

CHVM1R5-12-2000N

EVALUATION DATA

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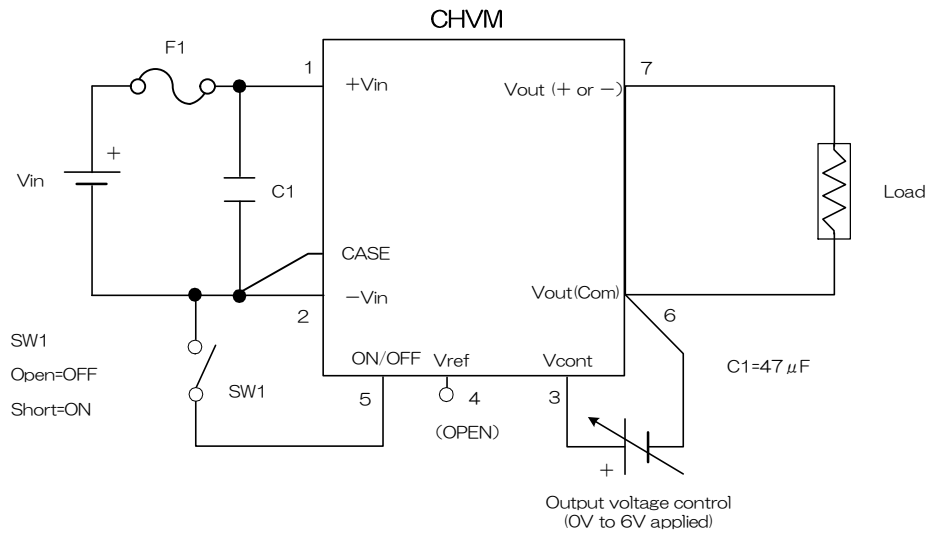
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Definition

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	115	-1979.34	9	262	-1978.83	11
		4.5	92	-1482.34	7	202	-1481.95	8
		3.0	71	-988.16	5	145	-987.98	7
		1.5	49	-494.32	3	87	-494.22	4
		0.0	27	-1.77	3	27	-0.45	3
	12.0	6.0	115	-1979.39	10	262	-1979.01	11
		4.5	93	-1482.36	8	202	-1482.08	9
		3.0	71	-988.09	5	144	-987.88	6
		1.5	49	-494.37	4	87	-494.27	5
		0.0	27	-1.44	3	27	-0.43	3
	13.0	6.0	115	-1979.34	9	262	-1978.82	11
		4.5	92	-1482.41	8	202	-1482.05	9
		3.0	71	-988.10	5	144	-987.89	5
	1.5	49	-494.33	4	87	-494.21	4	
	0.0	27	-1.43	3	27	-0.41	3	

	Spec	Data
Line reg.	-	0.05V
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	V _{cont}	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	116	-1984.44	12	268	-1983.97	14
		4.5	95	-1485.95	10	208	-1485.67	12
		3.0	72	-990.39	7	150	-990.20	8
		1.5	51	-494.89	4	91	-494.79	6
		0.0	27	-1.62	4	27	-0.62	4
	12.0	6.0	116	-1984.44	12	269	-1984.02	15
		4.5	95	-1486.03	10	208	-1485.66	12
		3.0	72	-990.36	6	150	-990.10	8
		1.5	51	-494.96	4	91	-494.83	5
		0.0	27	-1.55	4	27	-0.55	3
	13.0	6.0	116	-1984.34	12	268	-1983.90	15
		4.5	95	-1486.03	10	209	-1485.68	12
		3.0	72	-990.28	7	150	-990.10	8
	1.5	51	-495.01	4	91	-494.95	6	
	0.0	27	-1.46	3	27	-0.55	4	

	Spec	Data
Line reg.	0.02% (0.4V) max.	0.05V
Load reg.	0.04% (0.8V) max	0.5V
Ripple/Noise	30mV _{p-p} max	15mV _{p-p}

