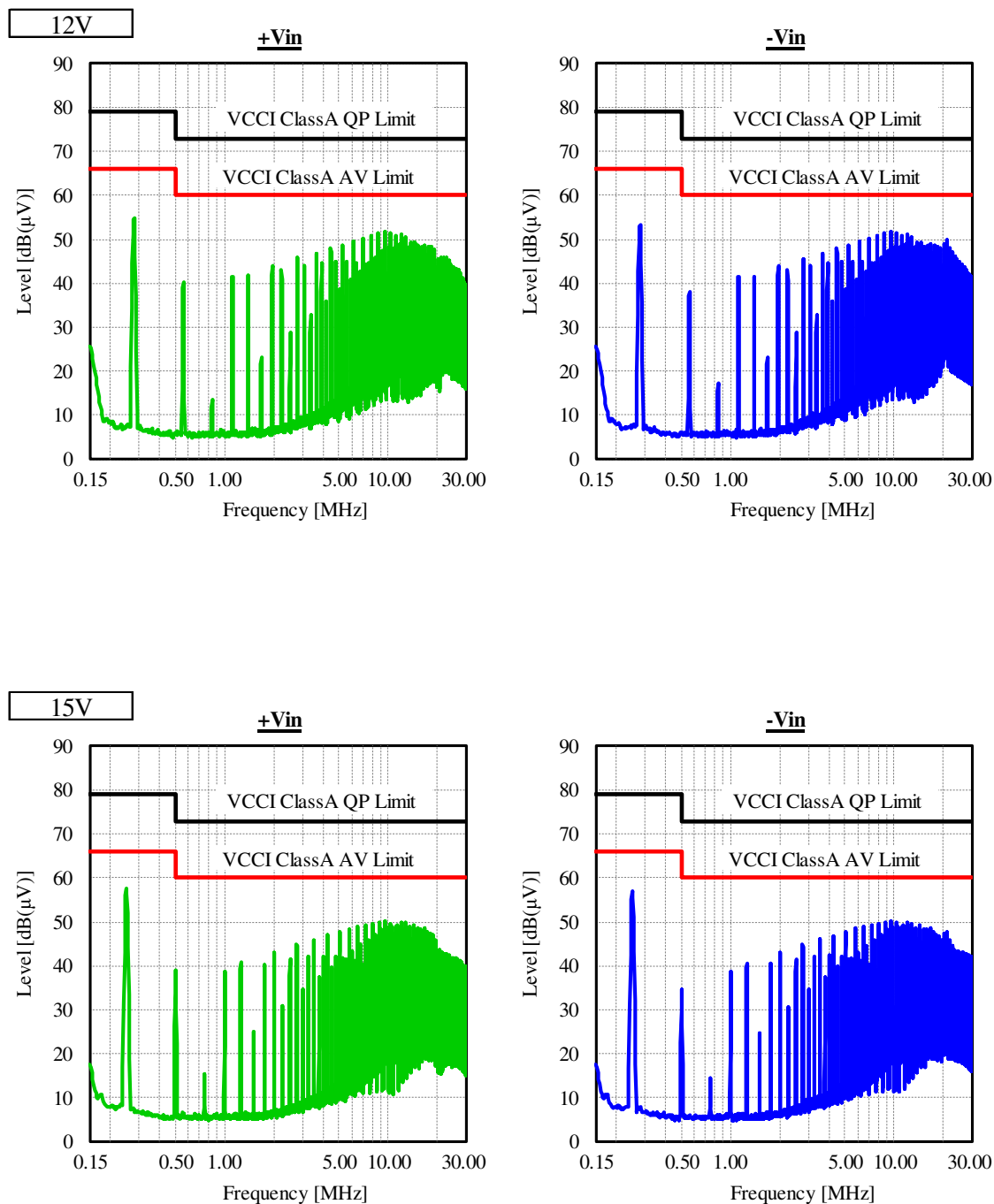
表示はQP値

Indication is QP values.

