GSPL 22.5kW

EVALUATION DATA

DWG: IA992-53-01		
APPD	CHK	DWG
Yaniv Nisinman 22/09/2022	Barak Marmor 21/09/2022	Amit Zehavi 10/08/2022

TDK-LAMBDA

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TERMINOLOGY USED

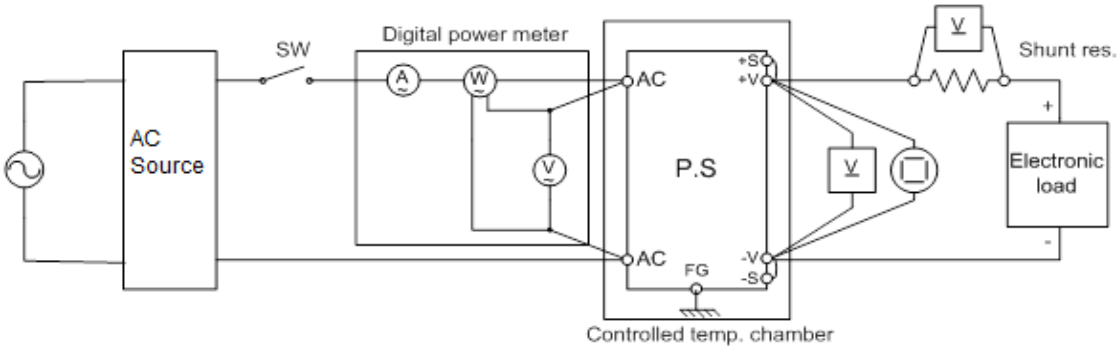
Definition

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

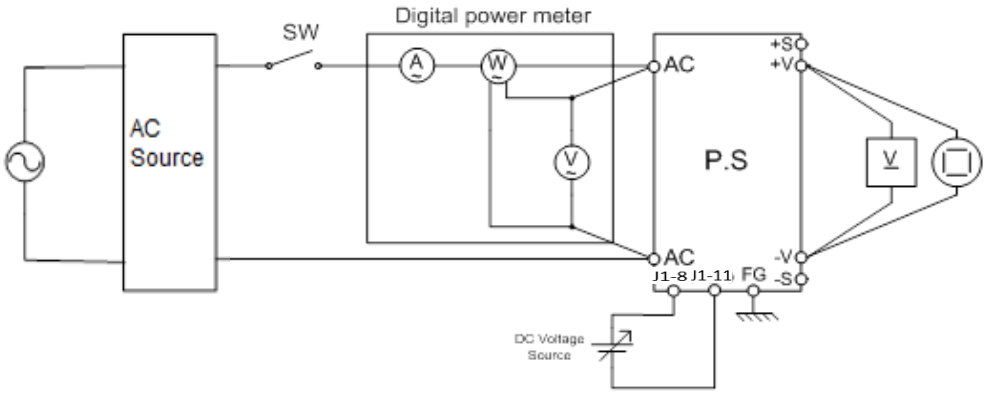
1. EVALUATION METHOD

1.1 Circuit used for determination

(1) Steady state data

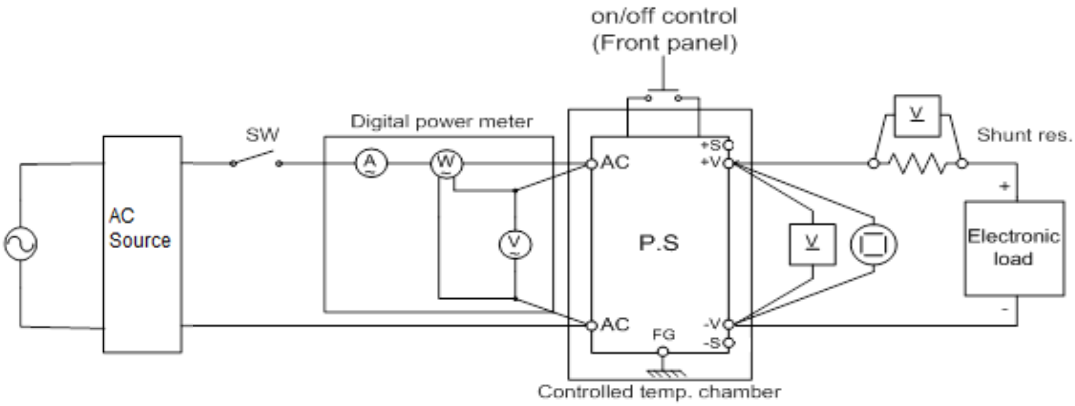


(2) Over voltage protection (OVP) characteristics

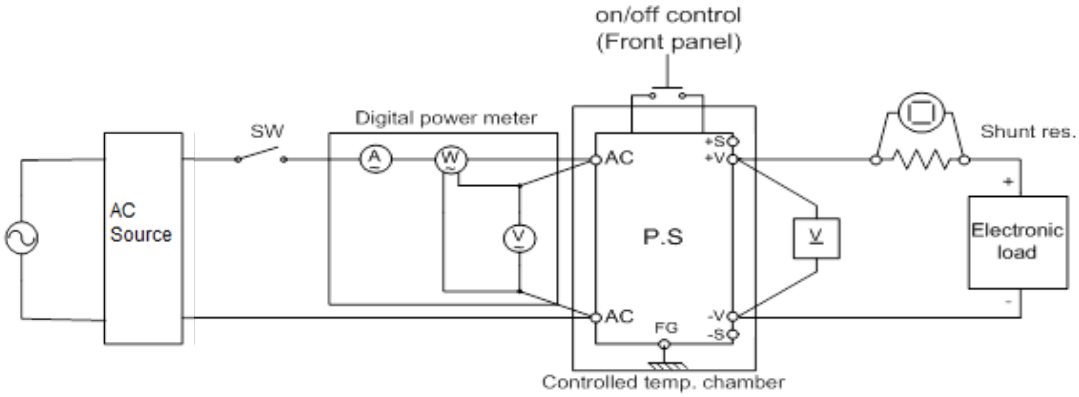


(3) Output rise/fall characteristics

Constant Voltage mode

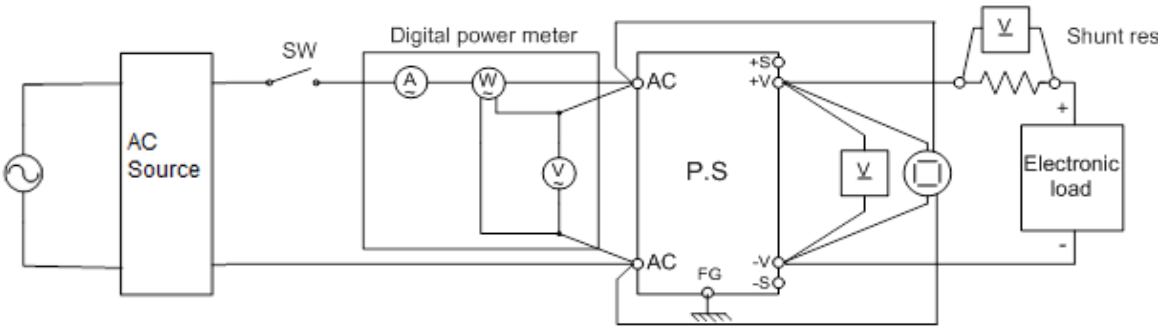