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

2. Steady State Characteristics

Condition Ta : 50°C

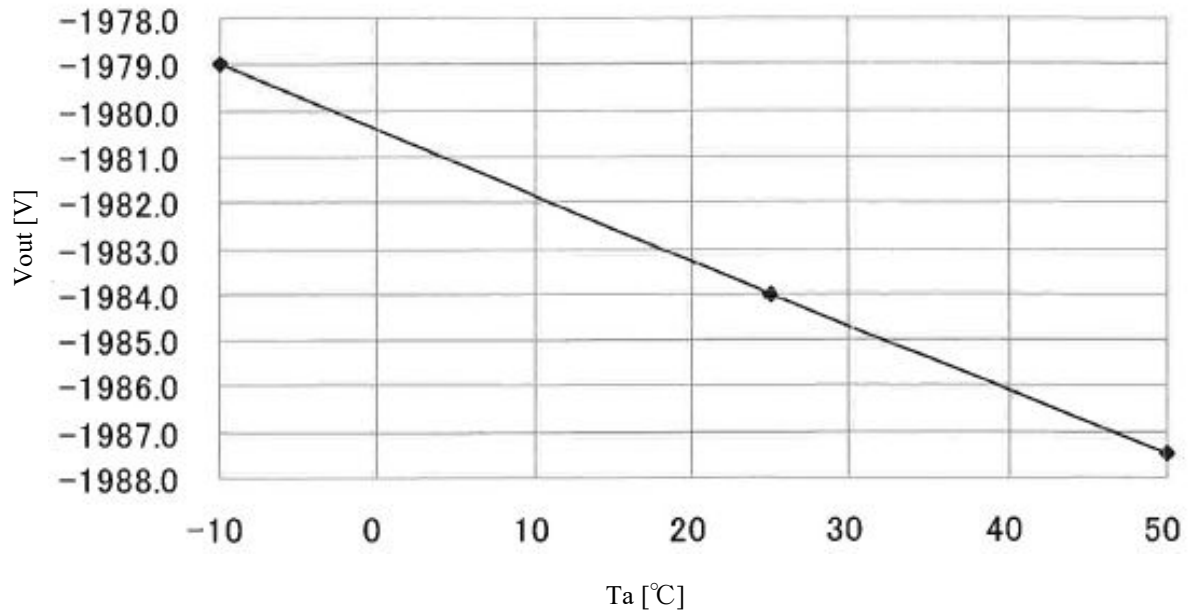
Test Item			Load : Open			Load : 2857kΩ		
	Input Voltage	Vcont	Input Current	Output Voltage	Ripple/ Noise	Input Current	Output Voltage	Ripple/ Noise
	[V]	[V]	[mA]	[V]	[mV p-p]	[mA]	[V]	[mV p-p]
	11.0	6.0	112	-1987.99	14	285	-1987.42	20
		4.5	91	-1488.44	13	223	-1488.04	14
		3.0	71	-991.93	8	162	-991.68	12
		1.5	50	-494.57	5	97	-494.49	5
		0.0	27	-1.35	4	27	-0.60	4
	12.0	6.0	112	-1987.98	14	285	-1987.47	18
		4.5	91	-1488.50	10	223	-1488.06	14
		3.0	71	-991.91	8	162	-991.61	12
		1.5	50	-494.66	4	97	-494.50	5
		0.0	27	-1.32	4	27	-0.58	4
	13.0	6.0	112	-1987.83	13	285	-1987.32	20
		4.5	91	-1488.45	10	224	-1488.09	14
		3.0	71	-991.84	8	162	-991.57	11
	1.5	50	-494.73	4	99	-494.61	5	
	0.0	27	-1.29	4	27	-0.58	4	

