

# **CHVM1R5-12-2000P**

## **EVALUATION DATA**

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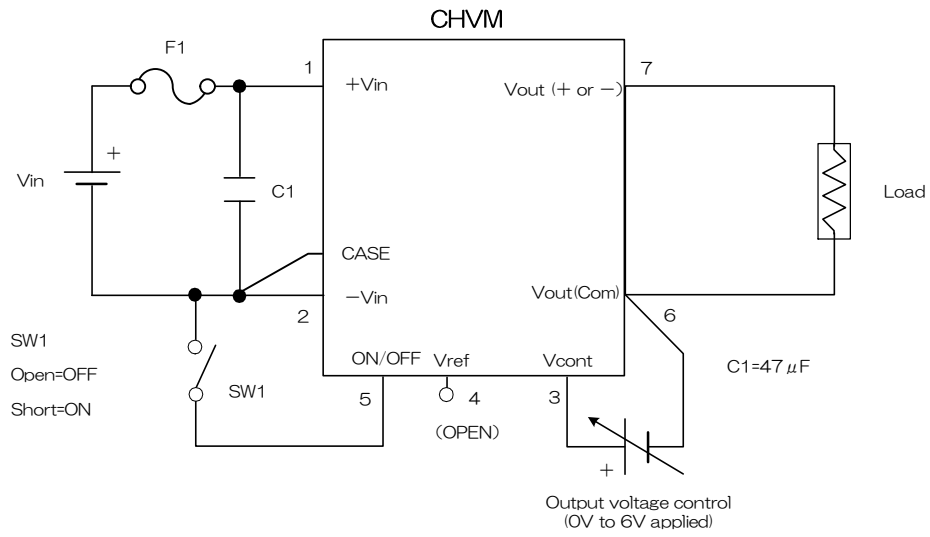
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## Definition

- 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 : 2857kΩ		
	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	113	2006.32	10	256	2006.06	13
		4.5	93	1505.85	8	198	1505.59	9
		3.0	73	1001.64	4	142	1001.46	6
		1.5	52	500.33	3	86	500.24	4
		0.0	27	1.95	3	27	0.63	3
	12.0	6.0	113	2006.30	10	256	2006.08	13
		4.5	93	1505.94	8	198	1505.68	10
		3.0	72	1001.60	5	142	1001.41	6
		1.5	52	500.34	4	86	500.26	5
		0.0	27	1.84	3	27	0.60	3
	13.0	6.0	112	2006.19	10	255	2005.98	13
		4.5	92	1505.97	8	198	1505.75	10
		3.0	73	1001.57	5	142	1001.37	7
	1.5	52	500.36	3	86	500.28	4	
	0.0	27	1.72	3	27	0.58	3	

	Spec	Data
Line reg.	-	0.0V
Load reg.	-	0.4V
Ripple/Noise	-	11mV p-p

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

## 2. Steady State Characteristics

Condition Ta : 25°C

Test Item			Load : Open			Load : 2857kΩ		
	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	112	2010.87	12	268	2010.63	15
		4.5	92	1506.64	9	209	1506.34	13
		3.0	72	1004.83	6	151	1004.64	9
		1.5	51	502.26	3	92	502.15	4
		0.0	27	1.67	3	27	0.65	3
	12.0	6.0	112	2010.85	12	268	2010.57	14
		4.5	92	1506.63	10	210	1506.32	12
		3.0	73	1004.77	6	150	1004.57	9
		1.5	51	502.25	4	92	502.13	5
		0.0	27	1.63	2	27	0.62	3
	13.0	6.0	113	2010.76	12	267	2010.53	16
		4.5	92	1506.59	10	210	1506.30	13
		3.0	72	1004.73	7	151	1004.50	8
	1.5	51	502.23	4	92	502.12	5	
	0.0	27	1.59	4	27	0.61	3	

	Spec	Data
Line reg.	0.02% (0.4V) max.	0.1V
Load reg.	0.04% (0.8V) max	0.3V
Ripple/Noise	30mV p-p max	14mV p-p

