

**CHVM1R5-12-1500N**

**EVALUATION DATA**

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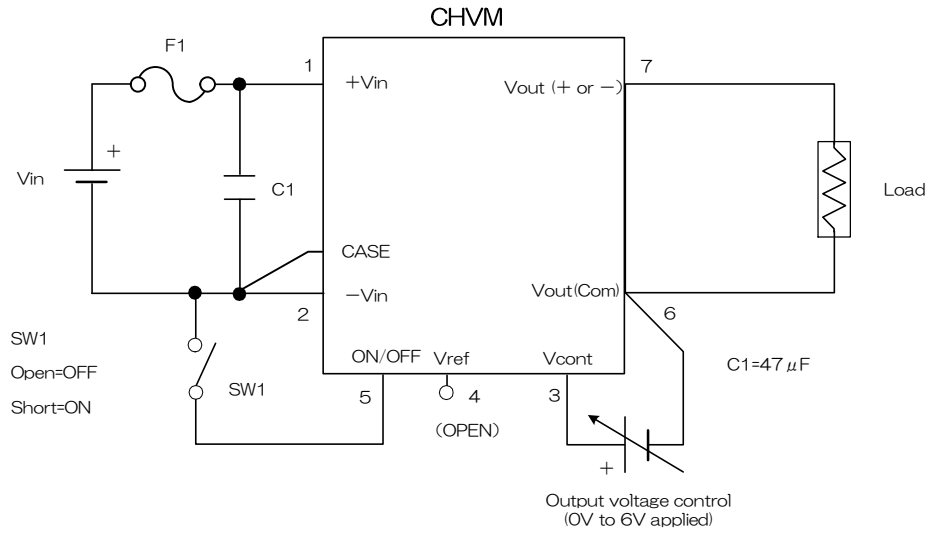
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## Definition

Vin	···Input voltage
Vout	···Output voltage
Iout	···Output current
Vcont	···Output voltage control
VON-OFF	···Output voltage ON/OFF control
Ta	···Ambient temperature
BW	···Bandwidth

Test results are reference data based on our measurement condition.

# 1. Test circuit



## 2. Steady State Characteristics

Condition Ta : -10°C

Test Item			Load : Open			Load : 1500kΩ		
	Input Voltage	V <sub>cont</sub>	Input Current	Output Voltage	Ripple/ Noise	Input Current	Output Voltage	Ripple/ Noise
	[V]	[V]	[mA]	[V]	[mV <sub>p-p</sub> ]	[mA]	[V]	[mV <sub>p-p</sub> ]
	11.0	6.0	72	-1503.19	7	261	-1502.96	9
		4.5	60	-1126.32	5	202	-1125.99	7
		3.0	48	-751.21	3	143	-751.07	5
		1.5	38	-374.97	2	86	-374.84	3
		0.0	27	-0.55	1	27	-0.05	2
	12.0	6.0	72	-1503.32	6	261	-1503.09	9
		4.5	61	-1126.20	5	202	-1125.98	7
		3.0	48	-751.24	3	143	-751.07	5
		1.5	38	-374.89	2	86	-374.83	3
		0.0	28	-0.83	1	28	-0.05	2
	13.0	6.0	72	-1503.26	6	261	-1502.96	9
		4.5	60	-1126.40	5	201	-1126.18	7
		3.0	48	-751.26	3	143	-751.10	5
	1.5	38	-374.87	2	86	-314.79	3	
	0.0	28	-1.15	1	28	-0.13	2	

	Spec	Data
Line reg.	-	0.02V
Load reg.	-	0.26V
Ripple/Noise	-	9mV <sub>p-p</sub>

Note : Line reg. and Load reg. were measured individually.

