GSP 15kW

EVALUATION DATA

DWG: IA852-53-01		
APPD	CHK	DWG
Yahiv 19/11/18	Yahiv 19/11/18	MICHAEL G. 19.11.2018

TDK-LAMBDA

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TERMINOLOGY USED

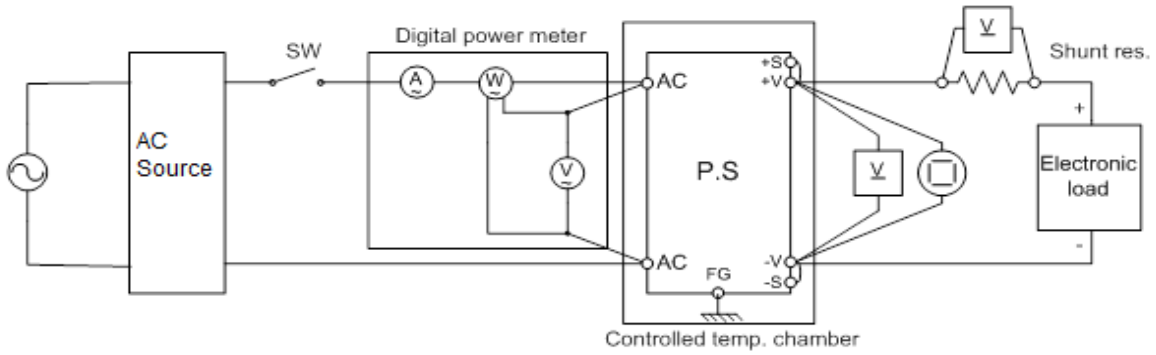
Definition

Vin	Input voltage
Vout	Output voltage
Iin	Input current
Iout	Output current
Ta	Ambient temperature
C.V	Constant voltage mode
C.C	Constant current mode

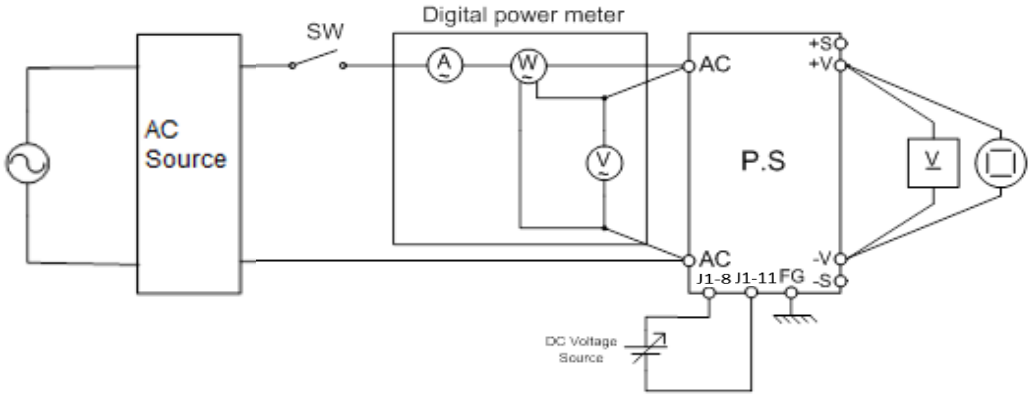
1. EVALUATION METHOD

1.1 Circuit used for determination

(1) Steady state data

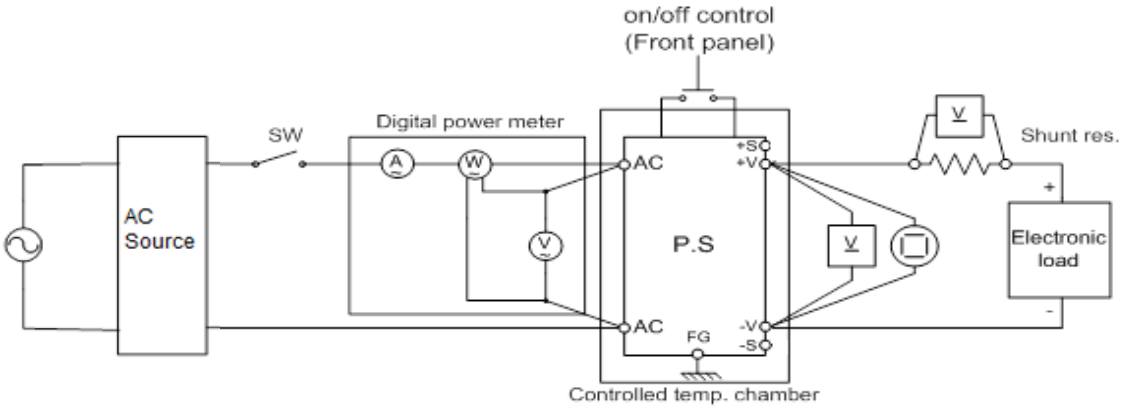


(2) Over voltage protection (OVP) characteristics

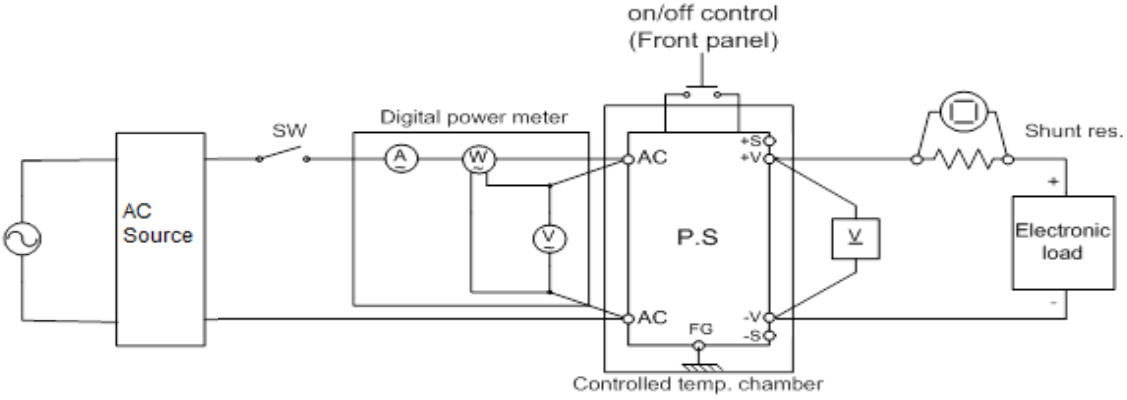


(3) Output rise/fall characteristics

Constant Voltage mode

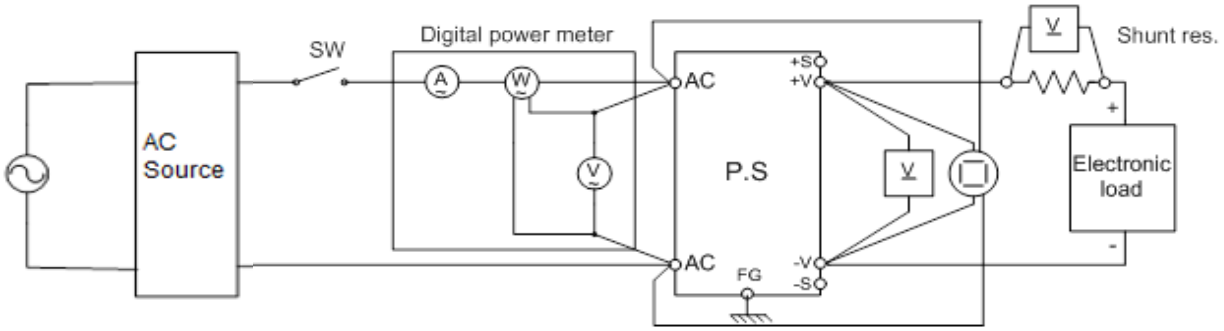


Constant Current mode

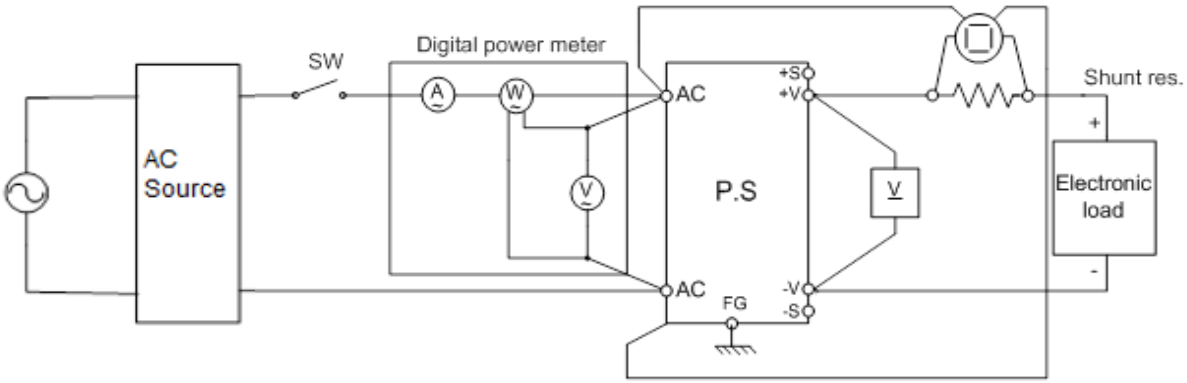


(4) Dynamic line response characteristics

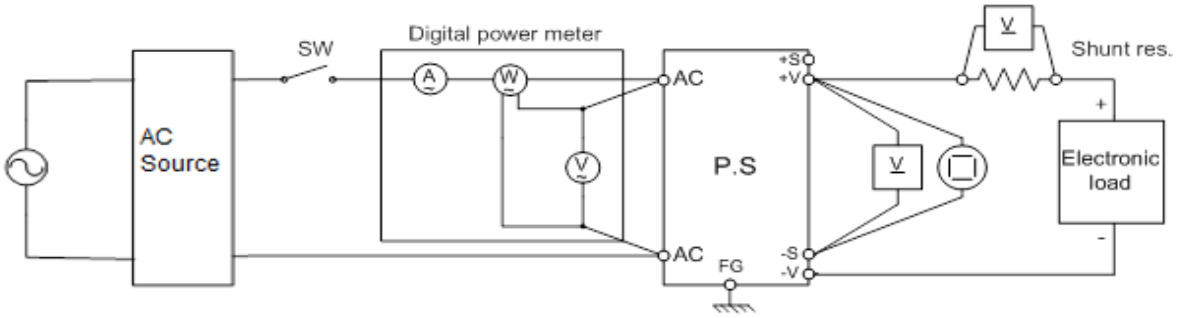
Constant Voltage mode



Constant Current mode

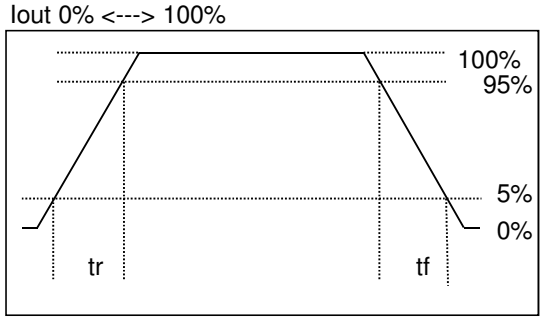


(5) Dynamic load response characteristics



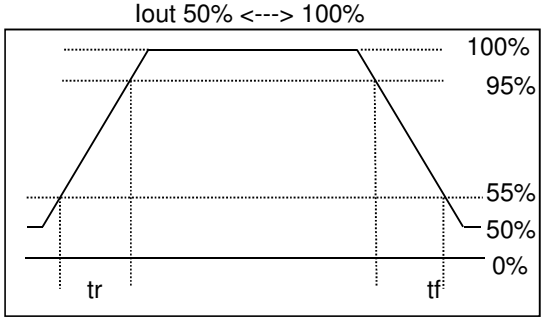
Output current waveform

Iout 0% <---> 100%



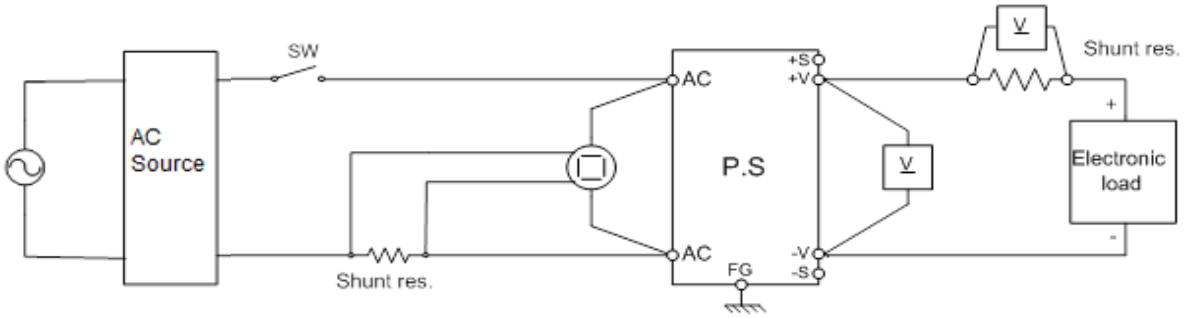
Output current waveform

Iout 50% <---> 100%

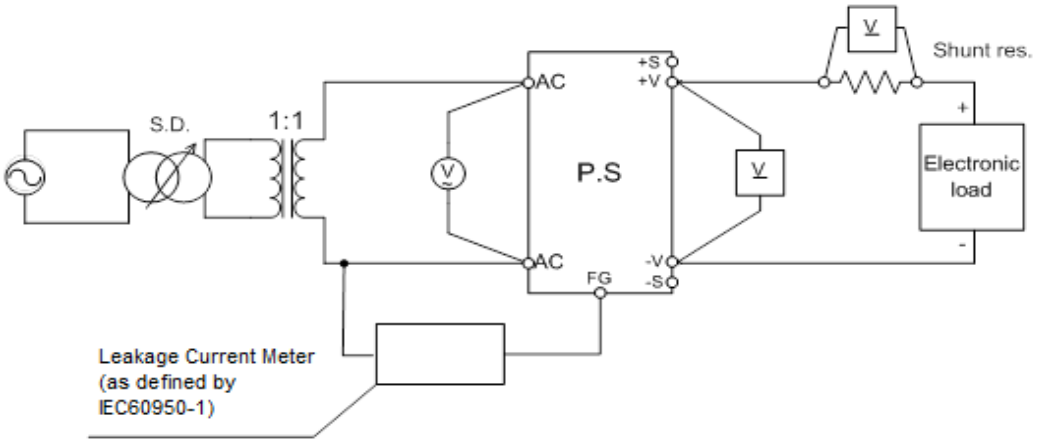


(6) Inrush current characteristics

Constant Voltage mode

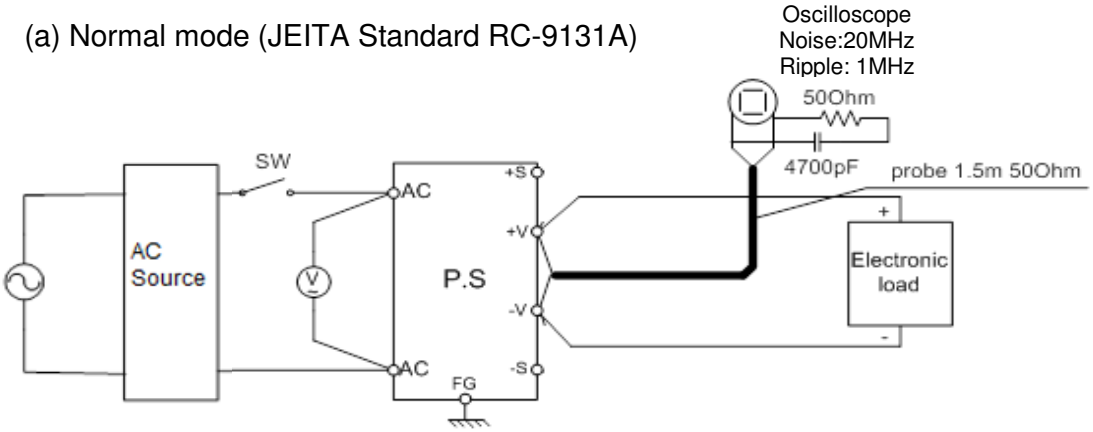


(7) Leakage current characteristics

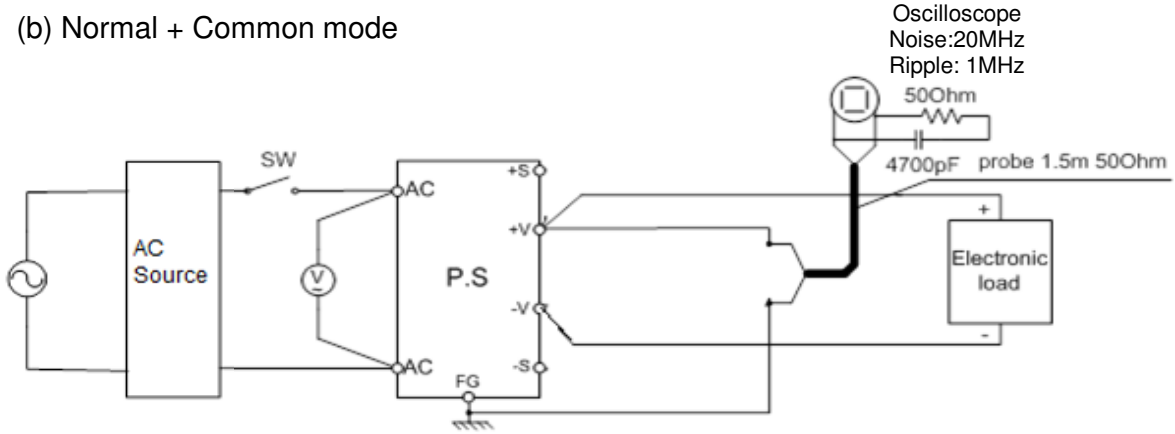


(8) Output ripple & noise waveform (10V to 300V models)

(a) Normal mode (JEITA Standard RC-9131A)

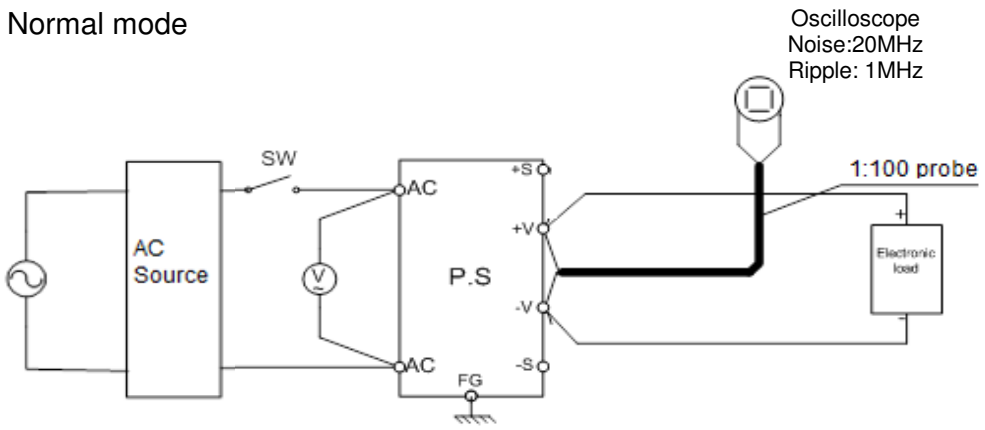


(b) Normal + Common mode

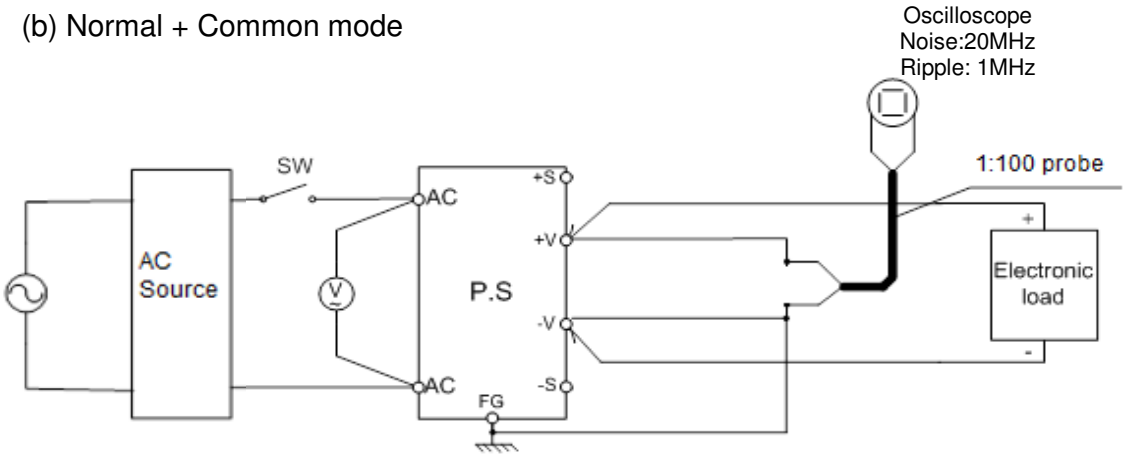


(9) Output ripple & noise waveform (400V to 600V models)

(a) Normal mode



(b) Normal + Common mode



1.2 List of equipment used

	EQUIPMENT USED	MANUFACTURER	MODEL No.
1	Storage oscilloscope	YOKOGAWA	DLM2034
2	Storage oscilloscope	YOKOGAWA	DL1740
3	Digital multimeter	AGILENT	34401A
4	Digital power meter	YOKOGAWA	WT230
5	Digital power meter	YOKOGAWA	WT330
6	Digital power meter	YOKOGAWA	WT333E
7	Digital power meter	CHROMA	66203
8	AC Source	CHROMA	61512
9	Variable Transformer	STAGO ENERGY	6020E-6Y
10	Electronic load	H&H	ZS6060
11	Electronic load	H&H	ZS7006
12	Electronic load	H&H	ZS7060
13	Electronic load	H&H	ZS8006
14	Electronic load	CHROMA	63203
15	Electronic load	CHROMA	63204
16	Electronic load	CHROMA	63206A
17	Controlled temp. chamber	THERMOTRON	SM-16-3800
18	Controlled temp. chamber	THERMOTRON	SE-600-5-5
19	Controlled temp. chamber	THERMOTRON	SE-600-6-6
20	Leakage current tester	KIKUSUI	TOS3200
21	Current probe	YOKOGAWA	701931
22	Transducer	LEM	IT700-SB
23	Transducer	LEM	IT60-S
24	Current Measure	LEM	IN 2000-S

(1). Regulation - Line & Load.

GSP10-1500

Conditions: Ta = 25℃

1. Regulation - Line & Load, C.V mode 3Φ200

	Vin					
Io	170VAC	200VAC	208VAC	265VAC	Line Regulation	
0%	9.9999	9.9999	9.9999	9.9999	0.0	0.000%
25%	9.9997	9.9997	9.9997	9.9997	0.0	0.000%
50%	9.9996	9.9996	9.9997	9.9997	0.1	0.001%
75%	9.9994	9.9994	9.9994	9.9994	0.0	0.000%
100%	9.9992	9.9992	9.9992	9.9992	0.0	0.000%
Load	0.7	0.7	0.7	0.7	ΔV(mV)	
Regulation	0.007%	0.007%	0.007%	0.007%		

2. Regulation - Line & Load, C.V mode 3Φ400/3Φ480

	Vin							
Io	342VAC	380VAC	400VAC	460VAC	480VAC	520VAC	Line Regulation	
0%	10.0007	10.0007	10.0007	10.0007	10.0007	10.0007	0.0	0.000%
25%	10.0006	10.0006	10.0006	10.0005	10.0006	10.0005	0.1	0.001%
50%	10.0005	10.0005	10.0005	10.0005	10.0005	10.0005	0.0	0.000%
75%	10.0002	10.0002	10.0002	10.0002	10.0002	10.0002	0.0	0.000%
80%	10.0002	10.0002	10.0002	10.0002	10.0002	10.0002	0.0	0.000%
Load	0.5	0.5	0.5	0.5	0.5	0.5	ΔV(mV)	
Regulation	0.005%	0.005%	0.005%	0.005%	0.005%	0.005%		

(1). Regulation - Line & Load, Temperature drift

GSP60-255

Conditions: Ta = 25℃

1. Regulation - Line & Load, C.V mode 3Φ200

	Vin					
Io	170VAC	200VAC	208VAC	265VAC	Line Regulation	
0%	60.0007	60.0006	60.0005	60.0005	0.2	0.000%
25%	60.0000	60.0002	60.0000	60.0004	0.4	0.001%
50%	59.9995	59.9997	59.9998	59.9998	0.3	0.001%
75%	59.9995	59.9995	59.9995	59.9996	0.1	0.000%
100%	59.9989	59.9992	59.9992	59.9991	0.3	0.001%
Load	1.8	1.4	1.3	1.4	ΔV(mV)	
Regulation	0.003%	0.002%	0.002%	0.002%		

2. Regulation - Line & Load, C.V mode 3Φ400/3Φ480

	Vin							
Io	342VAC	380VAC	400VAC	460VAC	480VAC	520VAC	Line Regulation	
0%	59.9991	59.9992	59.9993	59.9991	60.0002	60.0001	1.1	0.002%
25%	59.9985	59.9985	59.9985	59.9985	59.9996	59.9995	1.1	0.002%
50%	59.9980	59.9981	59.9982	59.9982	59.9990	59.9991	1.1	0.002%
75%	59.9978	59.9979	59.9979	59.9980	59.9986	59.9986	0.8	0.001%
80%	59.9978	59.9975	59.9974	59.9974	59.9980	59.9982	0.8	0.001%
Load	1.3	1.7	1.9	1.7	2.2	1.9	ΔV(mV)	
Regulation	0.002%	0.003%	0.003%	0.003%	0.004%	0.003%		

3. Temperature drift, C.V mode

Conditions: Vin:400V 3Φ
Iout:100%

Ta	0℃	25℃	50℃	Temp. Coefficient (0˚C~50˚C)			
Vout	59.9960	59.9976	59.9969	1.6	mV	1	ppm/˚C

(1). Regulation - Line & Load, Temperature drift

GSP150-102

Conditions: Ta = 25℃

1. Regulation - Line & Load, C.V mode 3Φ200

	Vin					
Io	170VAC	200VAC	208VAC	265VAC	Line Regulation	
0%	149.9930	149.9940	149.9940	149.9940	1.0	0.001%
25%	149.9930	149.9932	149.9936	149.9933	0.6	0.000%
50%	149.9930	149.9930	149.9935	149.9930	0.5	0.000%
75%	149.9933	149.9930	149.9930	149.9937	0.7	0.000%
100%	149.9930	149.9934	149.9930	149.9930	0.4	0.000%
Load	0.3	1.0	1.0	1.0	ΔV(mV)	
Regulation	0.000%	0.001%	0.001%	0.001%		

2. Regulation - Line & Load, C.V mode 3Φ400/3Φ480

	Vin							
Io	342VAC	380VAC	400VAC	460VAC	480VAC	520VAC	Line Regulation	
0%	150.0030	150.0040	150.0040	150.0040	150.0040	150.0040	1.0	0.001%
25%	150.0030	150.0030	150.0030	150.0030	150.0030	150.0030	0.0	0.000%
50%	150.0030	150.0030	150.0030	150.0030	150.0030	150.0030	0.0	0.000%
75%	150.0020	150.0020	150.0020	150.0020	150.0020	150.0020	0.0	0.000%
100%	150.0010	150.0010	150.0010	150.0010	150.0010	150.0010	0.0	0.000%
Load	2.0	3.0	3.0	3.0	3.0	3.0	ΔV(mV)	
Regulation	0.001%	0.002%	0.002%	0.002%	0.002%	0.002%		

3. Temperature drift, C.V mode

Conditions: Vin:480V 3Φ
Iout:100%

Ta	0℃	25℃	50℃	Temp. Coefficient (0˚C~50˚C)			
Vout	149.9980	149.9850	149.9570	41	mV	5	ppm/˚C

(1). Regulation - Line & Load.

GSP600-25.5

Conditions: Ta = 25℃

1. Regulation - Line & Load, C.V mode 3Φ200

	Vin					
Io	170VAC	200VAC	208VAC	265VAC	Line Regulation	
0%	599.9297	599.9304	599.9311	599.9326	2.8	0.000%
25%	599.9355	599.9361	599.9361	599.9371	1.7	0.000%
50%	599.9410	599.9426	599.9413	599.9424	1.6	0.000%
75%	599.9416	599.9420	599.9417	599.9414	0.6	0.000%
100%	599.9428	599.9428	599.9429	599.9431	0.3	0.000%
Load	13.1	12.4	11.7	10.5	ΔV(mV)	
Regulation	0.002%	0.002%	0.002%	0.002%		

2. Regulation - Line & Load, C.V mode 3Φ400/3Φ480

	Vin							
Io	342VAC	380VAC	400VAC	460VAC	480VAC	520VAC	Line Regulation	
0%	600.0626	600.0626	600.0641	600.0652	600.0665	600.0860	23.4	0.004%
25%	600.0691	600.0686	600.0685	600.0684	600.0683	600.0920	23.7	0.004%
50%	600.0741	600.0731	600.0735	600.0730	600.0725	600.0970	24.5	0.004%
75%	600.0741	600.0742	600.0739	600.0729	600.0734	600.0980	25.1	0.004%
100%	600.0769	600.0766	600.0784	600.0781	600.0787	600.0990	22.4	0.004%
Load	14.3	14.0	14.3	12.9	12.2	13.0	ΔV(mV)	
Regulation	0.002%	0.002%	0.002%	0.002%	0.002%	0.002%		

(1). Regulation - Line & Load.

GSP10-1500

Conditions: Ta = 25℃

1. Regulation - Line & Load, C.C mode 3Φ200 (*)

	Vin					
Vo	170VAC	200VAC	208VAC	265VAC	Line Regulation	
0%	1499.688	1499.688	1499.688	1499.692	4.0	0.000%
25%	1499.674	1499.670	1499.672	1499.670	4.0	0.000%
50%	1499.660	1499.662	1499.662	1499.670	10.0	0.001%
75%	1499.678	1499.680	1499.690	1499.690	12.0	0.001%
100%	1499.646	1499.648	1499.646	1499.646	2.0	0.000%
Load	42.0	40.0	44.0	46.0	ΔI(mA)	
Regulation	0.003%	0.003%	0.003%	0.003%		

2. Regulation - Line & Load, C.C mode 3Φ400/3Φ480 (*)

	Vin							
Io	342VAC	380VAC	400VAC	460VAC	480VAC	520VAC	Line Regulation	
0%	1199.9600	1199.9600	1199.9600	1199.9600	1199.9600	1199.9600	0.0	0.000%
25%	1199.9400	1199.9400	1199.9400	1199.9400	1199.9400	1199.9400	0.0	0.000%
50%	1199.9400	1199.9400	1199.9200	1199.9200	1199.9400	1199.9400	20.0	0.002%
75%	1199.9600	1199.9660	1199.9700	1199.9600	1199.9400	1199.9600	30.0	0.002%
80%	1199.9600	1199.9600	1199.9600	1199.9400	1199.9400	1199.9400	20.0	0.002%
Load	20.0	26.0	50.0	40.0	20.0	20.0	ΔI(mA)	
Regulation	0.002%	0.002%	0.004%	0.003%	0.002%	0.002%		

2. Regulation - Line & Load, C.C mode 3Φ400/3Φ480 (*)

	Vin					
Io	420VAC	460VAC	480VAC	520VAC	Line Regulation	
0%	1499.6800	1499.6800	1499.6920	1499.7000	20.0	0.001%
25%	1499.6600	1499.6600	1499.6400	1499.6400	20.0	0.001%
50%	1499.6400	1499.6600	1499.6600	1499.6600	20.0	0.001%
75%	1499.6600	1499.6600	1499.6600	1499.6600	0.0	0.000%
100%	1499.6800	1499.6800	1499.6600	1499.6600	20.0	0.001%
Load	40.0	20.0	52.0	60.0	ΔI(mA)	
Regulation	0.003%	0.001%	0.003%	0.004%		

(1). Regulation - Line & Load, Temperature drift

GSP60-255

Conditions: Ta = 25℃

1. Regulation - Line & Load, C.C mode 3Φ200 (*)

	Vin					
Vo	170VAC	200VAC	208VAC	265VAC	Line Regulation	
0%	254.8912	254.8909	254.8892	254.8874	3.8	0.001%
25%	254.8885	254.8872	254.8856	254.8848	3.7	0.001%
50%	254.8877	254.8876	254.8867	254.8875	1.0	0.000%
75%	254.8900	254.8899	254.8906	254.8905	0.7	0.000%
100%	254.8885	254.8881	254.8883	254.8888	0.7	0.000%
Load	3.5	3.7	5.0	5.7	ΔI(mA)	
Regulation	0.001%	0.001%	0.002%	0.002%		

2. Regulation - Line & Load, C.C mode 3Φ400/3Φ480 (*)

	Vin							
Io	342VAC	380VAC	400VAC	460VAC	480VAC	520VAC	Line Regulation	
0%	254.9158	254.9118	254.9076	254.9040	254.9159	254.9126	11.9	0.005%
25%	254.9020	254.8986	254.8966	254.8946	254.9008	254.9088	14.2	0.006%
50%	254.8954	254.8943	254.8930	254.8928	254.9011	254.9069	14.1	0.006%
75%	254.8947	254.8950	254.8954	254.8960	254.9084	254.9069	13.7	0.005%
80%	254.8928	254.8936	254.8945	254.8962	254.9009	254.8997	8.1	0.003%
Load	23.0	18.2	14.6	11.2	15.1	12.9	ΔI(mA)	
Regulation	0.009%	0.007%	0.006%	0.004%	0.006%	0.005%		

3. Temperature drift, C.C mode

Conditions: Vin:400V 3Φ
Iout:100%

Ta	0℃	25℃	50℃	Temp. Coefficient (0˚C~50˚C)	
Iout	254.9946	255.0779	255.2949	300 mA	24 ppm/˚C

Notes:
(*) Not including load regulation thermal drift effect.

(1). Regulation - Line & Load, Temperature drift

GSP150-102

Conditions: Ta = 25℃

1. Regulation - Line & Load, C.C mode 3Φ200 (*)

	Vin					
Vo	170VAC	200VAC	208VAC	265VAC	Line Regulation	
0%	102.0243	102.0243	102.0243	102.0250	0.7	0.001%
25%	102.0236	102.0243	102.0236	102.0236	0.7	0.001%
50%	102.0299	102.0299	102.0299	102.0299	0.0	0.000%
75%	102.0313	102.0306	102.0313	102.0306	0.7	0.001%
100%	102.0306	102.0306	102.0306	102.0306	0.0	0.000%
Load	7.7	6.3	7.7	7.0	ΔI(mA)	
Regulation	0.008%	0.006%	0.008%	0.007%		

2. Regulation - Line & Load, C.C mode 3Φ400/3Φ480 (*)

	Vin							
Io	342VAC	380VAC	400VAC	460VAC	480VAC	520VAC	Line Regulation	
0%	102.0285	102.0285	102.0285	102.0285	102.0285	102.0320	3.5	0.003%
25%	102.0299	102.0299	102.0299	102.0299	102.0299	102.0320	2.1	0.002%
50%	102.0355	102.0355	102.0355	102.0355	102.0355	102.0390	3.5	0.003%
75%	102.0355	102.0355	102.0355	102.0362	102.0362	102.0390	3.5	0.003%
100%	102.0348	102.0348	102.0348	102.0362	102.0362	102.0376	2.8	0.003%
Load	7.0	7.0	7.0	7.7	7.7	7.0	ΔI(mA)	
Regulation	0.007%	0.007%	0.007%	0.008%	0.008%	0.007%		

3. Temperature drift, C.C mode

Conditions: Vin:480V 3Φ
Iout:100%

Ta	0℃	25℃	50℃	Temp. Coefficient (0˚C~50˚C)	
Iout	102.0376	102.0656	102.1454	107.80 mA	21 ppm/˚C

Notes:
(*) Not including load regulation thermal drift effect.