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

## 2. Steady State Characteristics

Condition Ta : 50°C

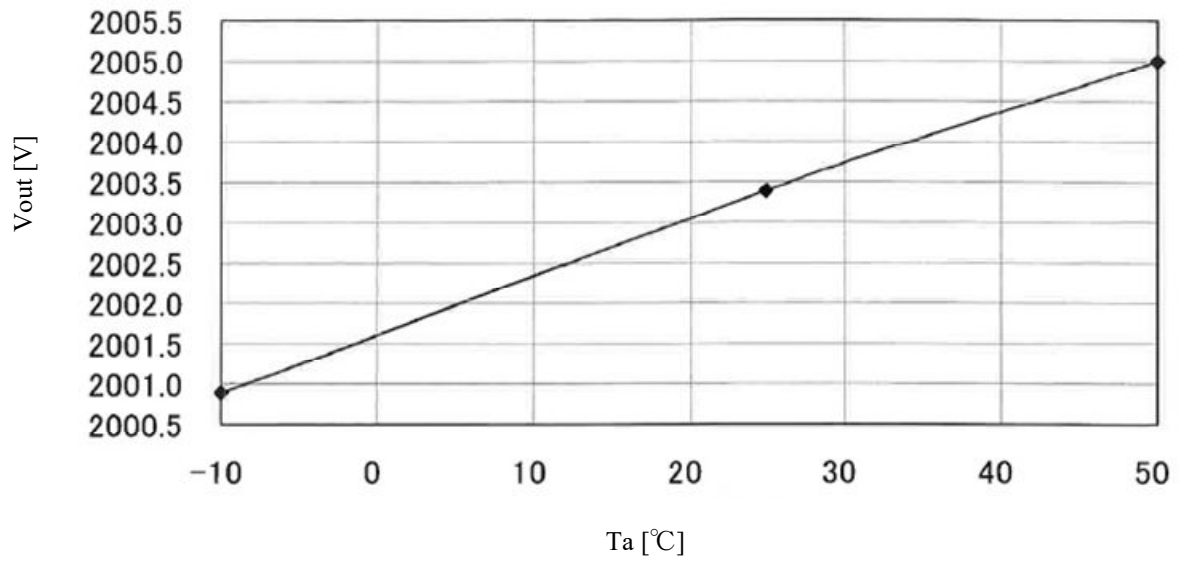
Test Item			Load : Open			Load : 2857kΩ		
	Input Voltage	Vcont	Input Current	Output Voltage	Ripple/ Noise	Input Current	Output Voltage	Ripple/ Noise
	[V]	[V]	[mA]	[V]	[mV p-p]	[mA]	[V]	[mV p-p]
	11.0	6.0	108	2010.92	15	285	2010.76	20
		4.5	87	1506.96	11	225	1506.63	17
		3.0	69	1004.16	7	165	1003.92	11
		1.5	50	502.76	3	102	502.61	5
		0.0	27	1.32	4	27	0.61	4
	12.0	6.0	108	2010.79	14	285	2010.68	20
		4.5	87	1506.91	12	226	1506.57	16
		3.0	69	1004.09	7	165	1003.84	10
		1.5	49	502.74	5	102	502.59	6
		0.0	27	1.26	3	27	0.58	4
	13.0	6.0	107	2010.77	13	284	2010.72	20
		4.5	87	1506.86	11	226	1506.57	16
		3.0	69	1004.05	8	164	1003.78	9
	1.5	49	502.72	5	102	502.57	6	
	0.0	27	1.25	3	27	0.57	4	

	Spec	Data
Line reg.	-	0.1V
Load reg.	-	0.1V
Ripple/Noise	-	20mV p-p

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

### 3. Temperature Regulation

Conditions       $V_{in}$       : 12V  
                         Load      : 2857k $\Omega$   
                          $V_{cont}$     : 6V



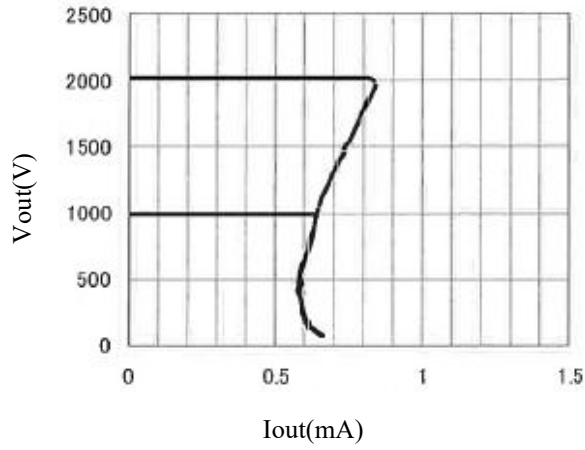
Ta [°C]	Vout [V]
-10	2000.9
25	2003.4
50	2005.0