	Spec	Data
Line reg.	-	0.2V
Load reg.	-	0.5V
Ripple/Noise	-	18mV p-p

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

3. Temperature Regulation

Conditions V_{in} : 12V
 Load : 2857k Ω
 V_{cont} : 6V



Ta [°C]	Vout [V]
-10	-1979.0
25	-1984.0
50	-1987.5

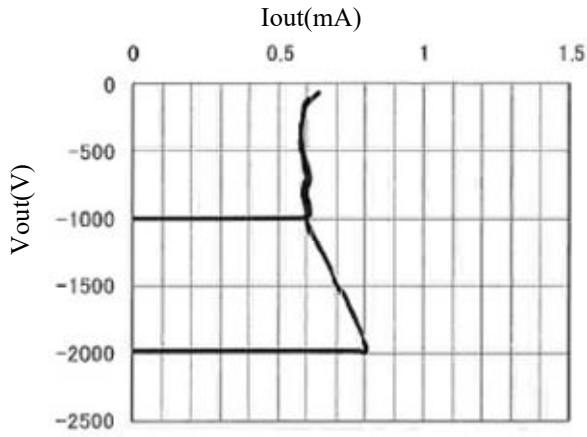
4. Over Current Characteristics

Conditions

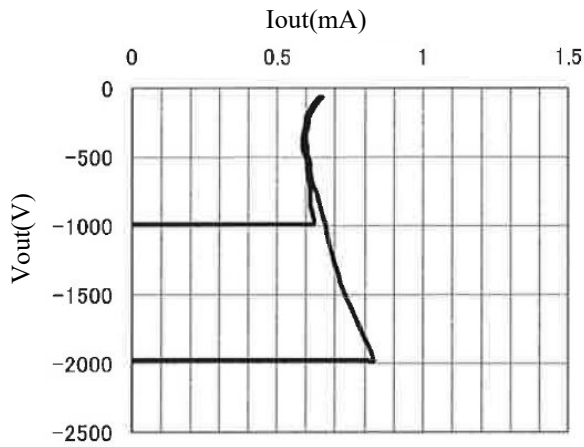
Ta : 25°C

Vout : -1000V , -2000V

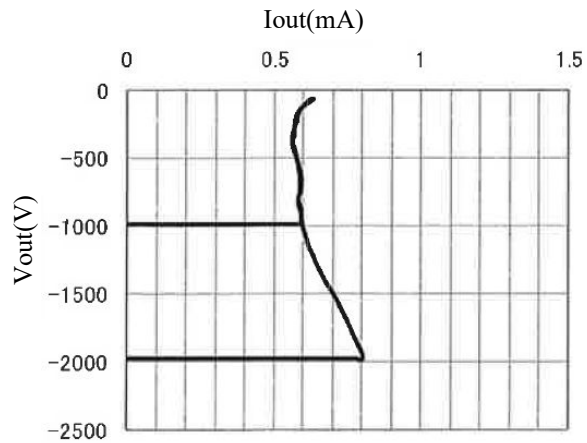
(1) Vin : 11V



(2) Vin : 12V



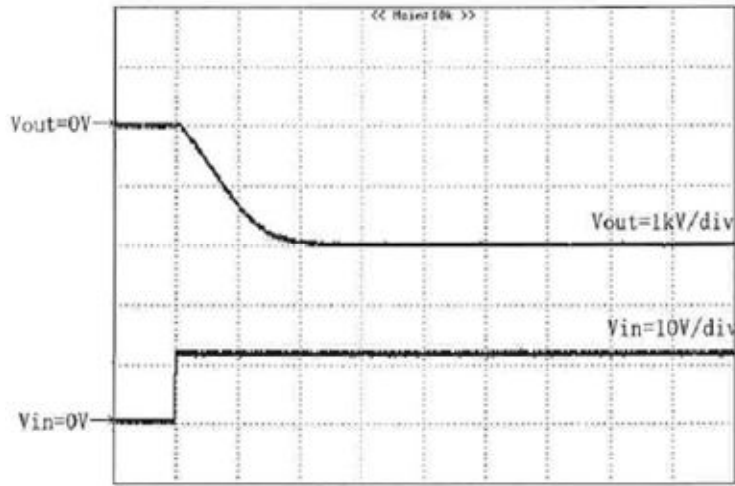
(3) Vin : 13V



5. Output Rise Time Characteristics

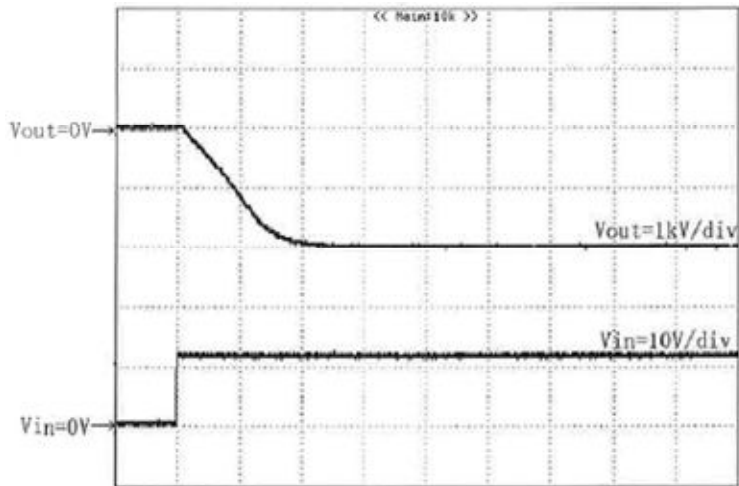
Conditions	Ta	:	25°C
	Vin	:	12V
	Vout	:	-2000V
	Vcont	:	6V