Constant Current mode

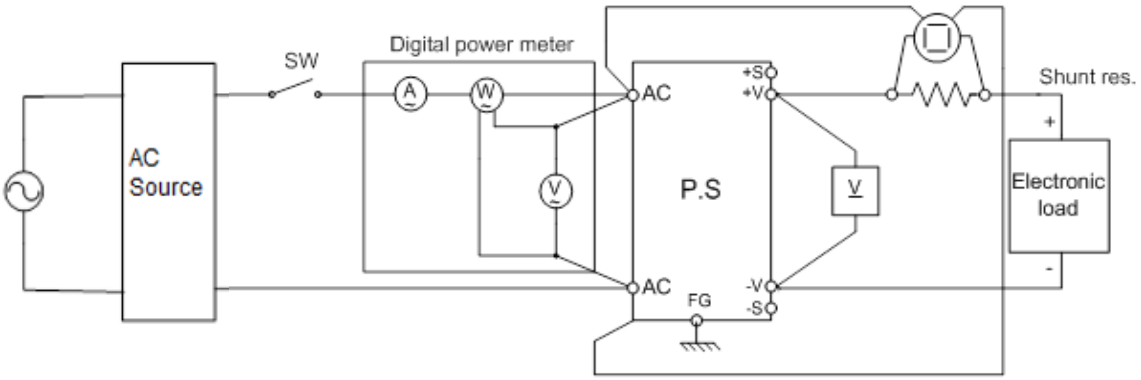


(4) Dynamic line response characteristics

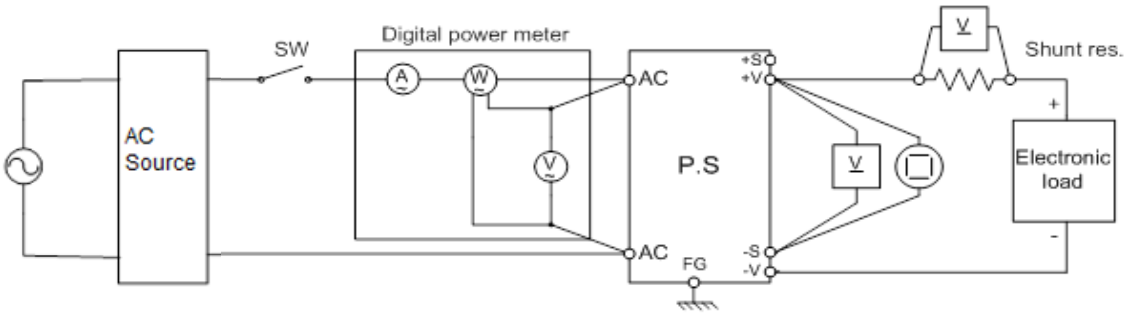
Constant Voltage mode



Constant Current mode

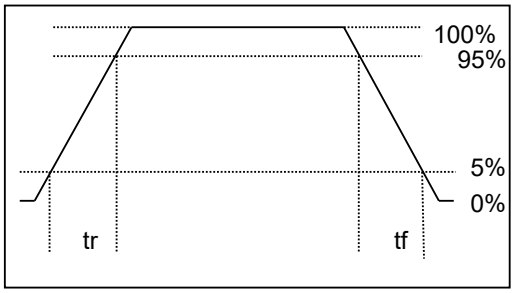


(5) Dynamic load response characteristics



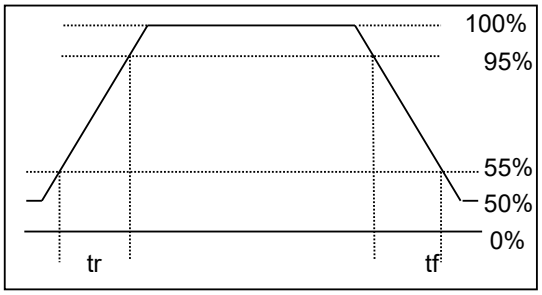
Output current waveform

Iout 0% <---> 100%



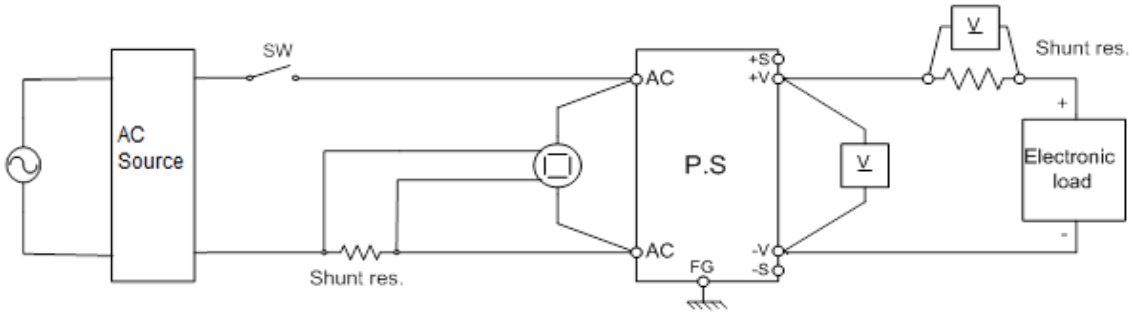
Output current waveform

Iout 50% <---> 100%



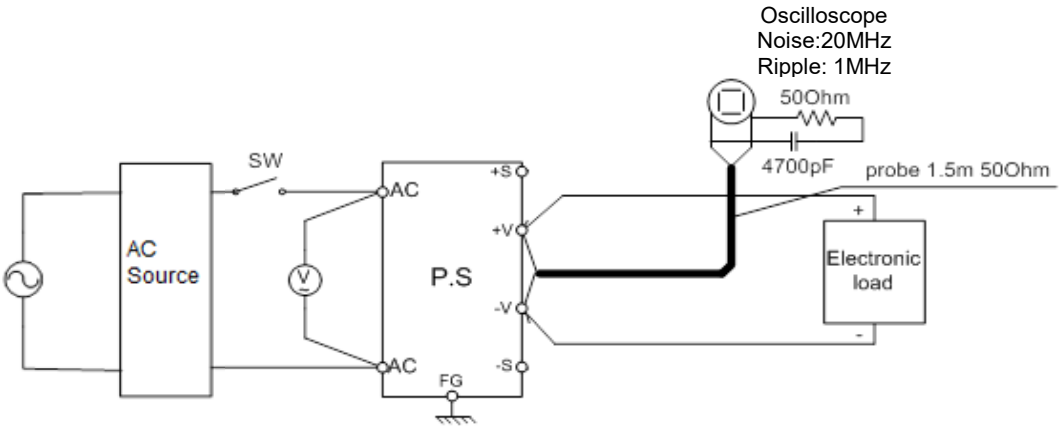
(6) Inrush current characteristics

Constant Voltage mode

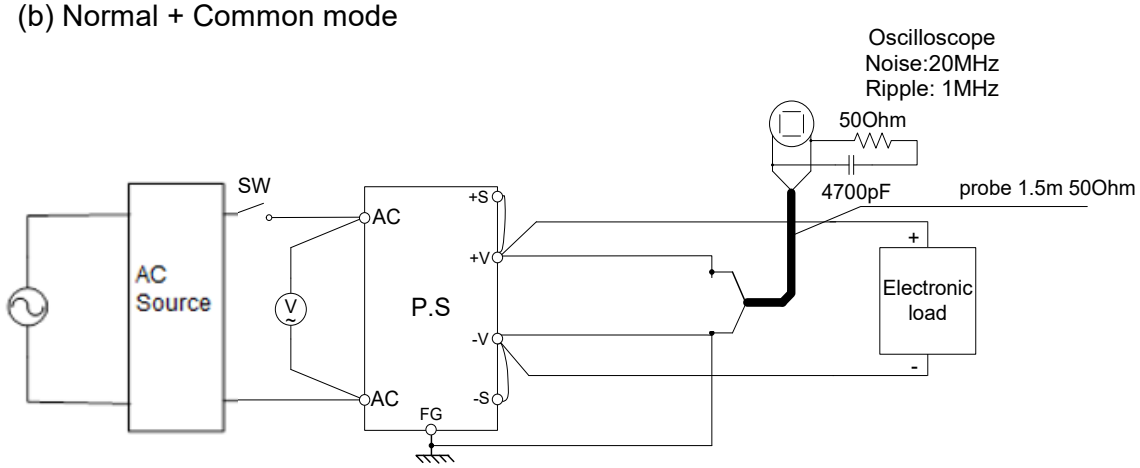


(7) Output ripple & noise waveform (20V to 300V models)