#### 4. Over Current Characteristics

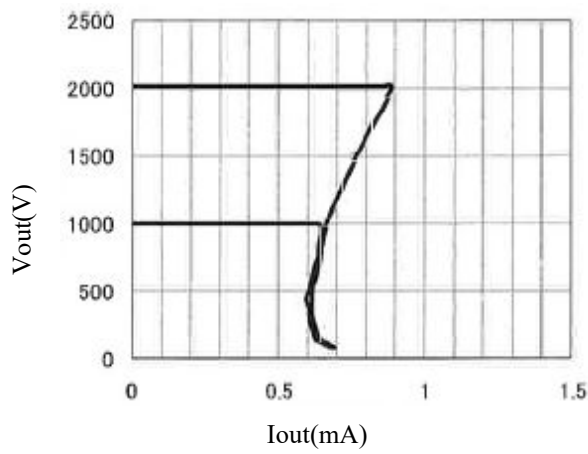
Conditions

Ta : 25°C  
Vout : 1000V , 2000V

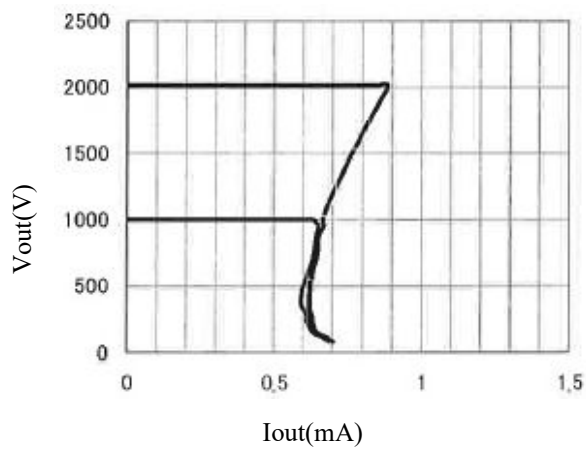
(1) Vin : 11V



(2) Vin : 12V



(3) Vin : 13V



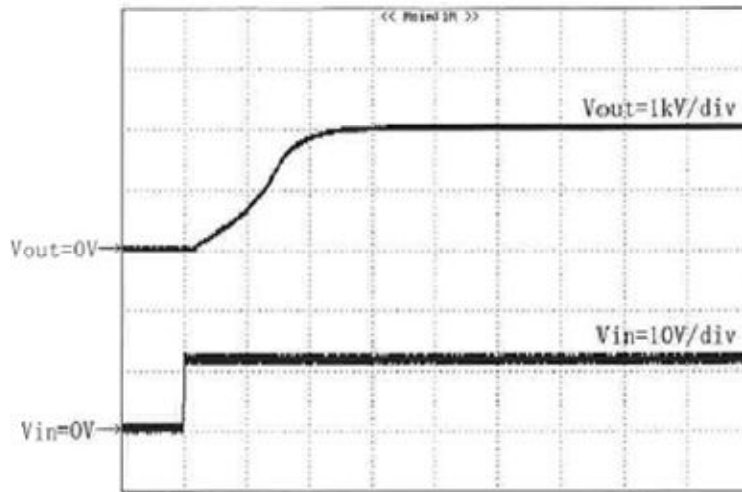


## 5. Output Rise Time Characteristics

Conditions

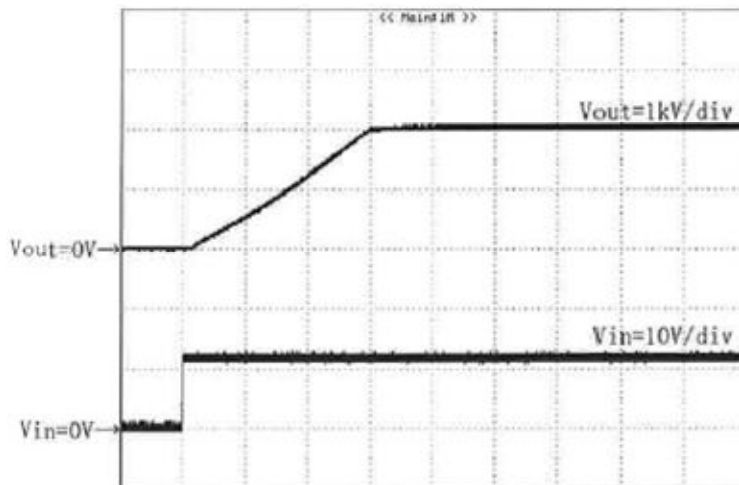
Ta : 25°C  
Vin : 12V  
Vout : 2000V  
Vcont : 6V