## 2. Steady State Characteristics

Condition Ta : 25°C

Test Item			Load : Open			Load : 1500kΩ		
	Input Voltage	V <sub>cont</sub>	Input Current	Output Voltage	Ripple/ Noise	Input Current	Output Voltage	Ripple/ Noise
	[V]	[V]	[mA]	[V]	[mV <sub>p-p</sub> ]	[mA]	[V]	[mV <sub>p-p</sub> ]
	11.0	6.0	72	-1507.38	7	252	-1507.13	8
		4.5	59	-1128.35	5	193	-1128.09	7
		3.0	48	-752.76	3	136	-752.63	5
		1.5	39	-376.23	2	82	-376.13	3
		0.0	27	-0.41	2	27	-0.06	2
	12.0	6.0	72	-1507.37	6	252	-1507.11	8
		4.5	59	-1128.27	5	193	-1128.07	7
		3.0	48	-752.77	3	137	-752.64	5
		1.5	39	-376.15	2	82	-376.10	3
		0.0	27	-0.44	2	27	-0.06	2
	13.0	6.0	72	-1507.36	6	252	-1507.07	8
		4.5	59	-1128.26	5	192	-1128.03	7
		3.0	48	-752.77	3	136	-752.63	5
	1.5	39	-376.05	2	82	-375.97	3	
	0.0	27	-0.45	2	27	-0.06	2	

	Spec	Data
Line reg.	0.02% (0.3V) max.	0.03V
Load reg.	0.04% (0.6V) max.	0.29V
Ripple/Noise	20mV <sub>p-p</sub> max.	8mV <sub>p-p</sub>

Note : Line reg. and Load reg. were measured individually.

## 2. Steady State Characteristics

Condition Ta : 50°C

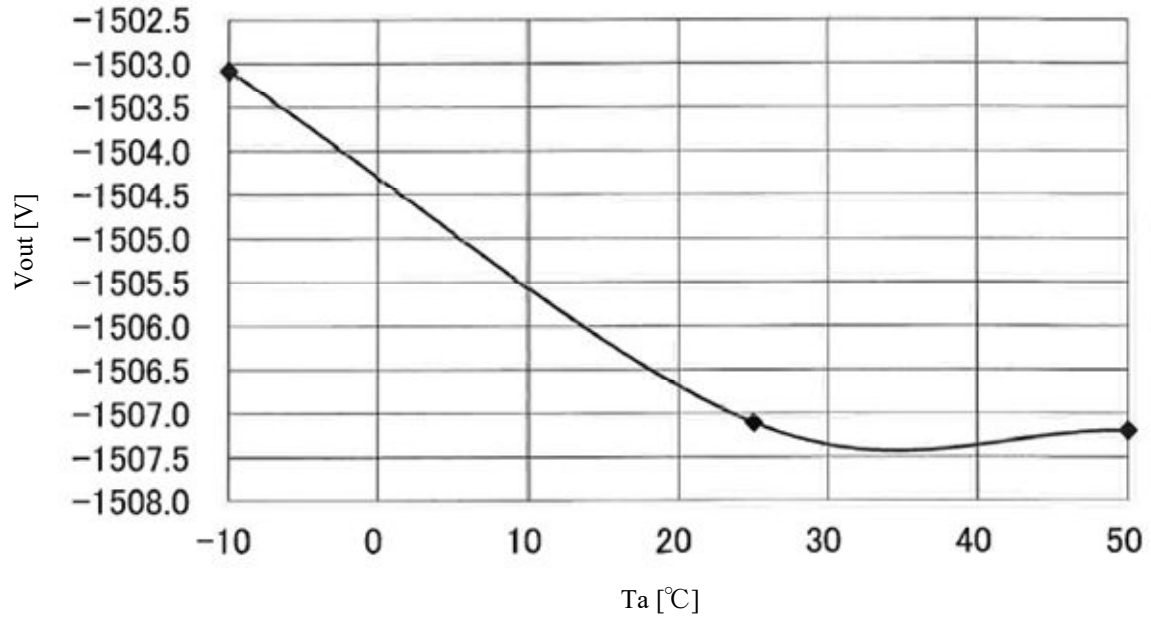
Test Item			Load : Open			Load : 1500kΩ		
	Input Voltage	Vcont	Input Current	Output Voltage	Ripple/ Noise	Input Current	Output Voltage	Ripple/ Noise
	[V]	[V]	[mA]	[V]	[mV p-p]	[mA]	[V]	[mV p-p]
	11.0	6.0	67	-1507.42	6	230	-1507.20	7
		4.5	57	-1129.45	4	179	-1129.26	5
		3.0	48	-752.87	3	129	-752.74	4
		1.5	40	-376.42	2	79	-376.24	2
		0.0	27	-0.65	1	27	-0.16	1
	12.0	6.0	67	-1507.45	6	231	-1507.20	7
		4.5	57	-1129.37	4	179	-1129.20	5
		3.0	48	-752.98	3	129	-752.77	4
		1.5	40	-376.17	2	80	-376.13	2
		0.0	27	-0.78	1	27	-0.16	1
	13.0	6.0	67	-1507.43	6	230	-1507.17	7
		4.5	57	-1129.39	4	179	-1129.18	5
		3.0	48	-752.99	3	129	-752.86	4
	1.5	40	-376.12	2	80	-376.02	2	
	0.0	27	-0.85	1	27	-0.21	1	