## 2-10. EMI特性 Electro-Magnetic Interference characteristics

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

Conditions  $V_{in}$  : 48 VDC  
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 $T_a$  : 25 °C



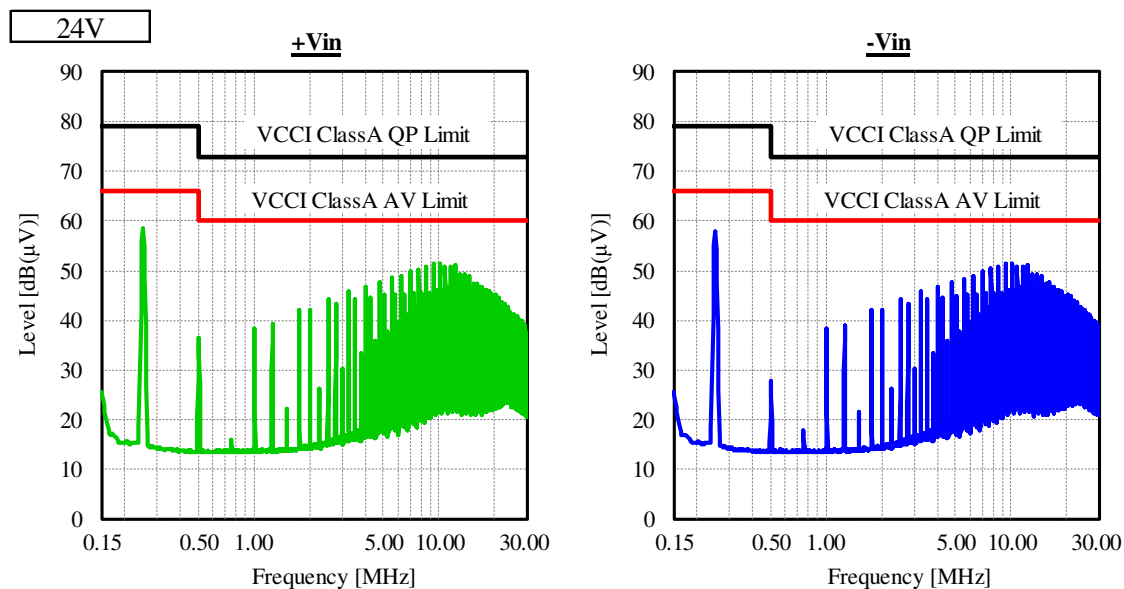
表示はQP値

Indication is QP values.

## 2-10. EMI特性 Electro-Magnetic Interference characteristics

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

Conditions  $V_{in}$  : 48 VDC  
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 $T_a$  : 25 °C



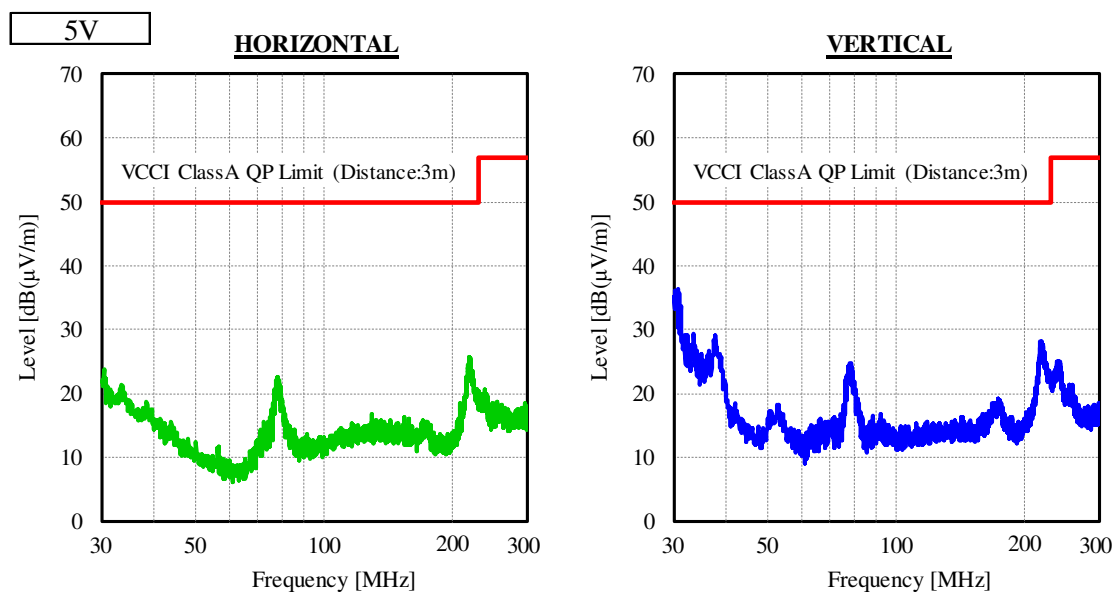
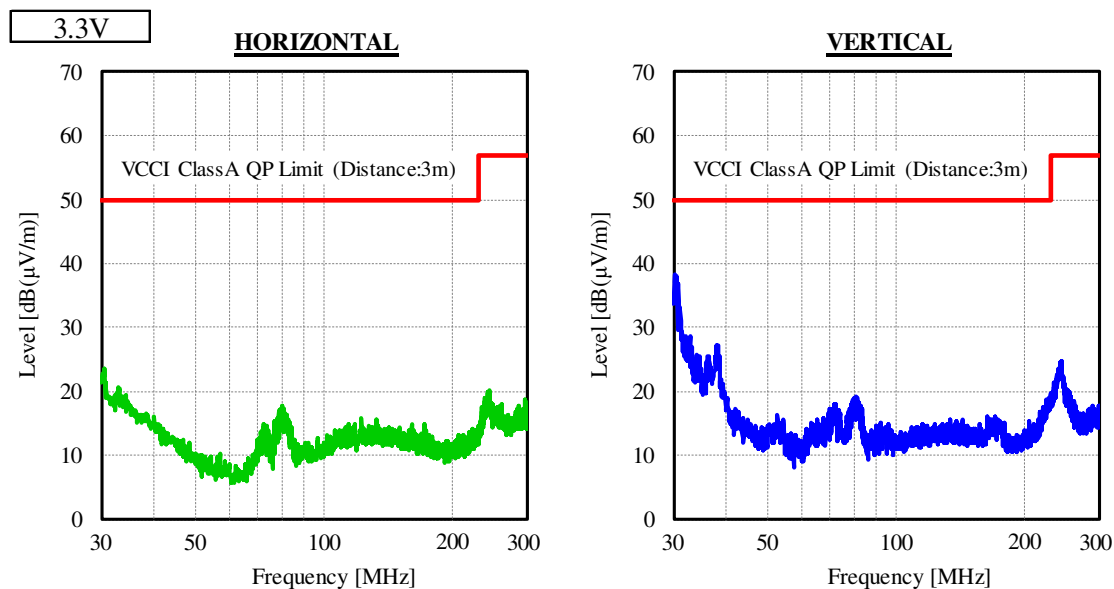
表示はQP値