(1) Load condition : 0.0mA



Time : 50ms/div

(2) Load condition : 0.7mA

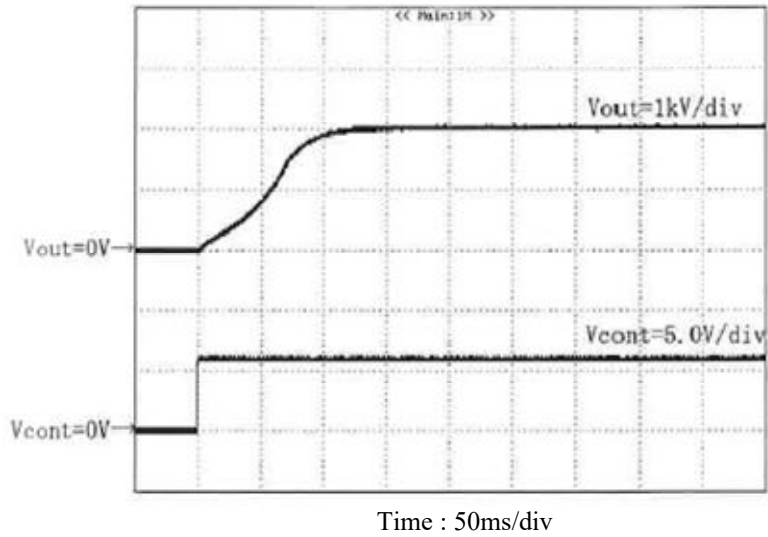


Time : 50ms/div

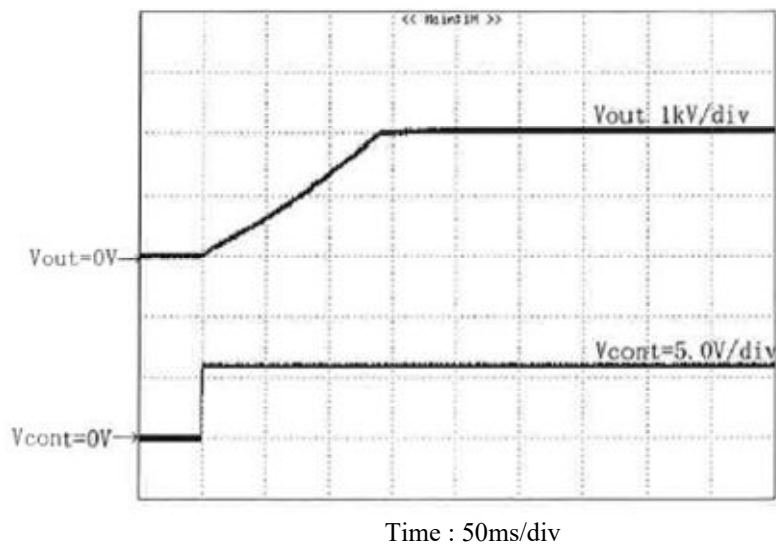
## 5. Output Rise Time Characteristics (with Vcont)