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

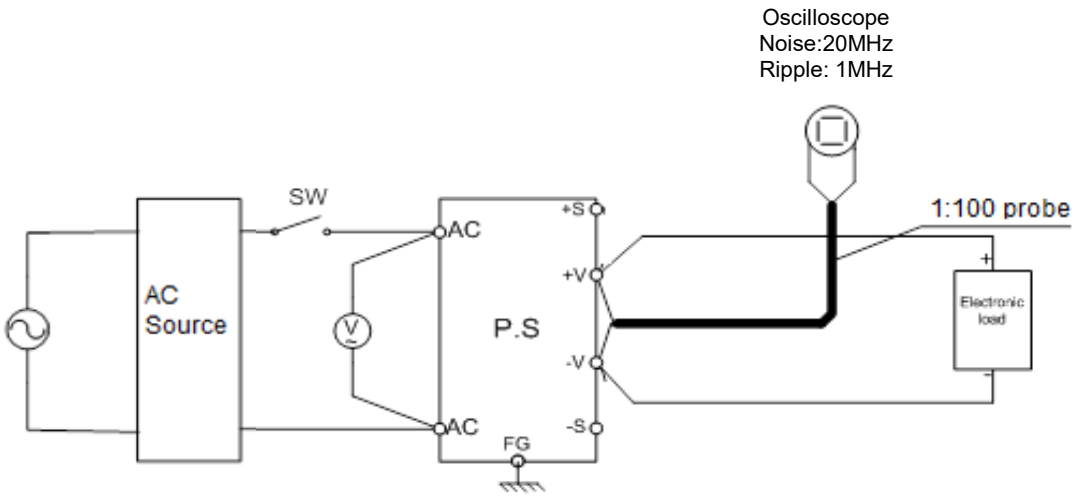


(b) Normal + Common mode

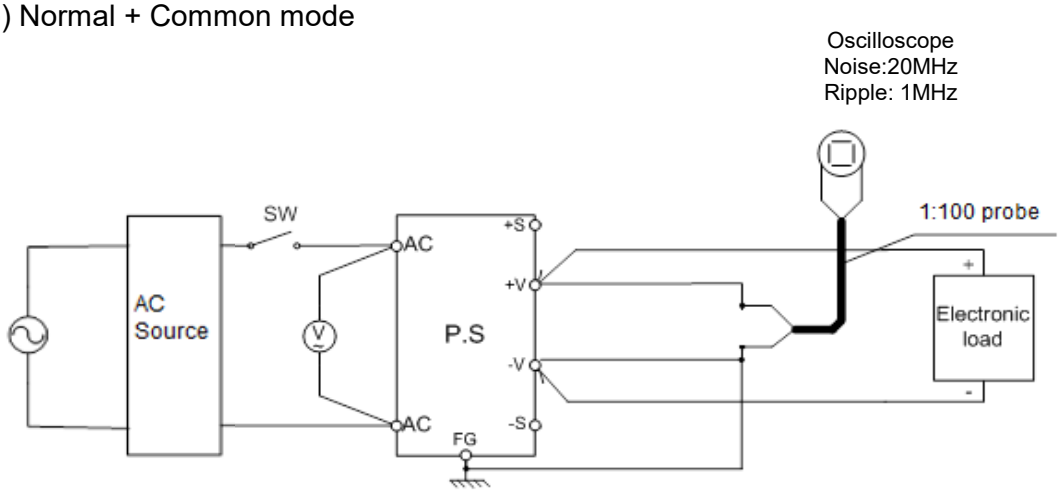


(8) Output ripple & noise waveform (600V to 1500V models)

(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	DLM3034
3	Storage oscilloscope	YOKOGAWA	710120
4	Digital multimeter	HEWLETT-PACKARD	34401A
5	Digital multimeter	KEITHLEY INSTRUMENTS INC.	2001
6	Digital multimeter	KEITHLEY INSTRUMENTS INC.	DMM6500
7	Digital voltmeter	VITERK	4700
8	Digital power meter	YOKOGAWA	WT333E
9	AC source	Chroma	61815
10	AC source	Pacific	3150AFX
11	AC source	Pacific	3450AFX-4AGE
12	Electronic load	Chroma	63224A-150-2000
13	Electronic load	Chroma	63224A-1200-960
14	Electronic load	ITECH	IT8018-2250-20
15	Controlled temp. chamber	THERMOTRON	SM-16-3800
16	Controlled temp. chamber	THERMOTRON	SE-600-6-6
17	Differential voltage probe	YOKOGAWA	701927
18	Current probe	YOKOGAWA	710120
19	Probe 1:10V (up to 300V models)	YOKOGAWA	701939
20	Probe 1:100V (up to 300V models)	YOKOGAWA	701945
21	Probe 1:100V (above 600V models)	YOKOGAWA	SS-0170R
22	Shunt	ISABELLA	RUG-Z
23	Transducer	LEM	IN2000-N
24	Transducer	DANISENSE	DS600UB
25	Transducer	LEM	IT-200S
26	Switching matrix (Analog/Resistor Programming)	HEWLETT-PACKARD	34970A

2. CHARACTERISTICS

2.1 Steady state data

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

GSPL20-1125

Conditions: Ta: 25°C

1. Regulation - Line & Load, C.V mode 3Φ208

	Vin						
Io	170VAC	200VAC	208VAC	230VAC	265VAC	Line Regulation	
0%	20.0033	20.0033	20.0032	20.0033	20.0032	0.1	0.000%
25%	20.0022	20.0021	20.0022	20.0021	20.0021	0.1	0.000%
50%	20.0012	20.0011	20.0011	20.0011	20.0011	0.1	0.000%
75%	20.0000	19.9999	20.0000	20.0000	20.0000	0.1	0.000%
100%	19.9989	19.9988	19.9988	19.9988	19.9989	0.1	0.000%
Load	4.4	4.5	4.4	4.5	4.3	ΔV(mV)	
Regulation	0.022%	0.023%	0.022%	0.023%	0.022%		

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

	Vin									
Io	342VAC	380VAC	400VAC	415VAC	432VAC	460VAC	480VAC	520VAC	Line Regulation	
0%	20.0031	20.0031	20.0031	20.0031	20.0031	20.0031	20.0031	20.0031	0.0	0.000%
25%	20.0020	20.0020	20.0019	20.0020	20.0020	20.0020	20.0019	20.0019	0.1	0.000%
50%	20.0009	20.0009	20.0009	20.0009	20.0009	20.0009	20.0009	20.0009	0.0	0.000%
75%	19.9998	19.9998	19.9998	19.9998	19.9998	19.9998	19.9998	19.9998	0.0	0.000%
100%	19.9987	19.9986	19.9987	19.9986	19.9987	19.9986	19.9987	19.9987	0.1	0.000%
Load	4.4	4.5	4.4	4.5	4.4	4.5	4.4	4.4	ΔV(mV)	
Regulation	0.022%	0.023%	0.022%	0.023%	0.022%	0.023%	0.022%	0.022%		