(1). Regulation - Line & Load.

GSP600-25.5

Conditions: Ta = 25℃

1. Regulation - Line & Load, C.C mode 3Φ200 (*)

	Vin					
Vo	170VAC	200VAC	208VAC	265VAC	Line Regulation	
0%	25.4821	25.4821	25.4821	25.4817	0.4	0.002%
25%	25.4811	25.4809	25.4810	25.4811	0.2	0.001%
50%	25.4831	25.4832	25.4831	25.4827	0.4	0.002%
75%	25.4821	25.4820	25.4819	25.4818	0.3	0.001%
100%	25.4825	25.4823	25.4821	25.4819	0.6	0.002%
Load	2.0	2.3	2.1	1.6	ΔI(mA)	
Regulation	0.008%	0.009%	0.008%	0.006%		

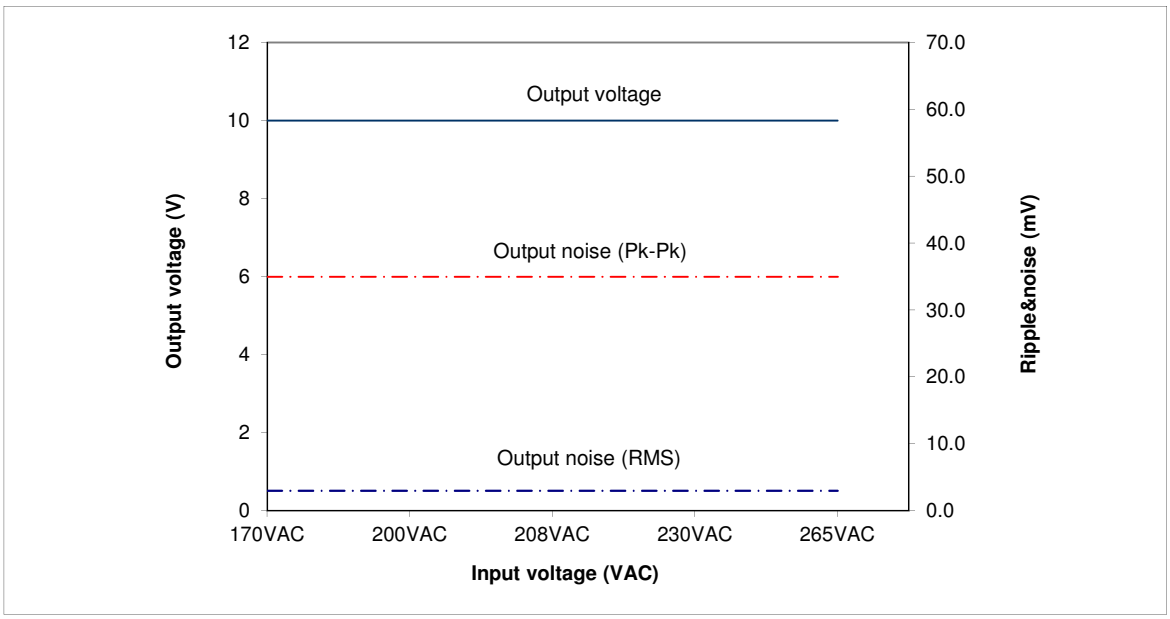
2. Regulation - Line & Load, C.C mode 3Φ400/3Φ480 (*)

	Vin							
Io	342VAC	380VAC	400VAC	460VAC	480VAC	520VAC	Line Regulation	
0%	25.4751	25.4747	25.4746	25.4743	25.4741	25.4721	3.0	0.012%
25%	25.4737	25.4739	25.4740	25.4742	25.4744	25.4724	2.0	0.008%
50%	25.4748	25.4747	25.4748	25.4746	25.4745	25.4725	2.3	0.009%
75%	25.4736	25.4738	25.4738	25.4740	25.4741	25.4721	2.0	0.008%
100%	25.4738	25.4738	25.4740	25.4739	25.4740	25.4741	0.3	0.001%
Load	1.5	0.9	1.0	0.7	0.5	2.0	ΔI(mA)	
Regulation	0.006%	0.004%	0.004%	0.003%	0.002%	0.008%		

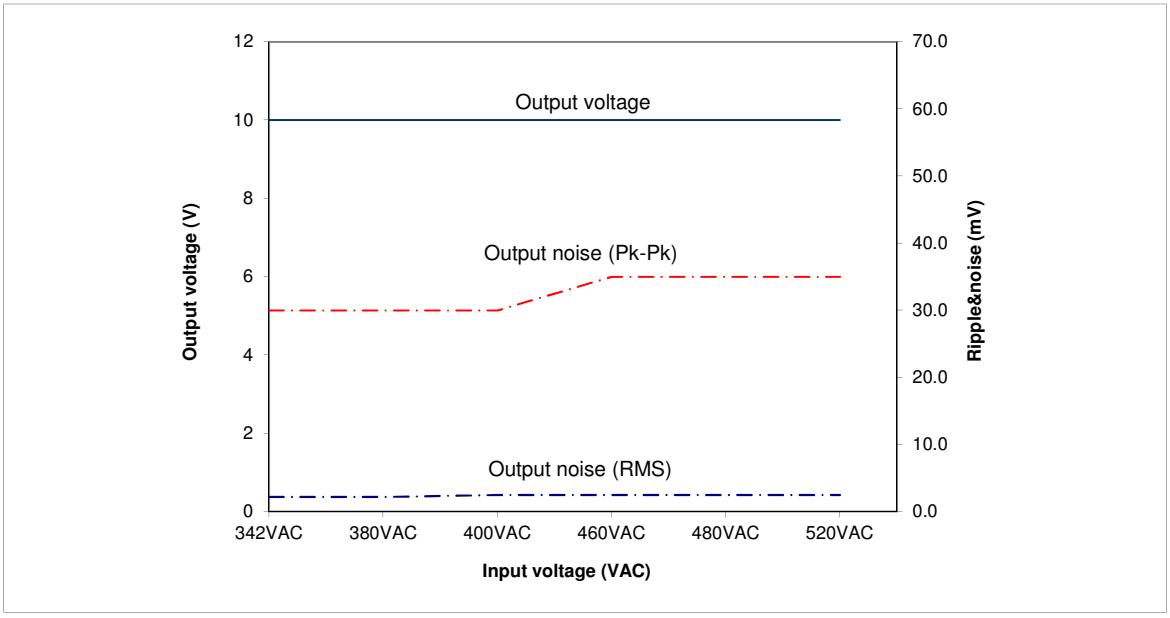
(2). Output voltage and ripple voltage vs. input voltage
C.V mode

Conditions: Iout:100%
Ta: 25˚C

GSP10-1500 3Φ200



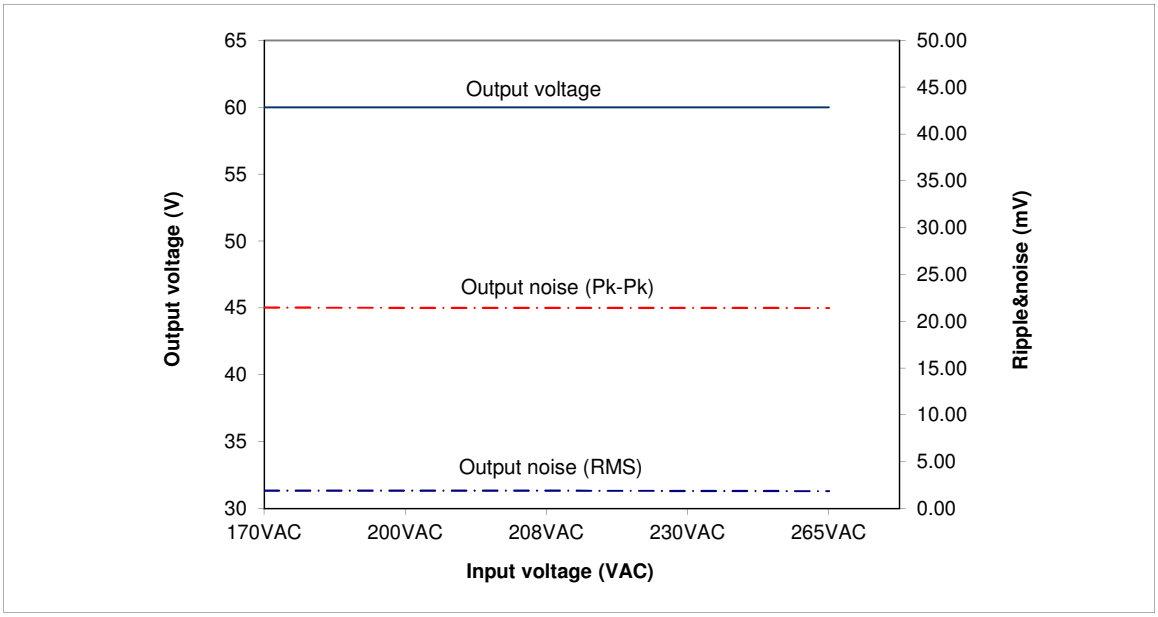
GSP10-1500 3Φ400/3Φ480



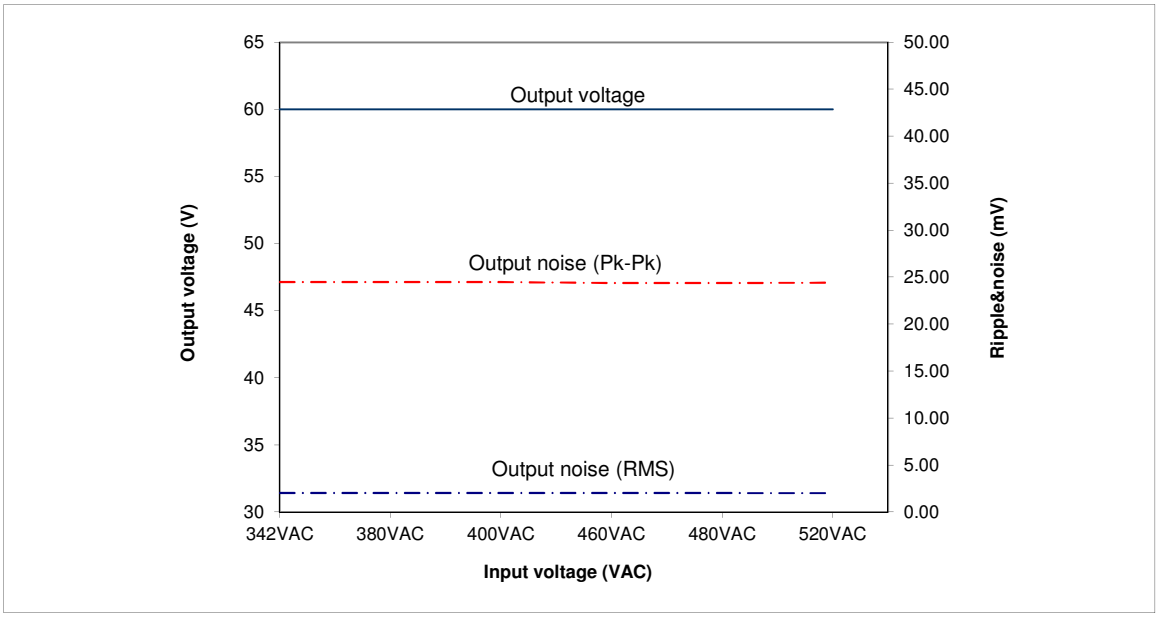
(2). Output voltage and ripple voltage vs. input voltage
C.V mode

Conditions: Iout:100%
Ta: 25˚C

GSP60-255 3Φ200



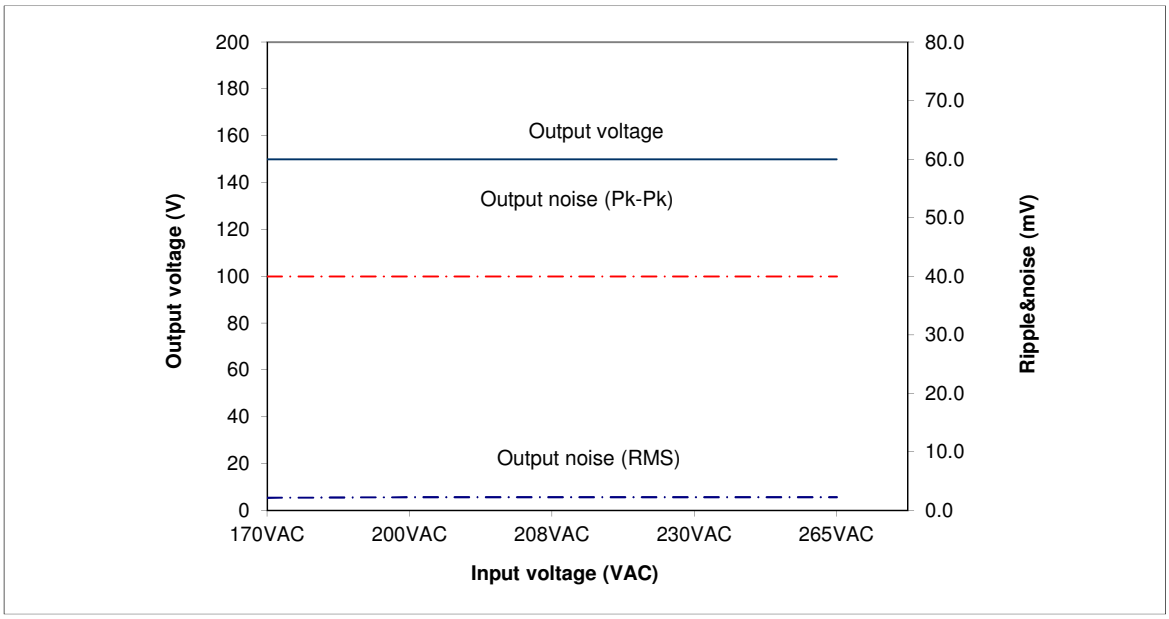
GSP60-255 3Φ400/3Φ480



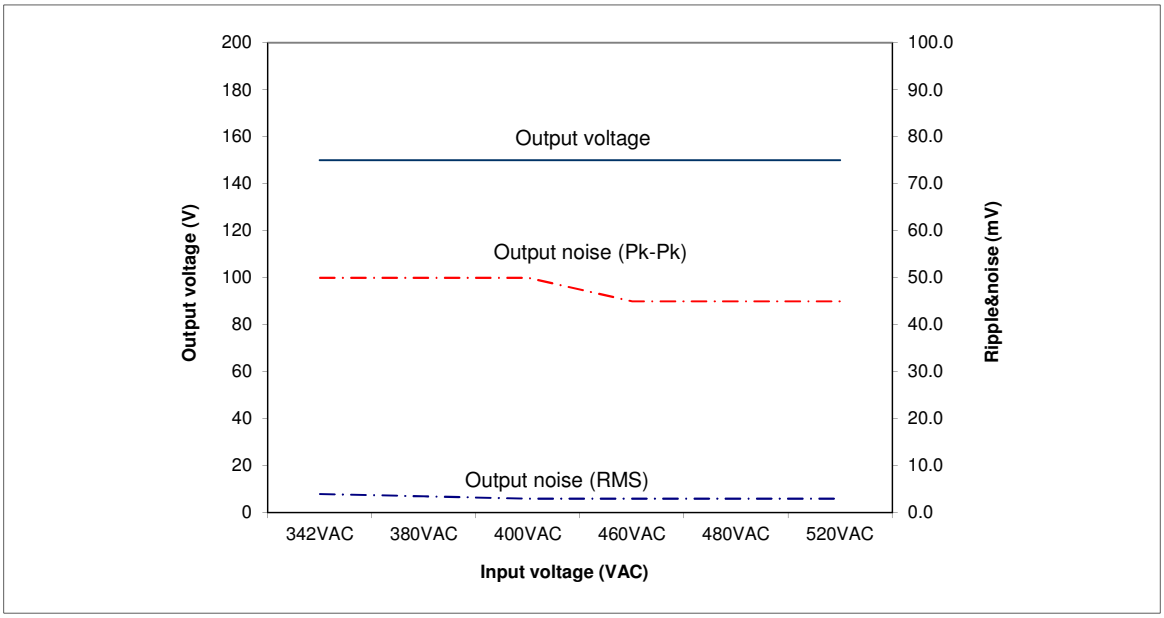
(2). Output voltage and ripple voltage vs. input voltage
C.V mode

Conditions: Iout:100%
Ta: 25˚C

GSP150-102 3Φ200



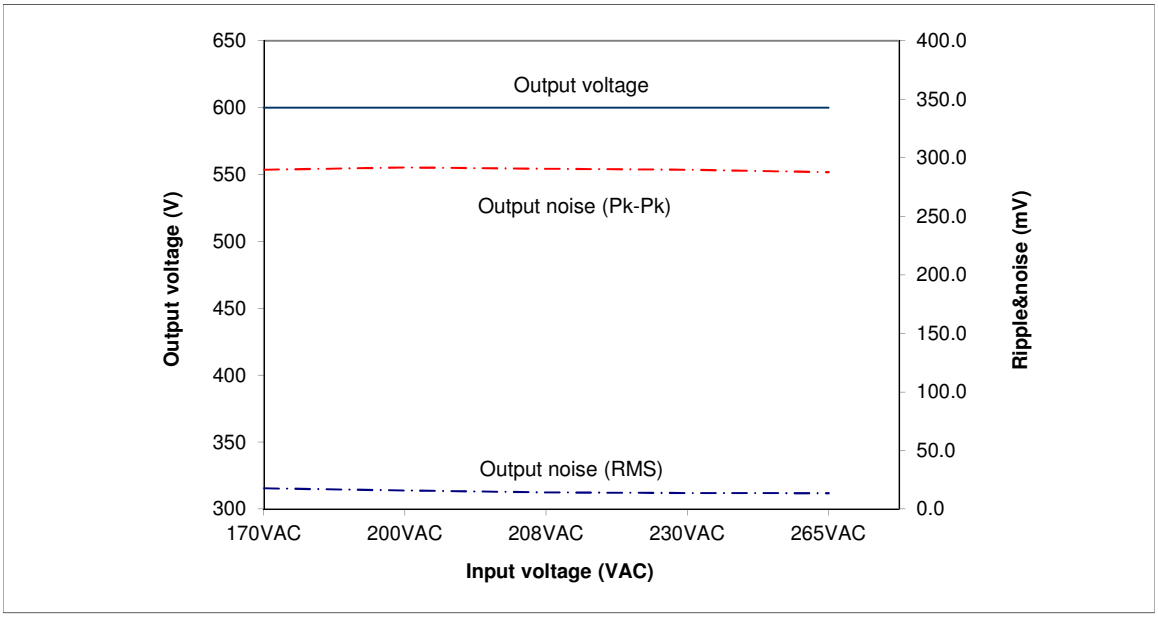
GSP150-102 3Φ400/3Φ480



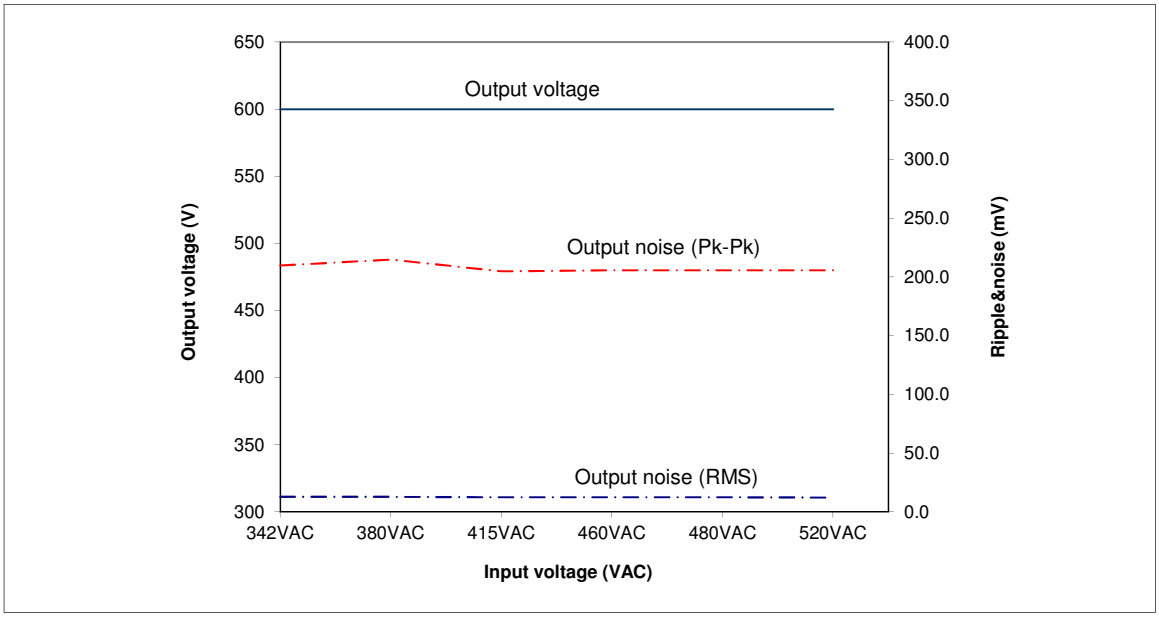
(2). Output voltage and ripple voltage vs. input voltage
C.V mode

Conditions: Iout:100%
Ta: 25˚C

GSP600-25.5 3Φ200

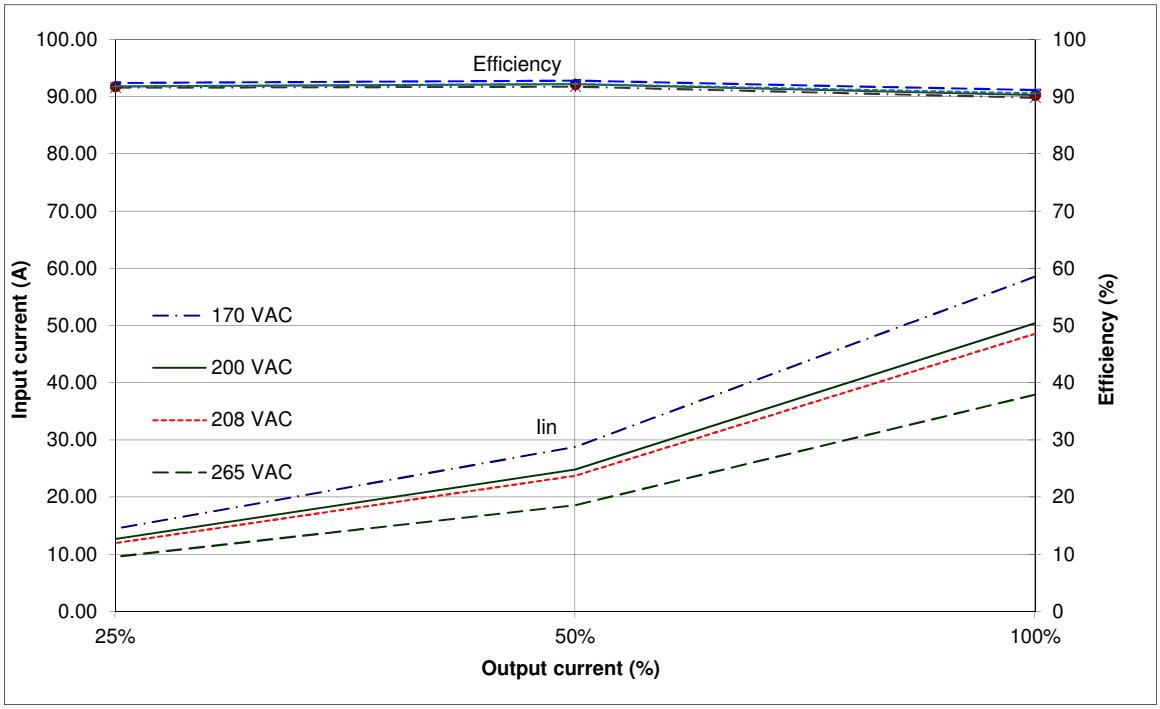


GSP600-25.5 3Φ400/3Φ480



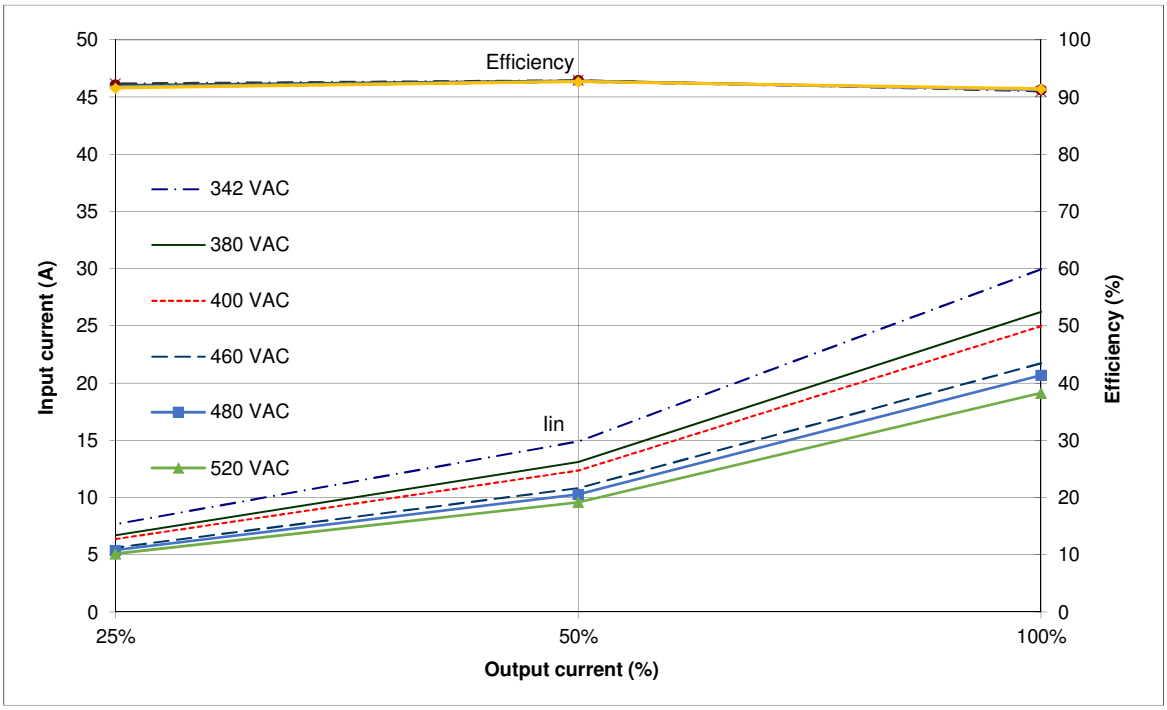
(3). Efficiency and Input current vs. Output current

GSP10-1500 3Φ200



Conditions:
Vin: 170~265 VAC
Vout: 100%
Ta: 25˚C

GSP10-1500 3Φ400/3Φ480

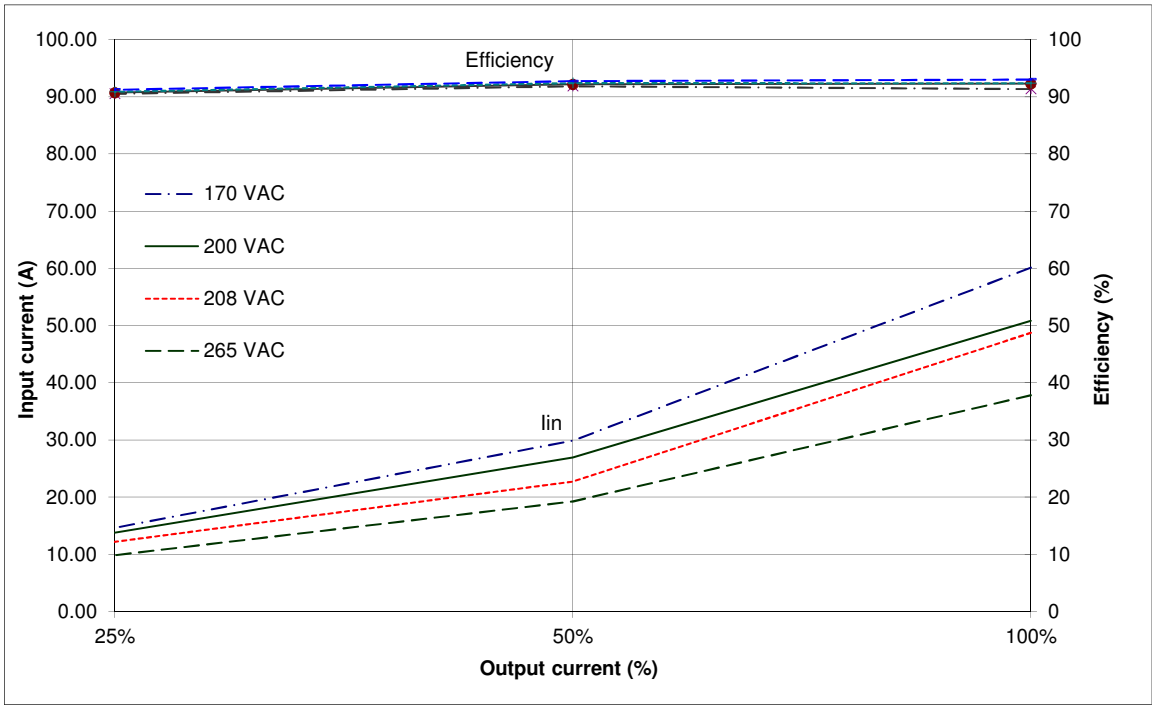


Conditions:
Vin: 342~520 VAC
Vout: 100%
Ta: 25˚C

(3). Efficiency and Input current vs. Output current

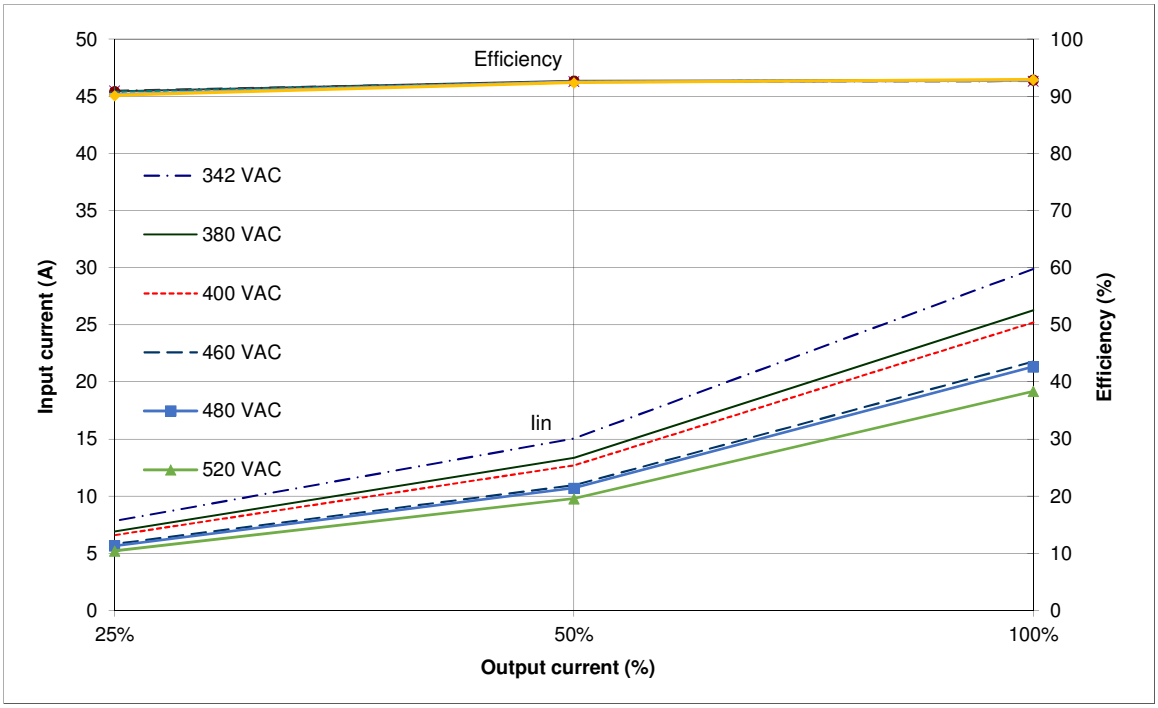
GSP60-255 3Φ200

Conditions:
Vin: 170~265 VAC
Vout: 100%
Ta: 25˚C



GSP60-255 3Φ400/3Φ480

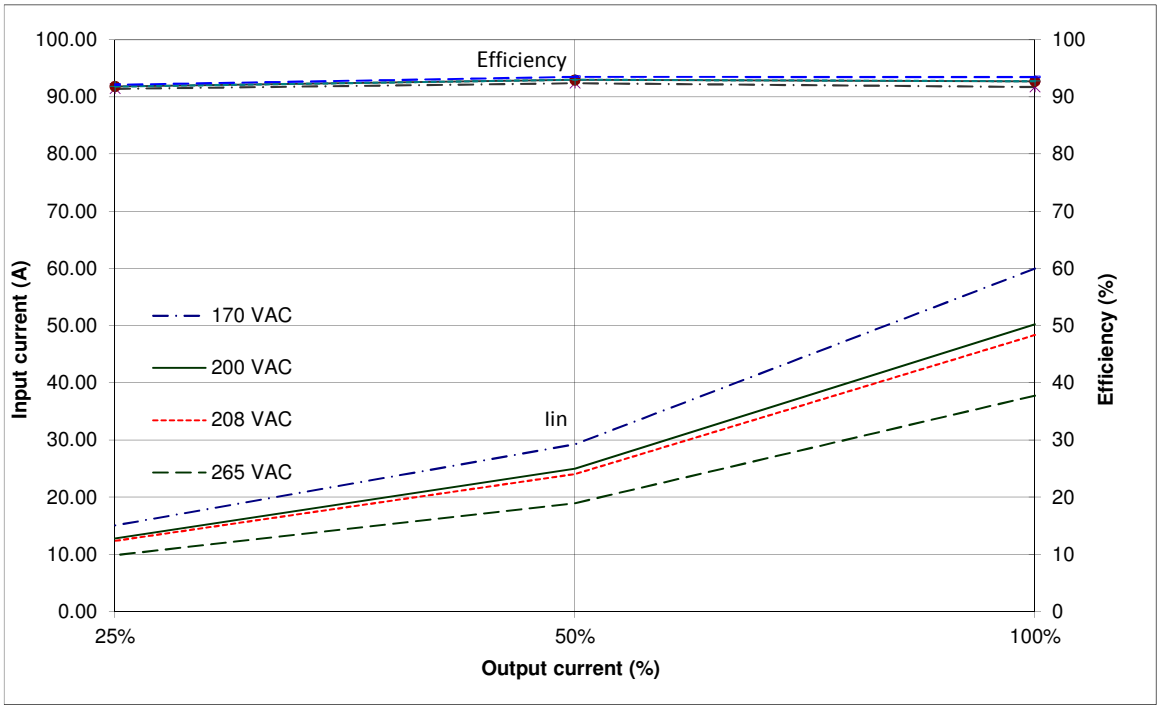
Conditions:
Vin: 342~520 VAC
Vout: 100%
Ta: 25˚C