(1) Load condition : 0.0mA



Time : 100ms/div

(2) Load condition : 0.7mA



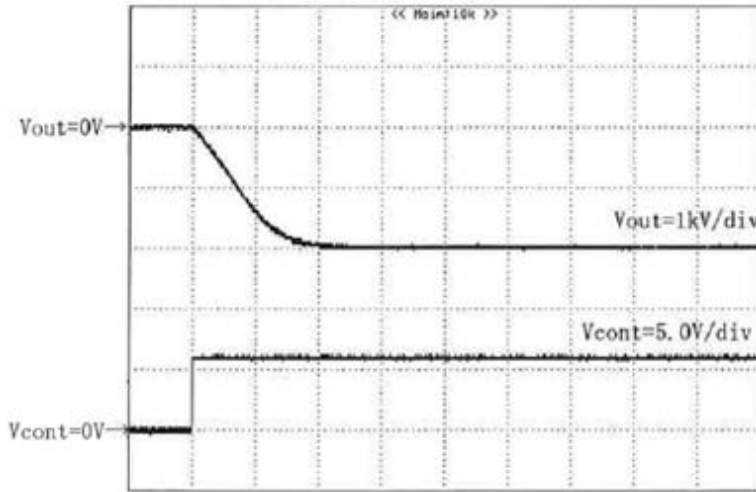
Time : 100ms/div

5. Output Rise Time Characteristics (with Vcont)

Conditions

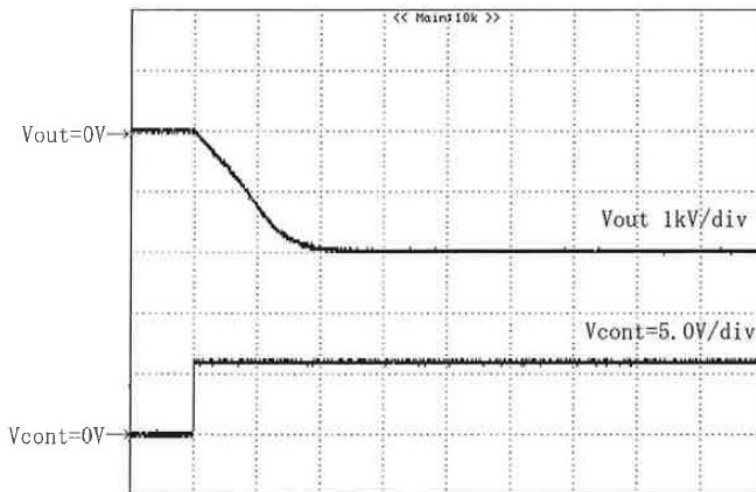
Ta : 25°C
Vin : 12V
Vout : -2000V
Vcont : 6V