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

GSPL100-225

Conditions: Ta: 25°C

1. Regulation - Line & Load, C.V mode 3Φ208

	Vin						
Io	170VAC	200VAC	208VAC	230VAC	265VAC	Line Regulation	
0%	100.0121	100.0120	100.0121	100.0121	100.0121	0.1	0.000%
25%	100.0113	100.0113	100.0112	100.0110	100.0112	0.3	0.000%
50%	100.0111	100.0108	100.0109	100.0109	100.0109	0.3	0.000%
75%	100.0106	100.0105	100.0105	100.0105	100.0106	0.1	0.000%
100%	100.0099	100.0100	100.0099	100.0101	100.0100	0.2	0.000%
Load	2.2	2.0	2.2	2.0	2.1	ΔV(mV)	
Regulation	0.002%	0.002%	0.002%	0.002%	0.002%		

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

	Vin									
Io	342VAC	380VAC	400VAC	415VAC	432VAC	460VAC	480VAC	520VAC	Line Regulation	
0%	100.0143	100.0143	100.0153	100.0143	100.0140	100.0140	100.0164	100.0146	2.4	0.002%
25%	100.0145	100.0143	100.0143	100.0140	100.0149	100.0167	100.0144	100.0138	2.9	0.003%
50%	100.0145	100.0145	100.0146	100.0135	100.0157	100.0143	100.0157	100.0147	2.2	0.002%
75%	100.0135	100.0135	100.0138	100.0131	100.0143	100.0138	100.0135	100.0138	1.2	0.001%
100%	100.0128	100.0129	100.0124	100.0134	100.0118	100.0125	100.0127	100.0124	1.6	0.002%
Load	1.7	1.6	2.9	1.2	3.9	4.2	3.7	2.3	ΔV(mV)	
Regulation	0.002%	0.002%	0.003%	0.001%	0.004%	0.004%	0.004%	0.002%		

3. Temperature drift, C.V mode

Conditions: Vin: 3Φ480V
Iout: 100%

Ta	0°C	25°C	50°C	Temp. Coefficient (0˚C~50˚C)			
Vout	99.9954	100.0184	100.0367	41.3	mV	8	ppm/˚C

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

GSPL600-37.5

Conditions: Ta: 25°C

1. Regulation - Line & Load, C.V mode 3Φ208

	Vin						
Io	170VAC	200VAC	208VAC	230VAC	265VAC	Line Regulation	
0%	599.8791	599.8876	599.8870	599.8851	599.8870	8.5	0.001%
25%	599.8840	599.8805	599.8786	599.8800	599.8901	11.5	0.002%
50%	599.8776	599.8854	599.8840	599.8800	599.8800	7.8	0.001%
75%	599.8813	599.8790	599.8787	599.8800	599.8810	2.6	0.000%
100%	599.8776	599.8851	599.8870	599.8869	599.8771	9.9	0.002%
Load	6.4	8.6	8.4	6.9	13.0	ΔV(mV)	
Regulation	0.001%	0.001%	0.001%	0.001%	0.002%		

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

	Vin									
Io	342VAC	380VAC	400VAC	415VAC	432VAC	460VAC	480VAC	520VAC	Line Regulation	
0%	600.1102	600.1190	600.1083	600.1120	600.1138	600.1120	600.1142	600.1110	10.7	0.002%
25%	600.1160	600.1111	600.1140	600.1136	600.1140	600.1111	600.1120	600.1125	4.9	0.001%
50%	600.1120	600.1087	600.1114	600.1131	600.1170	600.1084	600.1090	600.1100	8.6	0.001%
75%	600.1111	600.1160	600.1105	600.1141	600.1107	600.1122	600.1101	600.1120	5.9	0.001%
100%	600.1064	600.1118	600.1106	600.1090	600.1156	600.1120	600.1061	600.1067	9.5	0.002%
Load	9.6	10.3	5.7	5.1	6.3	3.8	8.1	5.8	ΔV(mV)	
Regulation	0.002%	0.002%	0.001%	0.001%	0.001%	0.001%	0.001%	0.001%		

3. Temperature drift, C.V mode

Conditions: Vin: 3Φ480V
Iout: 100%

Ta	0°C	25°C	50°C	Temp. Coefficient (0˚C~50˚C)			
Vout	600.0902	600.0442	600.0003	89.9	mV	3	ppm/˚C

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

GSPL1500-15

Conditions: Ta: 25°C

1. Regulation - Line & Load, C.V mode 3Φ208

	Vin						
Io	170VAC	200VAC	208VAC	230VAC	265VAC	Line Regulation	
0%	1500.03	1500.04	1500.04	1500.03	1500.03	10	0.001%
25%	1500.04	1500.04	1500.04	1500.02	1500.03	20	0.001%
50%	1500.04	1500.03	1500.04	1500.04	1500.03	10	0.001%
75%	1500.03	1500.04	1500.04	1500.03	1500.04	10	0.001%
100%	1500.02	1500.03	1500.04	1500.04	1500.03	20	0.001%
Load	20	10	0	20	10	ΔV(mV)	
Regulation	0.001%	0.001%	0.000%	0.001%	0.001%		

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

	Vin									
Io	342VAC	380VAC	400VAC	415VAC	432VAC	460VAC	480VAC	520VAC	Line Regulation	
0%	1500.30	1500.30	1500.30	1500.29	1500.30	1500.30	1500.30	1500.29	10	0.001%
25%	1500.30	1500.29	1500.30	1500.30	1500.29	1500.29	1500.30	1500.30	10	0.001%
50%	1500.30	1500.30	1500.30	1500.30	1500.28	1500.29	1500.30	1500.30	20	0.001%
75%	1500.30	1500.29	1500.29	1500.29	1500.29	1500.30	1500.28	1500.29	20	0.001%
100%	1500.30	1500.30	1500.30	1500.30	1500.30	1500.30	1500.29	1500.30	10	0.001%
Load	0	10	10	10	20	10	20	10	ΔV(mV)	
Regulation	0.000%	0.001%	0.001%	0.001%	0.001%	0.001%	0.001%	0.001%		

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

GSPL20-1125

Conditions: Ta: 25°C

1. Regulation - Line & Load, C.C mode 3Φ208 (*)

	Vin						
Vo	170VAC	200VAC	208VAC	230VAC	265VAC	Line Regulation	
0%	1125.6624	1125.6761	1125.6904	1125.7037	1125.7140	51.6	0.005%
25%	1125.6356	1125.6535	1125.6657	1125.6725	1125.6856	50.0	0.004%
50%	1125.6670	1125.6807	1125.6898	1125.6986	1125.7026	35.6	0.003%
75%	1125.6835	1125.6999	1125.7130	1125.7189	1125.7294	45.9	0.004%
100%	1125.7263	1125.7431	1125.7503	1125.7621	1125.7716	45.3	0.004%
Load	90.7	89.6	84.6	89.6	86.0	ΔI(mA)	
Regulation	0.008%	0.008%	0.008%	0.008%	0.008%		

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

	Vin									
Io	342VAC	380VAC	400VAC	415VAC	432VAC	460VAC	480VAC	520VAC	Line Regulation	
0%	1124.1742	1124.1797	1124.1864	1124.1936	1124.1963	1124.2037	1124.2113	1124.2185	44.3	0.004%
25%	1124.1387	1124.1444	1124.1539	1124.1590	1124.1636	1124.1729	1124.1761	1124.1828	44.1	0.004%
50%	1124.1529	1124.1634	1124.1708	1124.1794	1124.1858	1124.1951	1124.1999	1124.2045	51.6	0.005%
75%	1124.1640	1124.1773	1124.1824	1124.1913	1124.1961	1124.2035	1124.2096	1124.2174	53.4	0.005%
100%	1124.1860	1124.1936	1124.2024	1124.2111	1124.2197	1124.2242	1124.2284	1124.2372	51.2	0.005%
Load	47.3	49.2	48.5	52.1	56.1	51.3	52.3	54.4	ΔI(mA)	
Regulation	0.004%	0.004%	0.004%	0.005%	0.005%	0.005%	0.005%	0.005%		