(3). Efficiency and Input current vs. Output current

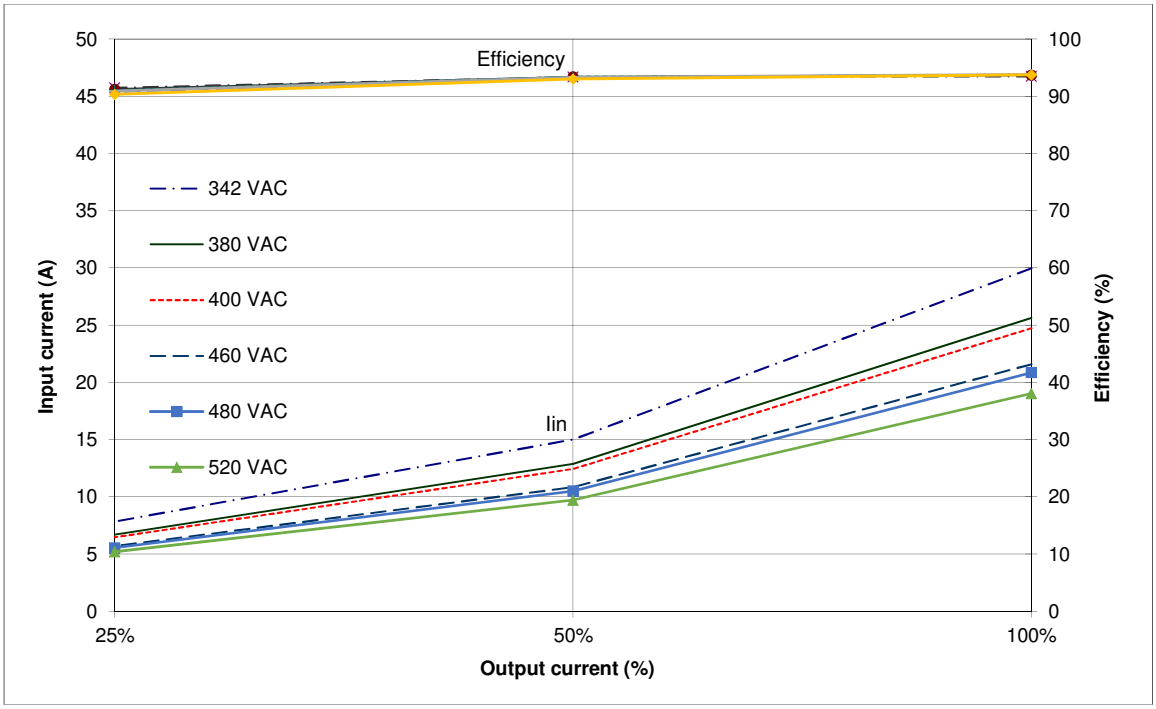
GSP150-102 3Φ200

Conditions:
Vin: 170~265 VAC
Vout: 100%
Ta: 25˚C



(3). Efficiency and Input current vs. Output current

GSP600--25.5 3Φ400/3Φ480

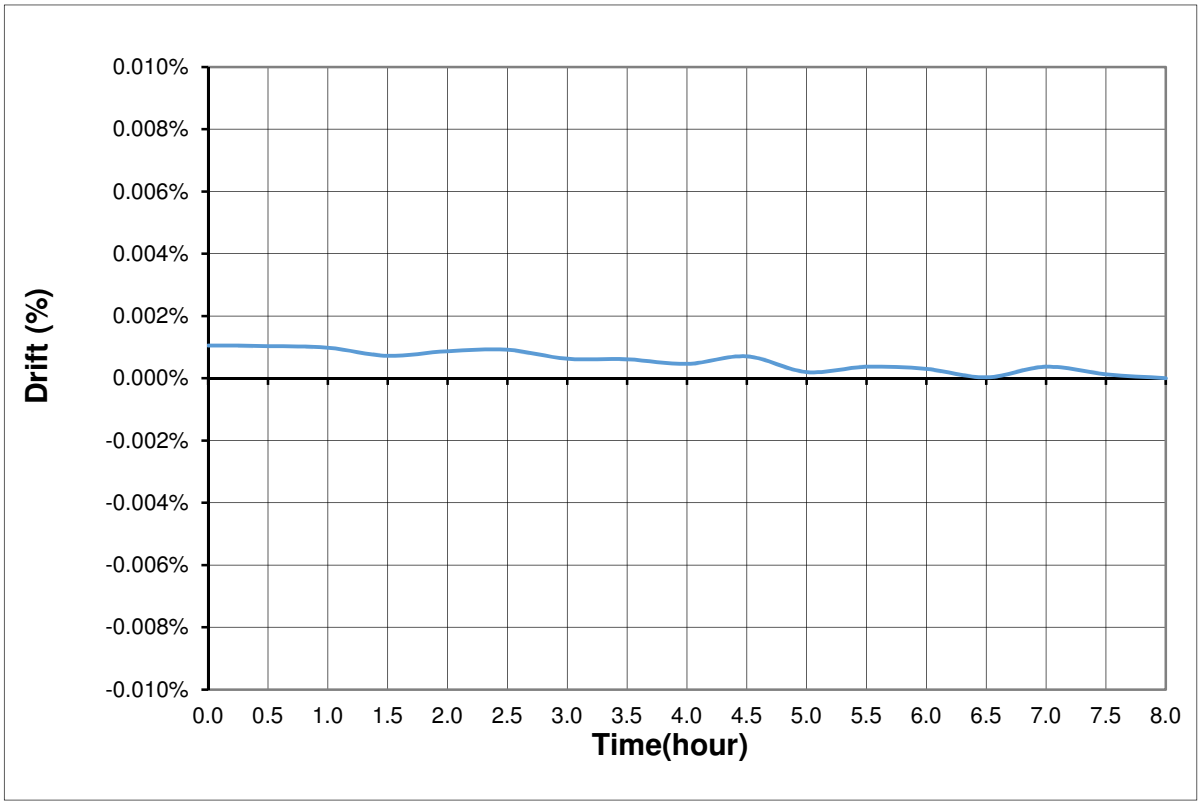


Conditions:
Vin: 342~520 VAC
Vout: 100%
Ta: 25˚C

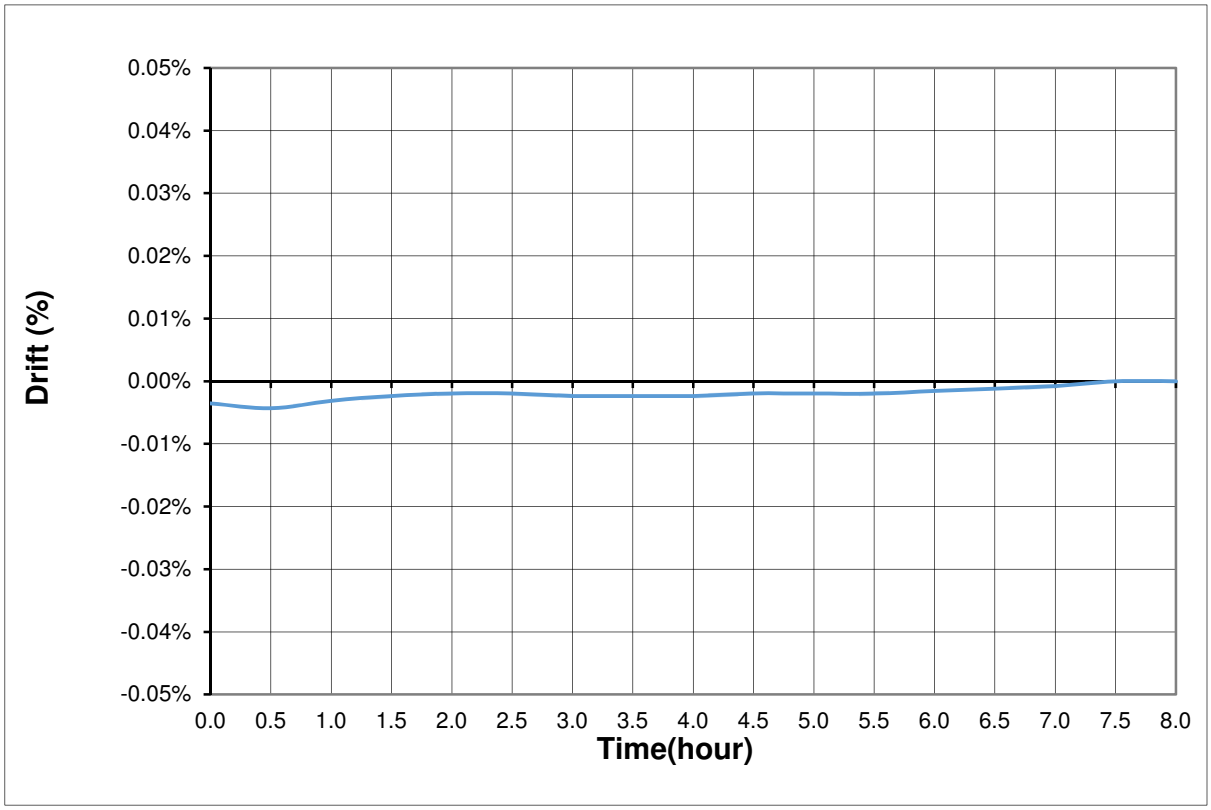
2.2 Warm up drift & stability

Conditions: Vout: 100%
Iout: 100%
Ta = 25℃

GSP60-225 C.V mode



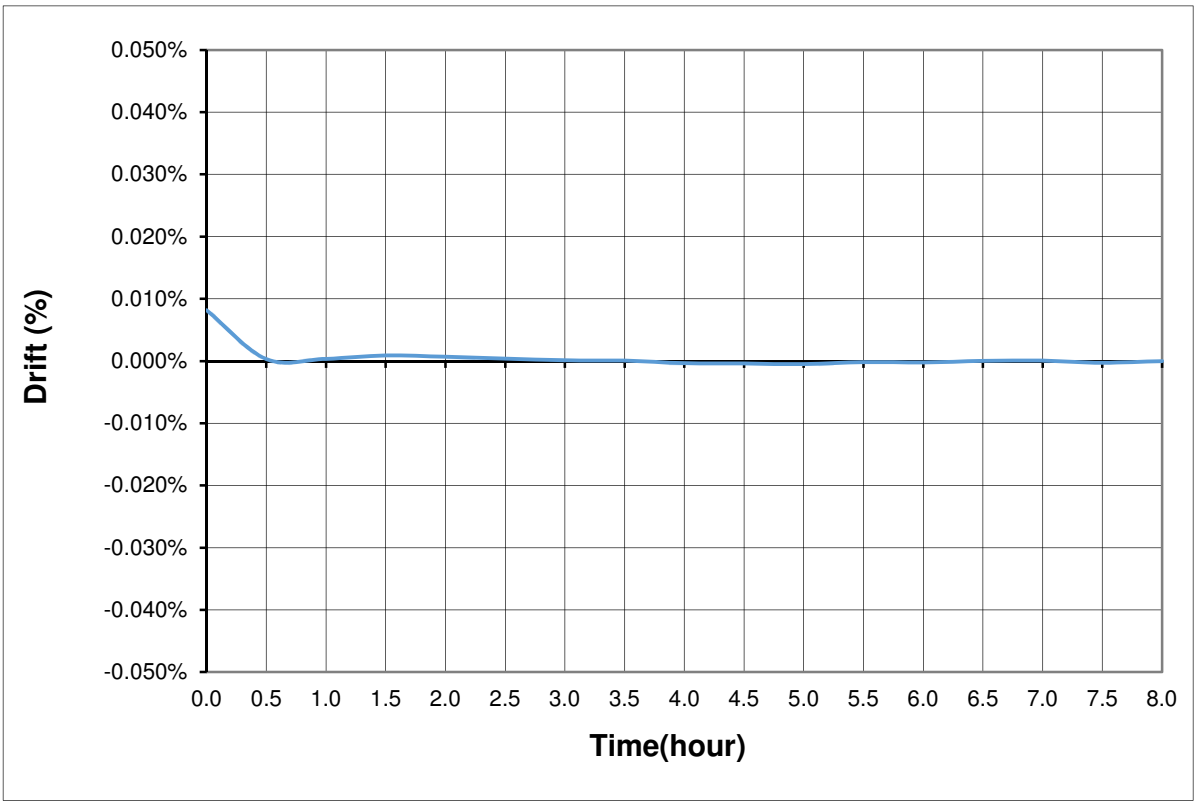
GSP60-225 C.C mode



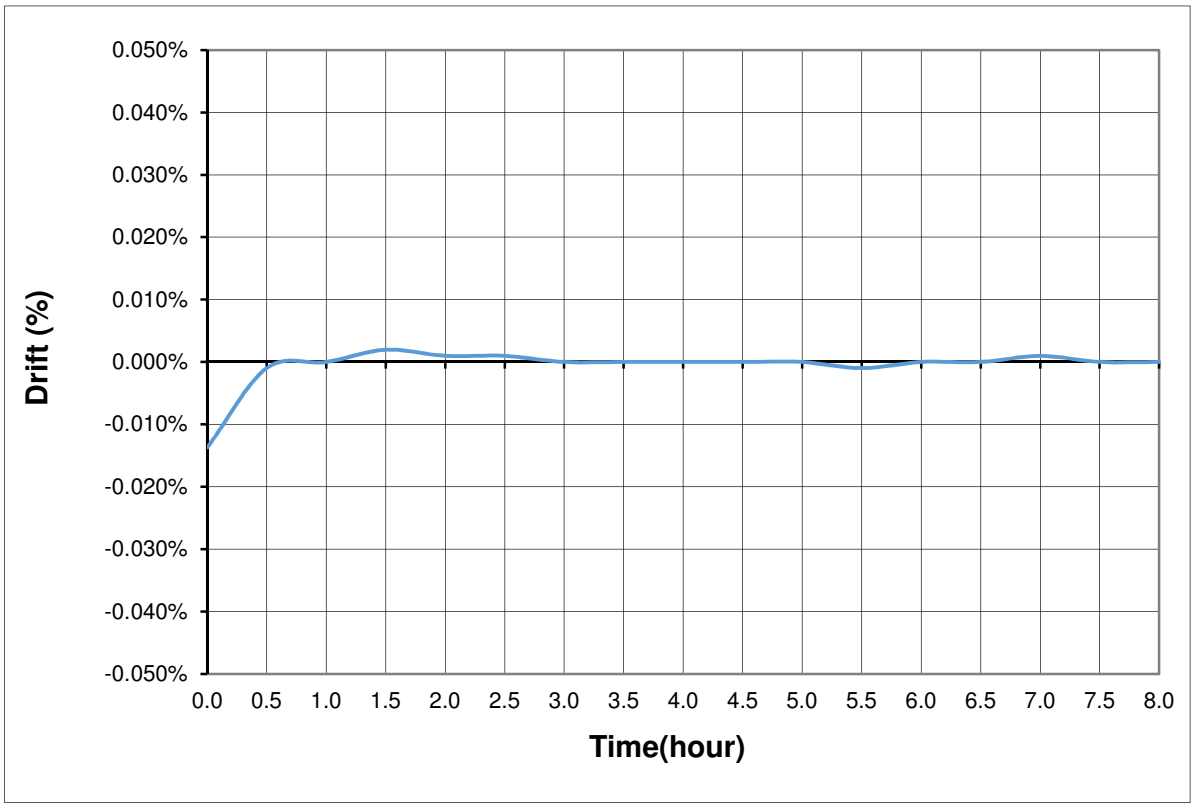
2.2 Warm up drift & stability

Conditions: Vout: 100%
Iout: 100%
Ta = 25℃

GSP150-102 C.V mode



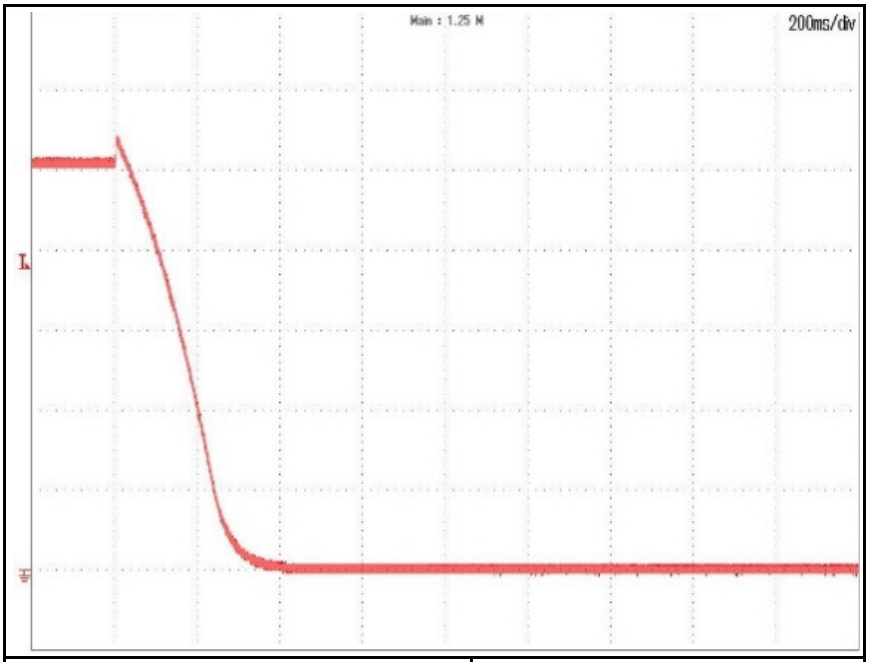
GSP150-102 C.C mode



2.3 Over voltage protection (OVP) characteristic

Conditions: Vset: 100%
Iout: 0%
Ta = 25℃

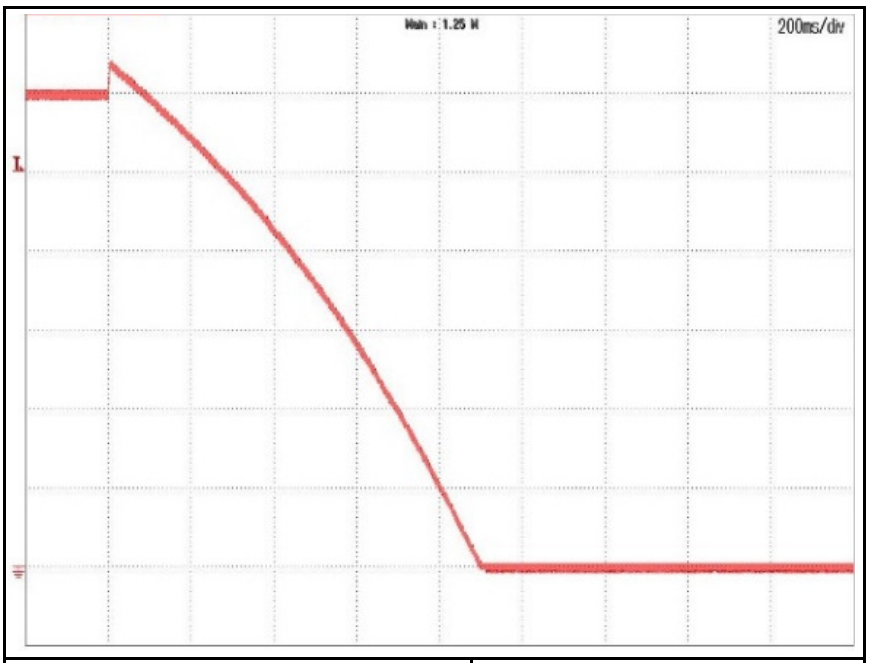
GSP10-1500



$2^{V}/_{DIV}$	$200^{ms}/_{DIV}$

OVP setting:10.5V

GSP60-255



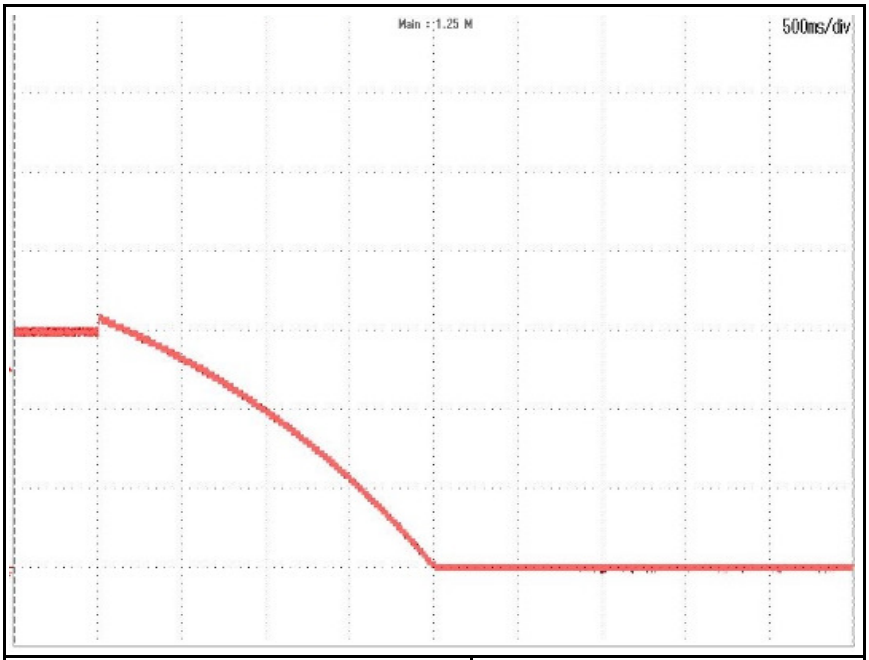
$10^{V}/_{DIV}$	$200^{ms}/_{DIV}$

OVP setting:63V

2.3 Over voltage protection (OVP) characteristic

Conditions: Vset: 100%
Iout: 0%
Ta = 25℃

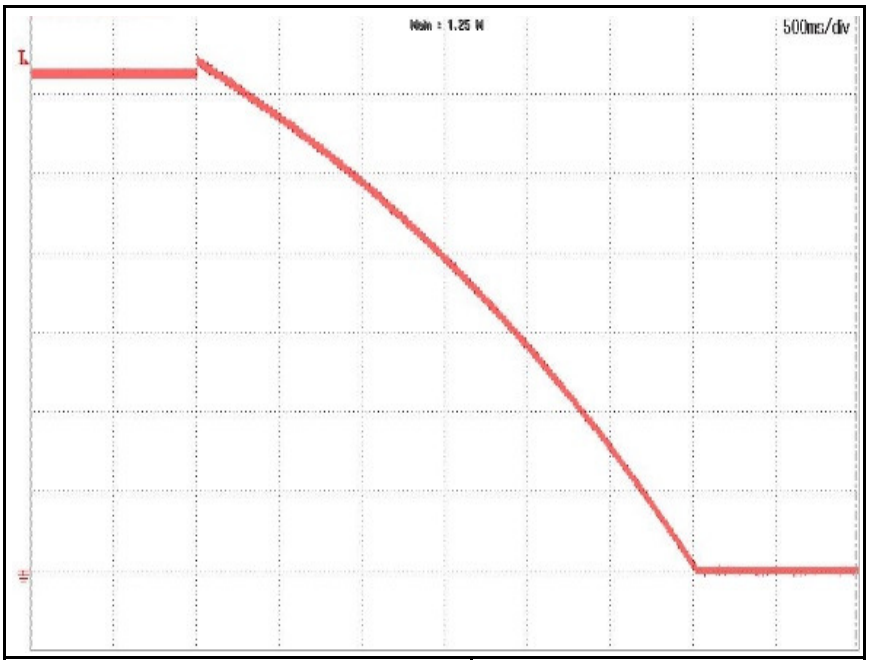
GSP150-102



$50^{V}/_{DIV}$	$500^{ms}/_{DIV}$

OVP setting:157.5V

GSP600-25.5



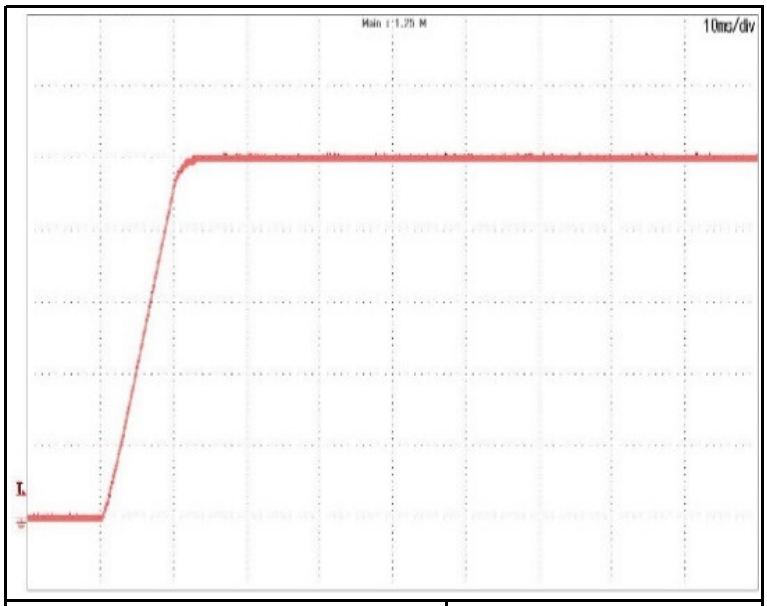
$100^{V}/_{DIV}$	$500^{ms}/_{DIV}$

OVP setting:630V

2.4 ON/OFF Output rise characteristics
C.V mode

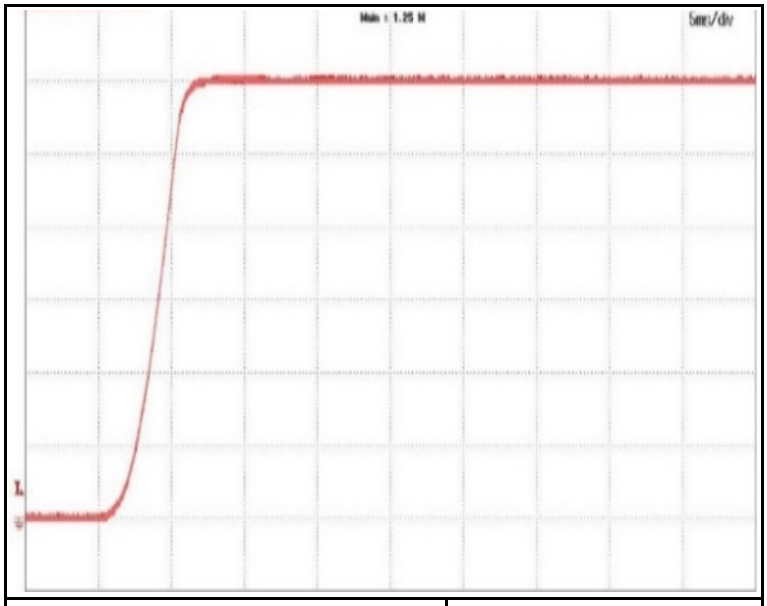
Conditions: Vin:Nominal
Vout: 100%
Iout: 0%
Iset=105%
Ta = 25℃

GSP10-1500



$2^{V}/_{DIV}$	$5^{ms}/_{DIV}$

GSP60-255

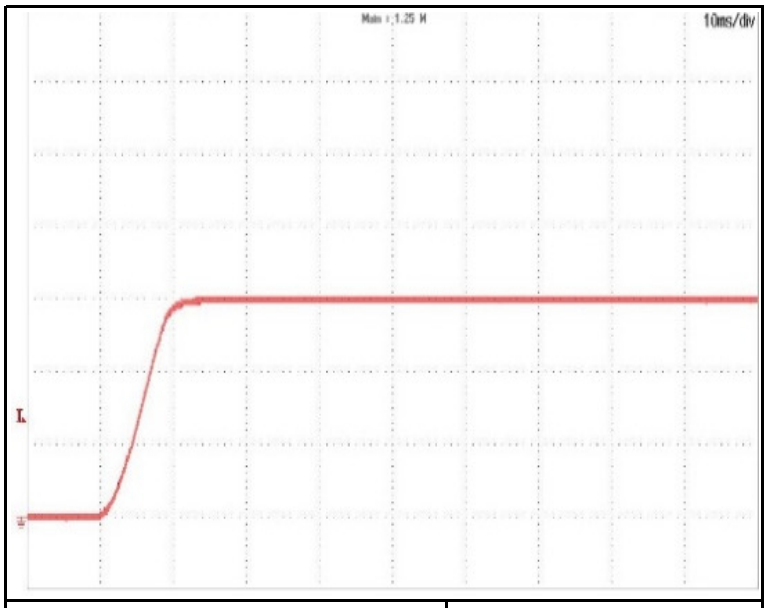


$10^{V}/_{DIV}$	$5^{ms}/_{DIV}$

2.4 ON/OFF Output rise characteristics
C.V mode

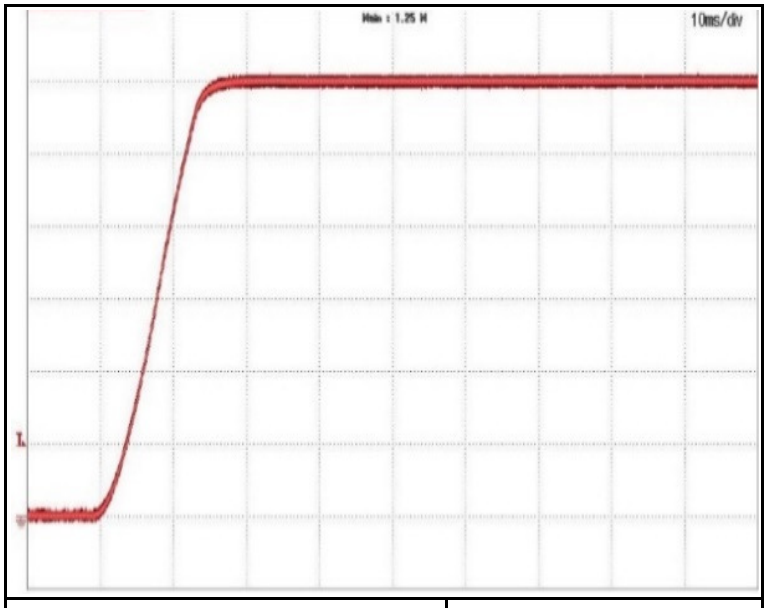
Conditions: Vin:Nominal
Vout: 100%
Iout: 0%
Iset=105%
Ta = 25℃

GSP150-102



$50^{V}/_{DIV}$	$10^{ms}/_{DIV}$

GSP600-25.5

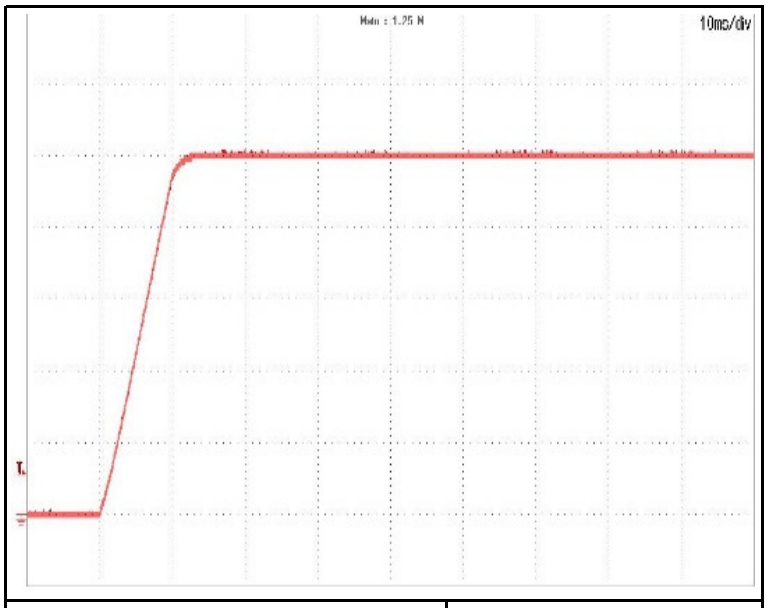


$100^{V}/_{DIV}$	$10^{ms}/_{DIV}$

2.4 ON/OFF Output rise characteristics
C.V mode

Conditions: Vin:Nominal
Vout: 100%
Iout: 100%
Iset=105%
Load: CR
Ta = 25℃

GSP10-1500



$2^{V}/_{DIV}$	$10^{ms}/_{DIV}$

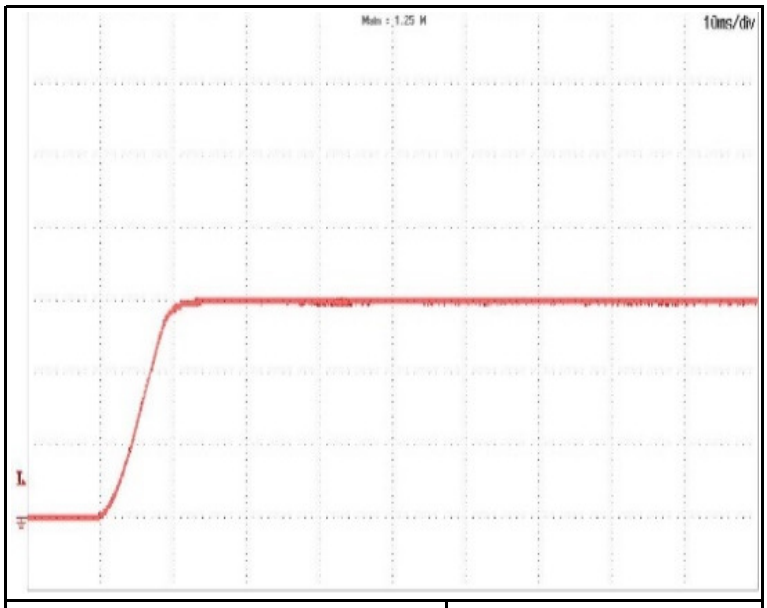
GSP60-255

$10^{V}/_{DIV}$	$5^{ms}/_{DIV}$

2.4 ON/OFF Output rise characteristics
C.V mode

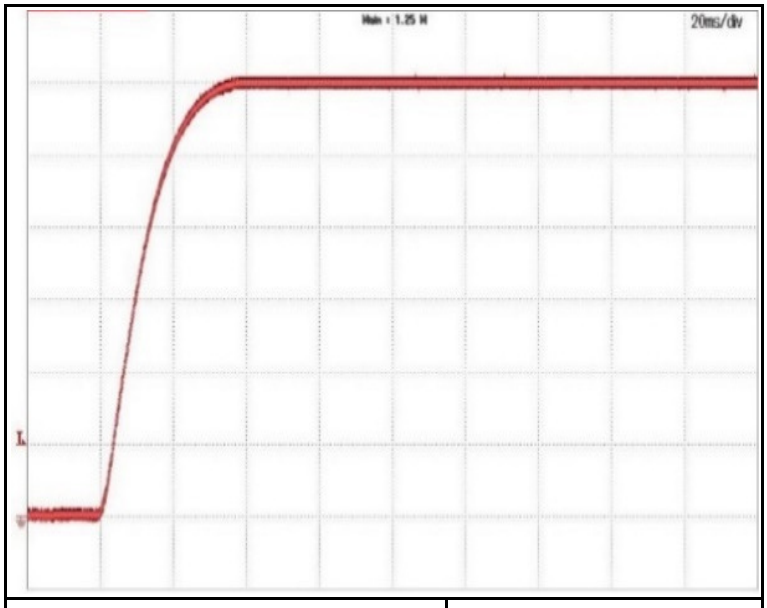
Conditions: Vin:Nominal
Vout: 100%
Iout: 100%
Iset=105%
Load: CR
Ta = 25℃