	Spec	Data
Line reg.	-	0.02V
Load reg.	-	0.25V
Ripple/Noise	-	7mV p-p

Note : Line reg. and Load reg. were measured individually.

### 3. Temperature Regulation

Conditions       $V_{in}$      : 12V  
                       $Load$     : 1500k $\Omega$   
                       $V_{cont}$     : 6V



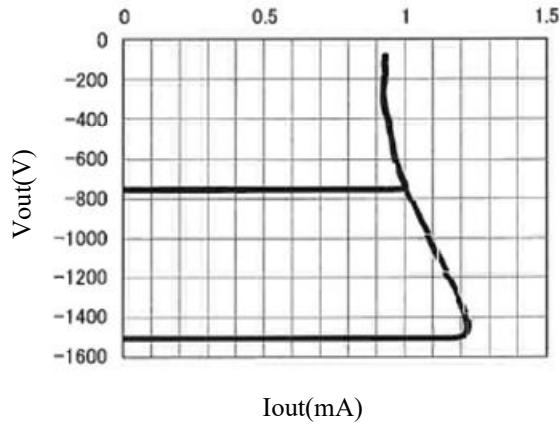
$T_a$ [°C]	$V_{out}$ [V]
-10	-1503.1
25	-1507.1
50	-1507.2