Conditions	Ta	: 25°C
	Vin	: 12V
	Vout	: 2000V
	Vcont	: 6V

(1) Load condition : 0.0mA



(2) Load condition : 0.7mA

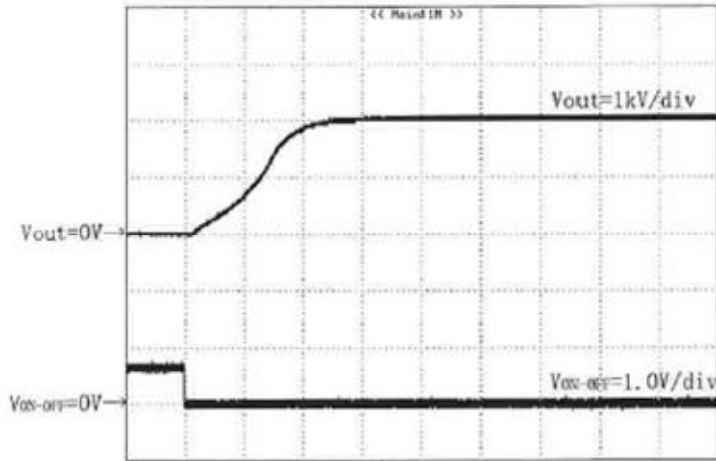


## 5. Output Rise Time Characteristics (with ON/OFF Control)

Conditions

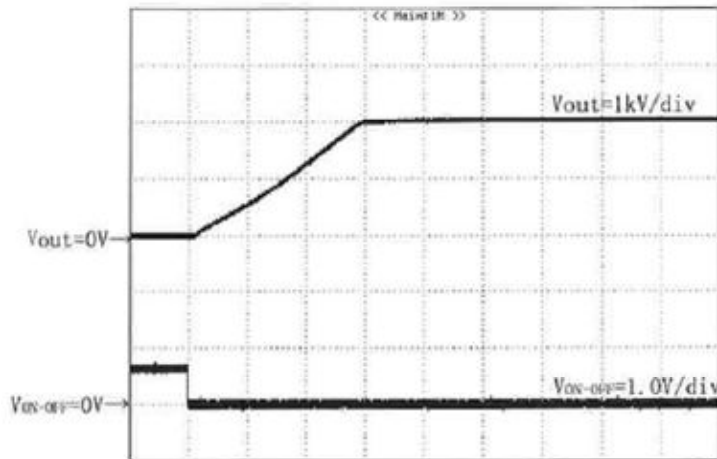
Ta : 25°C  
Vin : 12V  
Vout : 2000V  
Vcont : 6V