(1) Load condition : 0.0mA



Time : 100ms/div

(2) Load condition : 0.7mA



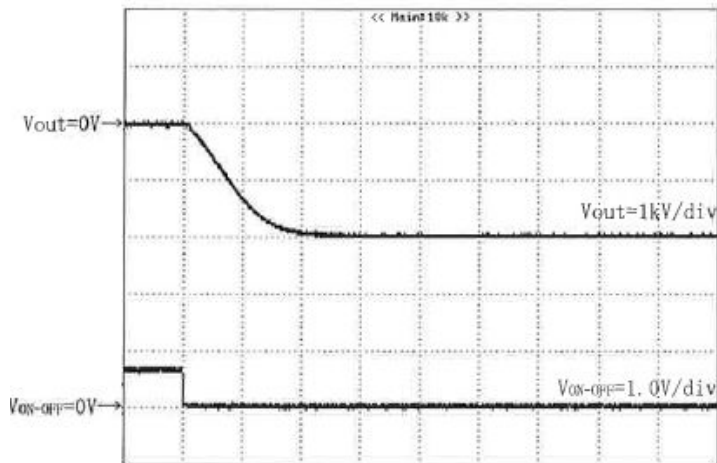
Time : 100ms/div

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

Conditions

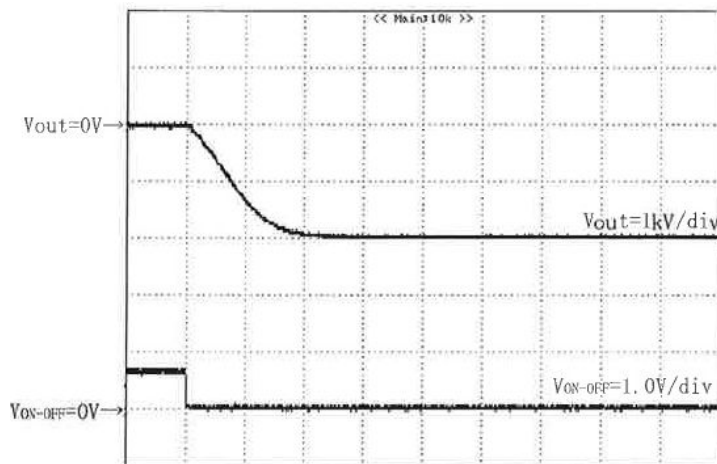
Ta : 25°C
Vin : 12V
Vout : -2000V
Vcont : 6V

(1) Load condition : 0.0mA



Time : 100ms/div

(2) Load condition : 0.7mA



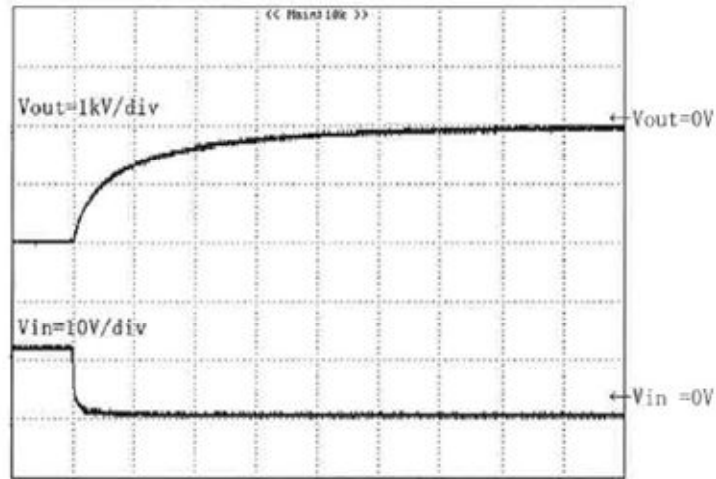
Time : 100ms/div

6. Output Fall Time Characteristics

Conditions

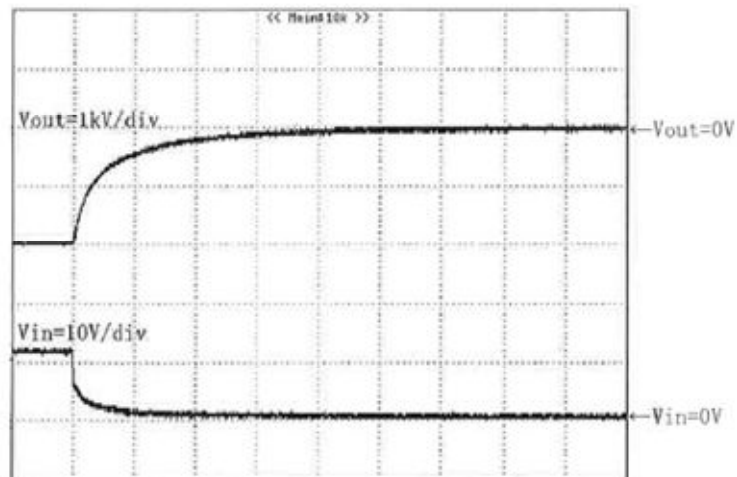
Ta : 25°C
Vin : 12V
Vout : -2000V
Vcont : 6V