GSP150-102



$50^{V}/_{DIV}$	$10^{ms}/_{DIV}$

GSP600-25.5

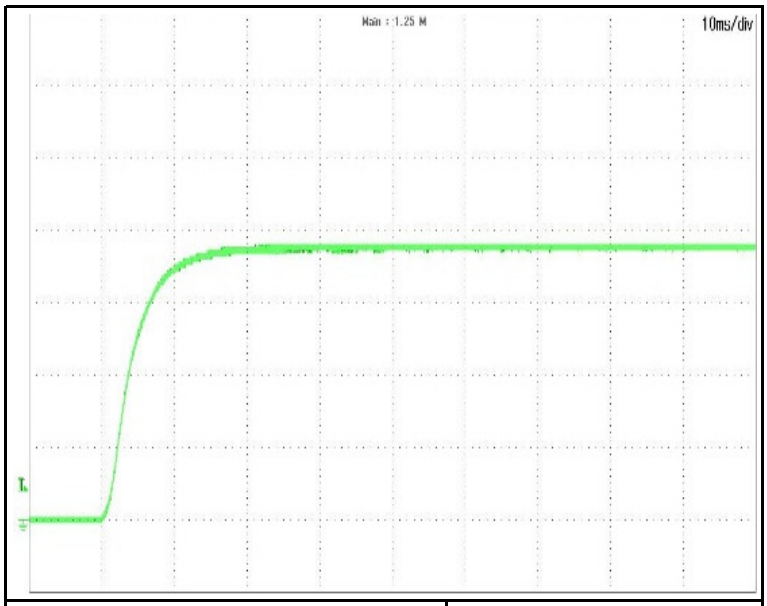


$100^{V}/_{DIV}$	$20^{ms}/_{DIV}$

2.4 ON/OFF Output rise characteristics
C.C mode

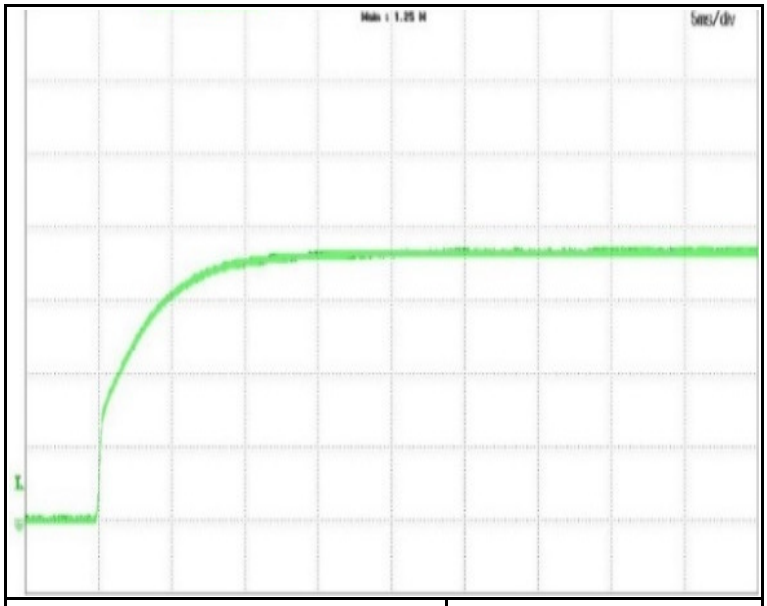
Conditions: Vin:Nominal
Vout: 100%
Iout: 100%
Vset=105%
Load: CR
Ta = 25℃

GSP10-1500



$400^{A}/_{DIV}$	$20^{ms}/_{DIV}$

GSP60-255

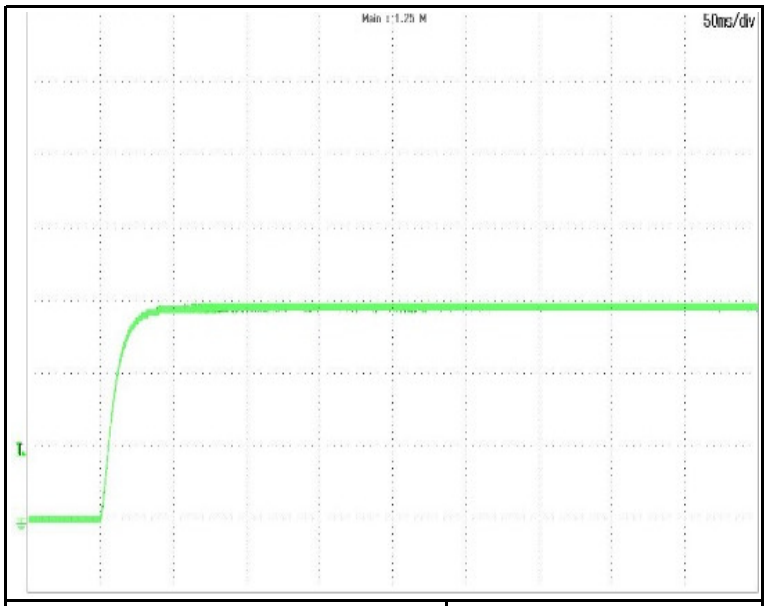


$70^{A}/_{DIV}$	$5^{ms}/_{DIV}$

2.4 ON/OFF Output rise characteristics
C.C mode

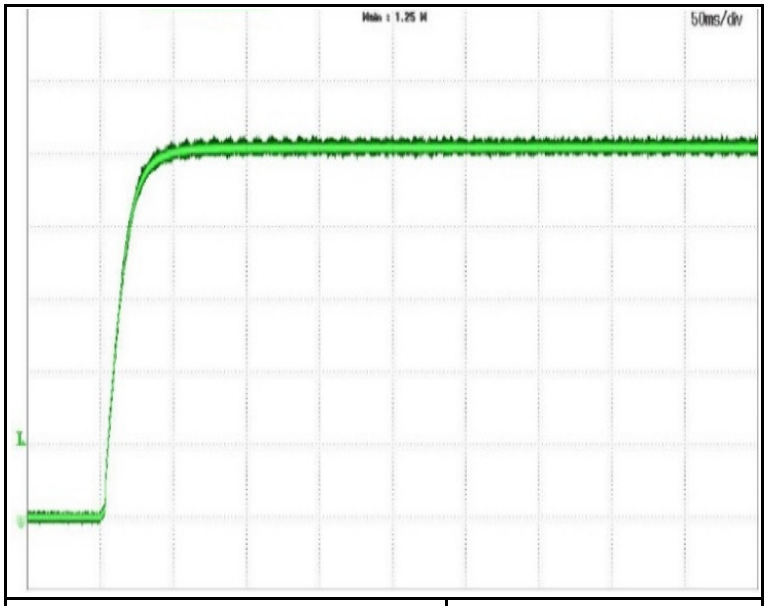
Conditions: Vin:Nominal
Vout: 100%
Iout: 100%
Vset=105%
Load: CR
Ta = 25℃

GSP150-102



$35^{A}/_{DIV}$	$50^{ms}/_{DIV}$

GSP600-25.5

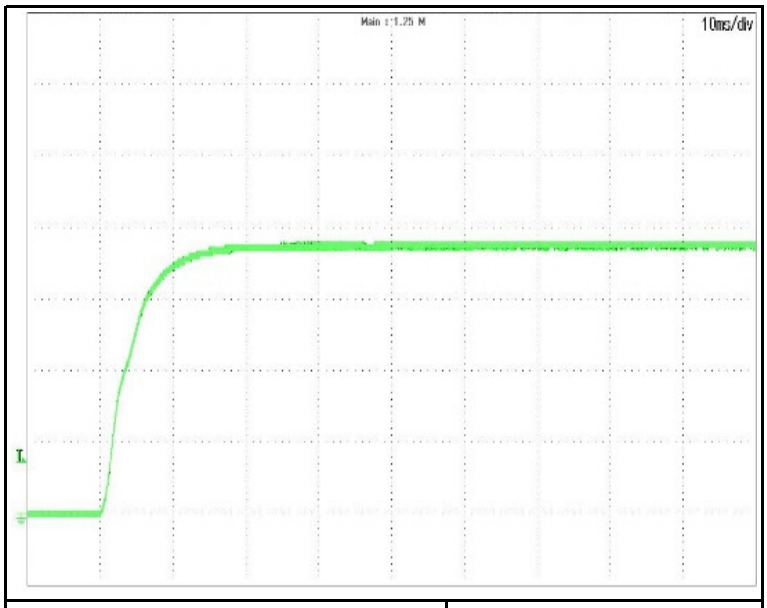


$5^{A}/_{DIV}$	$50^{ms}/_{DIV}$

2.4 ON/OFF Output rise characteristics
C.C mode

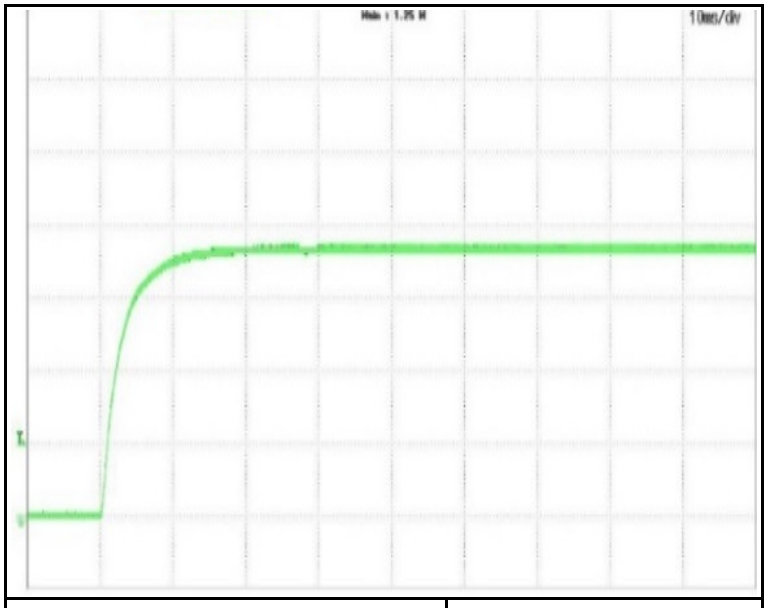
Conditions: Vin:Nominal
Iout: 100%
Vset=105%
shorted output
Ta = 25℃

GSP10-1500



$400^{A}/_{DIV}$	$10^{ms}/_{DIV}$

GSP60-255

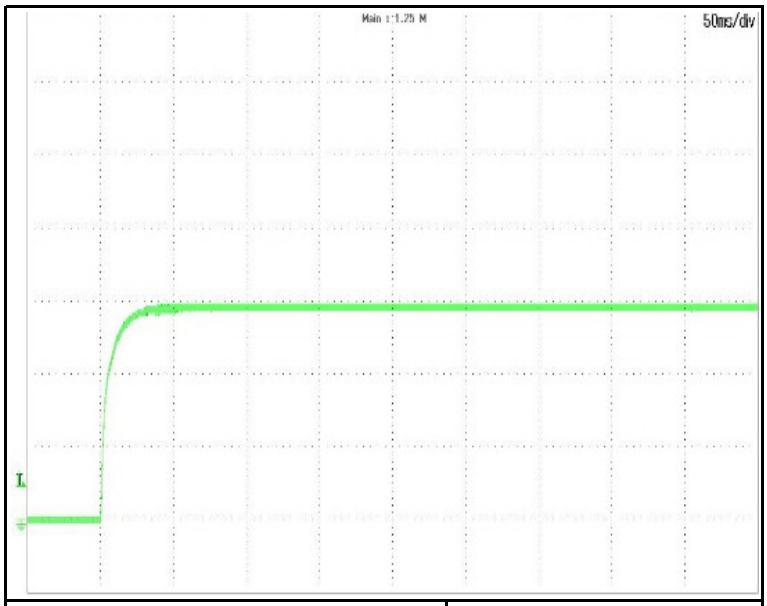


$70^{A}/_{DIV}$	$10^{ms}/_{DIV}$

2.4 ON/OFF Output rise characteristics
C.C mode

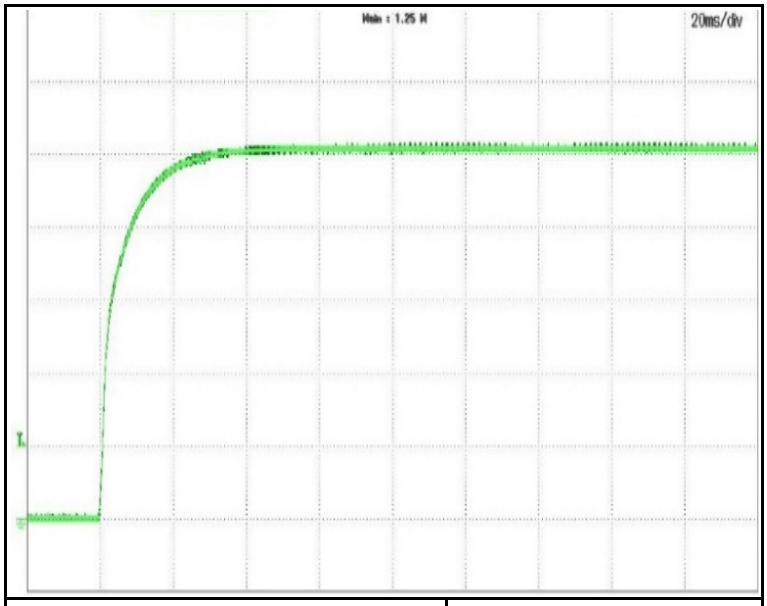
Conditions: Vin:Nominal
Iout: 100%
Vset=105%
shorted output
Ta = 25℃

GSP150-102



$35^{A}/_{DIV}$	$50^{ms}/_{DIV}$

GSP600-25.5

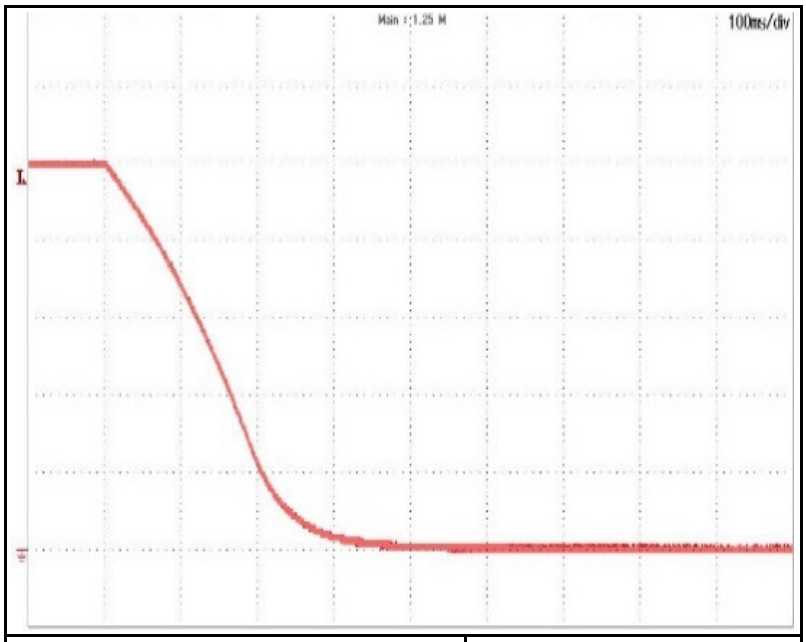


$5^{A}/_{DIV}$	$20^{ms}/_{DIV}$

2.5 ON/OFF Output fall characteristics
C.V mode

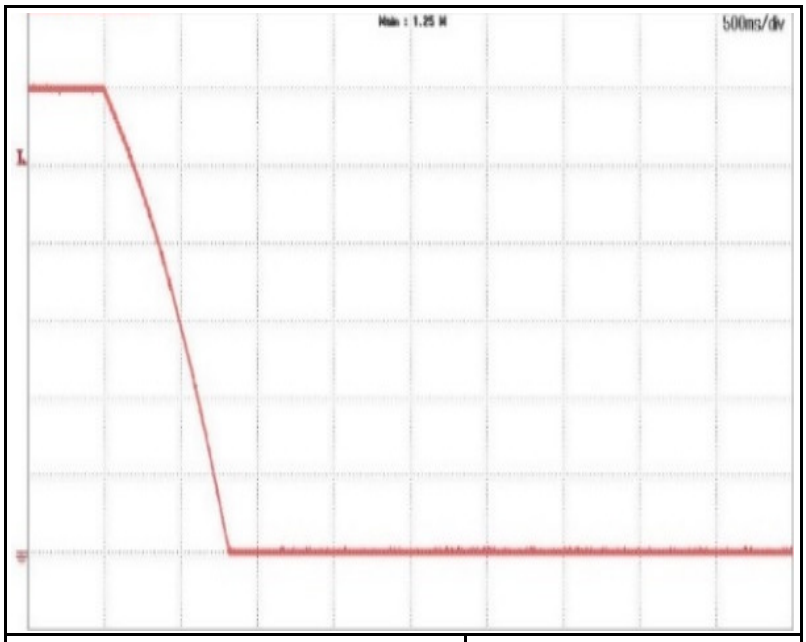
Conditions: Vin:Nominal
Vout: 100%
Iout: 0%
Ta = 25℃

GSP10-1500



$2^{V}/_{DIV}$	$100^{ms}/_{DIV}$

GSP60-255

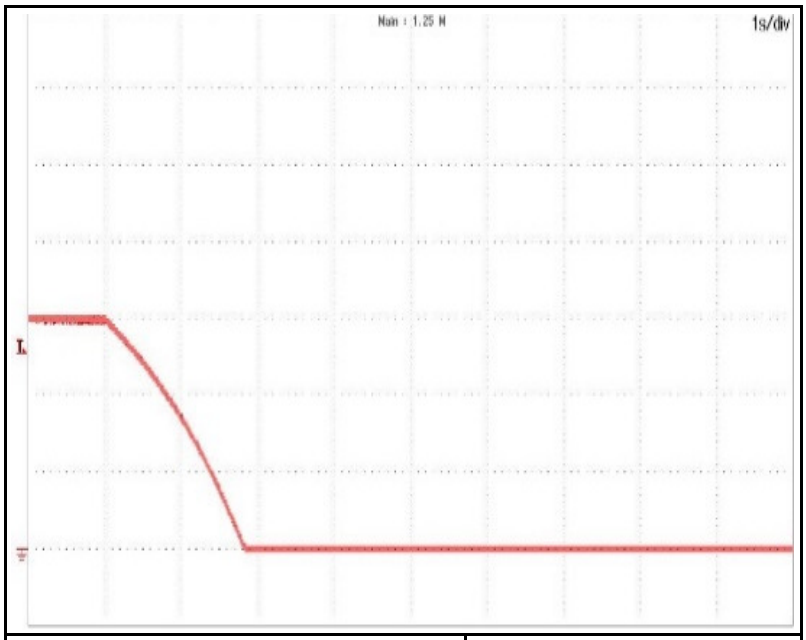


$10^{V}/_{DIV}$	$500^{ms}/_{DIV}$

2.5 ON/OFF Output fall characteristics
C.V mode

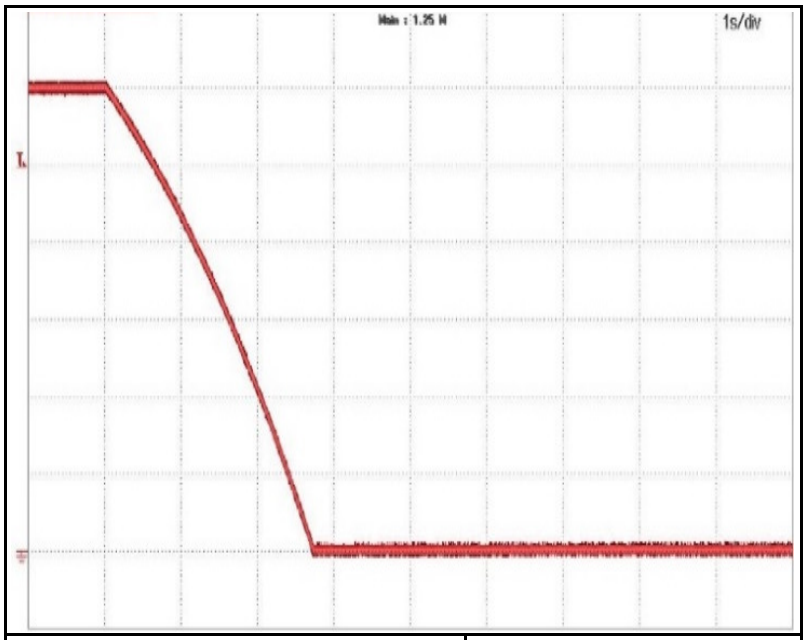
Conditions: Vin:Nominal
Vout: 100%
Iout: 0%
Ta = 25℃

GSP150-102



50 V/DIV	1 Sec/DIV

GSP600-25.5

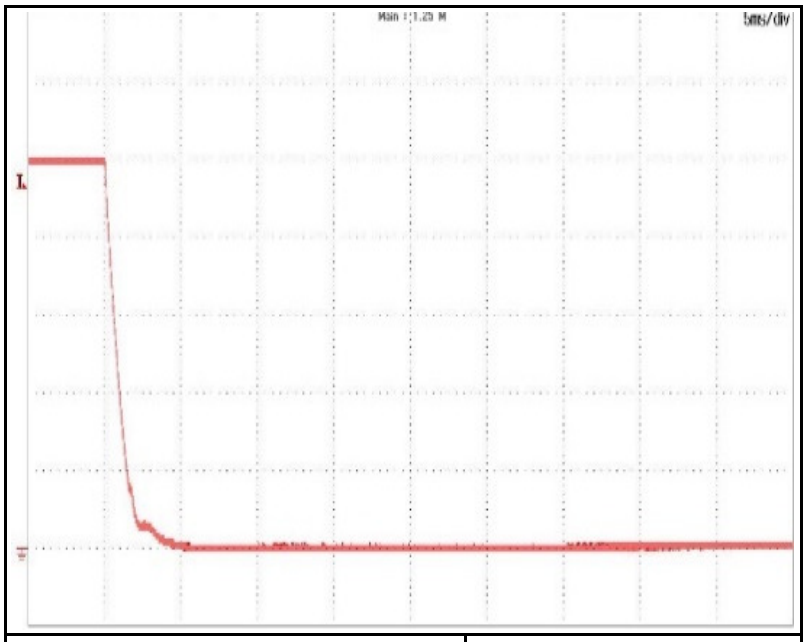


100 V/DIV	1 Sec/DIV

2.5 ON/OFF Output fall characteristics
C.V mode

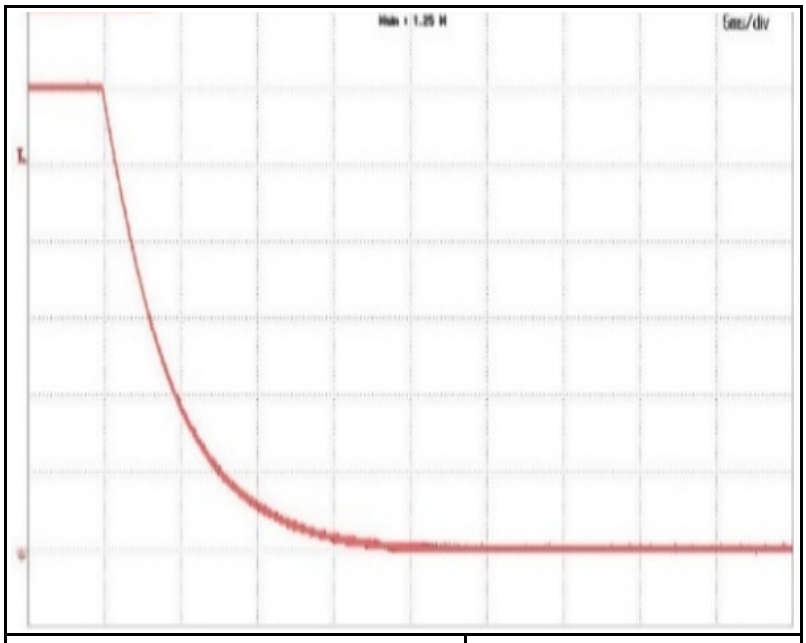
Conditions: Vin:Nominal
Vout: 100%
Iout: 100%
Load: CR
Ta = 25℃

GSP10-1500



$2^{V}/_{DIV}$	$5^{ms}/_{DIV}$

GSP60-255

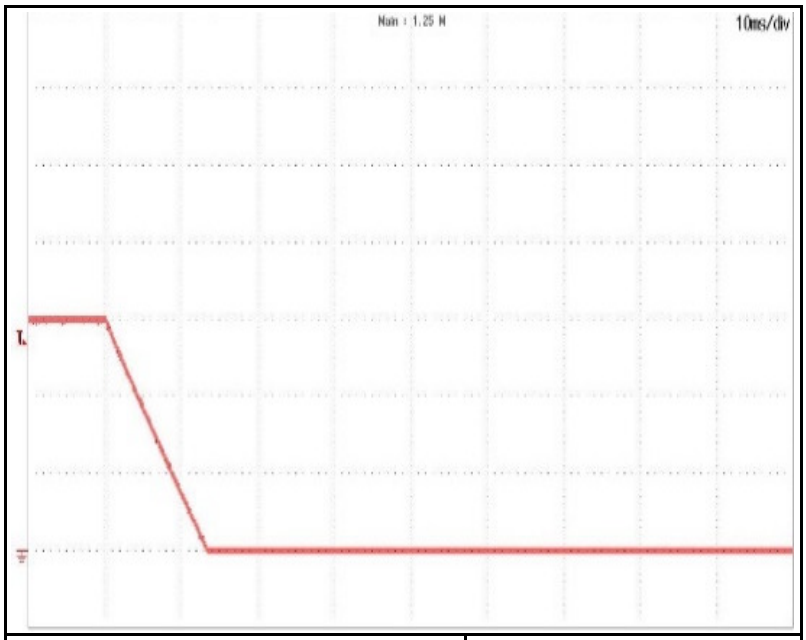


$10^{V}/_{DIV}$	$5^{ms}/_{DIV}$

2.5 ON/OFF Output fall characteristics
C.V mode

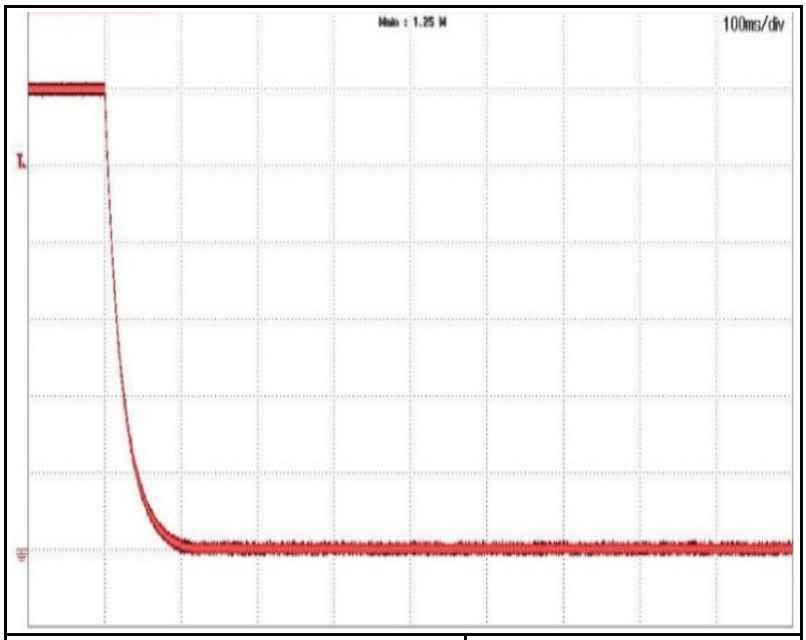
Conditions: Vin:Nominal
Vout: 100%
Iout: 100%
Load: CR
Ta = 25℃

GSP150-102



$50^{V}/_{DIV}$	$10^{ms}/_{DIV}$

GSP600-25.5



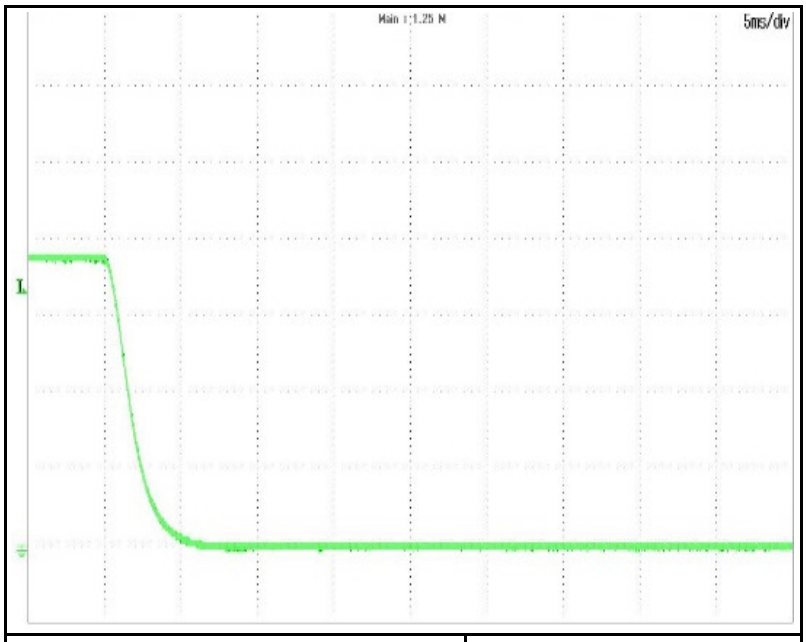
$100^{V}/_{DIV}$	$100^{ms}/_{DIV}$

2.5 ON/OFF Output fall characteristics

C.C mode

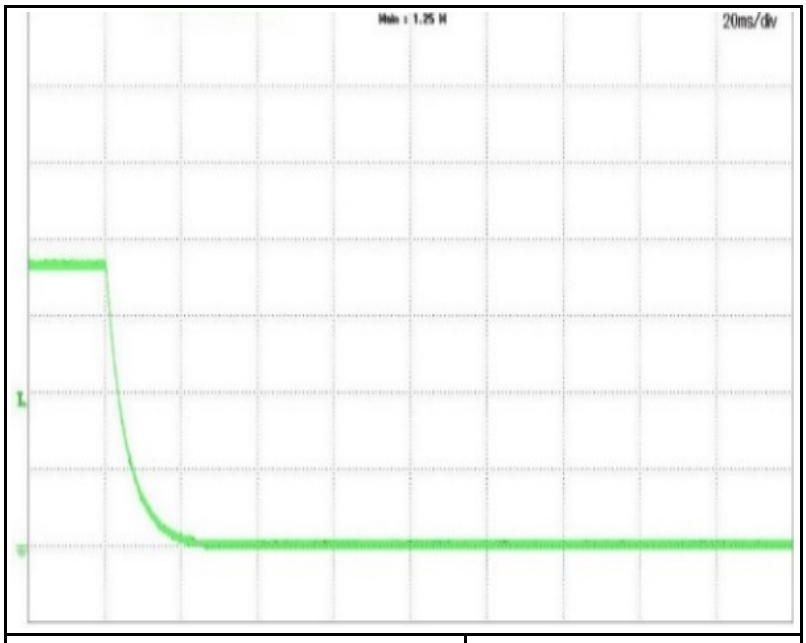
Conditions: Vin:Nominal
Vout: 100%
Iout: 100%
Load: CR
Ta = 25℃

GSP10-1500



$400^{A}/_{DIV}$	$5^{ms}/_{DIV}$

GSP60-255

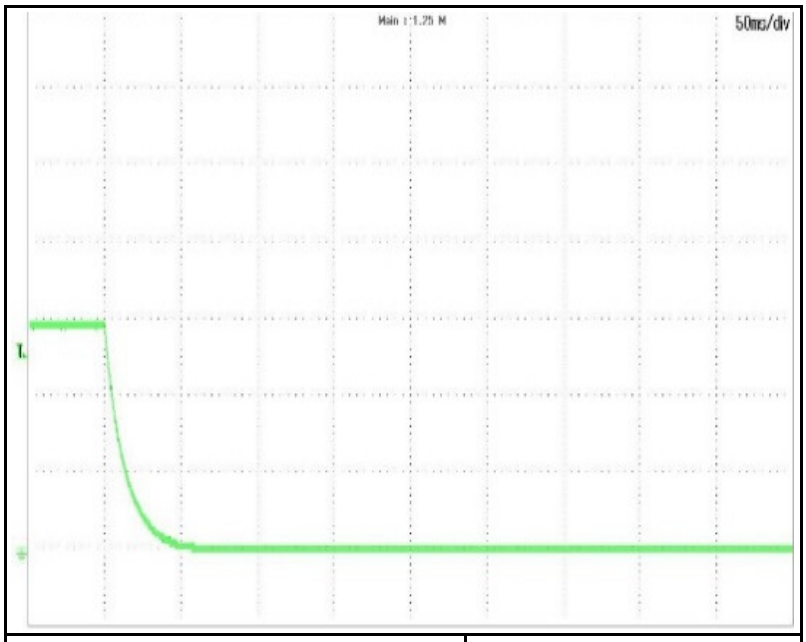


$70^{A}/_{DIV}$	$20^{ms}/_{DIV}$

2.5 ON/OFF Output fall characteristics
C.C mode

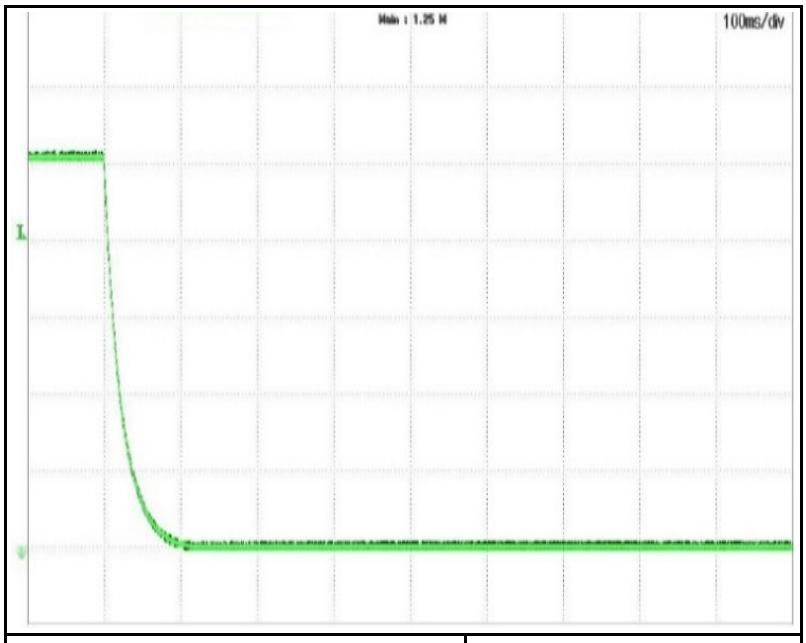
Conditions: Vin:Nominal
Vout: 100%
Iout: 100%
Load: CR
Ta = 25℃