(1) Load condition : 0.0mA



Time : 50ms/div

(2) Load condition : 0.7mA



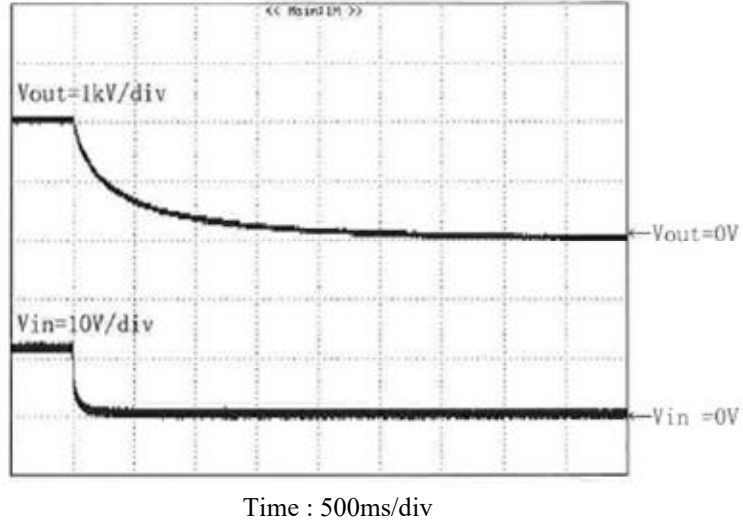
Time : 50ms/div

## 6. Output Fall Time Characteristics

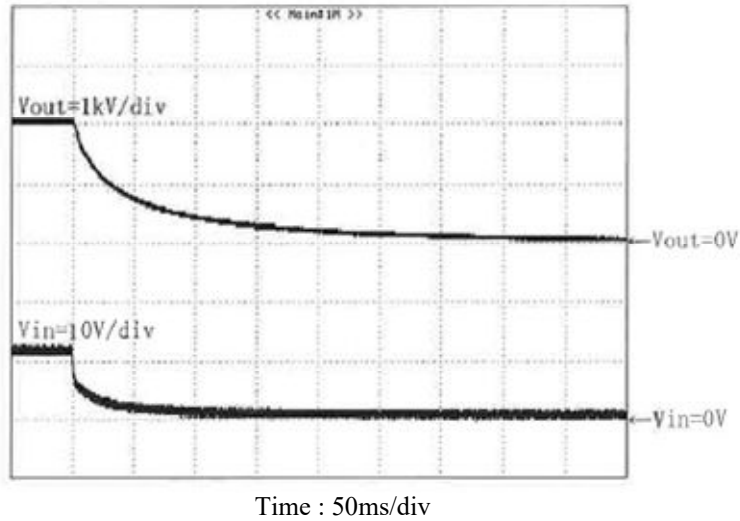
Conditions

Ta : 25°C  
Vin : 12V  
Vout : 2000V  
Vcont : 6V

(1) Load condition : 0.0mA



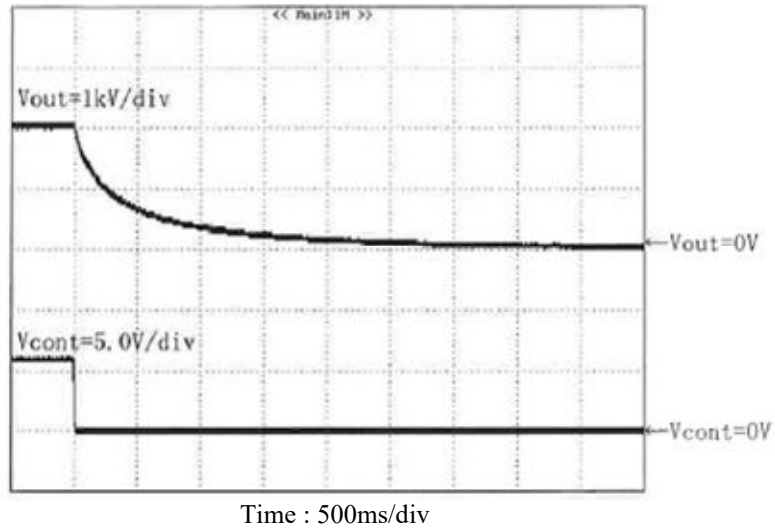
(2) Load condition : 0.7mA



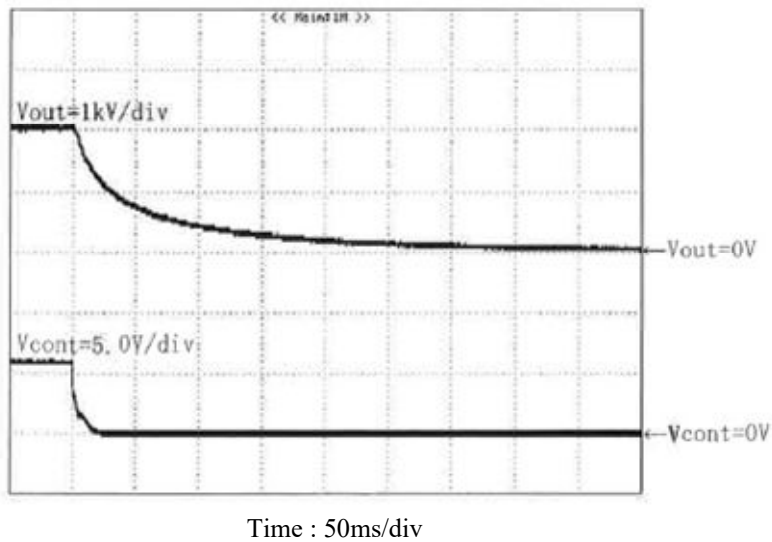
## 6. Output Fall Time Characteristics (with Vcont)

Conditions	Ta	: 25°C
	Vin	: 12V
	Vout	: 2000V
	Vcont	: 6V

(1) Load condition : 0.0mA



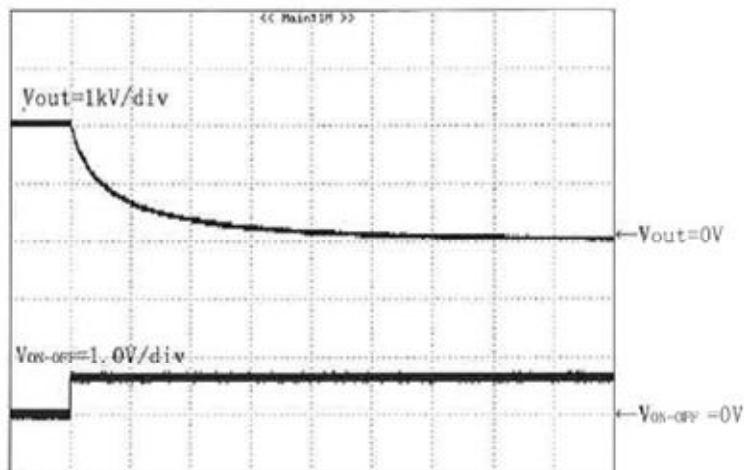
(2) Load condition : 0.7mA



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

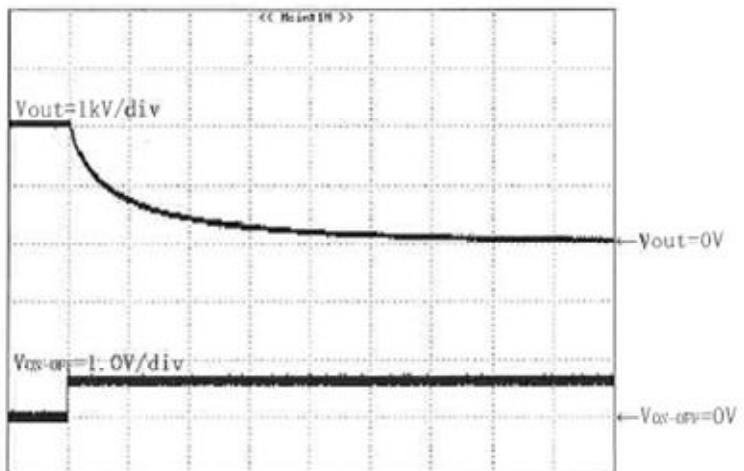
Conditions	Ta	: 25°C
	Vin	: 12V
	Vout	: 2000V
	Vcont	: 6V