(1) Load condition : 0.0mA



Time : 500ms/div

(2) Load condition : 0.7mA

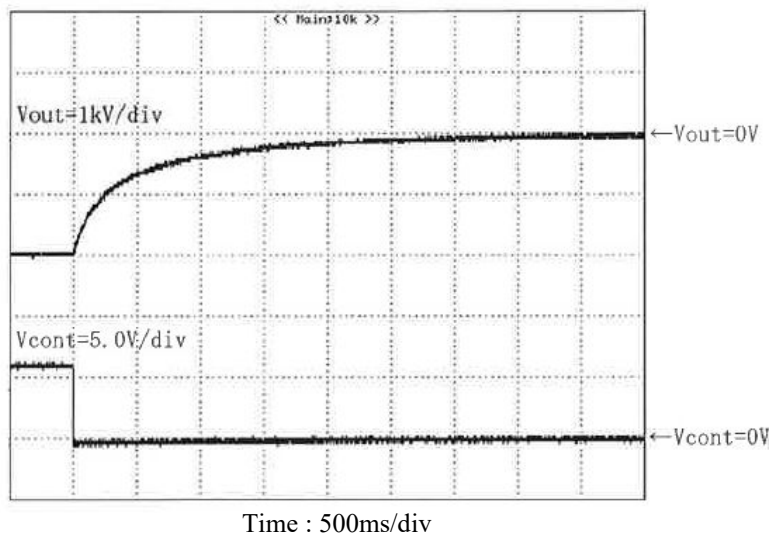


Time : 100ms/div

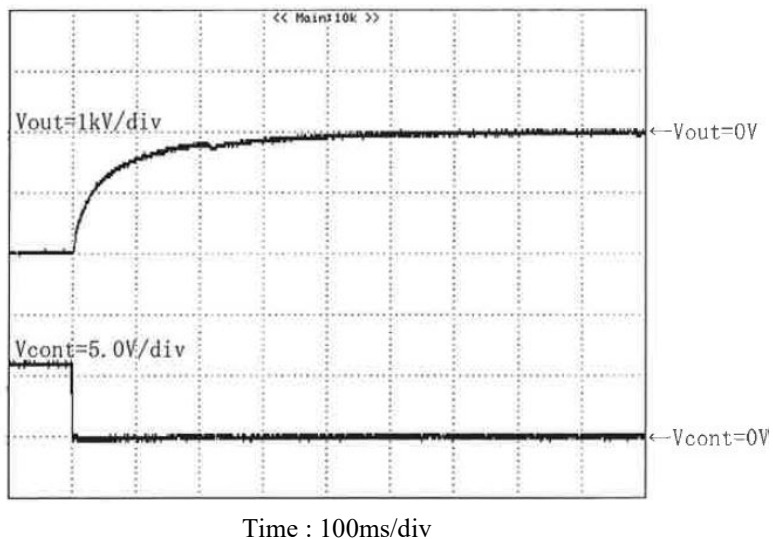
6. Output Fall Time Characteristics (with Vcont)

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

(1) Load condition : 0.0mA



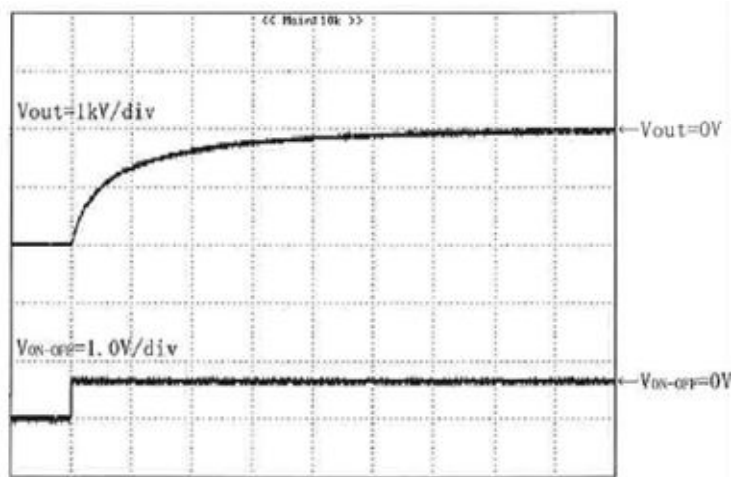
(2) Load condition : 0.7mA



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

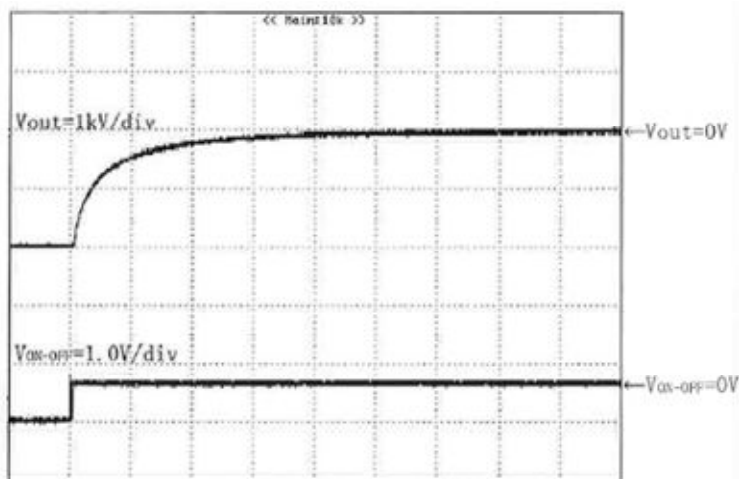
Conditions	Ta	: 25°C
	Vin	: 12V
	Vout	: -2000V
	Vcont	: 6V