GSP150-102



$35^{A}/_{DIV}$	$50^{ms}/_{DIV}$

GSP600-25.5

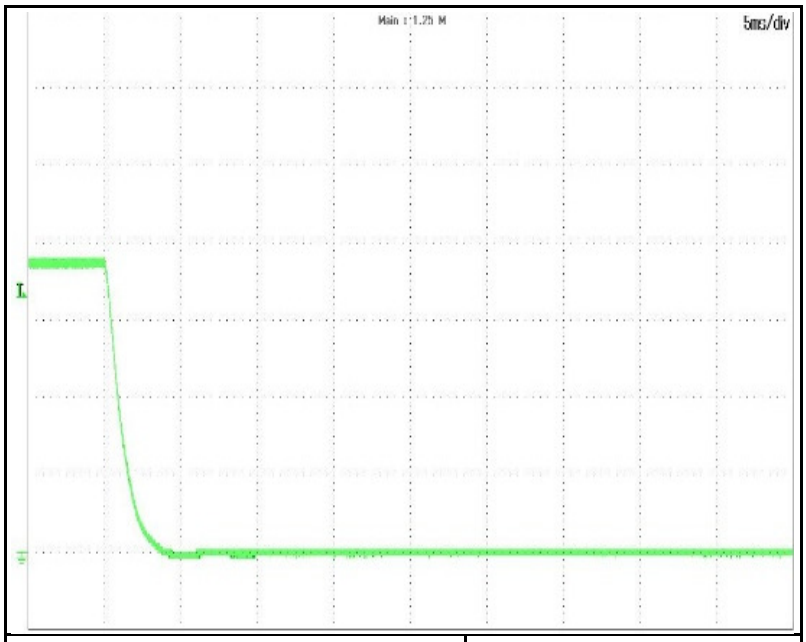


$5^{A}/_{DIV}$	$100^{ms}/_{DIV}$

2.5 ON/OFF Output fall characteristics
C.C mode

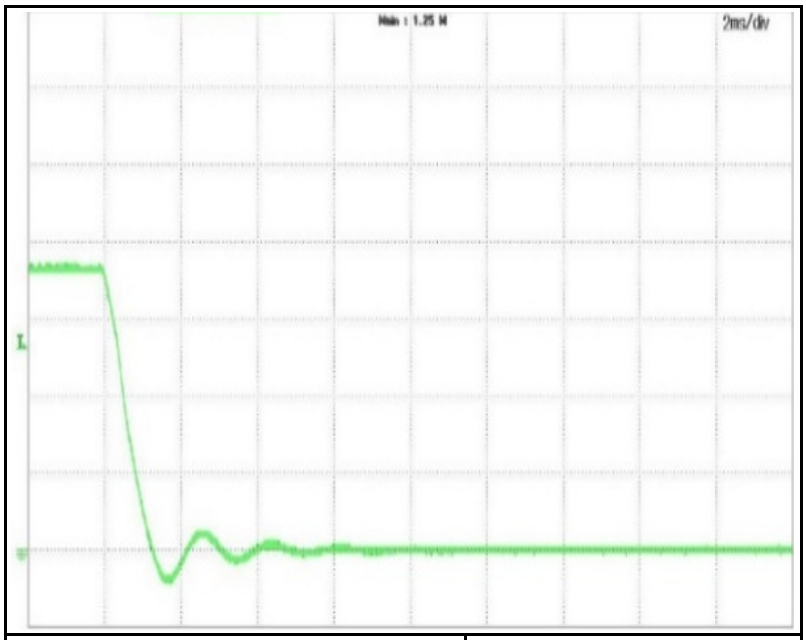
Conditions: Vin:Nominal
Iout: 100%
shorted output
Ta = 25℃

GSP10-1500



$400^{A}/_{DIV}$	$5^{ms}/_{DIV}$

GSP60-255

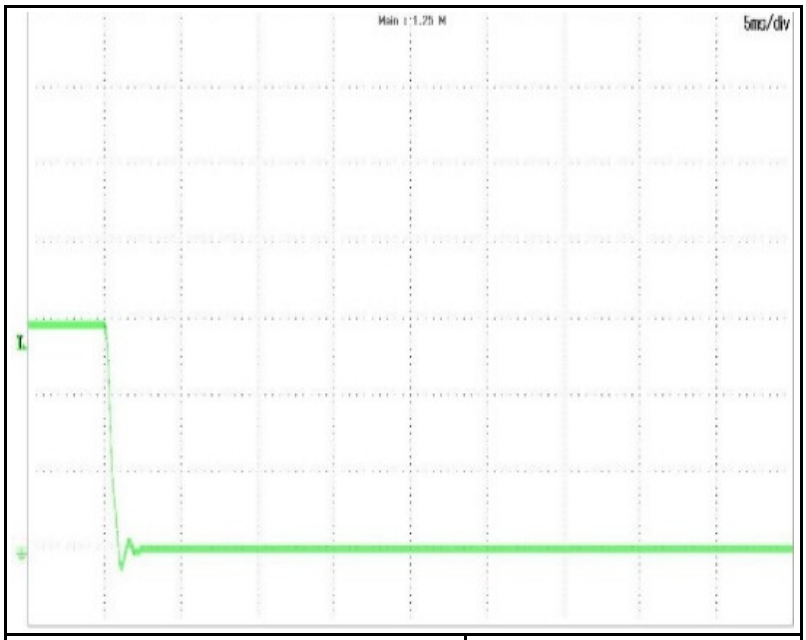


$70^{A}/_{DIV}$	$2^{ms}/_{DIV}$

2.5 ON/OFF Output fall characteristics
C.C mode

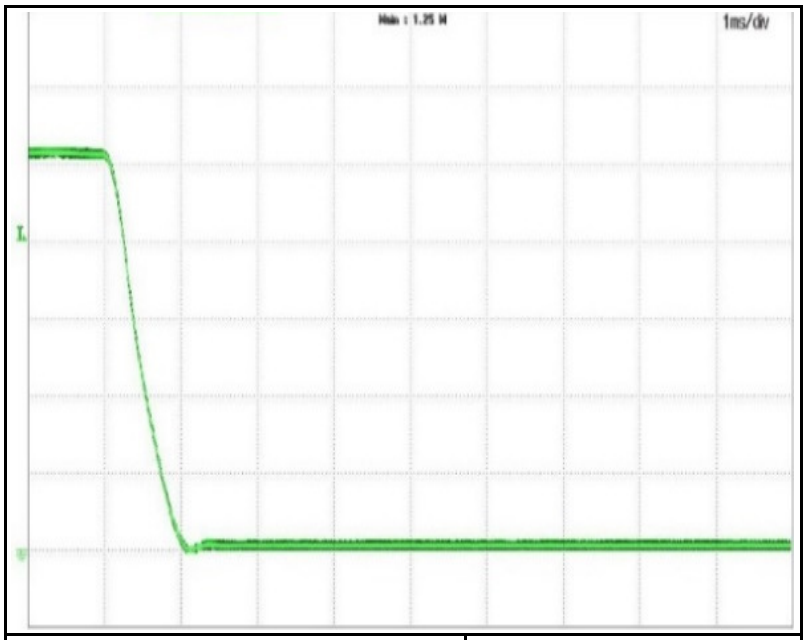
Conditions: Vin:Nominal
Iout: 100%
shorted output
Ta = 25℃

GSP150-102



$35^{A}/_{DIV}$	$5^{ms}/_{DIV}$

GSP600-25.5



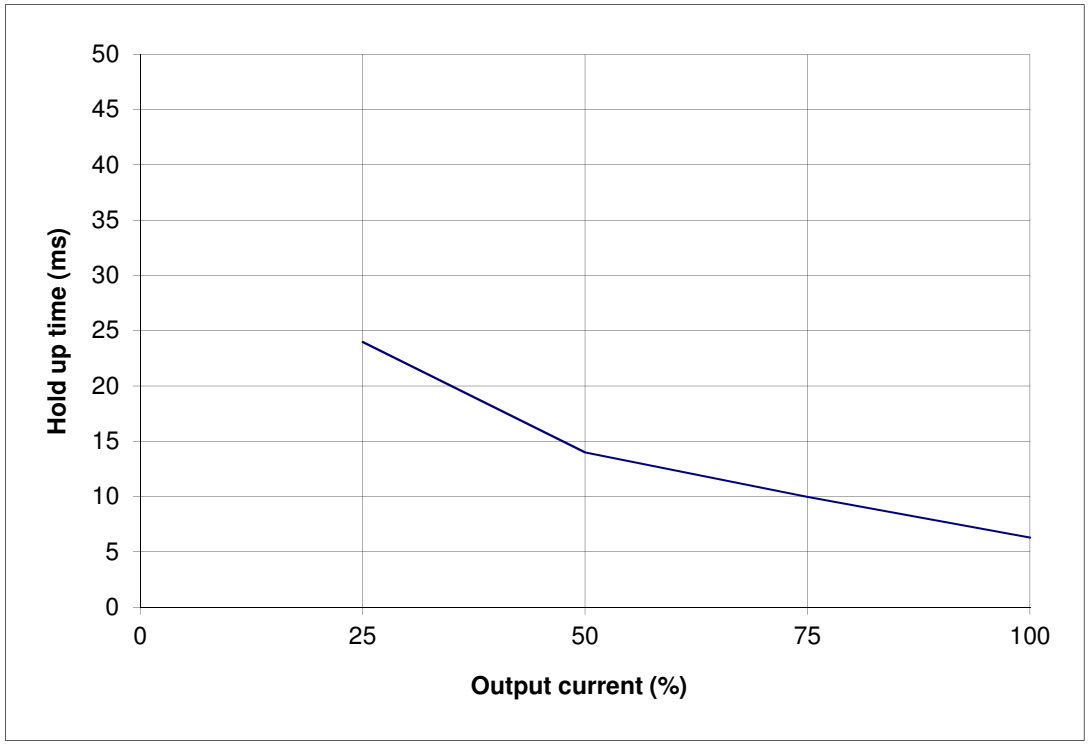
$5^{A}/_{DIV}$	$1^{ms}/_{DIV}$

2.6 Holdup time characteristics

Conditions: Ta = 25℃
Vout:100%

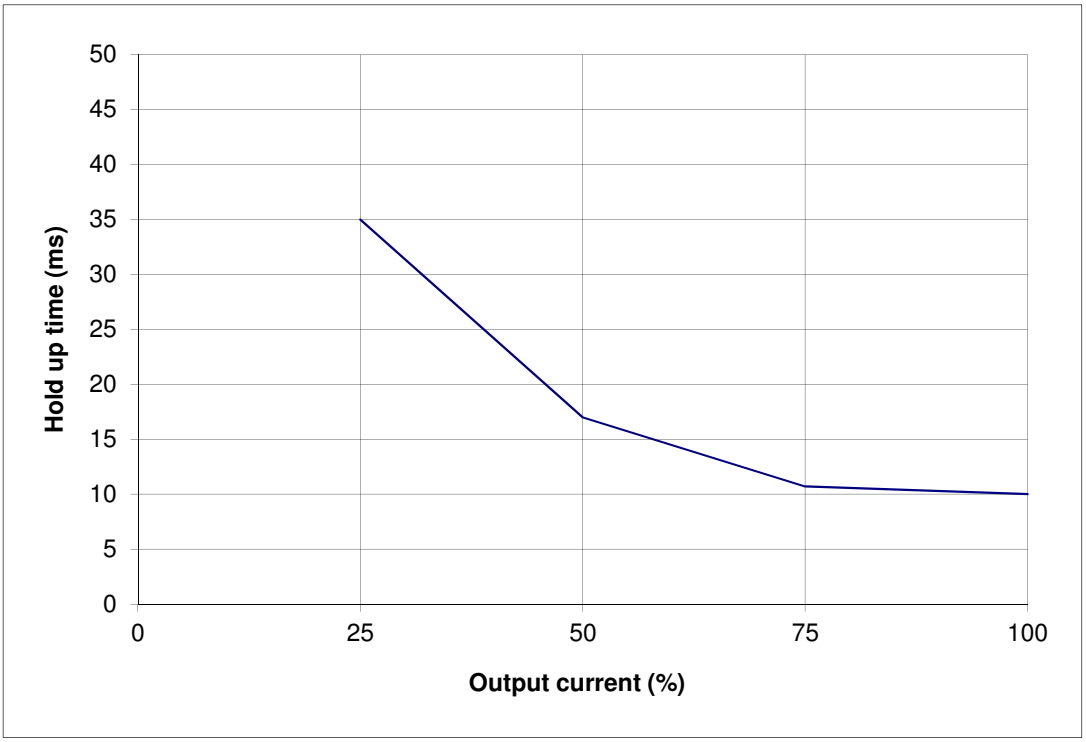
GSP10-1500 3Φ200

Vin:200VAC



GSP10-1500 3Φ400

Vin:342VAC

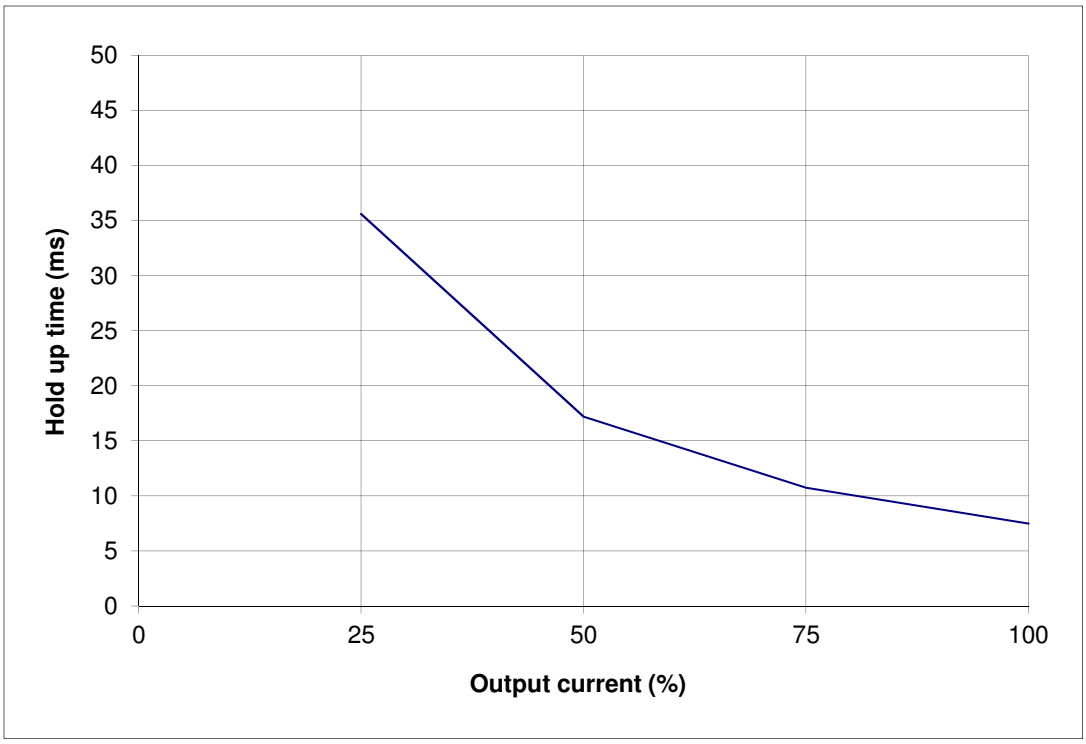


2.6 Holdup time characteristics

Conditions: Ta = 25℃
Vout:100%

GSP10-1500 3Φ480

Vin:480VAC

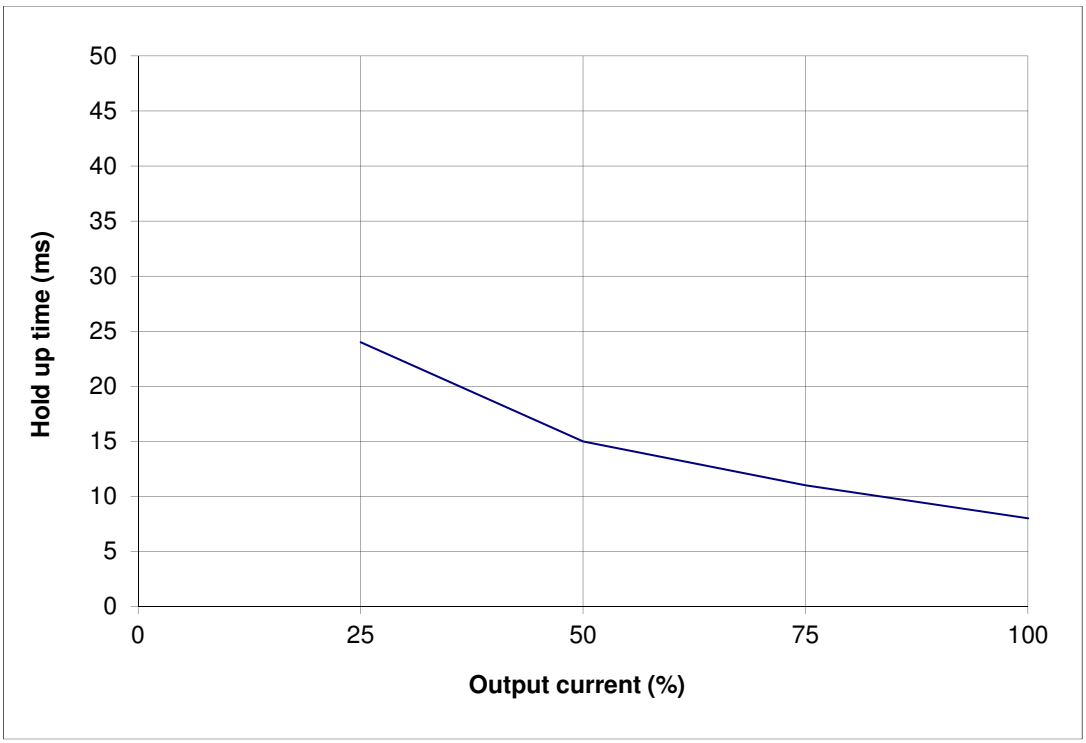


2.6 Holdup time characteristics

Conditions: Ta = 25℃
Vout:100%

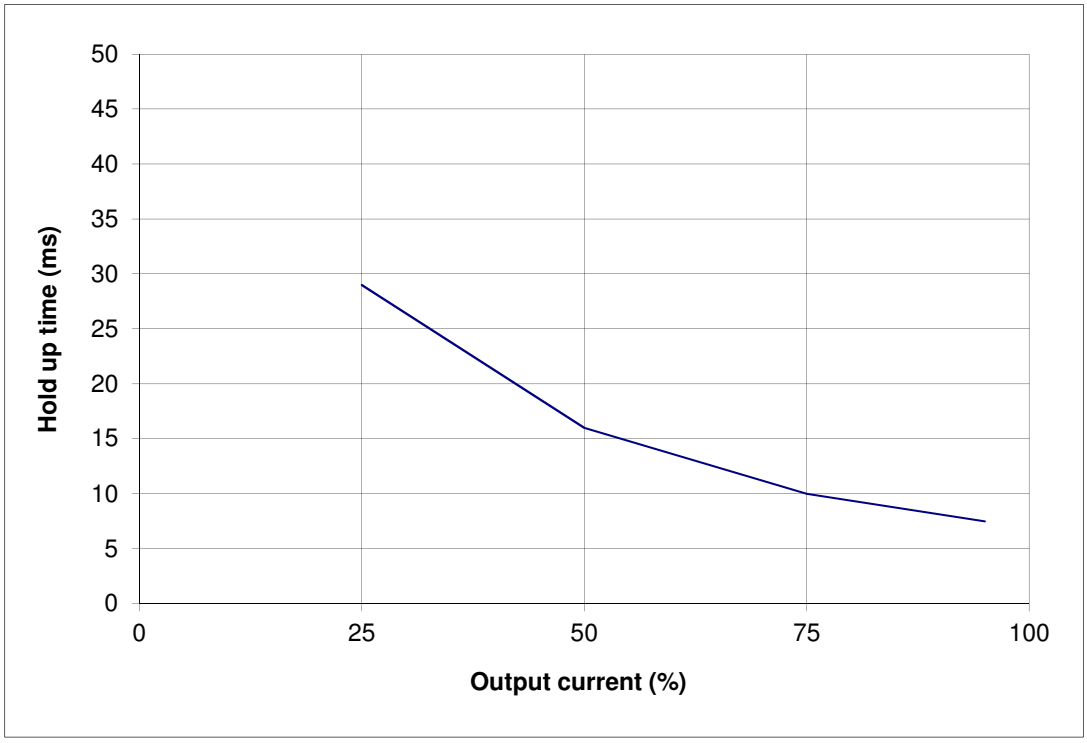
GSP600-25.5 3Φ200

Vin:230VAC



GSP600-25.5 3Φ400

Vin:400VAC

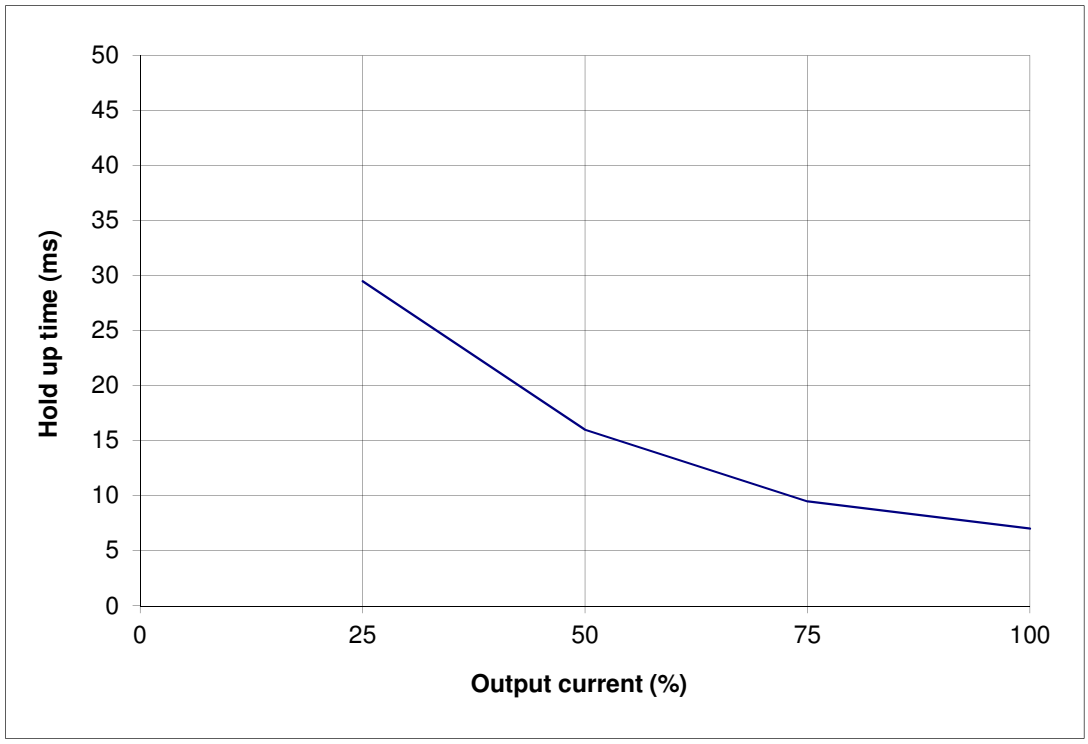


2.6 Holdup time characteristics

Conditions: Ta = 25℃
Vout:100%

GSP600-25.5 3Φ480

Vin:480VAC



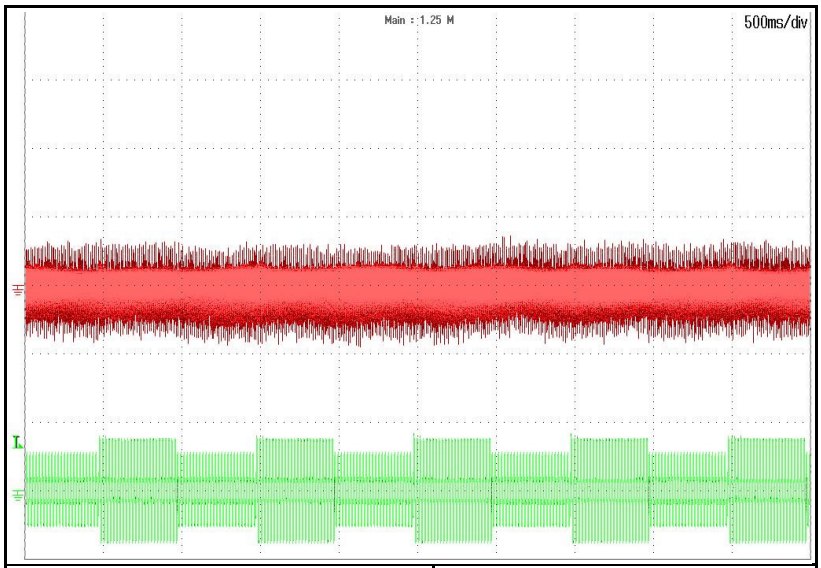
2.7 Dynamic line response characteristics

Ta = 25℃

C.V mode

GSP10-1500 3Φ200

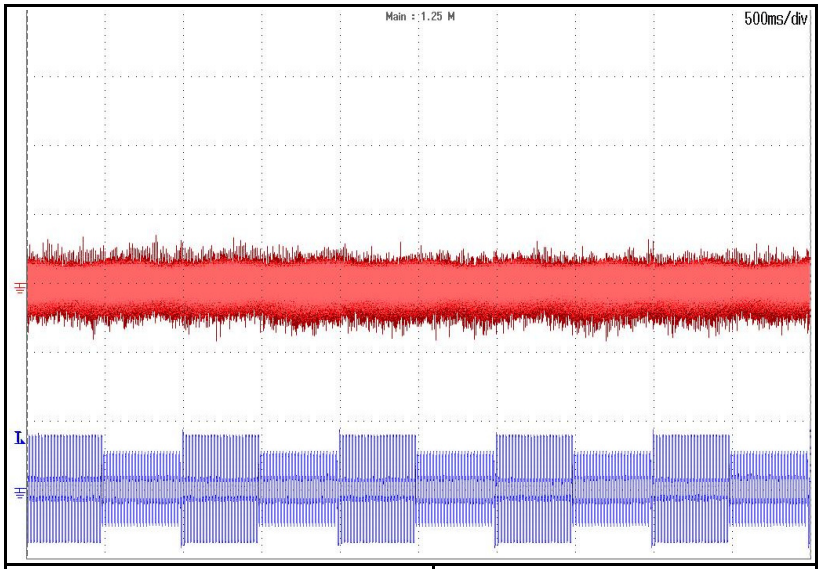
Conditions: Vout: 100%
Iout: 100%
Vin:170↔265V



Vout: 20mv/DIV	500ms/DIV
Vin: 500v/DIV	

GSP10-1500 3Φ480

Conditions: Vout: 100%
Iout: 100%
Vin:342↔520V



Vout: 20mv/DIV	500ms/DIV
Vin: 1000v/DIV	

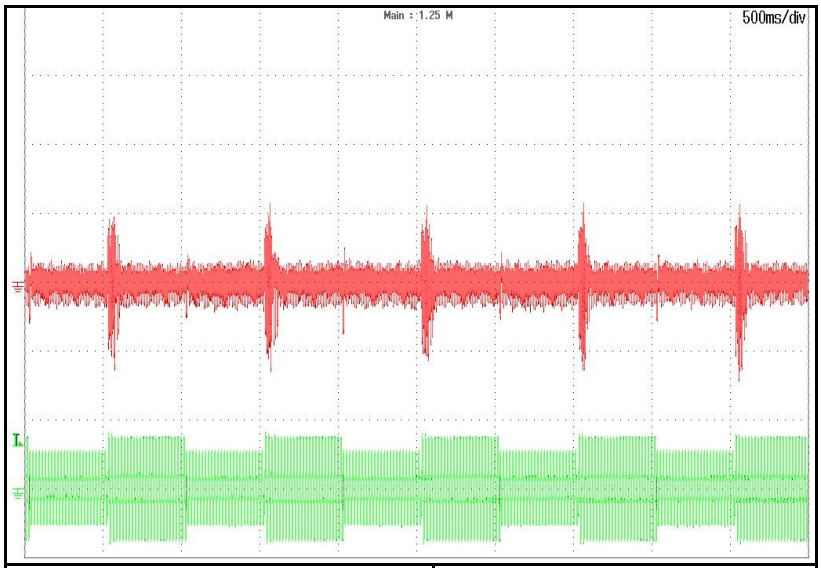
2.7 Dynamic line response characteristics

Ta = 25℃

C.C mode

GSP10-1500 3Φ200

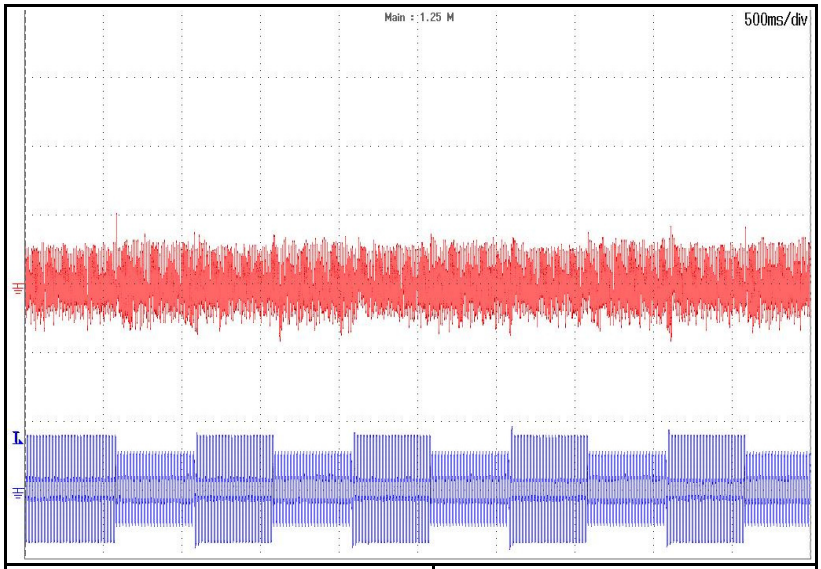
Conditions: Vout: 100%
Iout: 100%
Vin:170↔265V



Iout: 8.7A/DIV	500ms/DIV
Vin: 500v/DIV	

GSP10-1500 3Φ480

Conditions: Vout: 100%
Iout: 100%
Vin:342↔520V



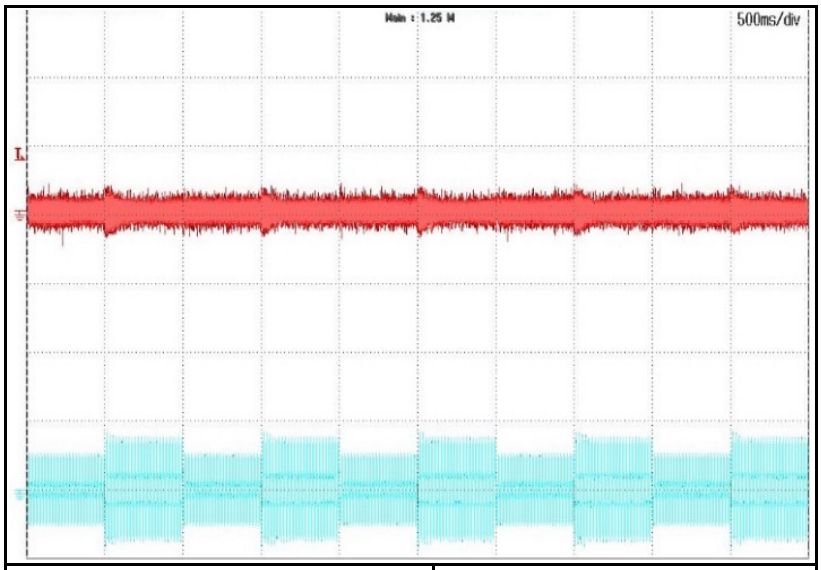
Iout: 7.5A/DIV	500ms/DIV
Vin: 1000v/DIV	

2.7 Dynamic line response characteristics Ta = 25℃

C.V mode

GSP60-255 3Φ200

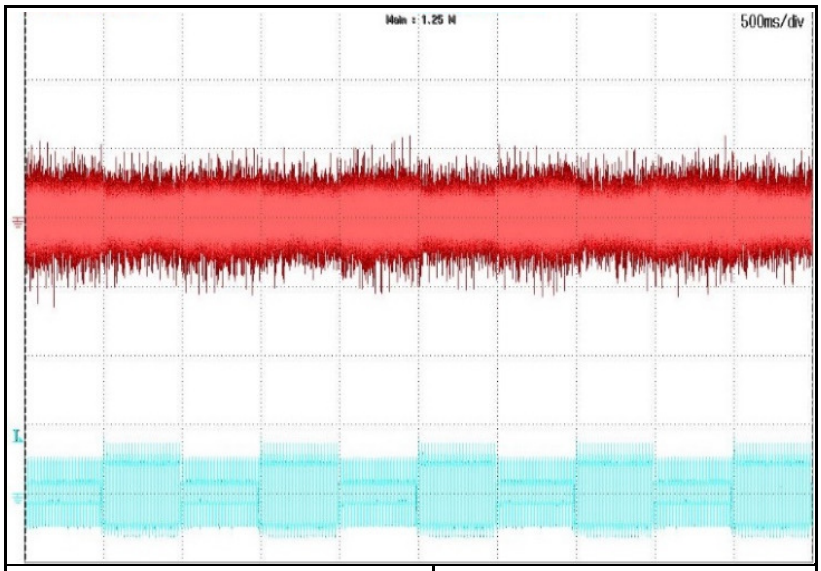
Conditions: Vout: 100%
Iout: 100%
Vin:170↔265V



Vout: 20$^{mv}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 500$^{v}/_{DIV}$	

GSP60-255 3Φ400

Conditions: Vout: 100%
Iout: 100%
Vin:342↔520V



Vout: 20$^{mv}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 1000$^{v}/_{DIV}$	

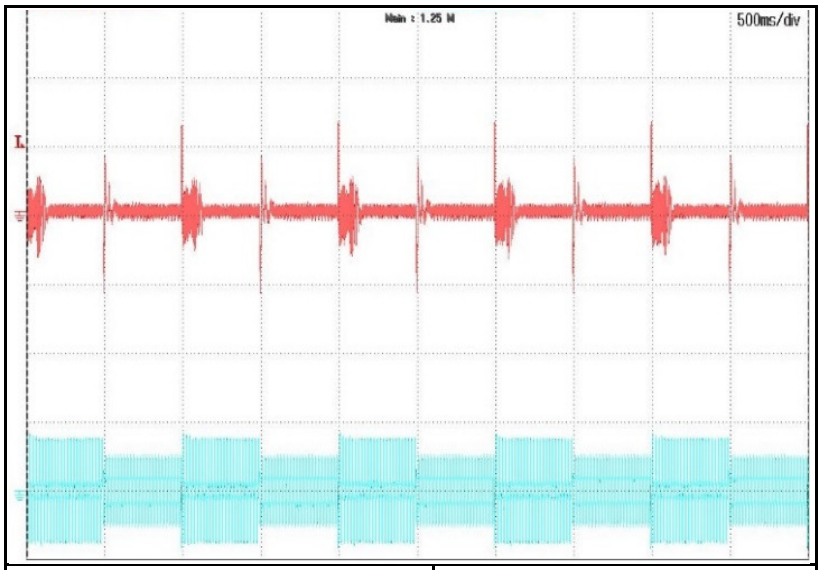
2.7 Dynamic line response characteristics