Indication is QP values.

## 2-10. EMI特性 Electro-Magnetic Interference characteristics

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

Conditions Vin : 48 VDC  
 Io : 100 %  
 Ta : 25 °C

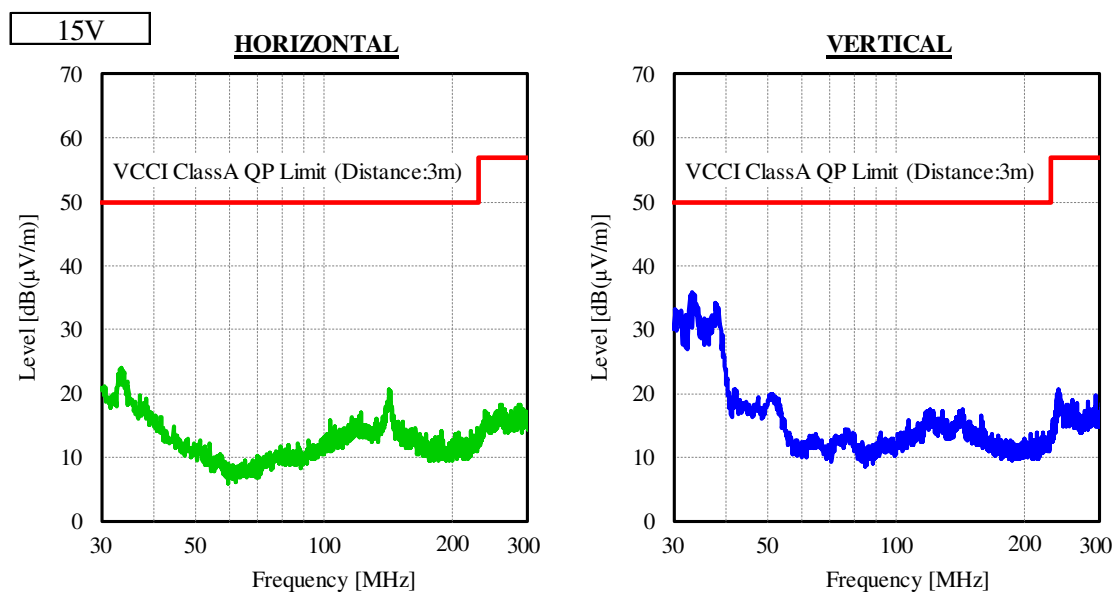
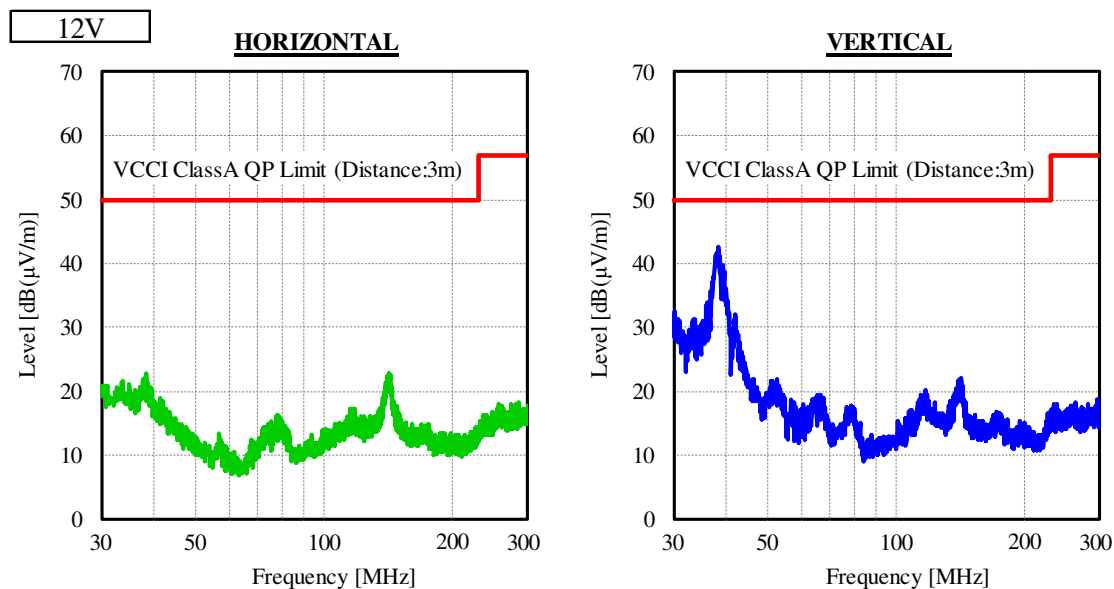