(1) Load condition : 0.0mA



Time : 500ms/div

(2) Load condition : 0.7mA



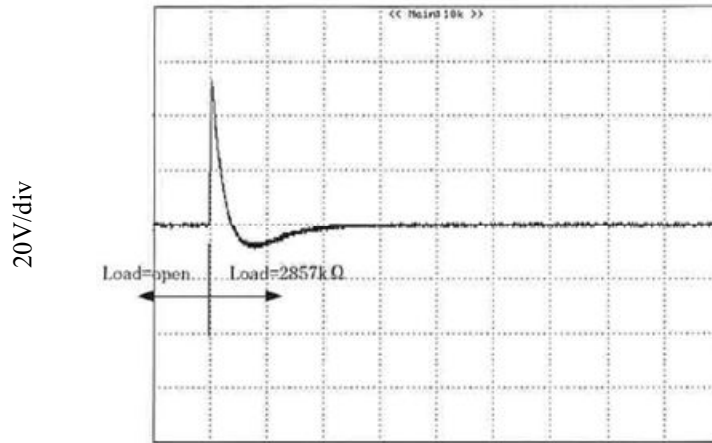
Time : 100ms/div

7. Dynamic Load Regulation

Conditions

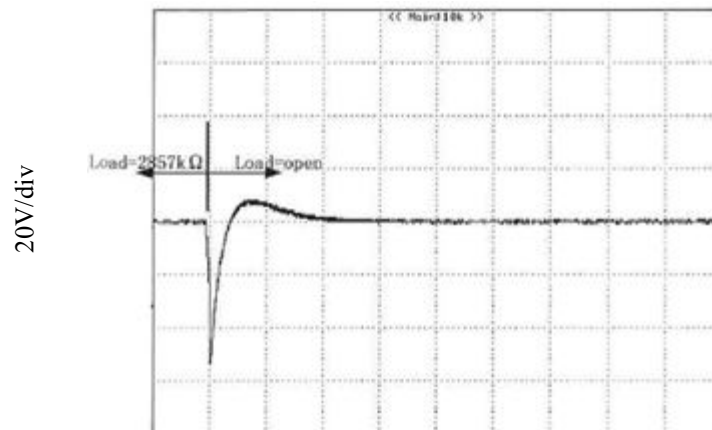
Ta : 25°C
Vin : 12V
Vout : -2000V
Vcont : 6V