Ta = 25℃

C.C mode

GSP60-255 3Φ200

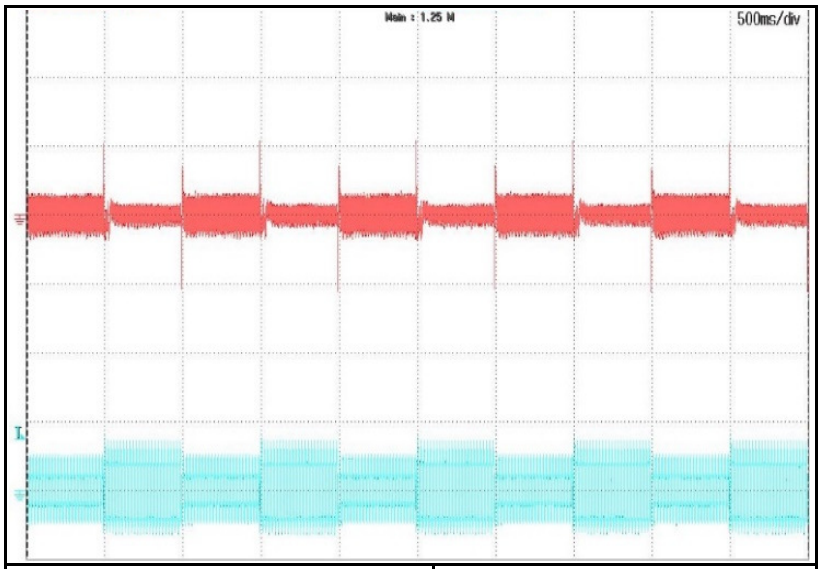
Conditions: Vout: 100%
Iout: 100%
Vin:170↔265V



Vout: 0.85A/DIV	500ms/DIV
Vin: 500V/DIV	

GSP60-255 3Φ400

Conditions: Vout: 100%
Iout: 100%
Vin:342↔520V



Vout: 0.43A/DIV	500ms/DIV
Vin: 1000V/DIV	

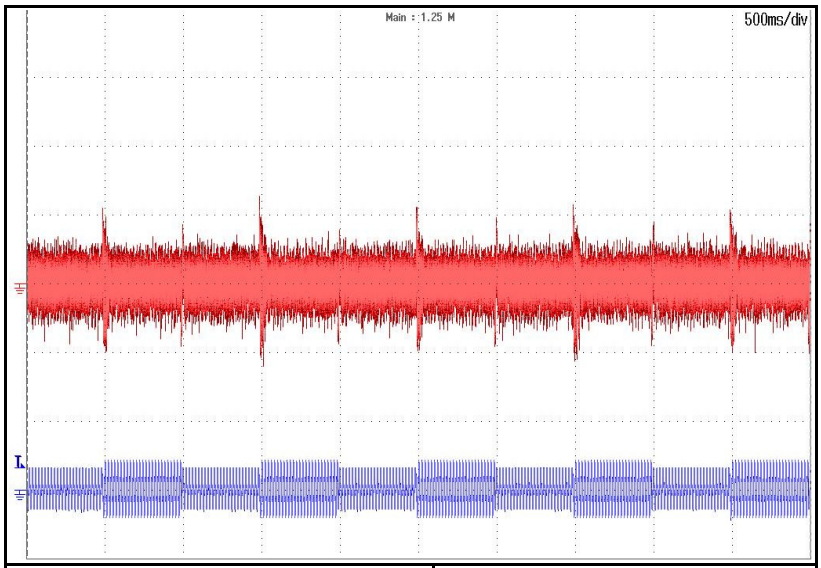
2.7 Dynamic line response characteristics

Ta = 25℃

C.V mode

GSP150-102 3Φ200

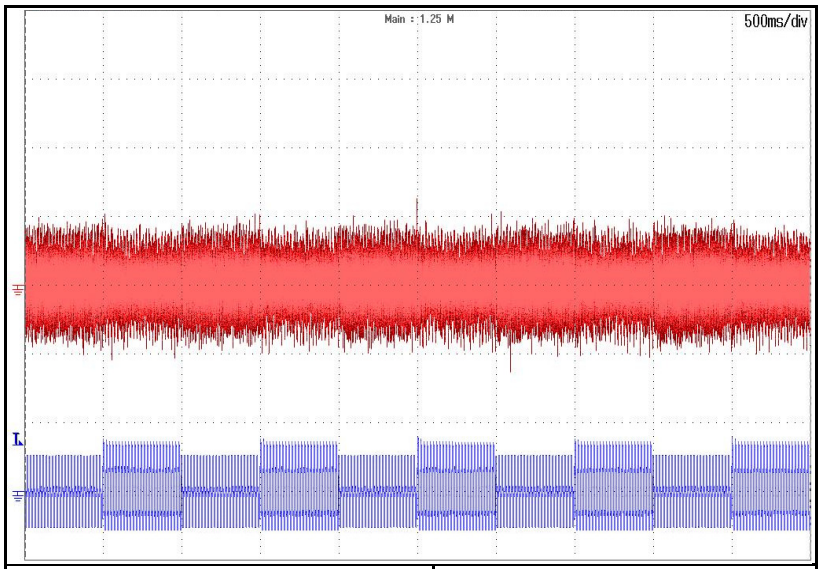
Conditions: Vout: 100%
Iout: 100%
Vin:170↔265V



Vout: 20$^{mv}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 1000$^{v}/_{DIV}$	

GSP150-102 3Φ400

Conditions: Vout: 100%
Iout: 100%
Vin:342↔520V



Vout: 20$^{mv}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 1000$^{v}/_{DIV}$	

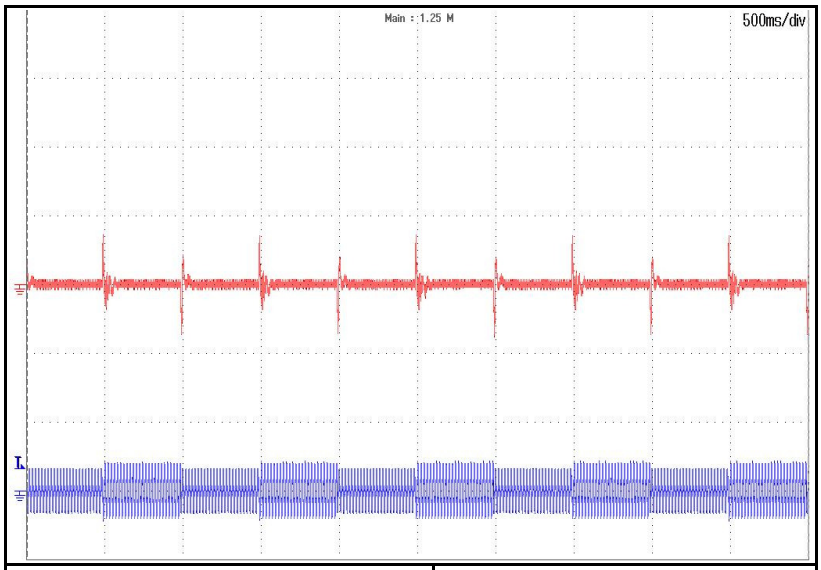
2.7 Dynamic line response characteristics

Ta = 25℃

C.C mode

GSP150-102 3Φ200

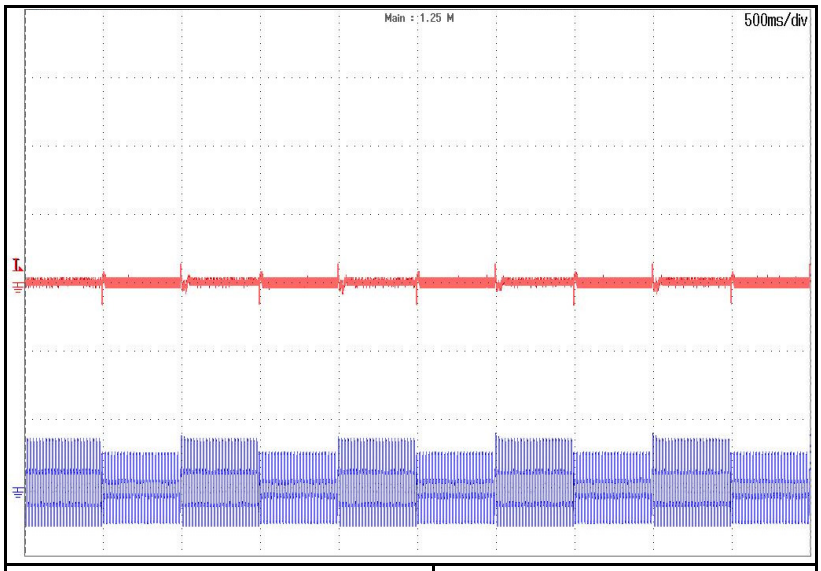
Conditions: Vout: 100%
Iout: 100%
Vin:170↔265V



Iout: 0.34A/DIV	500ms/DIV
Vin: 1000v/DIV	

GSP150-102 3Φ400

Conditions: Vout: 100%
Iout: 100%
Vin:342↔520V



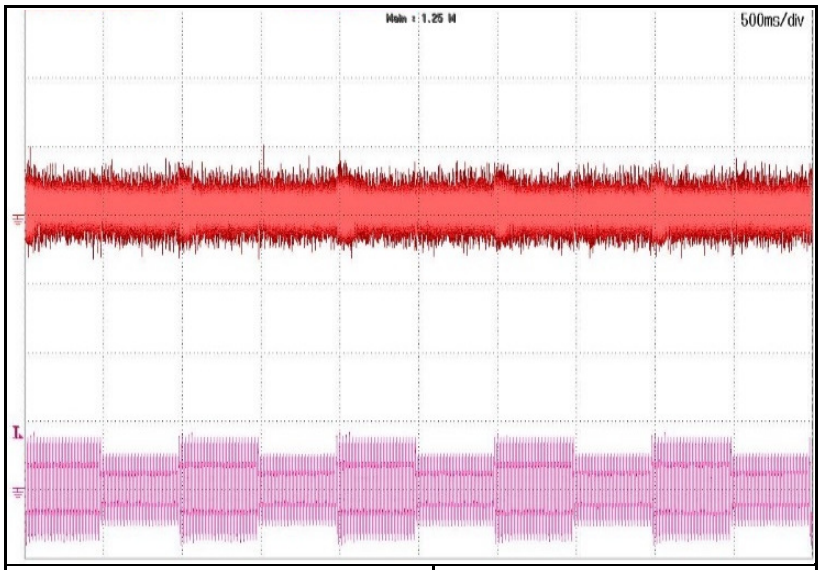
Vout: 0.34A/DIV	500ms/DIV
Vin: 1000v/DIV	

2.7 Dynamic line response characteristics Ta = 25℃

C.V mode

GSP600-25.5 3Φ200

Conditions: Vout: 100%
Iout: 100%
Vin:170↔265V



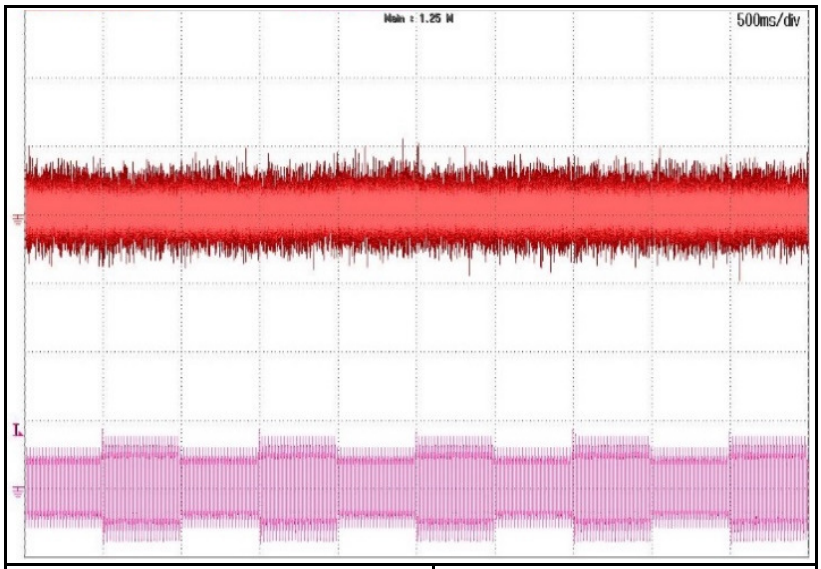
Vout

Vin

Vout: 200$^{mv}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 500$^{v}/_{DIV}$	

GSP600-25.5 3Φ400

Conditions: Vout: 100%
Iout: 100%
Vin:342↔460V



Vout

Vin

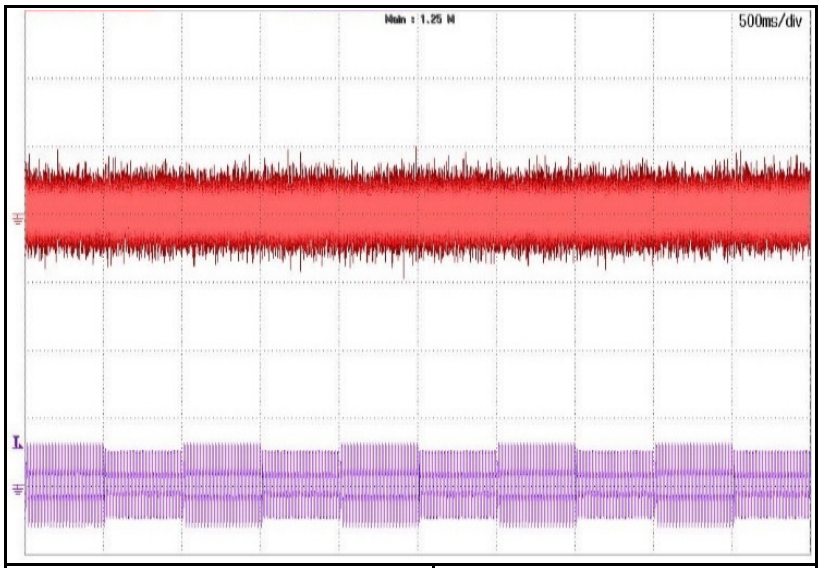
Vout: 200$^{mv}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 500$^{v}/_{DIV}$	

2.7 Dynamic line response characteristics Ta = 25℃

C.V mode

GSP600-25.5 3Φ480

Conditions: Vout: 100%
Iout: 100%
Vin:342↔520V



Vout

Vin

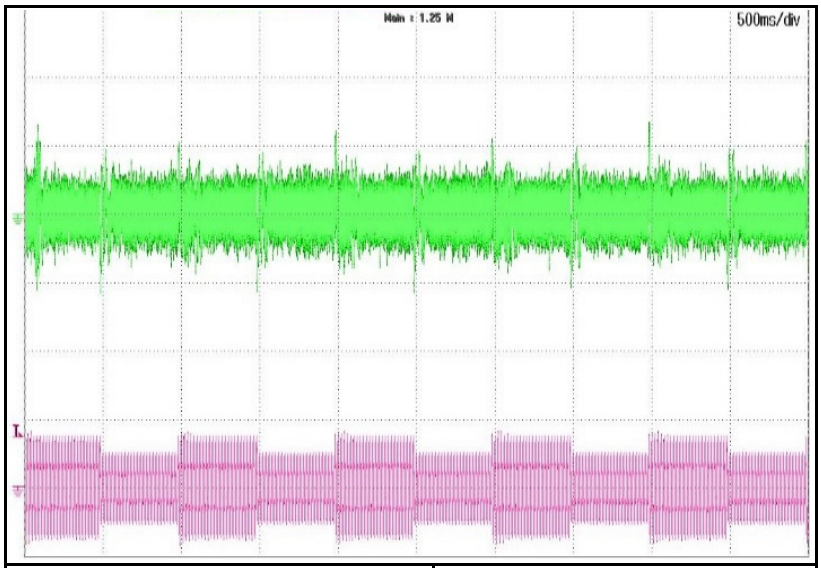
Vout: 200$^{mv}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 1000$^{v}/_{DIV}$	

2.7 Dynamic line response characteristics Ta = 25℃

C.C mode

GSP600-25.5 3Φ200

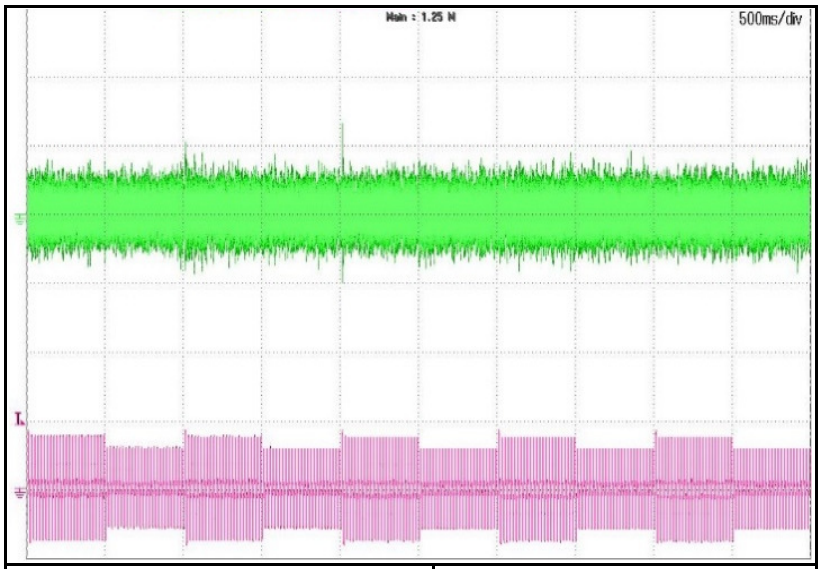
Conditions: Vout: 100%
Iout: 100%
Vin:170↔265V



Iout: 50$^{mA}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 500v/$_{DIV}$	

GSP600-25.5 3Φ400

Conditions: Vout: 100%
Iout: 100%
Vin:342↔460V



Iout: 50$^{mA}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 500$^{v}/_{DIV}$	

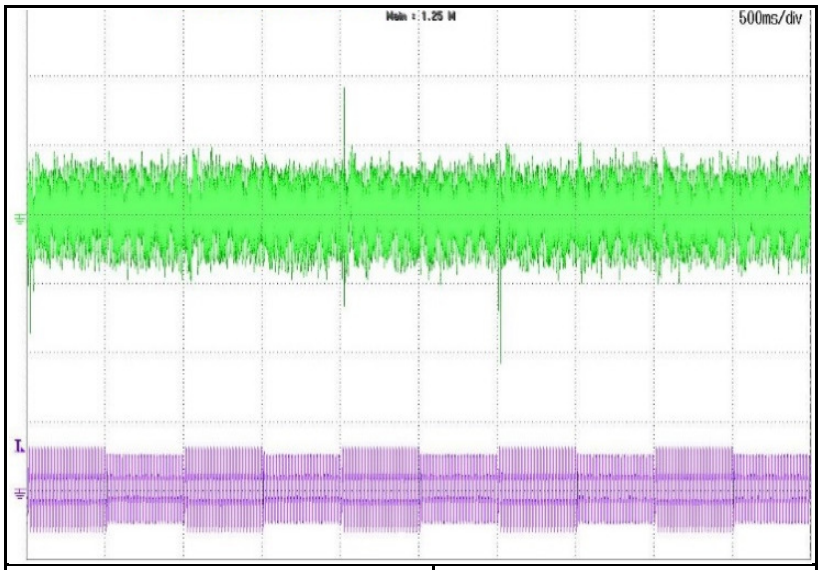
2.7 Dynamic line response characteristics

Ta = 25℃

C.C mode

GSP600-25.5 3Φ480

Conditions: Vout: 100%
Iout: 100%
Vin:342↔520V



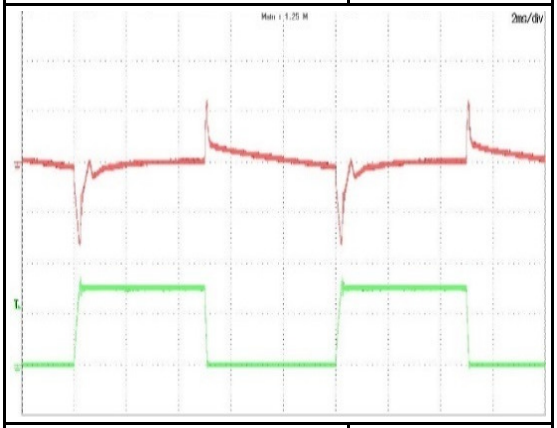
Iout: 50$^{mA}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 1000$^{V}/_{DIV}$	

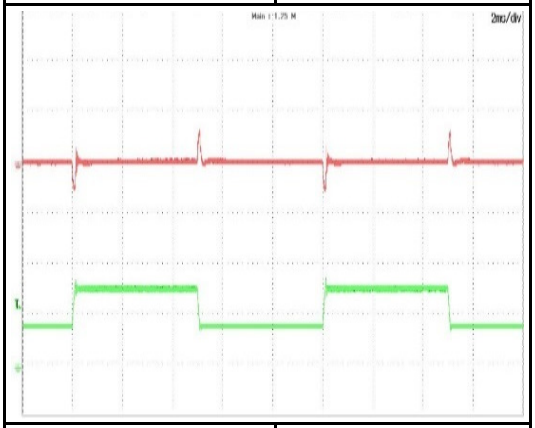
2.8 Dynamic load response characteristics
C.V mode

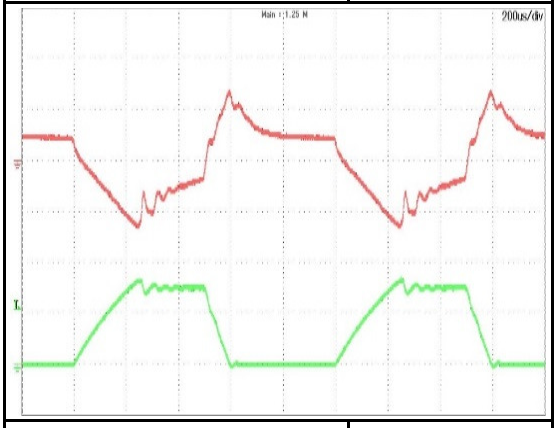
Conditions: Vin: Nominal
Vout: 100%
Ta = 25℃

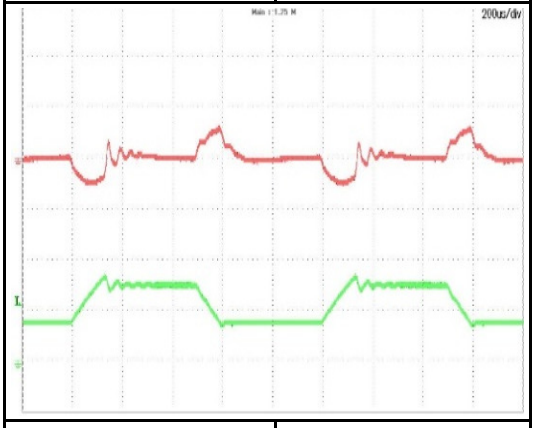
Load current: tr=tf=100us

GSP10-1500

Iout:0%↔100%	f:100Hz
	
$1^{V}/_{DIV}$	$2^{ms}/_{DIV}$
12.60%	-16.40%

Iout:50%↔100%	f:100Hz
	
$1^{V}/_{DIV}$	$2^{ms}/_{DIV}$
6.40%	-5.90%

Iout:0%↔100%	f:1KHz
	
$1^{V}/_{DIV}$	$200^{us}/_{DIV}$
14.00%	-13.20%

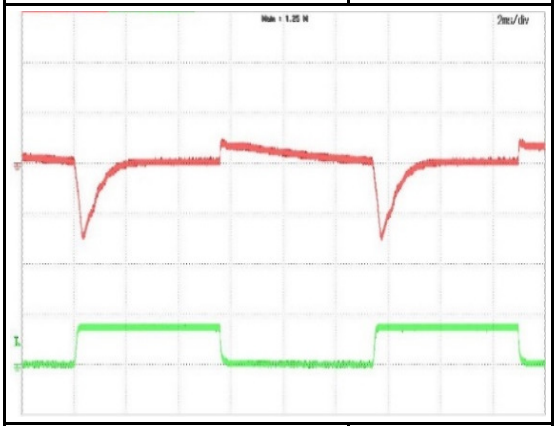
Iout:50%↔100%	f:1KHz
	
$1^{V}/_{DIV}$	$200^{us}/_{DIV}$
6.40%	-5.60%

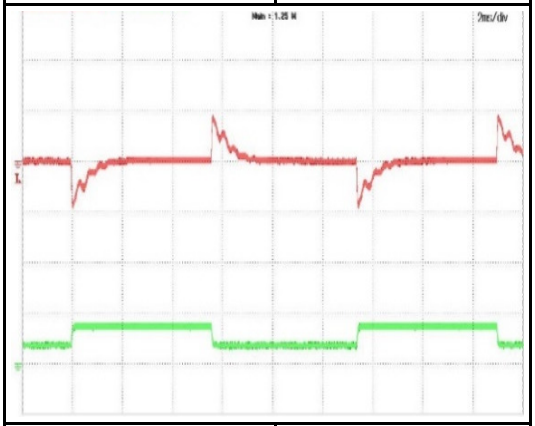
2.8 Dynamic load response characteristics
C.V mode

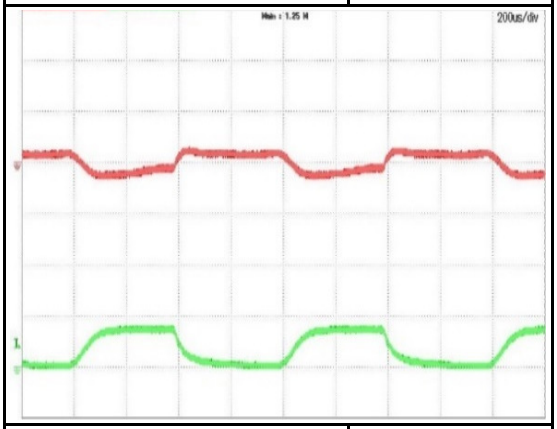
Conditions: Vin: Nominal
Vout: 100%
Ta = 25℃

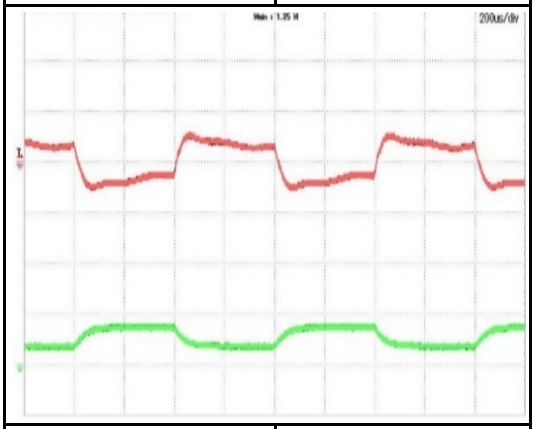
Load current: tr=tf=100us

GSP60-255

Iout:0%↔100%	f:100Hz
	
$2^{V}/_{DIV}$	$2^{ms}/_{DIV}$
1.60%	-5.10%

Iout:50%↔100%	f:100Hz
	
$0.5^{V}/_{DIV}$	$2^{ms}/_{DIV}$
0.77%	0.78%

Iout:0%↔100%	f:1.25KHz
	
$2^{V}/_{DIV}$	$200^{us}/_{DIV}$
1.10%	-1.10%

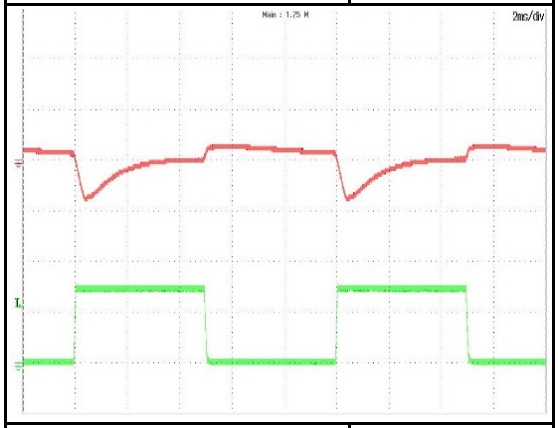
Iout:50%↔100%	f:1.25KHz
	
$0.5^{V}/_{DIV}$	$200^{us}/_{DIV}$
0.50%	-0.47%

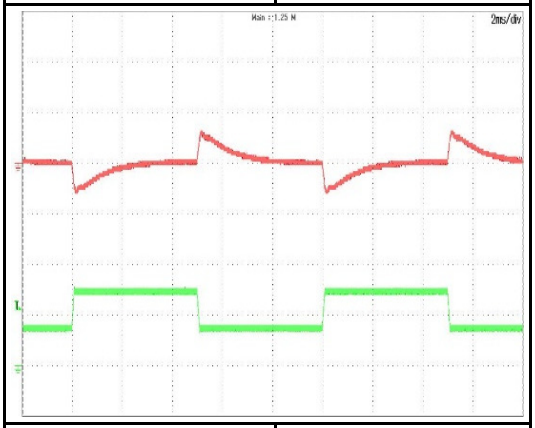
2.8 Dynamic load response characteristics
C.V mode

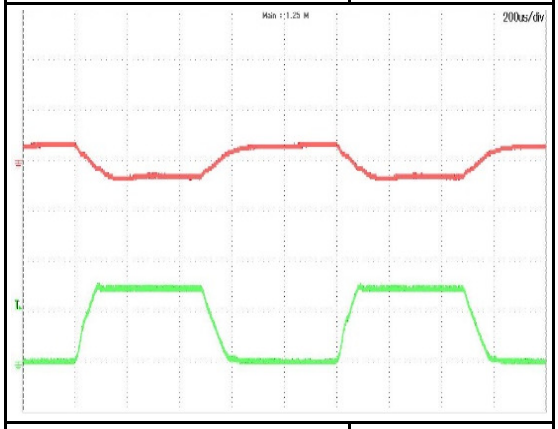
Conditions: Vin: Nominal
Vout: 100%
Ta = 25℃

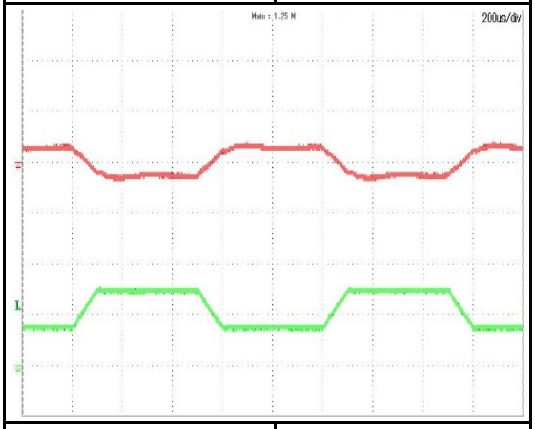
Load current: tr=tf=100us

GSP150-102

Iout:0%↔100%	f:100Hz
	
$5^{V}/_{DIV}$	$2^{ms}/_{DIV}$
1.07%	-2.67%

Iout:50%↔100%	f:100Hz
	
$1^{V}/_{DIV}$	$2^{ms}/_{DIV}$
0.43%	-0.40%

Iout:0%↔100%	f:1KHz
	
$2^{V}/_{DIV}$	$200^{us}/_{DIV}$
0.48%	-0.53%

Iout:50%↔100%	f:1KHz
	
$1^{V}/_{DIV}$	$200^{us}/_{DIV}$
0.27%	-0.24%

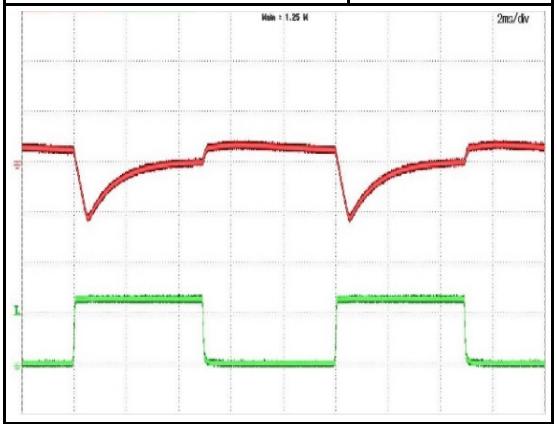
2.8 Dynamic load response characteristics

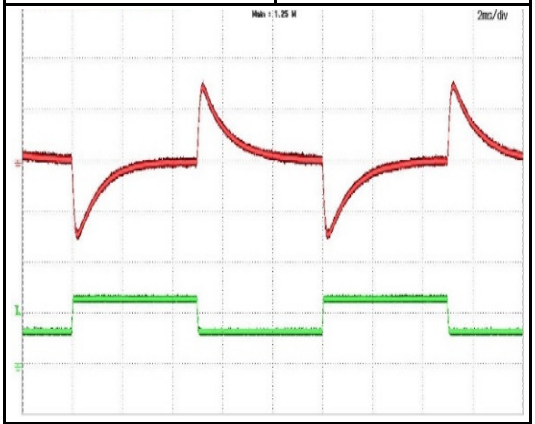
C.V mode

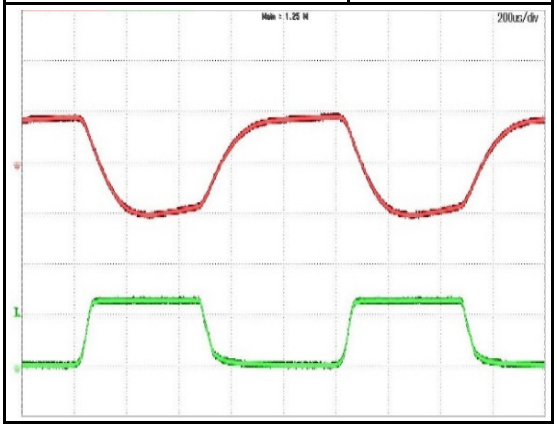
Conditions: Vin: Nominal
Vout: 100%
Ta = 25℃