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

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

GSPL100-225

Conditions: Ta: 25°C

1. Regulation - Line & Load, C.C mode 3Φ208 (*)

	Vin						
Vo	170VAC	200VAC	208VAC	230VAC	265VAC	Line Regulation	
0%	224.9657	224.9658	224.9658	224.9658	224.9652	0.6	0.000%
25%	224.9694	224.9699	224.9694	224.9690	224.9685	1.4	0.001%
50%	224.9709	224.9706	224.9704	224.9704	224.9704	0.5	0.000%
75%	224.9718	224.9709	224.9708	224.9706	224.9706	1.2	0.001%
100%	224.9685	224.9682	224.9680	224.9680	224.9678	0.7	0.000%
Load	6.1	5.1	5.0	4.8	5.4	ΔI(mA)	
Regulation	0.003%	0.002%	0.002%	0.002%	0.002%		

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

	Vin									
Io	342VAC	380VAC	400VAC	415VAC	432VAC	460VAC	480VAC	520VAC	Line Regulation	
0%	224.9440	224.9464	224.9434	224.9463	224.9459	224.9470	224.9455	224.9443	3.6	0.002%
25%	224.9482	224.9477	224.9476	224.9468	224.9456	224.9460	224.9464	224.9458	2.6	0.001%
50%	224.9449	224.9455	224.9452	224.9452	224.9455	224.9444	224.9441	224.9447	1.4	0.001%
75%	224.9422	224.9426	224.9411	224.9414	224.9418	224.9422	224.9421	224.9411	1.5	0.001%
100%	224.9495	224.9454	224.9435	224.9420	224.9407	224.9407	224.9401	224.9401	9.4	0.004%
Load	7.3	5.1	6.5	5.4	5.2	6.3	6.3	5.7	ΔI(mA)	
Regulation	0.003%	0.002%	0.003%	0.002%	0.002%	0.003%	0.003%	0.003%		

3. Temperature drift, C.C mode

Conditions: Vin: 3Φ480V
Iout: 100%

Ta	0°C	25°C	50°C	Temp. Coefficient (0˚C~50˚C)			
Io[A]	225.0219	224.9999	225.0447	44.8	mA	8	ppm/˚C

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

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

GSPL600-37.5

Conditions: Ta: 25°C

1. Regulation - Line & Load, C.C mode 3Φ208 (*)

	Vin						
Vo	170VAC	200VAC	208VAC	230VAC	265VAC	Line Regulation	
0%	37.5022	37.5022	37.5023	37.5016	37.5014	0.9	0.002%
25%	37.5034	37.5036	37.5036	37.5036	37.5036	0.2	0.001%
50%	37.5077	37.5076	37.5073	37.5071	37.5076	0.6	0.002%
75%	37.5081	37.5082	37.5081	37.5074	37.5082	0.8	0.002%
100%	37.5087	37.5087	37.5086	37.5082	37.5079	0.8	0.002%
Load	6.5	6.5	6.3	6.6	6.8	ΔI(mA)	
Regulation	0.017%	0.017%	0.017%	0.017%	0.018%		

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

	Vin									
Io	342VAC	380VAC	400VAC	415VAC	432VAC	460VAC	480VAC	520VAC	Line Regulation	
0%	37.5361	37.5363	37.5368	37.5372	37.5365	37.5371	37.5376	37.5373	1.5	0.004%
25%	37.5343	37.5344	37.5347	37.5346	37.5345	37.5349	37.5347	37.5348	0.6	0.002%
50%	37.5267	37.5267	37.5266	37.5269	37.5267	37.5270	37.5269	37.5272	0.6	0.002%
75%	37.5250	37.5251	37.5253	37.5253	37.5254	37.5253	37.5254	37.5256	0.6	0.002%
100%	37.5235	37.5238	37.5236	37.5237	37.5236	37.5235	37.5236	37.5236	0.3	0.001%
Load	12.6	12.5	13.2	13.5	12.9	13.6	14.0	13.7	ΔI(mA)	
Regulation	0.034%	0.033%	0.035%	0.036%	0.034%	0.036%	0.037%	0.037%		

3. Temperature drift, C.C mode

Conditions: Vin: 3Φ480V
Iout: 100%

Ta	0°C	25°C	50°C	Temp. Coefficient (0˚C~50˚C)			
Io[A]	37.5353	37.5222	37.5151	20.2	mA	11	ppm/˚C

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

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

GSPL1500-15

Conditions: Ta: 25°C

1. Regulation - Line & Load, C.C mode 3Φ208 (*)

	Vin						
Vo	170VAC	200VAC	208VAC	230VAC	265VAC	Line Regulation	
0%	15.0115	15.0114	15.0119	15.0113	15.0116	0.6	0.004%
25%	15.0119	15.0117	15.0119	15.0119	15.0116	0.3	0.002%
50%	15.0118	15.0119	15.0119	15.0117	15.0117	0.2	0.001%
75%	15.0119	15.0117	15.0117	15.0116	15.0119	0.3	0.002%
100%	15.0119	15.0116	15.0119	15.0119	15.0116	0.3	0.002%
Load	0.4	0.5	0.2	0.6	0.3	ΔI(mA)	
Regulation	0.003%	0.003%	0.001%	0.004%	0.002%		

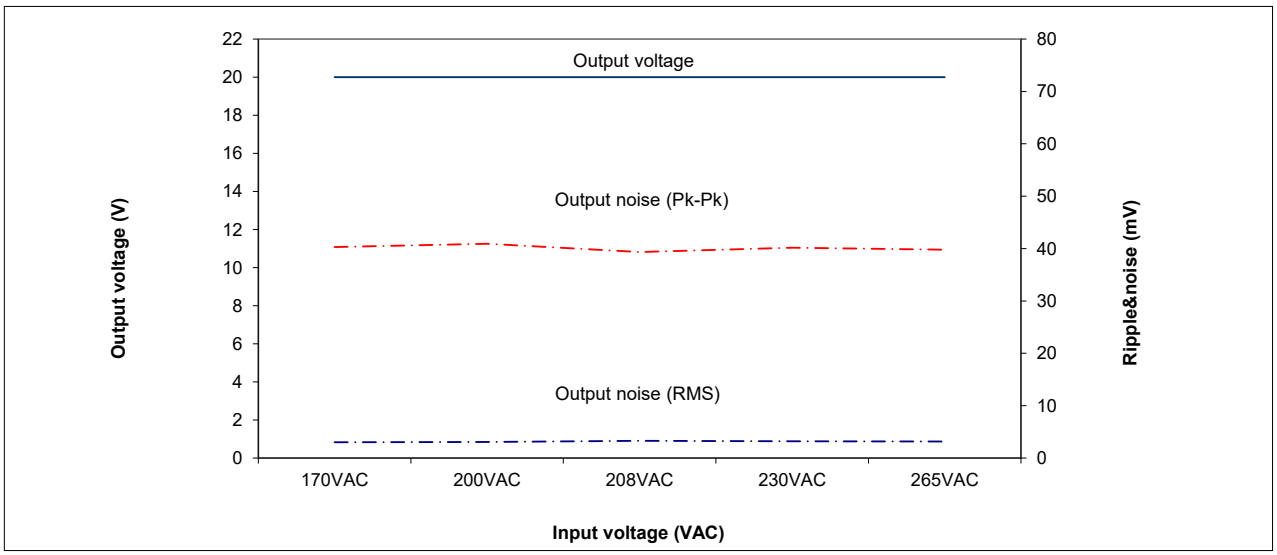
2. Regulation - Line & Load, C.C mode 3Φ480 (*)