#### 4. Over Current Characteristics

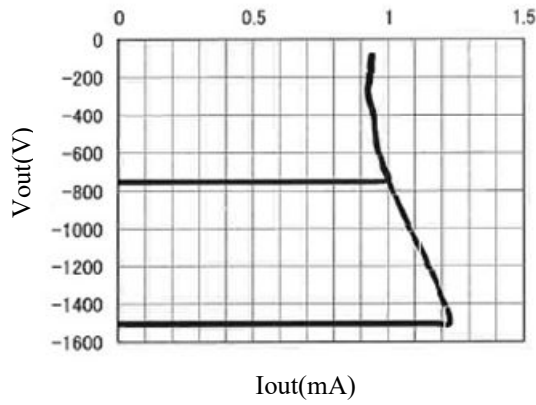
Conditions

Ta : 25°C  
Vout : -750V,-1500V

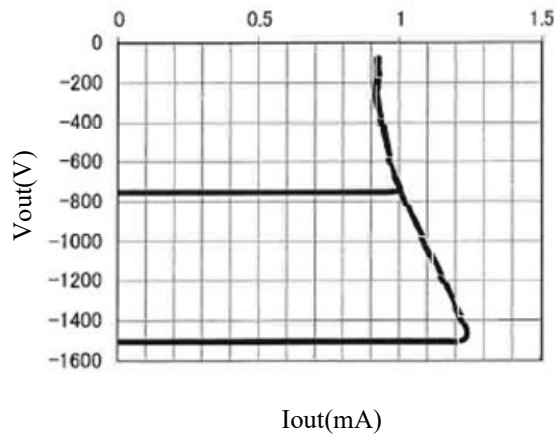
(1) Vin : 11V



(2) Vin : 12V



(3) Vin : 13V



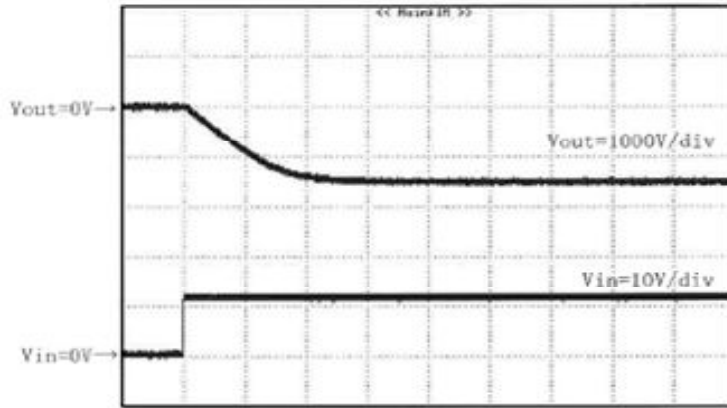


## 5. Output Rise Time Characteristics

Conditions

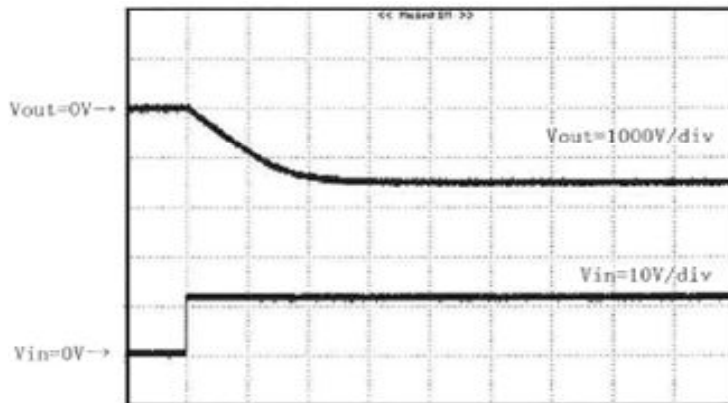
Ta : 25°C  
Vin : 12V  
Vout : -1500V  
Vcont : 6V

(1) Load condition : 0.0mA



Time : 50ms/div

(2) Load condition : 1.0mA

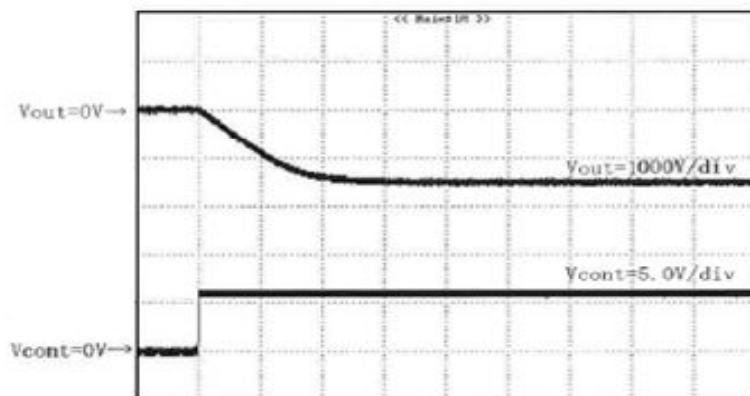


Time : 50ms/div

## 5. Output Rise Time Characteristics (with Vcont)

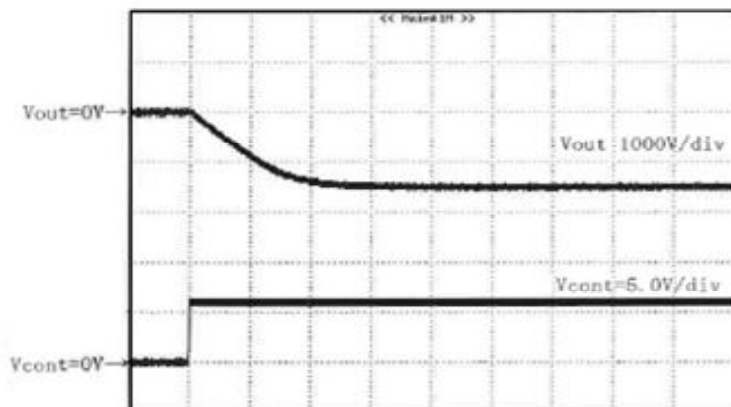
Conditions	Ta	: 25°C
	Vin	: 12V
	Vout	: -1500V
	Vcont	: 6V