(1) Load condition : 0.0mA



Time : 500ms/div

(2) Load condition : 0.7mA



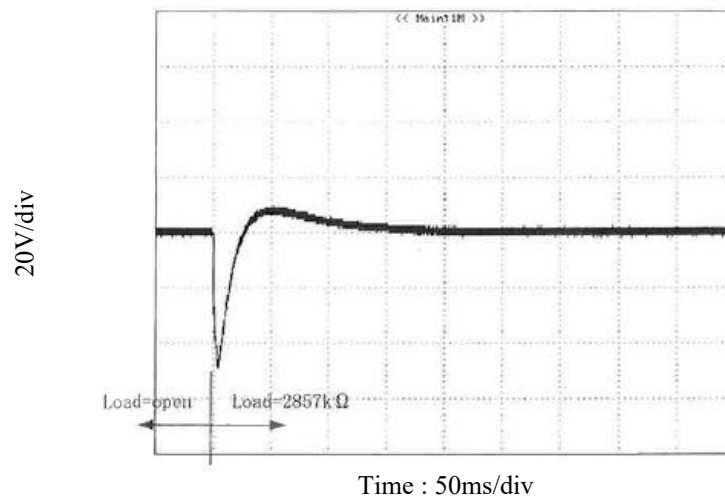
Time : 50ms/div

## 7. Dynamic Load Regulation

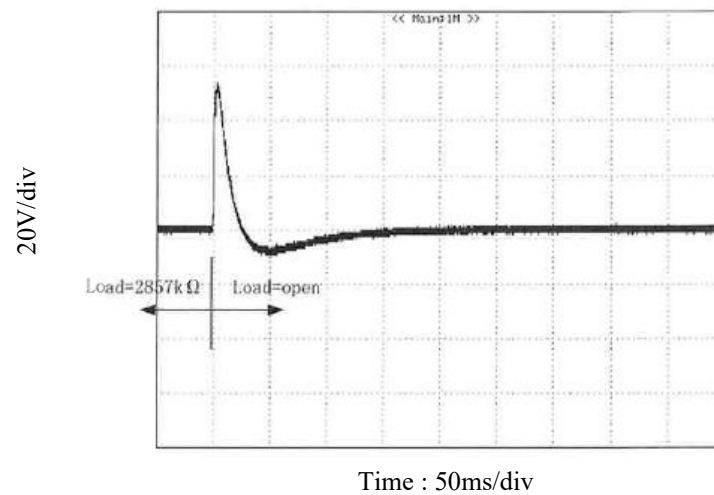
Conditions

Ta : 25°C  
Vin : 12V  
Vout : 2000V  
Vcont : 6V

- (1) Load : open => 2857k  $\Omega$   
Condition : Load input



- (2) Load : 2857k  $\Omega$  => open  
Condition : Load disconnection

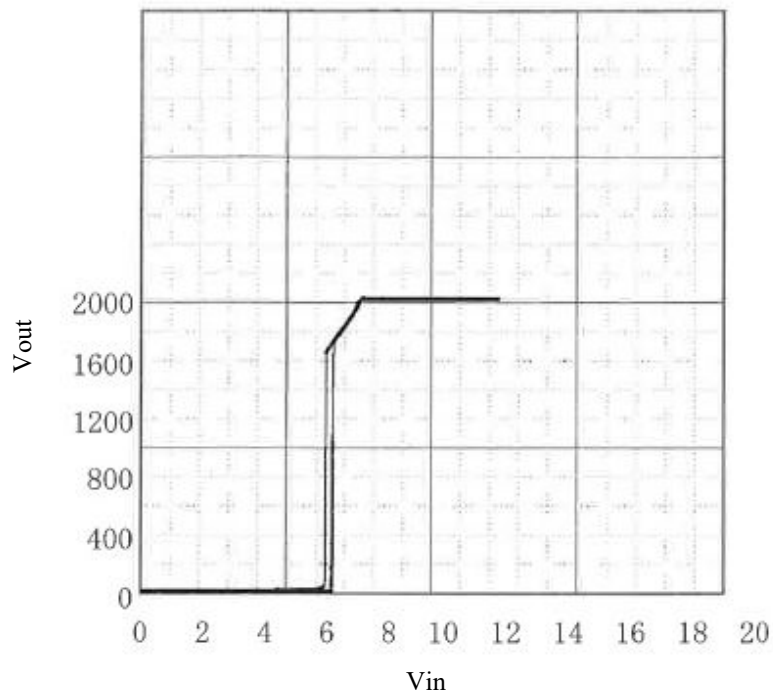