	Vin									
Io	342VAC	380VAC	400VAC	415VAC	432VAC	460VAC	480VAC	520VAC	Line Regulation	
0%	15.00677	15.00697	15.00657	15.00697	15.00717	15.00774	15.00737	15.00657	1.17	0.008%
25%	15.00778	15.00757	15.00697	15.00757	15.00737	15.00777	15.00773	15.00697	0.81	0.005%
50%	15.00717	15.00691	15.00757	15.00677	15.00737	15.00757	15.00717	15.00757	0.80	0.005%
75%	15.00797	15.00657	15.00716	15.00703	15.00817	15.00657	15.00677	15.00737	1.60	0.011%
100%	15.00837	15.00812	15.00797	15.00817	15.00697	15.00679	15.00757	15.00737	1.58	0.011%
Load	1.60	1.55	1.40	1.40	1.20	1.20	0.96	1.00	ΔI(mA)	
Regulation	0.011%	0.010%	0.009%	0.009%	0.008%	0.008%	0.006%	0.007%		

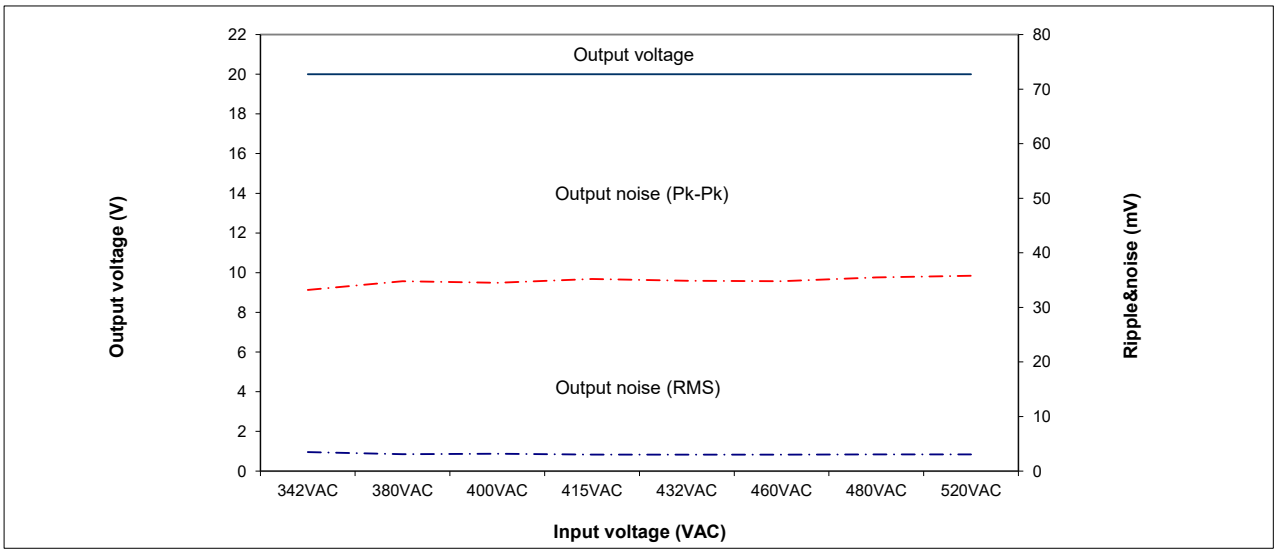
(2). Output voltage and ripple voltage vs. input voltage
C.V mode

Conditions: Iout: 100%
Ta: 25°C

GSPL20-1125 3Φ208



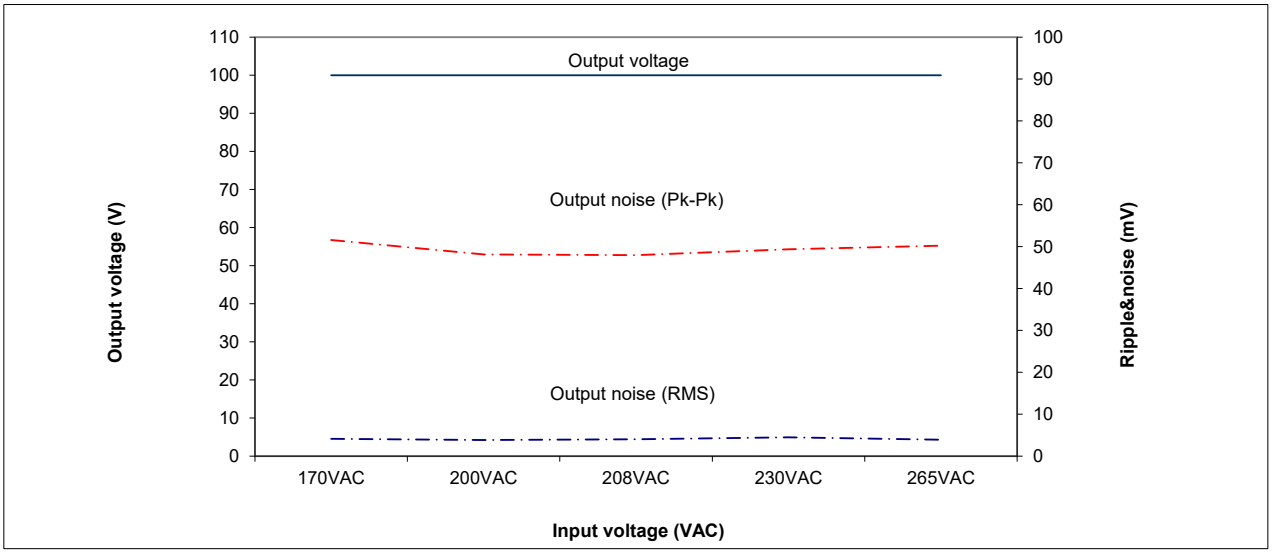
GSPL20-1125 3Φ480



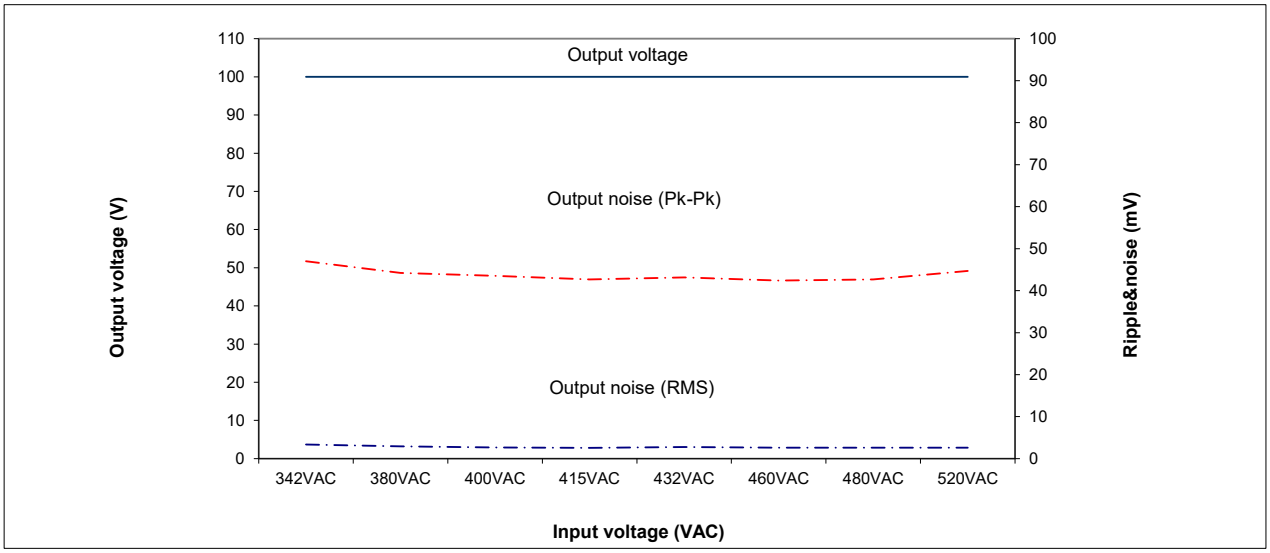
(2). Output voltage and ripple voltage vs. input voltage
C.V mode