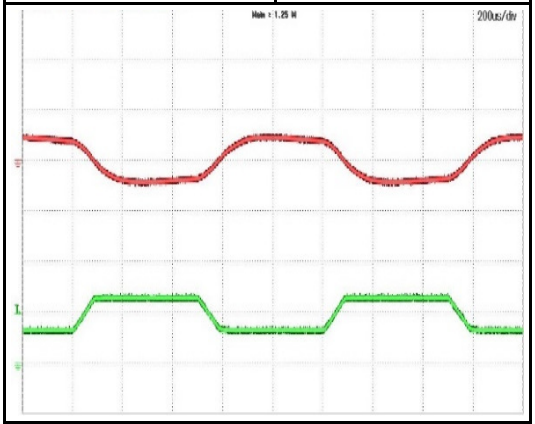
Load current: tr=tf=100us

GSP600-25.5

Iout:0%↔100%	f:100Hz
	
$10^{V}/_{DIV}$	$2^{ms}/_{DIV}$
0.73%	-2.00%

Iout:50%↔100%	f:100Hz
	
$1^{V}/_{DIV}$	$2^{ms}/_{DIV}$
0.26%	-0.26%

Iout:0%↔100%	f:1KHz
	
$2^{V}/_{DIV}$	$200^{us}/_{DIV}$
0.32%	-0.37%

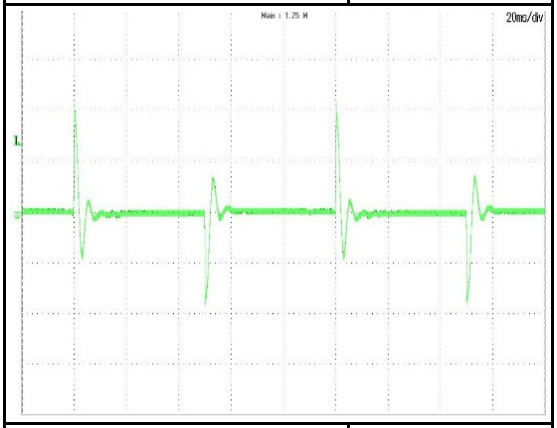
Iout:50%↔100%	f:1KHz
	
$2^{V}/_{DIV}$	$200^{us}/_{DIV}$
0.17%	-0.17%

2.8 Dynamic load response characteristics
C.C mode

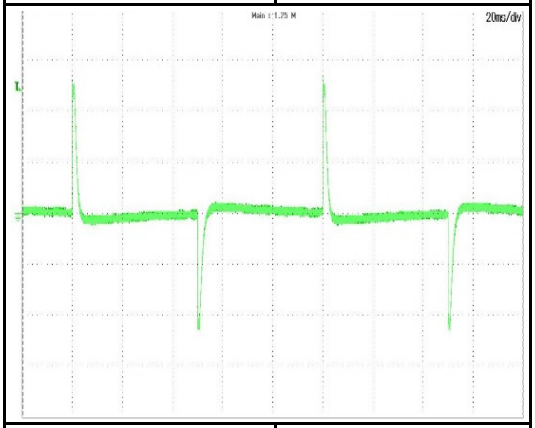
Conditions: Vin: Nominal
Ta = 25℃

GSP10-1500

Io=1500A

Vout:9↔7.5V	f:10Hz
	
$100^{A}/_{DIV}$	$20^{ms}/_{DIV}$
	-12.30%

Io=750A

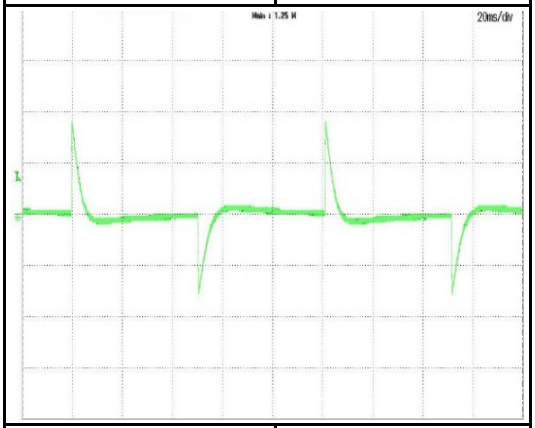
Vout:9↔7.5V	f:10Hz
	
$40^{A}/_{DIV}$	$20^{ms}/_{DIV}$
	-6.10%

GSP60-255

Io=255A

Vout:54↔45V	f:10Hz
	
$35^{A}/_{DIV}$	$20^{ms}/_{DIV}$
	-16.47%

Io=127.5A

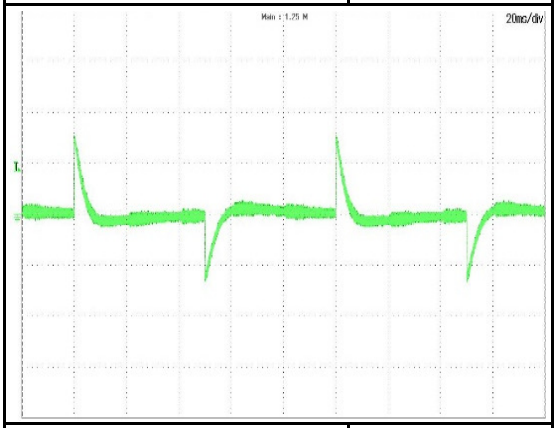
Vout:54↔45V	f:10Hz
	
$14^{A}/_{DIV}$	$20^{ms}/_{DIV}$
	-8.56%

2.8 Dynamic load response characteristics
C.C mode

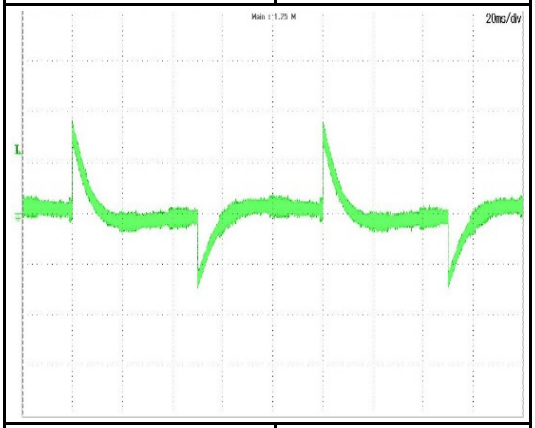
Conditions: Vin: Nominal
Ta = 25℃

GSP150-102

Io=102A

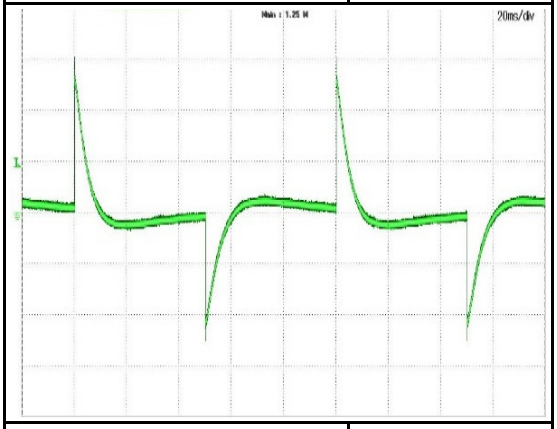
Vout:135↔112.5V	f:10Hz
	
$14^{A}/_{DIV}$	$20^{ms}/_{DIV}$
	-18.12%

Io=51A

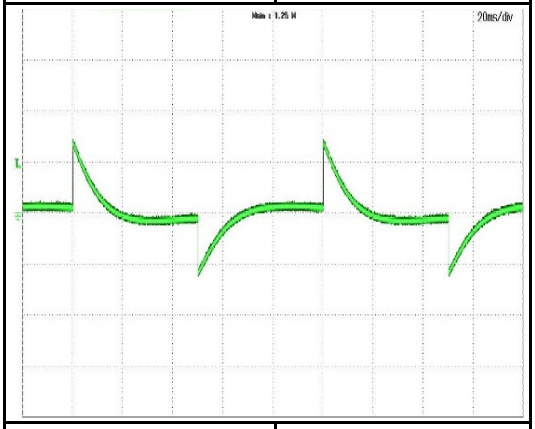
Vout:135↔112.5V	f:10Hz
	
$7^{A}/_{DIV}$	$20^{ms}/_{DIV}$
	-10.02%

GSP600-25.5

Io=25.5A

Vout:540↔450V	f:10Hz
	
$2^{A}/_{DIV}$	$20^{ms}/_{DIV}$
	-19.73%

Io=12.75A

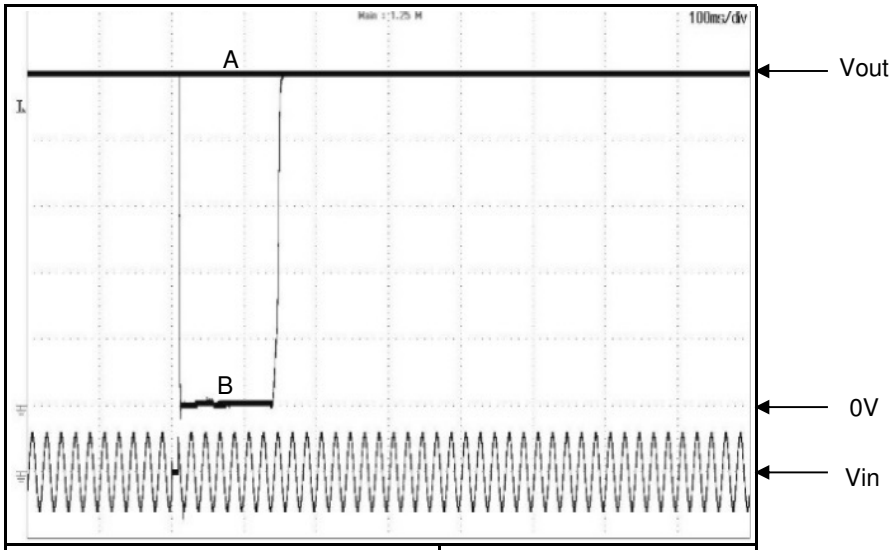
Vout:540↔450V	f:10Hz
	
$2^{A}/_{DIV}$	$20^{ms}/_{DIV}$
	-9.73%

2.9 Response to brown-out characteristics
C.V mode

Conditions: Vout: 100%
Iout: 1400A
Ta = 25℃

GSP10-1500 3Φ200

Vin:200VAC

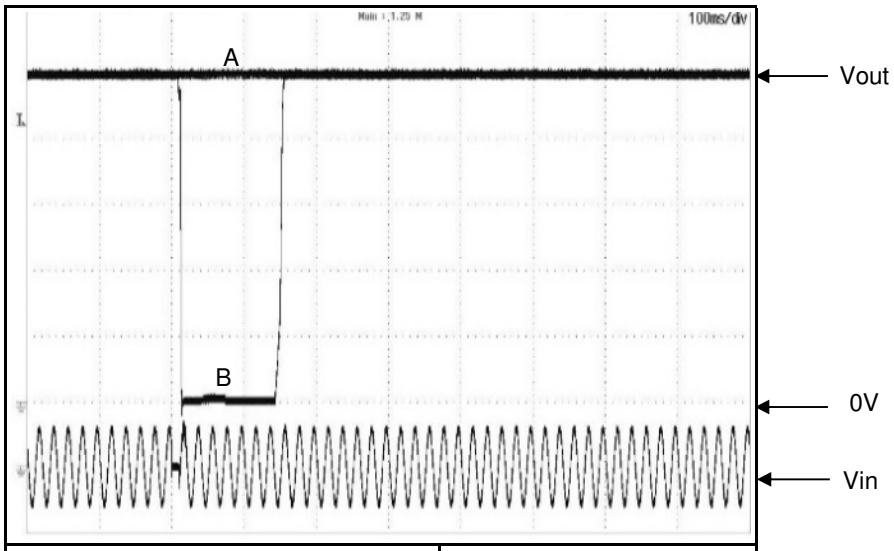


Vout: $2^{V}/_{DIV}$	$100^{ms}/_{DIV}$
Vin: $500^{V}/_{DIV}$	

Brown-out time
A - 8ms
B - 9ms

GSP10-1500 3Φ400

Vin:400VAC



Vout: $2^{V}/_{DIV}$	$100^{ms}/_{DIV}$
Vin: $1000^{V}/_{DIV}$	

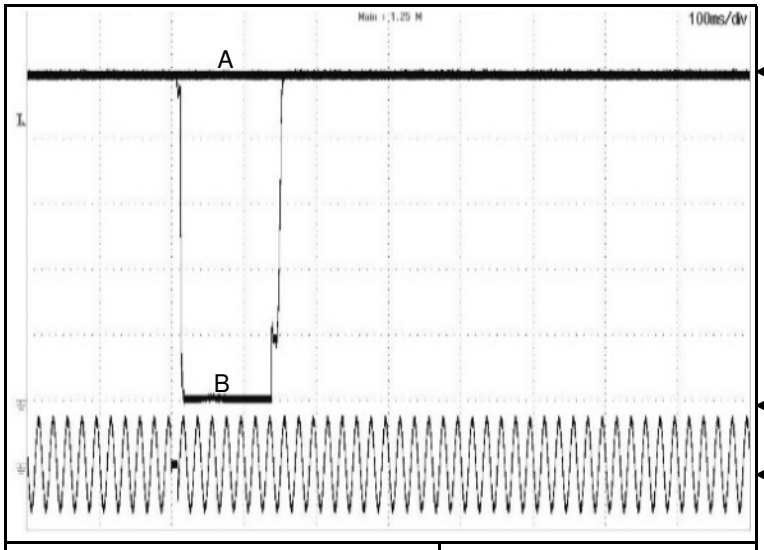
Brown-out time
A - 9ms
B - 11ms

2.9 Response to brown-out characteristics
C.V mode

Conditions: Vout: 100%
Iout: 100%
Ta = 25℃

GSP10-1500 3Φ480

Vin:480VAC



Vout: $2^{V}/_{DIV}$	$100^{ms}/_{DIV}$
Vin: $1000^{V}/_{DIV}$	

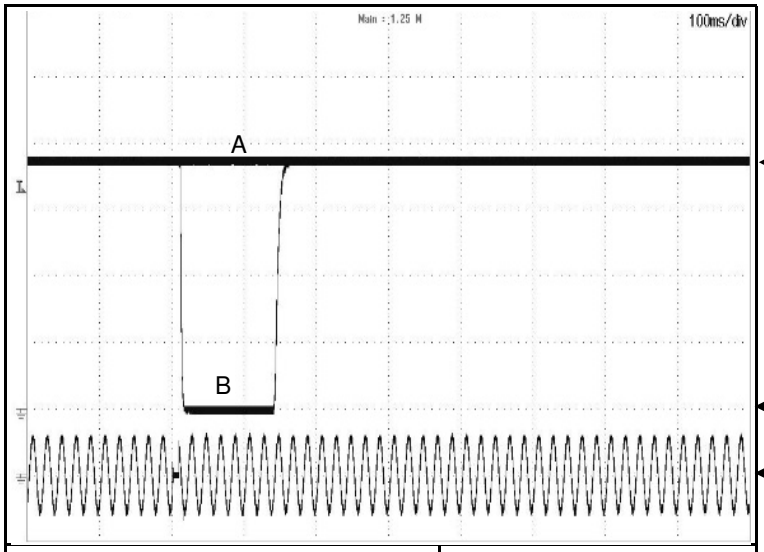
Brown-out time
A - 7ms
B - 9ms

2.9 Response to brown-out characteristics
C.C mode

Conditions: Vout:9V
Iout: 100%
Ta = 25℃

GSP10-1500 3Φ200

Vin:200VAC

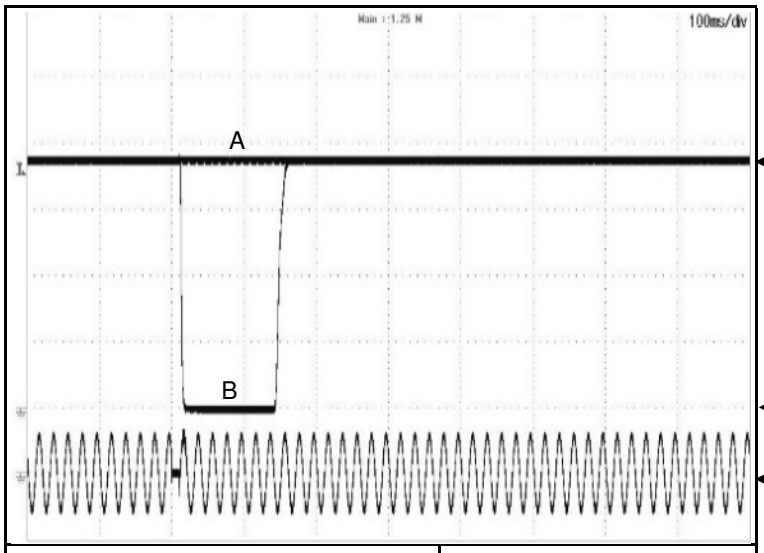


Iout: 400$^{A}/_{DIV}$	100$^{ms}/_{DIV}$
Vin: 500$^{V}/_{DIV}$	

Brown-out time
A - 8ms
B - 9ms

GSP10-1500 3Φ400

Vin:400VAC



Iout: 400$^{A}/_{DIV}$	100$^{ms}/_{DIV}$
Vin: 1000$^{V}/_{DIV}$	

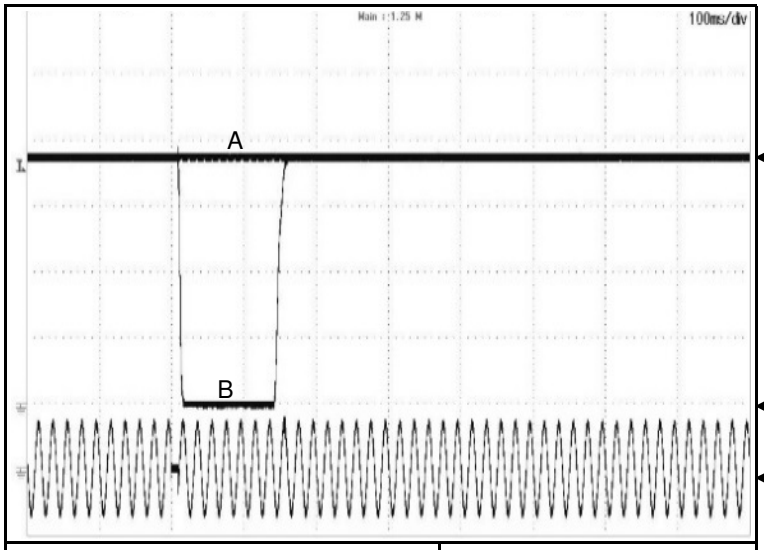
Brown-out time
A - 3ms
B - 10ms

2.9 Response to brown-out characteristics
C.C mode

Conditions: Vout: 100%
Iout: 100%
Ta = 25℃

GSP10-1500 3Φ480

Vin:480VAC



Iout: $400^{A}/_{DIV}$	$100^{ms}/_{DIV}$
Vin: $1000^{V}/_{DIV}$	

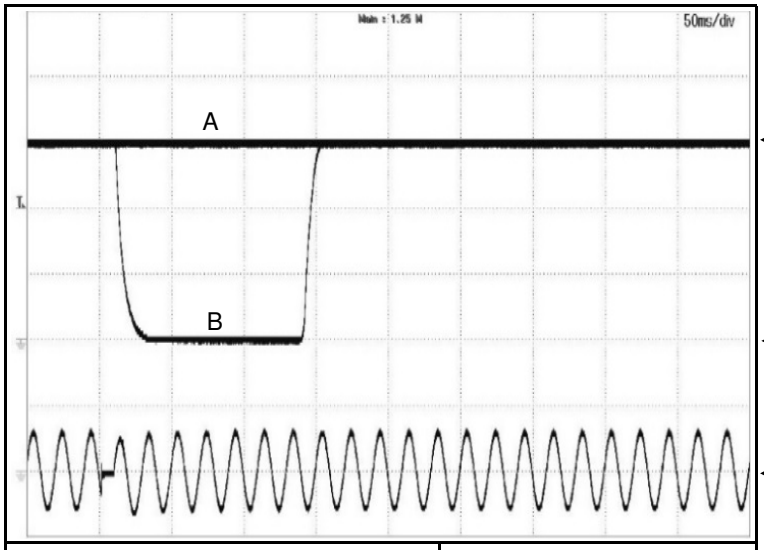
Brown-out time
A - 3ms
B - 10ms

2.9 Response to brown-out characteristics
C.V mode

Conditions: Vout: 100%
Iout: 100%
Ta = 25℃

GSP60-255 3Φ200

Vin:200VAC

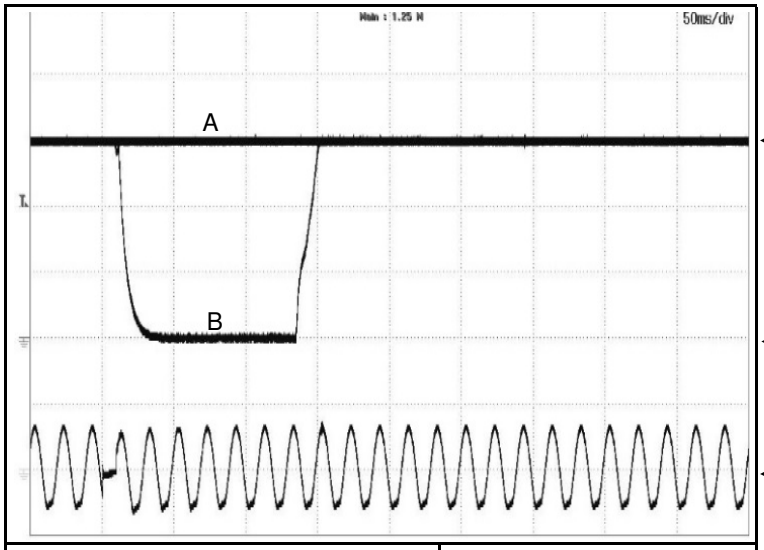


Vout: 20V/DIV	50ms/DIV
Vin: 500V/DIV	

Brown-out time
A - 8ms
B - 9ms

GSP60-255 3Φ480

Vin:480VAC



Vout: 20V/DIV	50ms/DIV
Vin: 1000V/DIV	

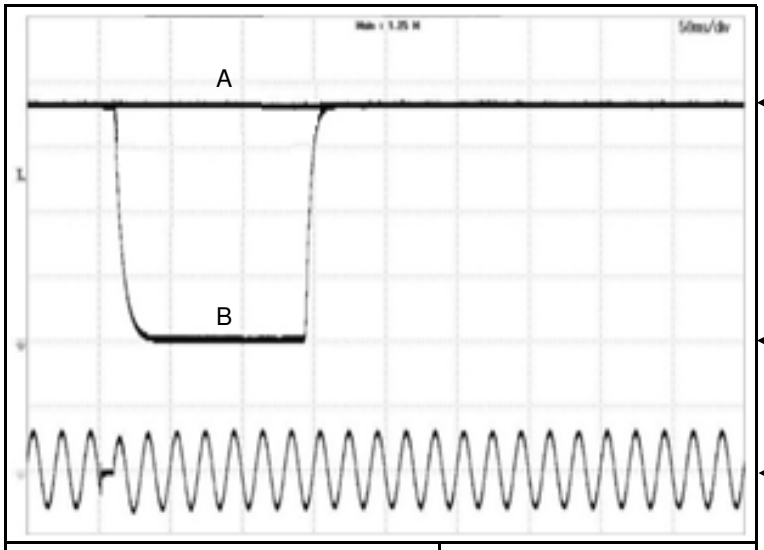
Brown-out time
A - 8ms
B - 9ms

2.9 Response to brown-out characteristics
C.C mode

Conditions: Vout: 100%
Iout: 100%
Ta = 25℃

GSP60-255 3Φ200

Vin:200VAC

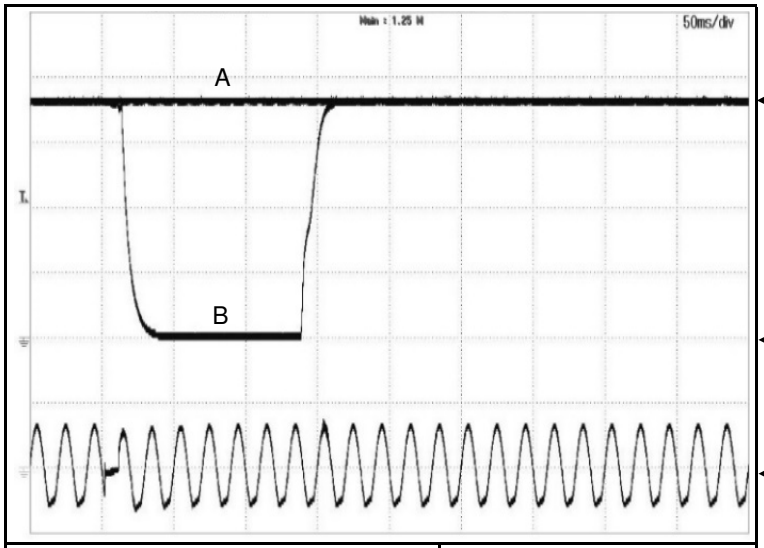


Brown-out time
A - 8ms
B - 9ms

Iout: 70$^{A}/_{DIV}$	50$^{ms}/_{DIV}$
Vin: 500$^{V}/_{DIV}$	

GSP60-255 3Φ480

Vin:480VAC



Brown-out time
A - 8ms
B - 9ms

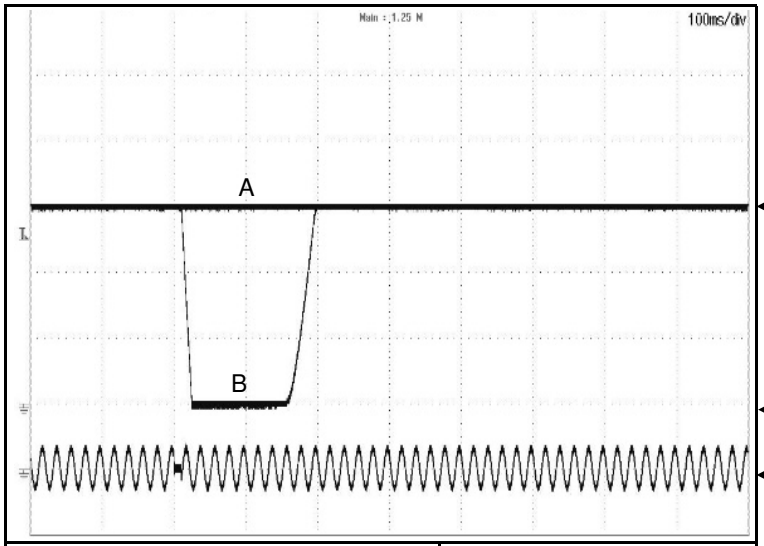
Iout: 70$^{A}/_{DIV}$	100$^{ms}/_{DIV}$
Vin: 1000$^{V}/_{DIV}$	