(1) Load condition : 0.0mA



Time : 50ms/div

(2) Load condition : 1.0mA

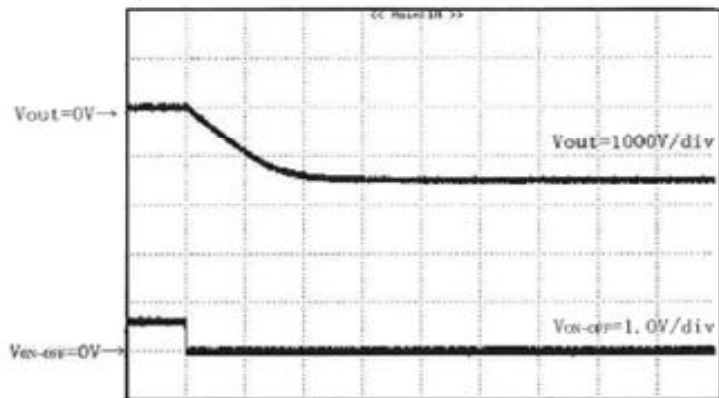


Time : 50ms/div

### 5. Output Rise Time Characteristics (with ON/OFF Control)

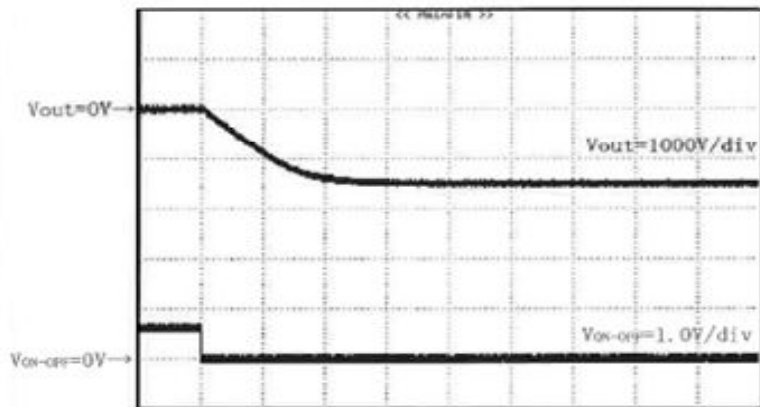
Conditions	Ta	: 25°C
	Vin	: 12V
	Vout	: -1500V
	Vcont	: 6V

(1) Load condition : 0.0mA



Time : 50ms/div

(2) Load condition : 1.0mA

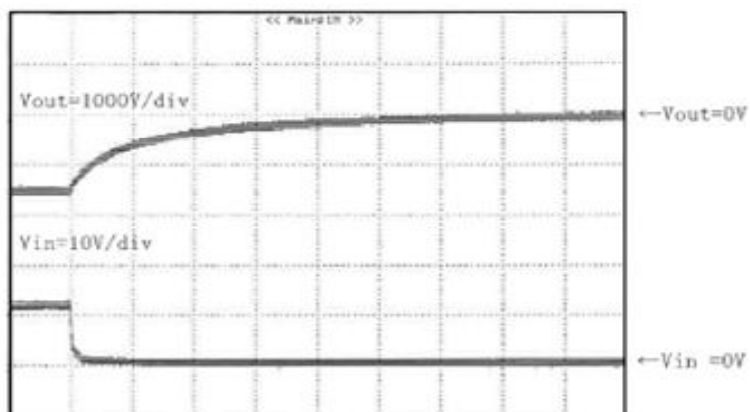


Time : 50ms/div

## 6. Output Fall Time Characteristics

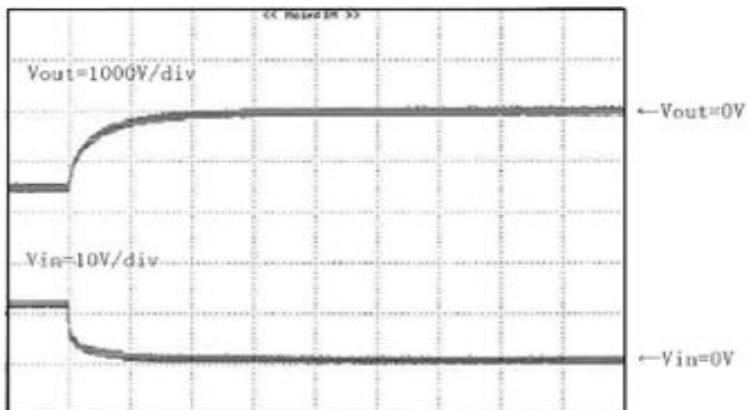
Conditions	Ta	: 25°C
	Vin	: 12V
	Vout	: -1500V
	Vcont	: 6V