Conditions: Iout: 100%
Ta: 25°C

GSPL100-225 3Φ208



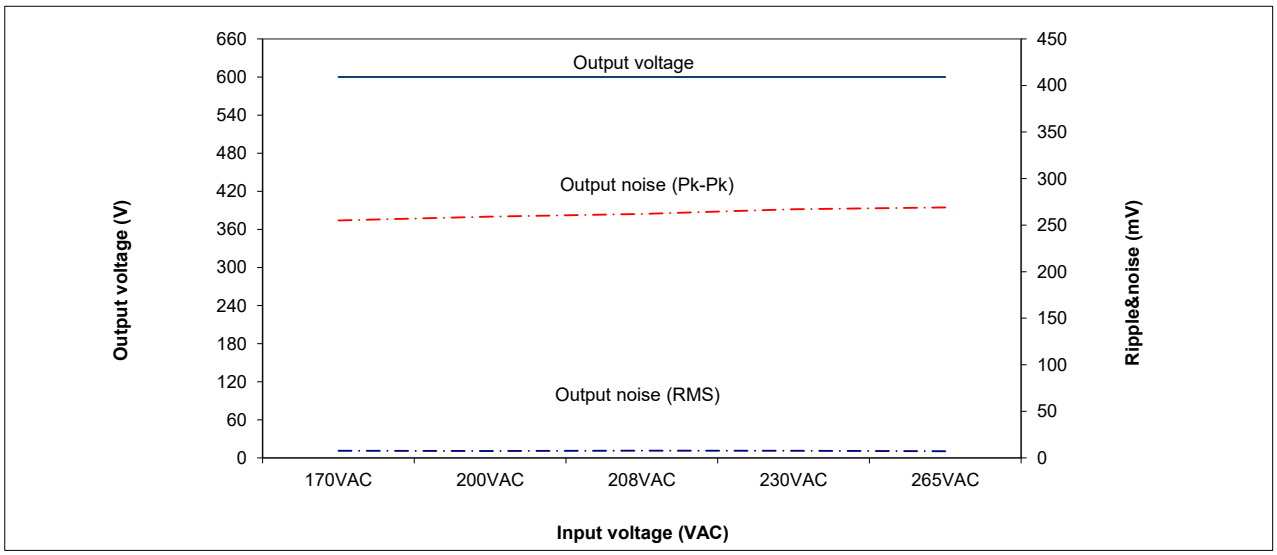
GSPL100-225 3Φ480



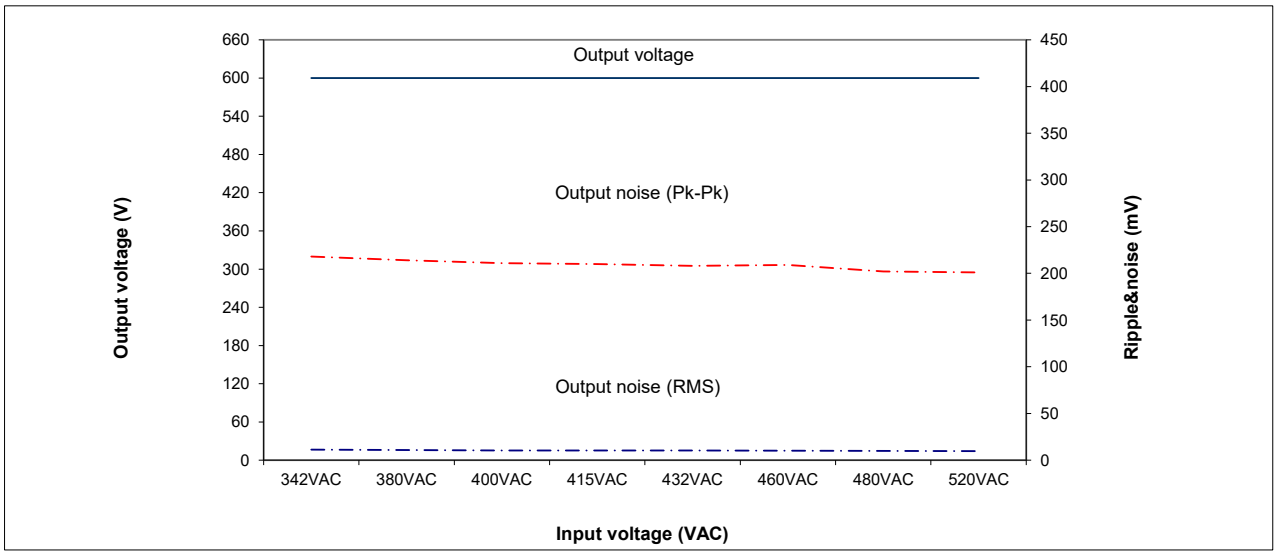
(2). Output voltage and ripple voltage vs. input voltage
C.V mode