2.9 Response to brown-out characteristics
C.V mode

Conditions: Vout: 100%
Ta = 25℃

GSP150-102 3Φ200

Vin:200VAC
Iout: 90A

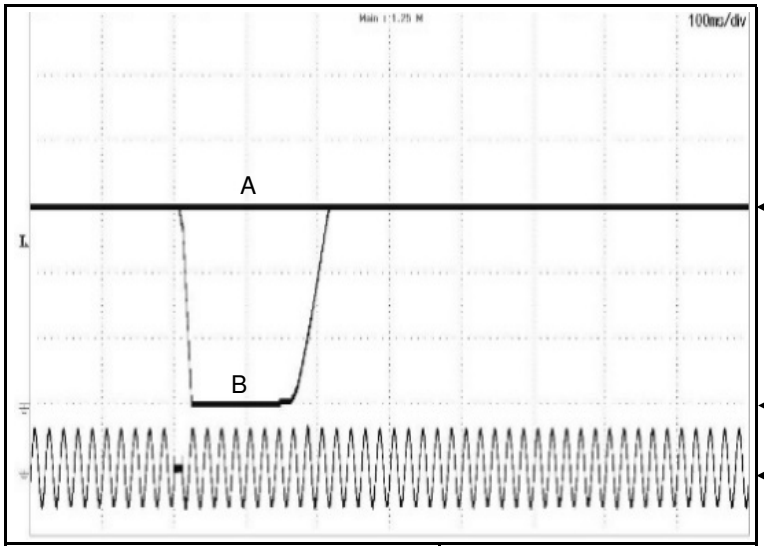


Brown-out time
A - 9ms
B - 10ms

Vout: 50V/DIV	100ms/DIV
Vin: 1000V/DIV	

GSP150-102 3Φ400

Vin:400VAC
Iout: 95A



Brown-out time
A - 10ms
B - 11ms

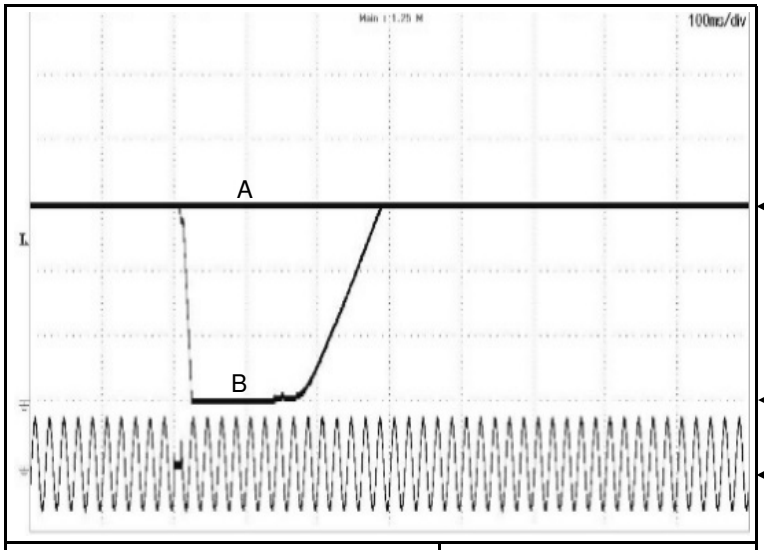
Vout: 50V/DIV	100ms/DIV
Vin: 1000V/DIV	

2.9 Response to brown-out characteristics
C.V mode

Conditions: Vout: 100%
Iout: 100%
Ta = 25℃

GSP150-102 3Φ480

Vin:480VAC



Vout: 50 V/DIV	100 ms/DIV
Vin: 1000 V/DIV	

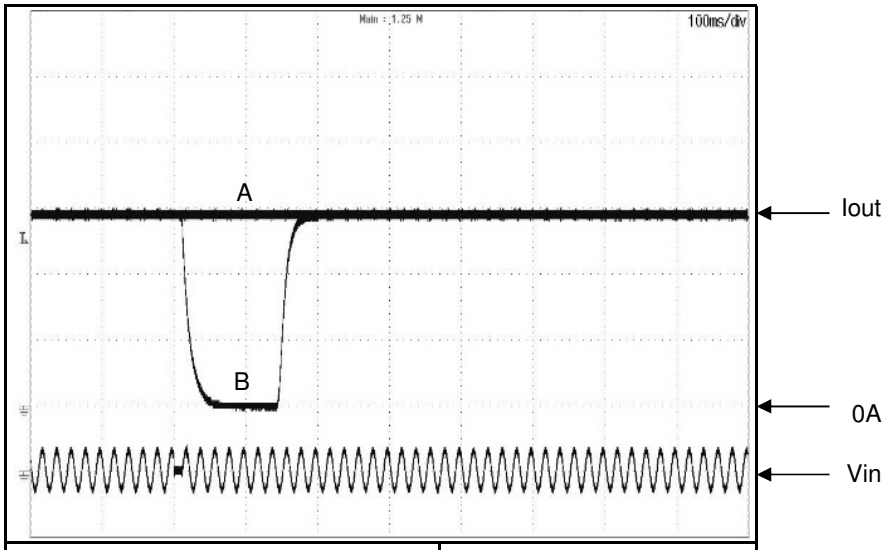
Brown-out time
A - 9ms
B - 10ms

2.9 Response to brown-out characteristics
C.C mode

Conditions: Iout: 100%
Ta = 25℃

GSP150-102 3Φ200

Vin:200VAC
*Vout: 126V

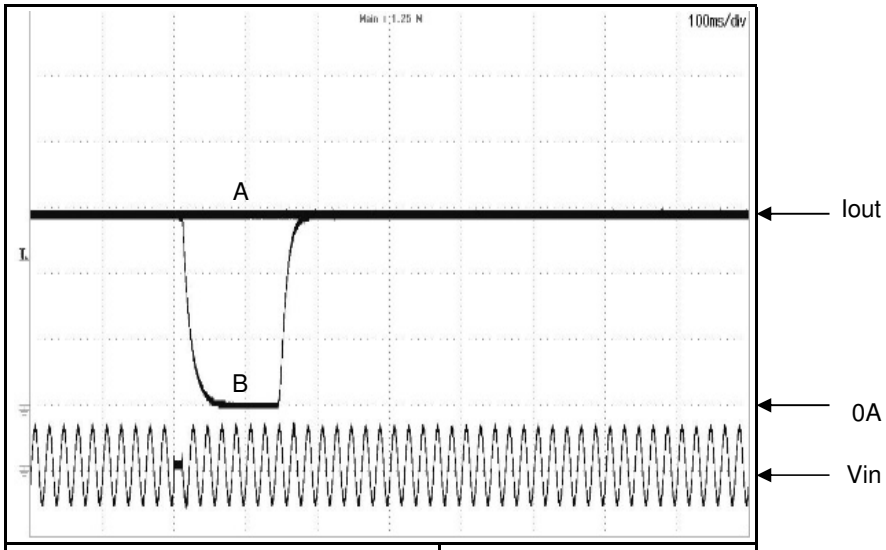


Brown-out time
A - 10ms
B - 11ms

Iout: 35A/DIV	100ms/DIV
Vin: 1000V/DIV	

GSP150-102 3Φ400

Vin:400VAC
*Vout: 134V



Brown-out time
A - 10ms
B - 11ms

Iout: 35A/DIV	100ms/DIV
Vin: 1000V/DIV	

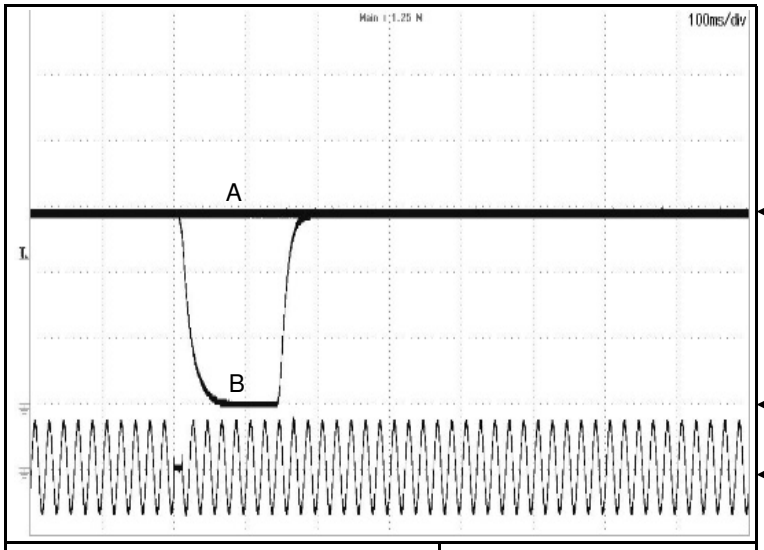
*Equipment limitation

2.9 Response to brown-out characteristics
C.C mode

Conditions: Vout: 100%
Iout: 100%
Ta = 25℃

GSP150-102 3Φ480

Vin:480VAC



Iout: $35^{A}/_{DIV}$	$100^{ms}/_{DIV}$
Vin: $1000^{V}/_{DIV}$	

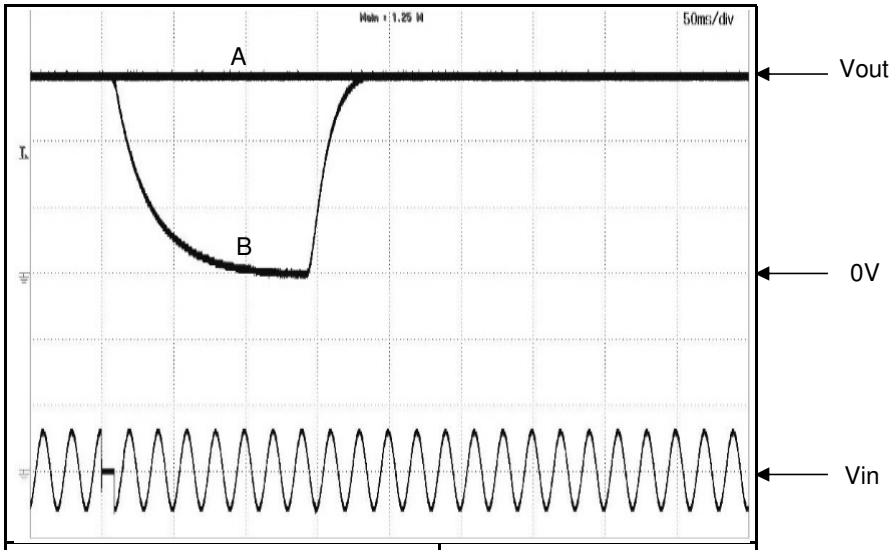
Brown-out time
A - 10ms
B - 11ms

2.9 Response to brown-out characteristics
C.V mode

Conditions: Vout: 100%
Iout: 100%
Ta = 25℃

GSP600-25.5 3Φ200

Vin:208VAC

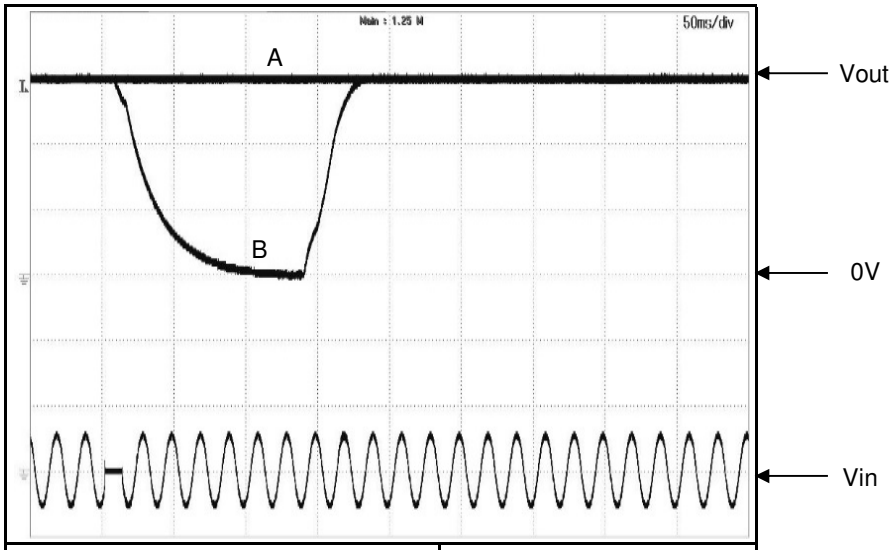


Vout: 200V/DIV	50ms/DIV
Vin: 500V/DIV	

Brown-out time
A - 7ms
B - 14ms

GSP600-25.5 3Φ400

Vin:415VAC



Vout: 200V/DIV	50ms/DIV
Vin: 1000V/DIV	

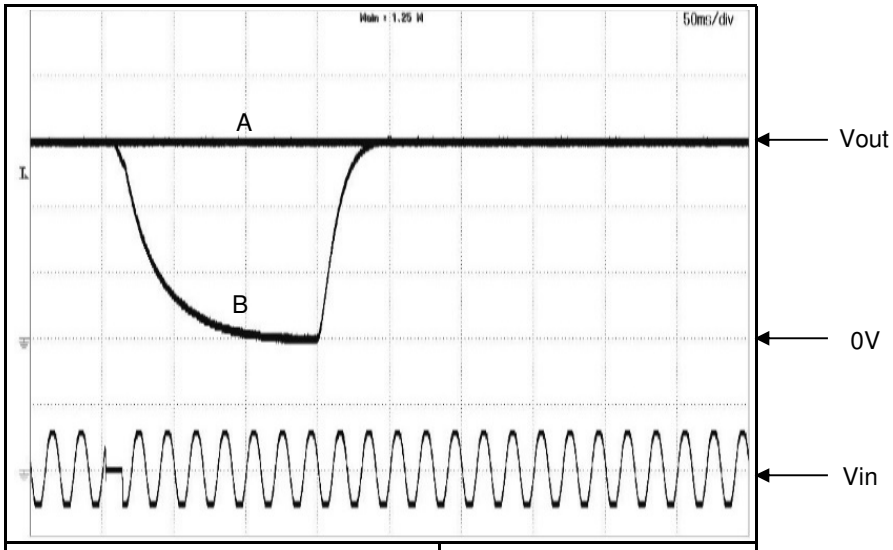
Brown-out time
A - 7ms
B - 12ms

2.9 Response to brown-out characteristics
C.V mode

Conditions:
Vout: 100%
Iout: 100%
Ta = 25℃

GSP600-25.5 3Φ480

Vin:480VAC



Vout: 200V/DIV	50ms/DIV
Vin: 1000V/DIV	

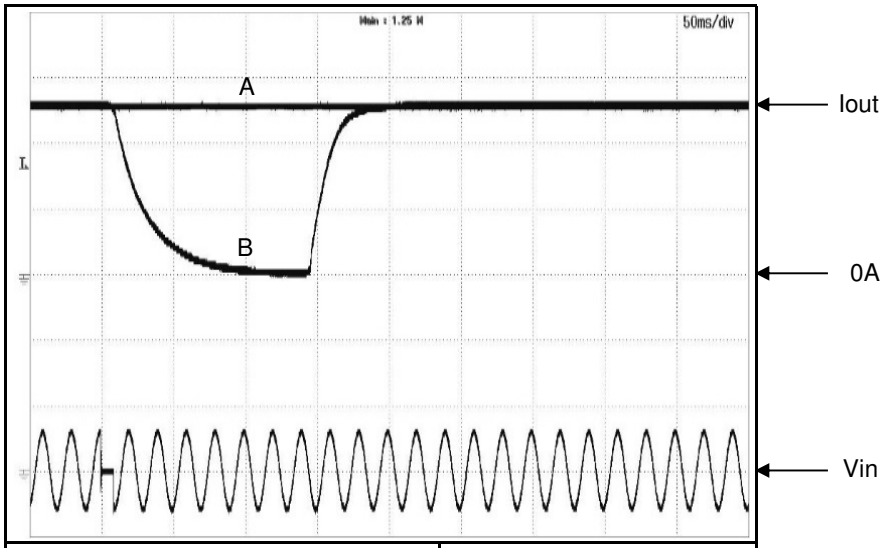
Brown-out time
A - 6ms
B - 12ms

2.9 Response to brown-out characteristics
C.C mode

Conditions:
Vout: 100%
Iout: 100%
Ta = 25℃

GSP600-25.5 3Φ200

Vin:208VAC

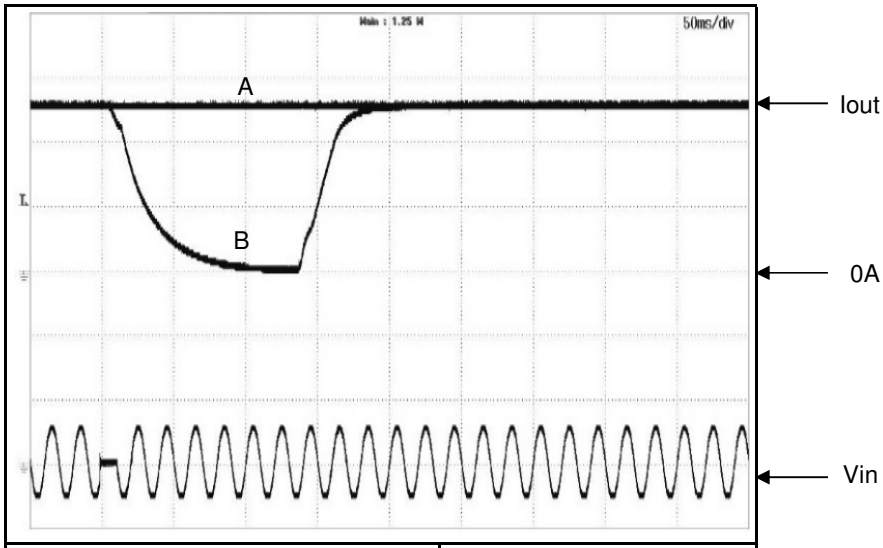


Iout: $10^{A}/_{DIV}$	$50^{ms}/_{DIV}$
Vin: $500^{V}/_{DIV}$	

Brown-out time
A - 8ms
B - 9ms

GSP600-25.5 3Φ400

Vin:415VAC



Iout: $10^{A}/_{DIV}$	$50^{ms}/_{DIV}$
Vin: $1000^{V}/_{DIV}$	

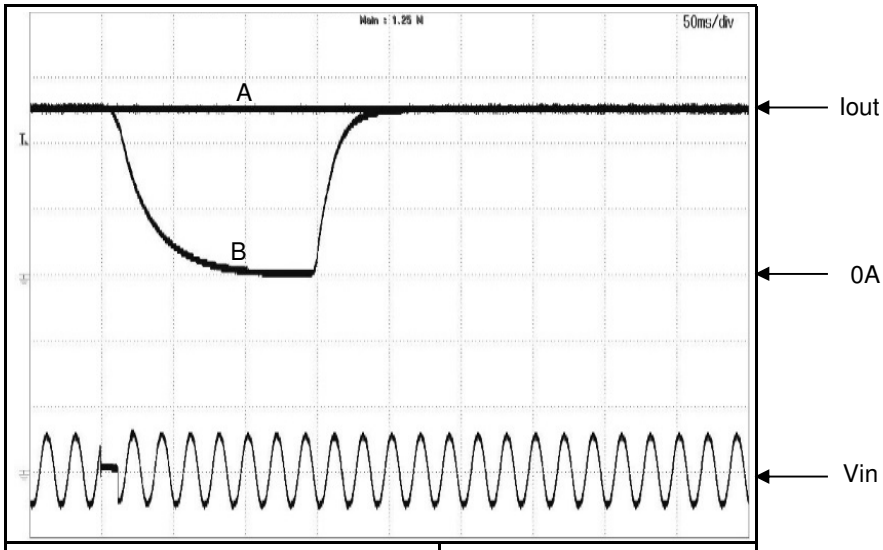
Brown-out time
A - 7ms
B - 12ms

2.9 Response to brown-out characteristics
C.C mode

Conditions:
Vout: 100%
Iout: 100%
Ta = 25℃

GSP600-25.5 3Φ480

Vin:480VAC



Iout: $10^{A}/_{DIV}$	$50^{ms}/_{DIV}$
Vin: $1000^{V}/_{DIV}$	

Brown-out time
A - 7ms
B - 12ms

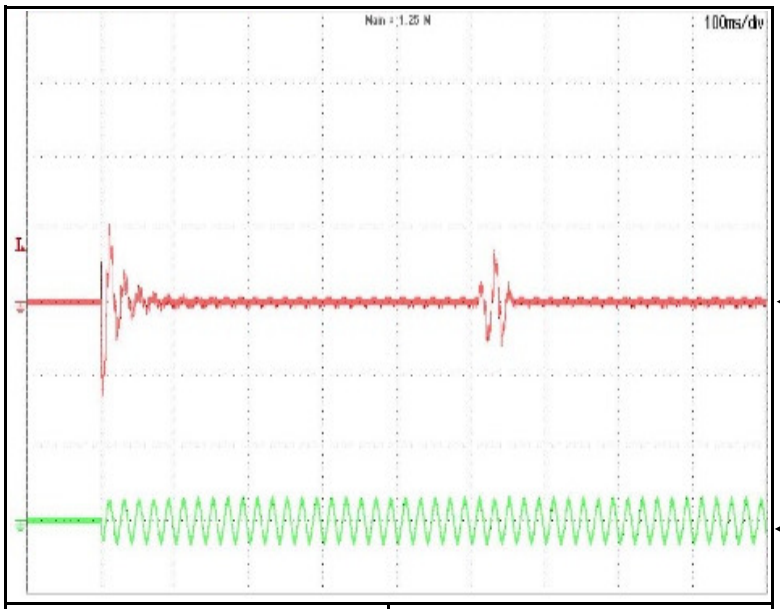
2.10 Inrush current waveform

Conditions: Vin: 200V
Vout: 100%
Iout: 100%
Ta = 25℃

3Φ200 Input

Switch on phase angle of input AC voltage

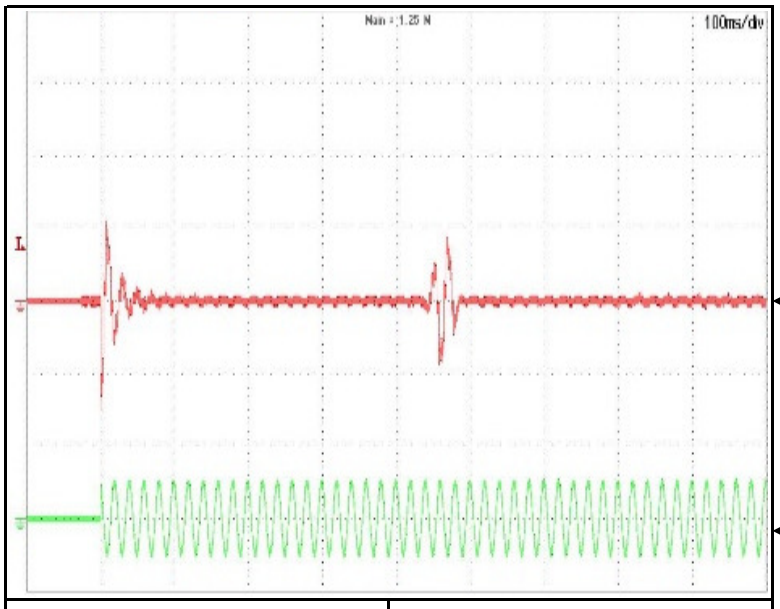
Φ=0˚



$50^{A}/_{DIV}$	$100^{ms}/_{DIV}$
$Vin:500v/_{DIV}$	

Switch on phase angle of input AC voltage

Φ=90˚



$50^{A}/_{DIV}$	$100^{ms}/_{DIV}$
$Vin:500v/_{DIV}$	

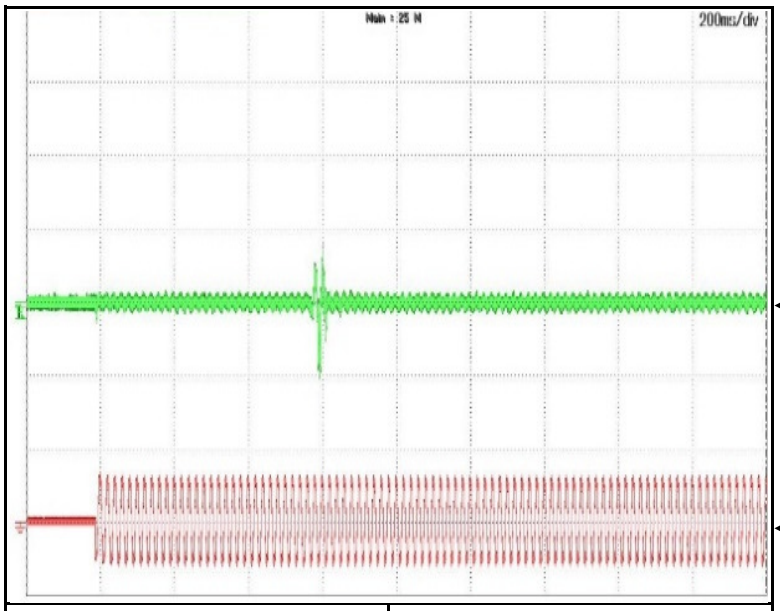
2.10 Inrush current waveform

Conditions: Vin: 480V
Vout: 100%
Iout: 100%
Ta = 25℃

3Φ400 Input

Switch on phase angle of input AC voltage

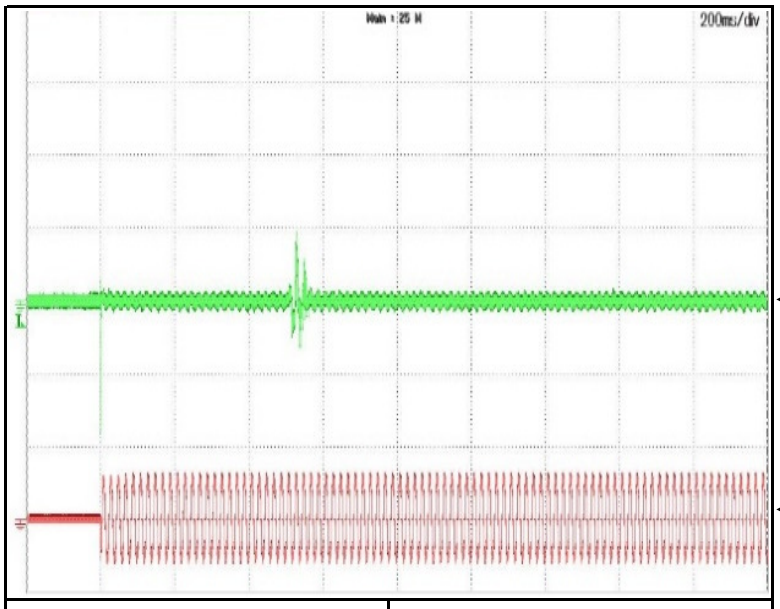
Φ=0˚



$50^{A}/_{DIV}$	$200^{ms}/_{DIV}$
$Vin:1000v/_{DIV}$	

Switch on phase angle of input AC voltage

Φ=90˚

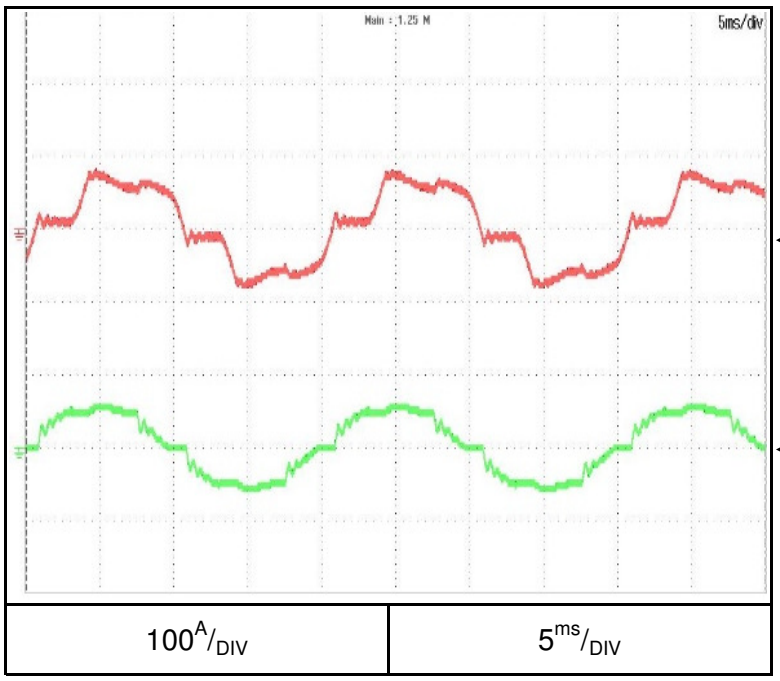


$50^{A}/_{DIV}$	$200^{ms}/_{DIV}$
$Vin:1000v/_{DIV}$	

2.11 Input current waveform

Conditions: Vin: 200VAC
Vout: 100%
Iout: 100%
Ta = 25℃

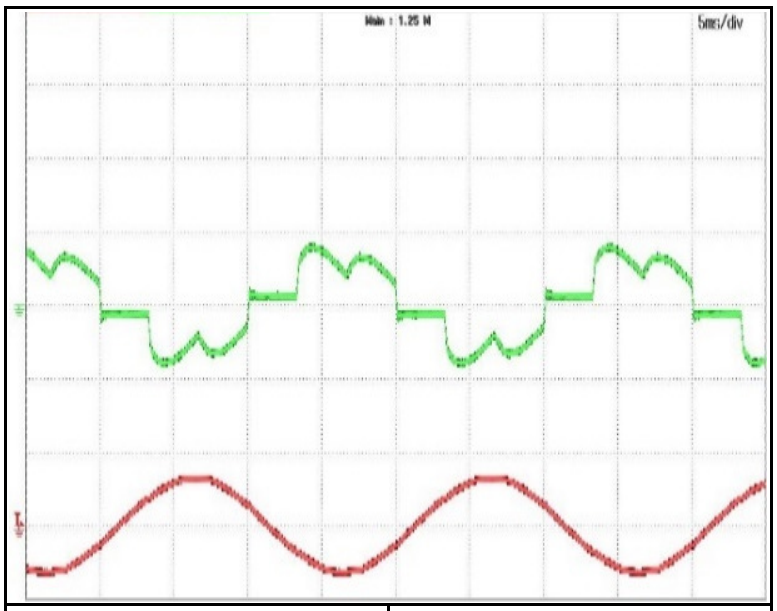
3Φ200 Input



2.11 Input current waveform

Conditions: Vin: 400VAC
Vout: 100%
Iout: 100%
Ta = 25℃

3Φ400 Input

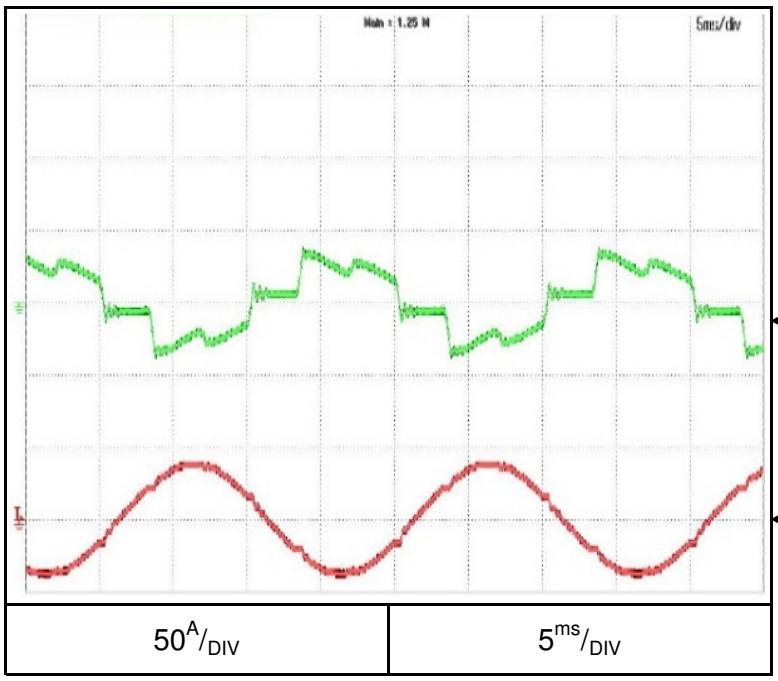


$50^{A}/_{DIV}$	$5^{ms}/_{DIV}$

2.11 Input current waveform

Conditions: Vin: 480VAC
Vout: 100%
Iout: 100%
Ta = 25℃

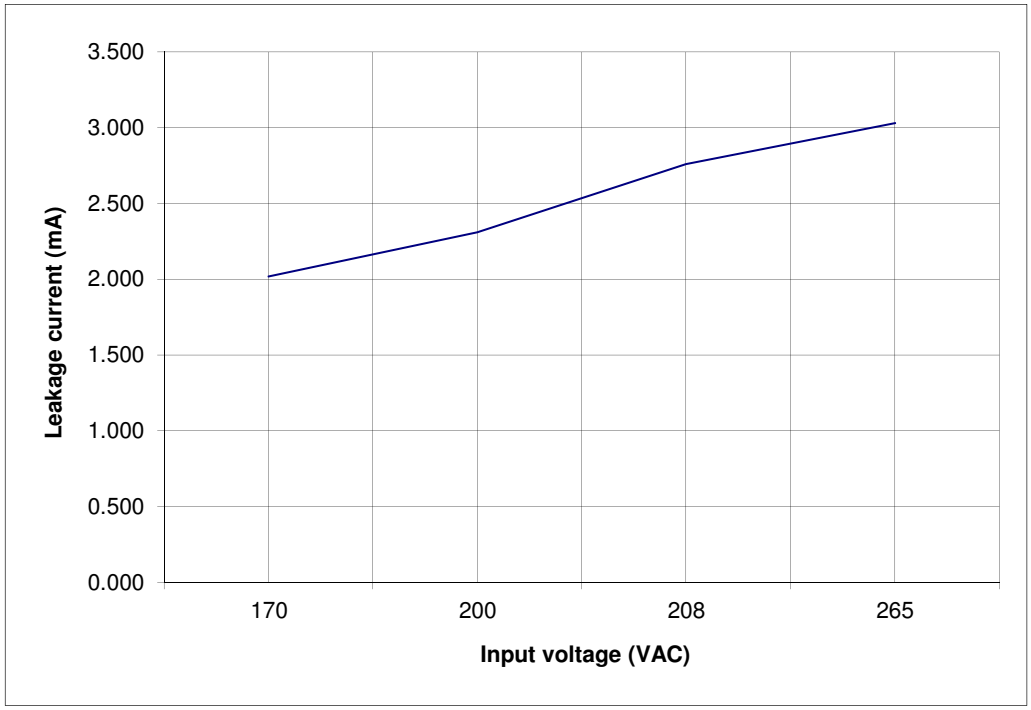
3Φ480 Input



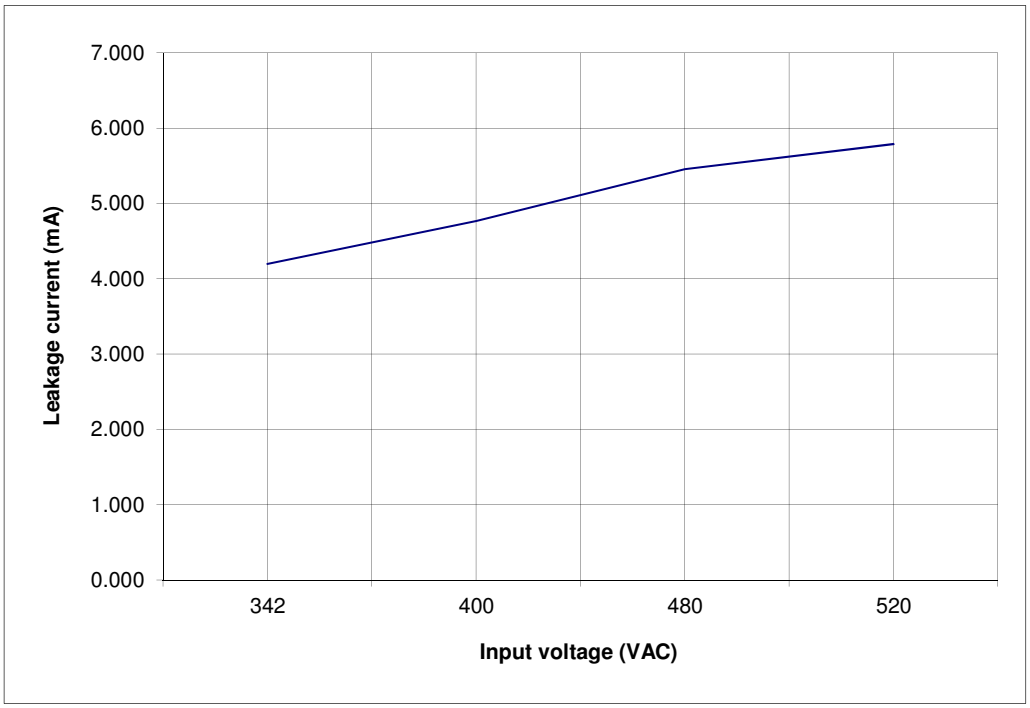
2.12 Leakage current characteristics

Conditions: Ta = 25℃
f=60Hz

3Φ 170-265V (*)



3Φ 342-520V (*)



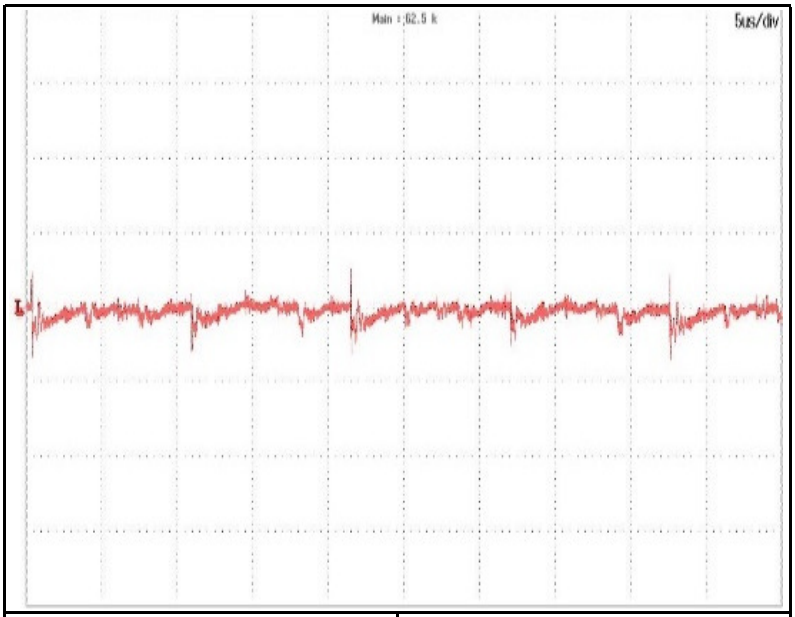
(*) TN & TT power system

2.13 Output ripple & noise waveform
C.V mode

Conditions: Vout: 100%
Iout: 100%
Ta = 25℃

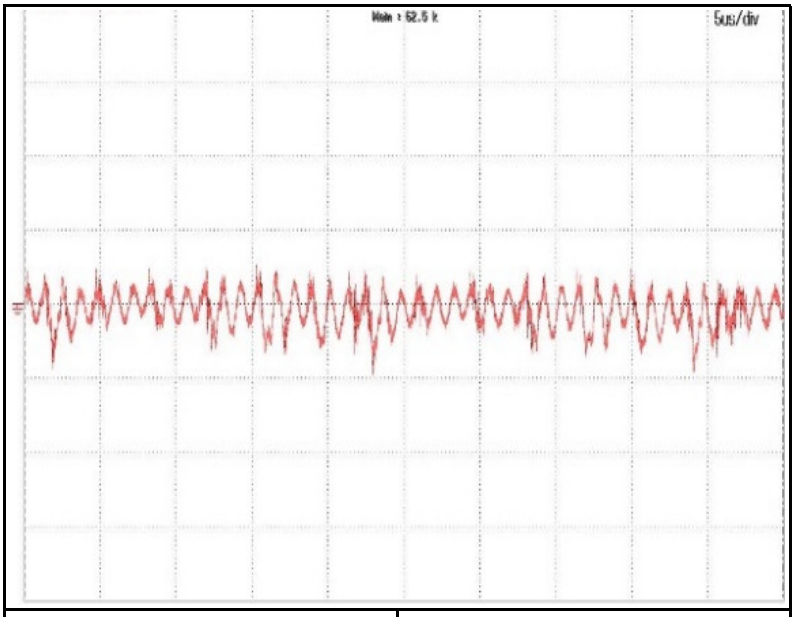
Normal Mode

GSP10-1500



$20^{mV}/_{DIV}$	$5^{us}/_{DIV}$

GSP60-255



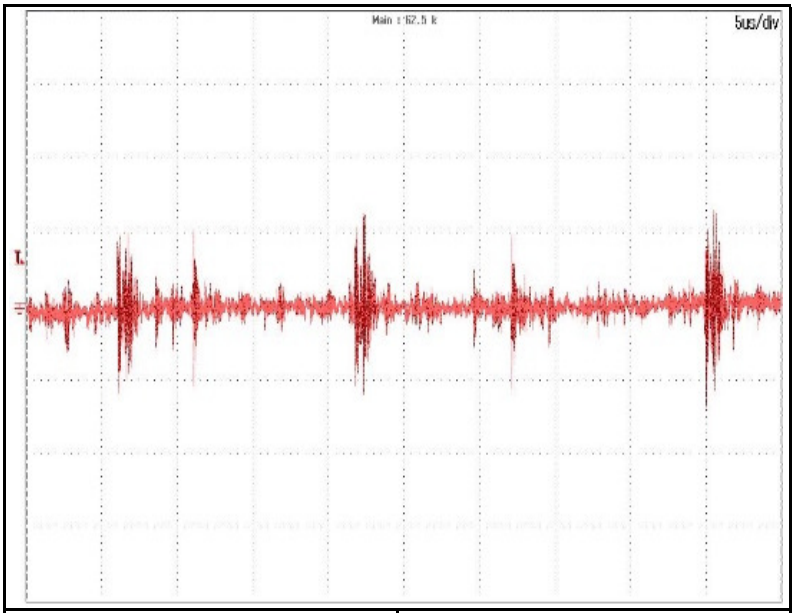
$10^{mV}/_{DIV}$	$5^{us}/_{DIV}$

2.14 Output ripple & noise waveform
C.V mode

Conditions: Vout: 100%
Iout: 100%
Ta = 25℃

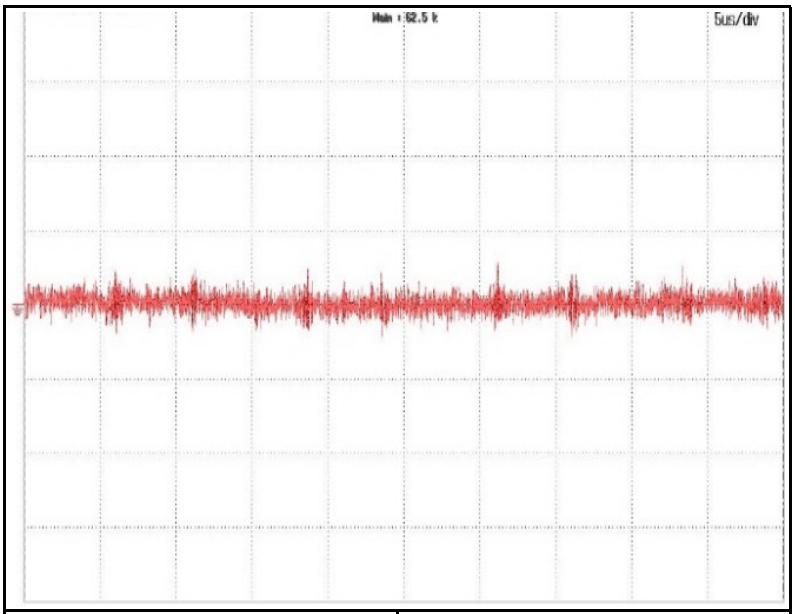
Normal Mode

GSP150-102



$10^{mV}/_{DIV}$	$5^{us}/_{DIV}$

GSP600-25.5



$200^{mV}/_{DIV}$	$5^{us}/_{DIV}$