### 8. Vout-Vin Characteristics

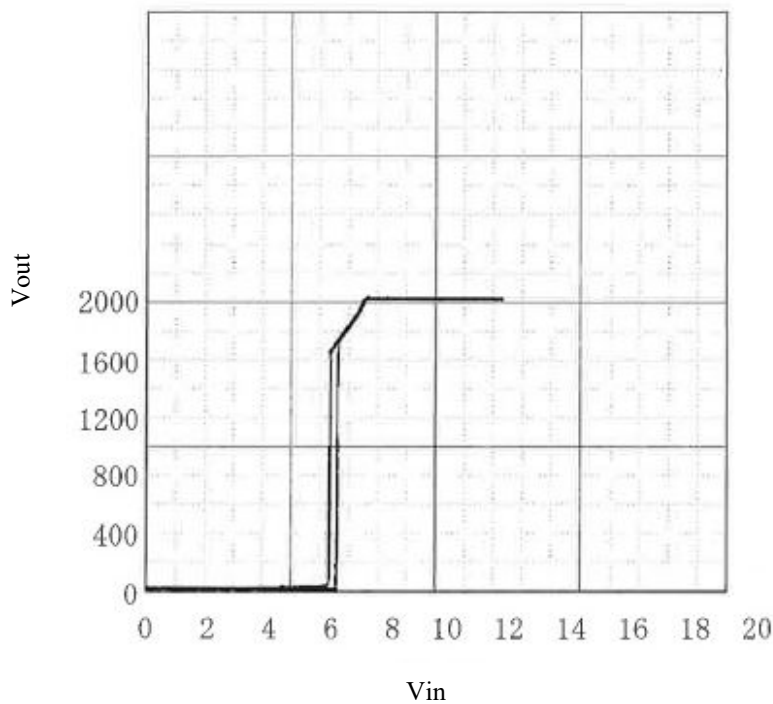
Conditions

Ta : 25°C  
Vout : 2000V  
Vcont : 6V

(1) Load condition : 0.0mA



(2) Load condition : 0.7mA



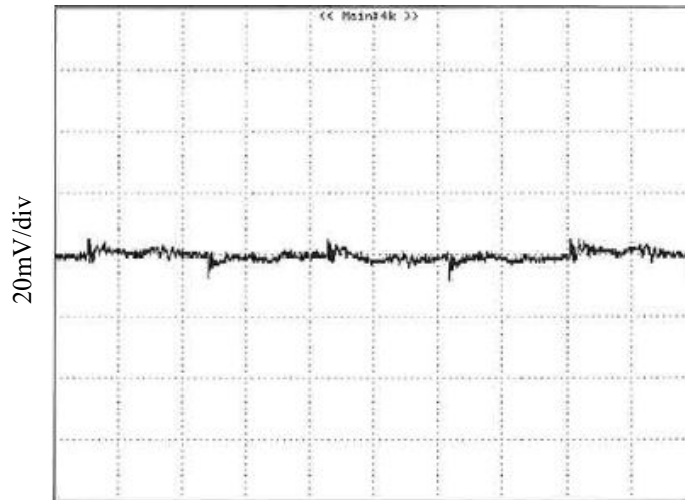


## 9. Output Ripple/Noise waveform

Conditions

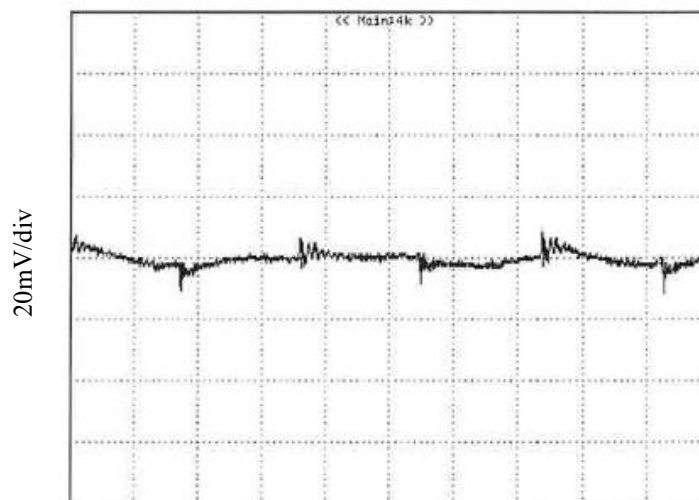
Ta : 25°C  
Vin : 12V  
Vout : 2000V  
Vcont : 6V  
BW : 20MHz

(1) Load condition : Output Current = 0.0mA



Time : 2μs/div

(2) Load condition : Output Current = 0.7mA



Time : 2μs/div