(1) Load condition : 0.0mA



Time : 500ms/div

(2) Load condition : 1.0mA

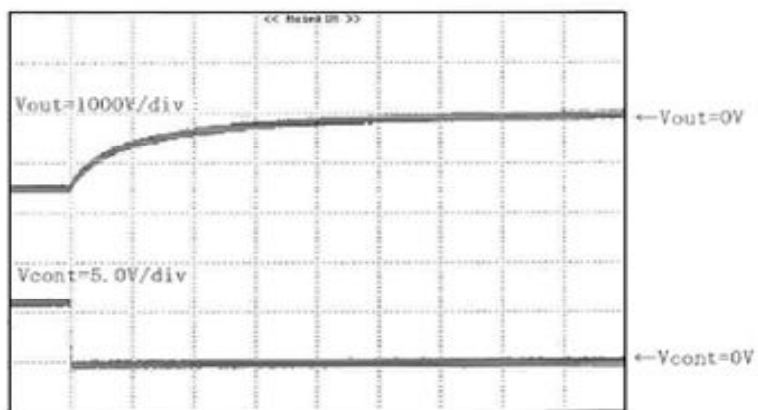


Time : 50ms/div

## 6. Output Fall Time Characteristics (with Vcont)

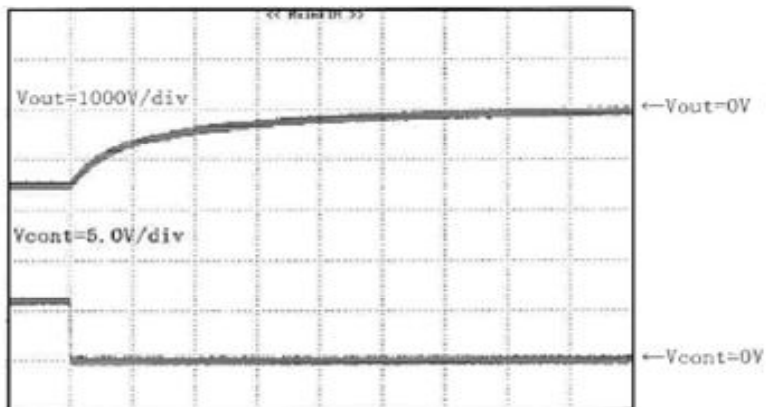
Conditions	Ta	: 25°C
	Vin	: 12V
	Vout	: -1500V
	Vcont	: 6V