表示はピーク値  
 Indication is peak values.

## 2-10. EMI特性 Electro-Magnetic Interference characteristics

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

Conditions  $V_{in}$  : 48 VDC  
 $I_o$  : 100 %  
 $T_a$  : 25 °C

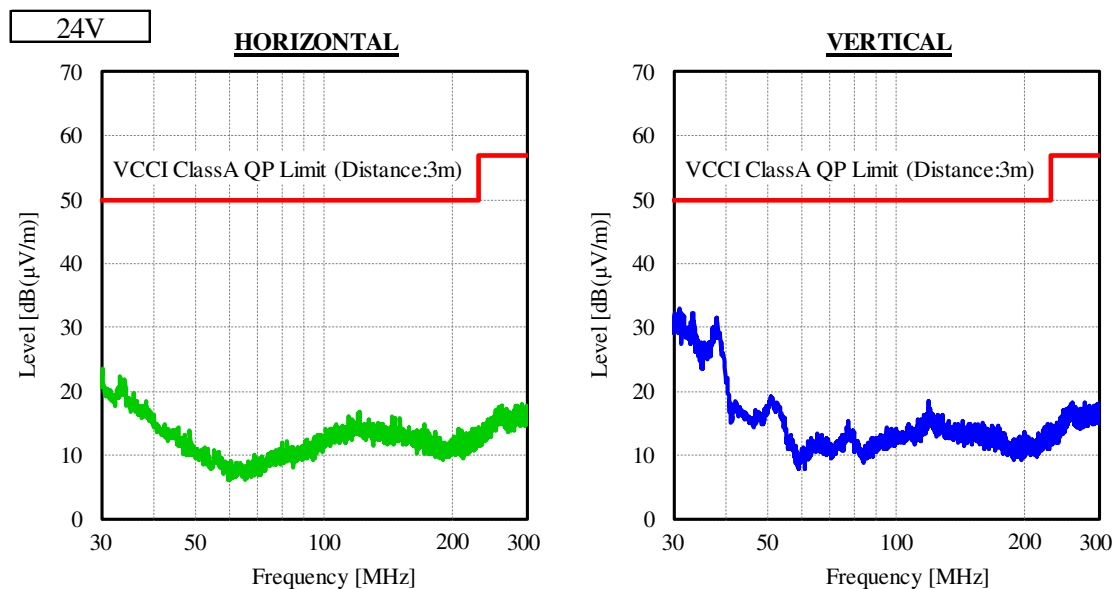


表示はピーク値  
 Indication is peak values.

## 2-10. EMI特性 Electro-Magnetic Interference characteristics

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

Conditions Vin : 48 VDC  
 Io : 100 %  
 Ta : 25 °C



表示はピーク値  
 Indication is peak values.