- (1) Load : open => 2857kΩ
Condition : Load input



Time : 100ms/div

- (2) Load : 2857kΩ => open
Condition : Load disconnection



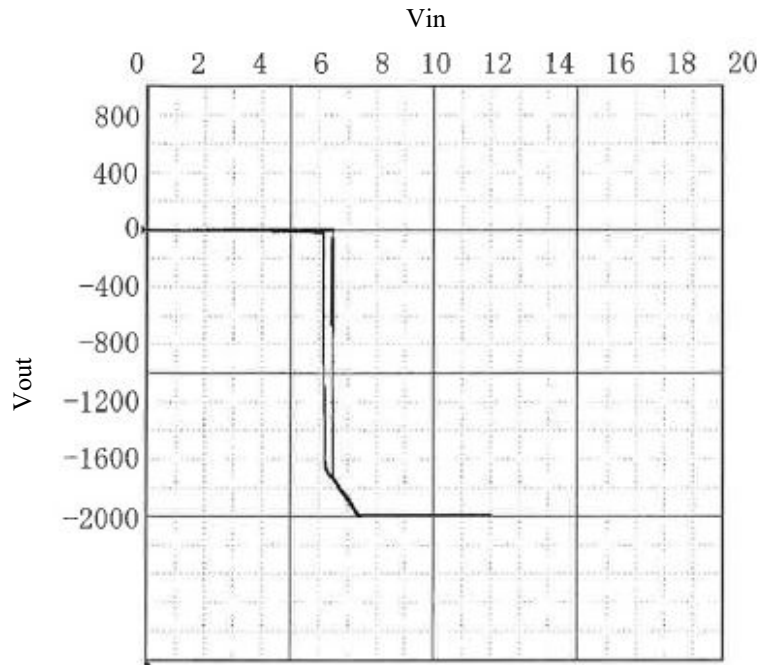
Time : 100ms/div

8. Vout-Vin Characteristics

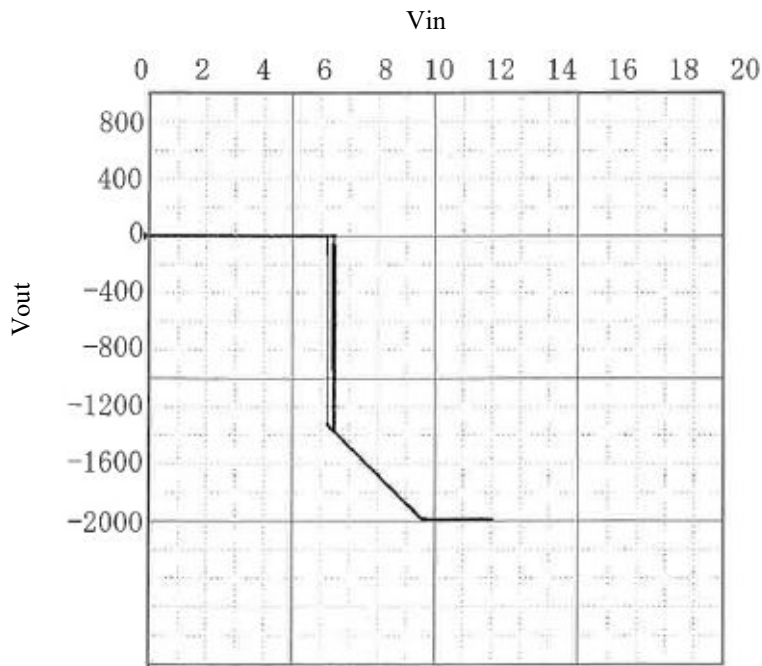
Conditions

Ta : 25°C
Vout : -2000V
Vcont : 6V

(1) Load condition : 0.0mA



(2) Load condition : 0.7mA

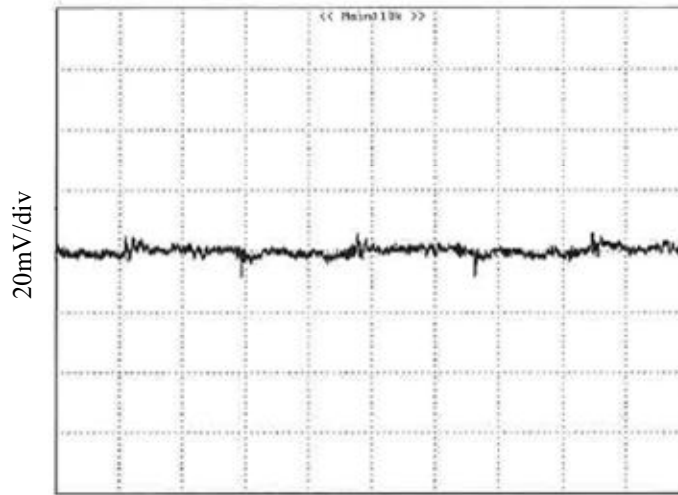


9. Output Ripple/Noise waveform

Conditions

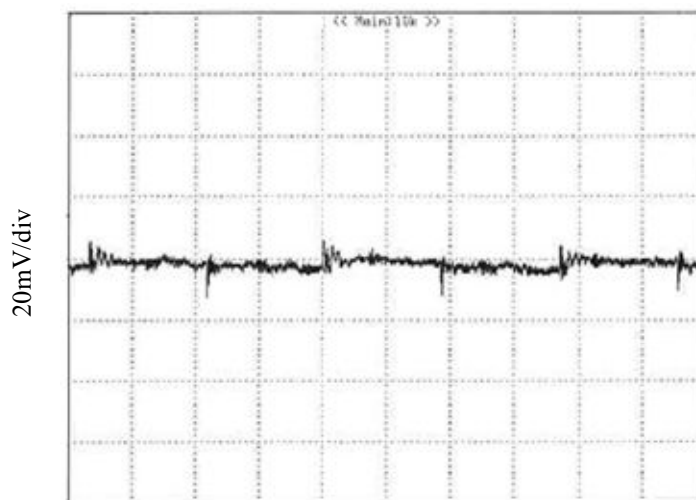
Ta : 25°C
Vin : 12V
Vout : -2000V
Vcont : 6V
BW : 20MHz

(1) Load condition : Output Current = 0.0mA



Time : 2μs/div

(2) Load condition : Output Current = 0.7mA



Time : 2μs/div