(1) Load condition : 0.0mA



Time : 500ms/div

(2) Load condition : 1.0mA

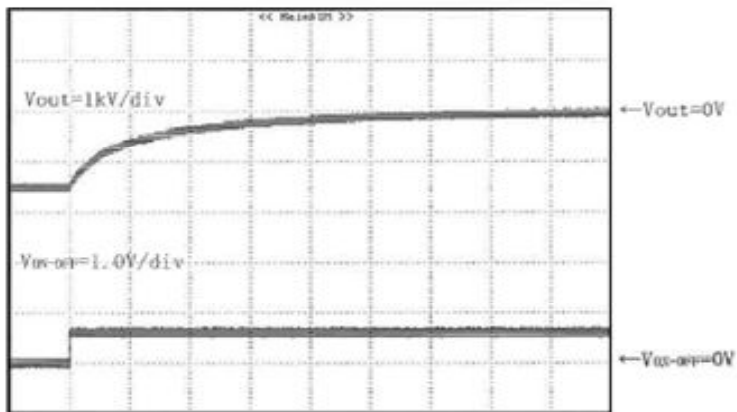


Time : 50ms/div

## 6. Output Fall Time Characteristics (with ON/OFF Control)

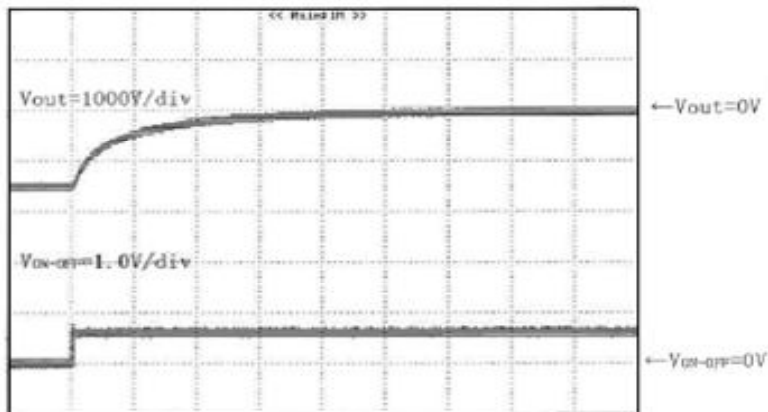
Conditions	Ta	: 25°C
	Vin	: 12V
	Vout	: -1500V
	Vcont	: 6V

(1) Load condition : 0.0mA



Time : 500ms/div

(2) Load condition : 1.0mA



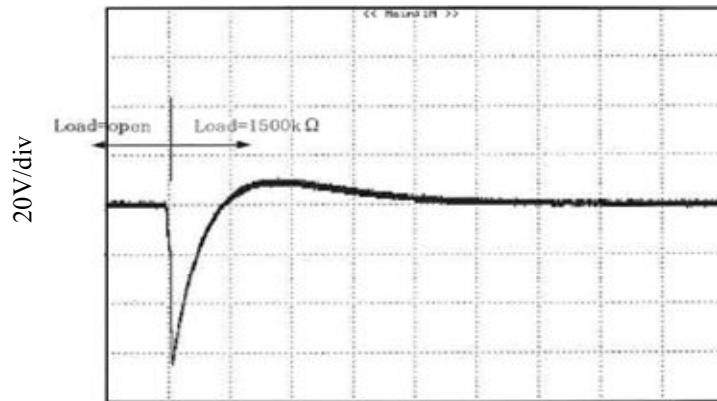
Time : 50ms/div

## 7. Dynamic Load Regulation

Conditions

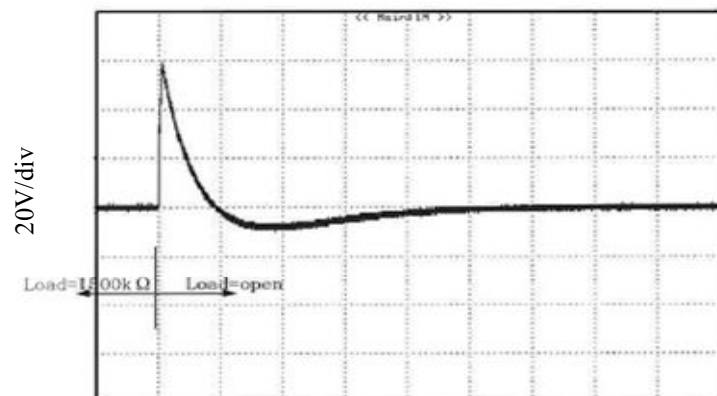
Ta : 25°C  
Vin : 12V  
Vout : -1500V  
Vcont : 6V

- (1) Load : open => 1500kΩ  
Condition : Load input



Time : 50ms/div

- (2) Load : 1500kΩ => open  
Condition : Load disconnection



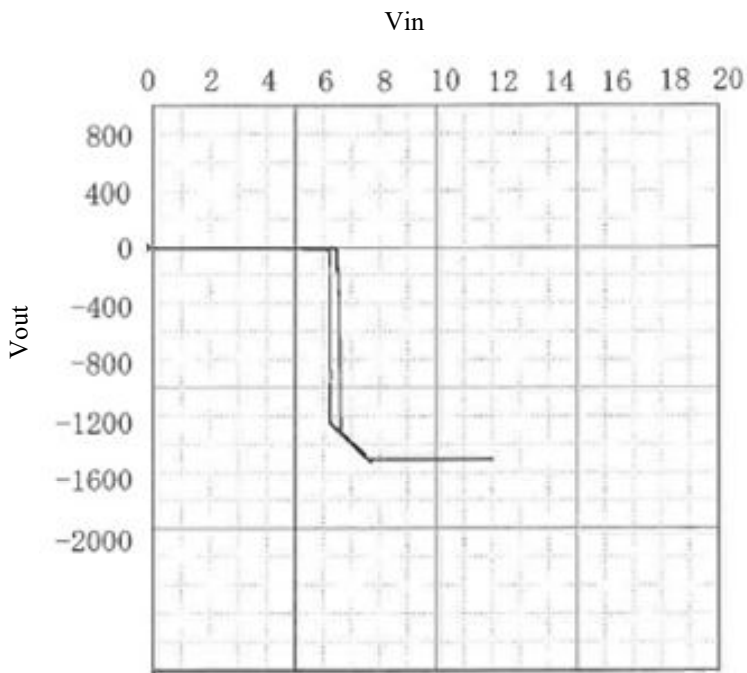
Time : 50ms/div

### 8. Vout-Vin Characteristics

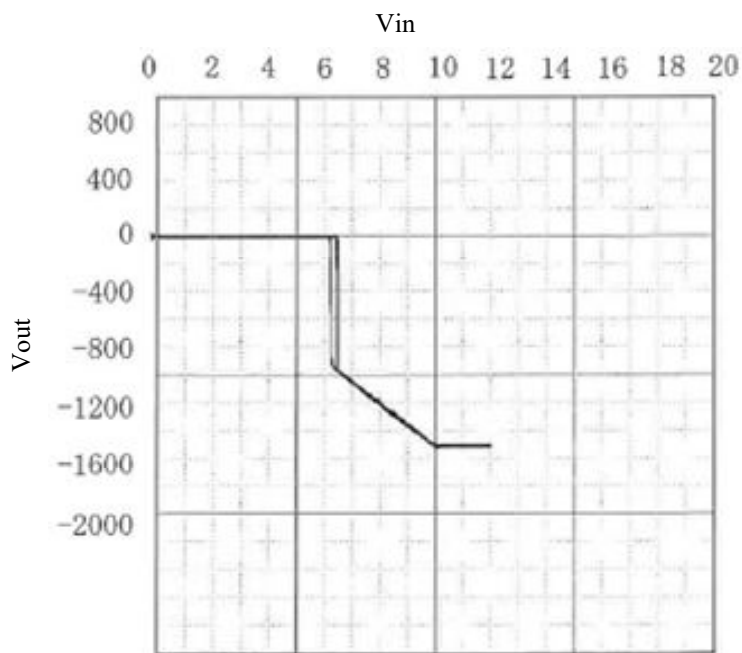
Conditions

Ta : 25°C  
Vout : -1500V  
Vcont : 6V

(1) Load condition : 0.0mA



(2) Load condition : 1.0mA

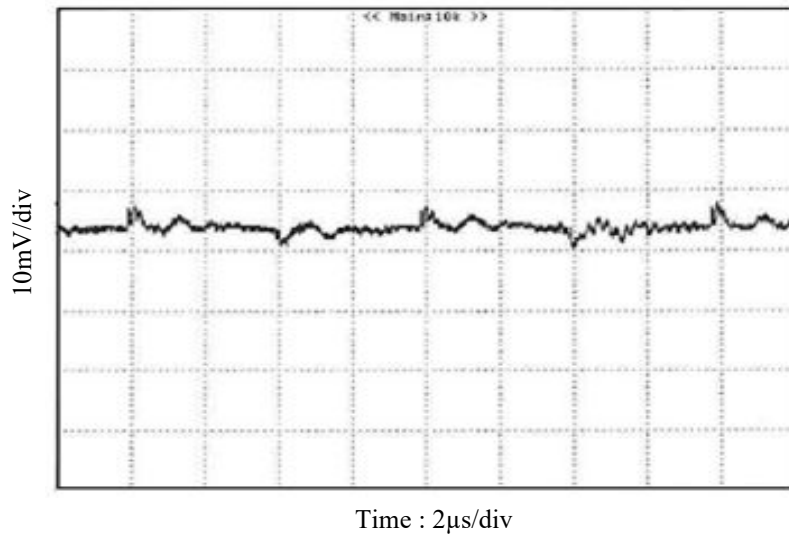




## 9. Output Ripple/Noise waveform

Conditions	Ta	: 25°C
	Vin	: 12V
	Vout	: -1500V
	Vcont	: 6V
	BW	: 20MHz

(1) Load condition : Output Current = 0.0mA



(2) Load condition : Output Current = 1.0mA