Conditions: Iout: 100%
Ta: 25°C

GSPL600-37.5 3Φ208



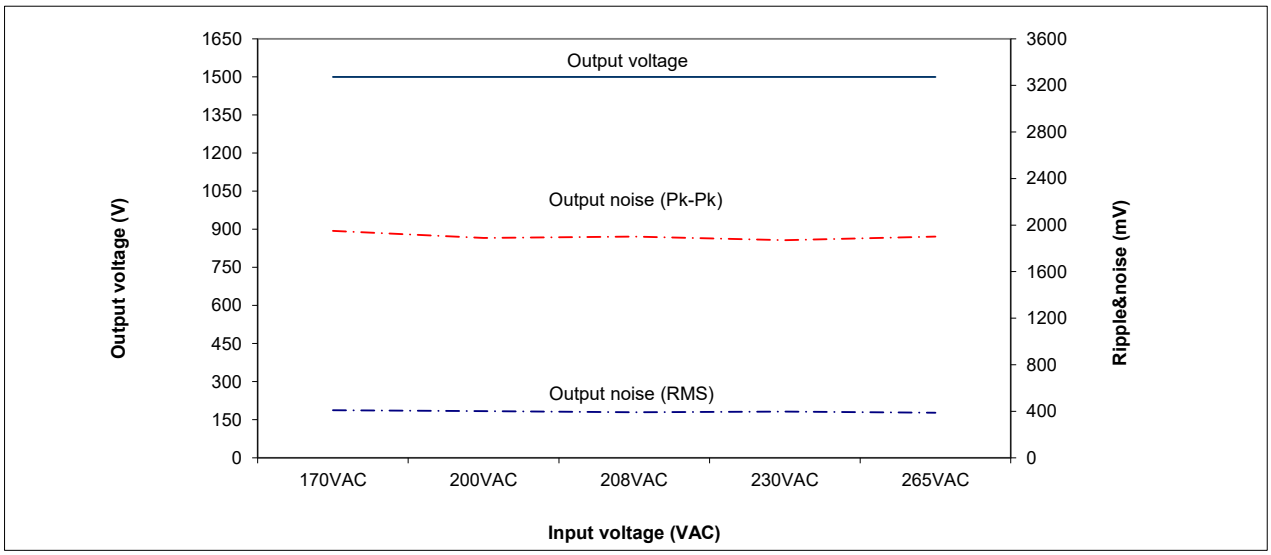
GSPL600-37.5 3Φ480



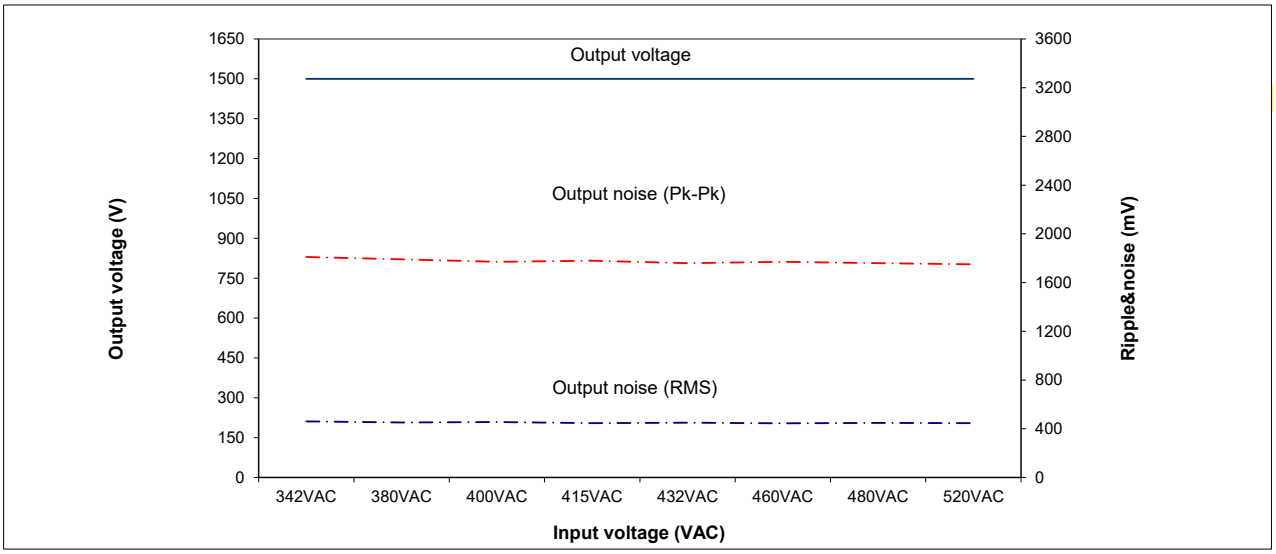
(2). Output voltage and ripple voltage vs. input voltage
C.V mode

Conditions: Iout: 100%
Ta: 25°C

GSPL1500-15 3Φ208



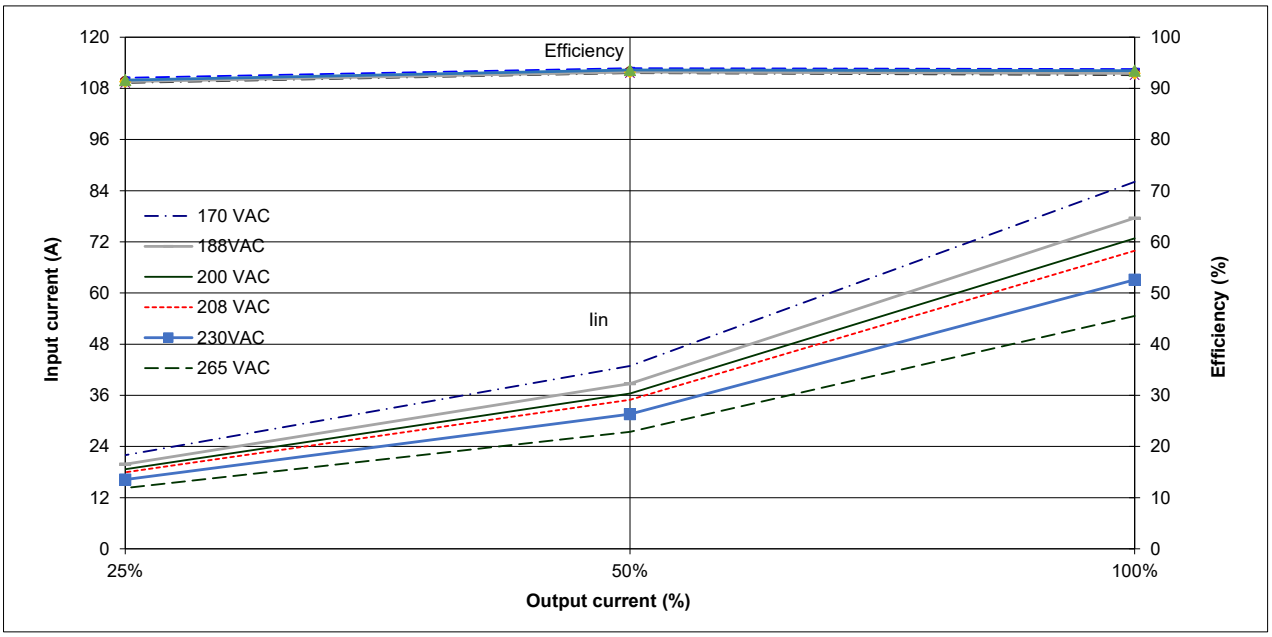
GSPL1500-15 3Φ480



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

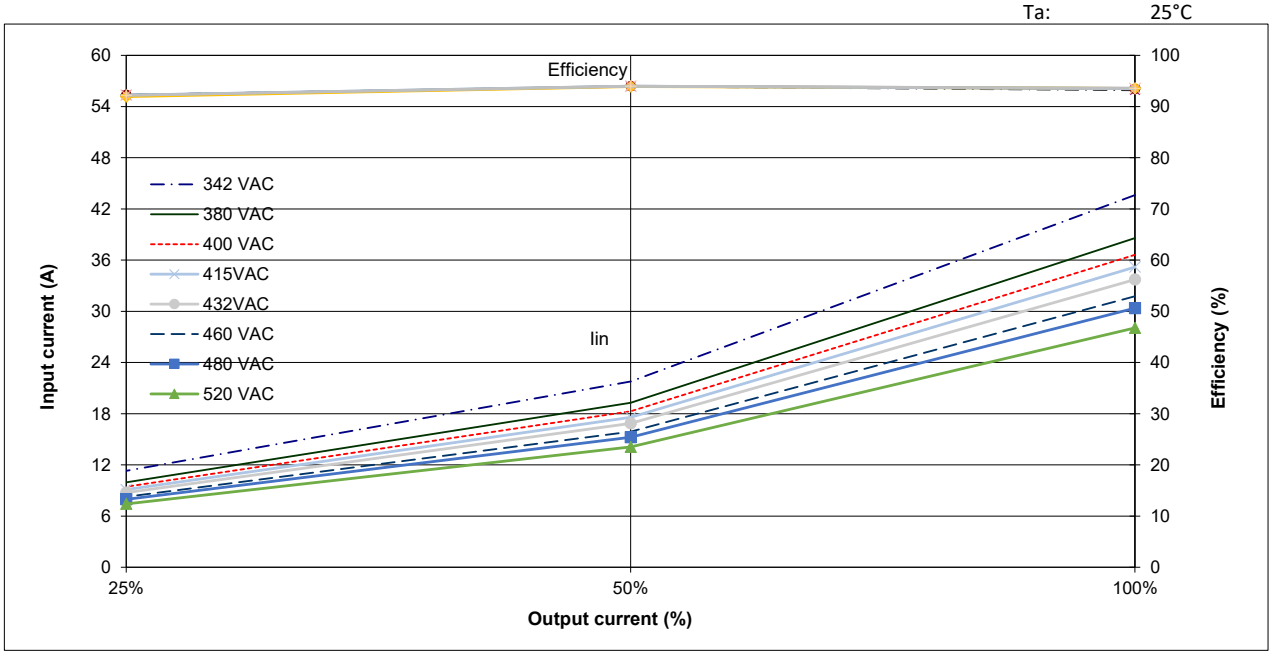
GSPL20-1125 3Φ208

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



GSPL20-1125 3Φ480

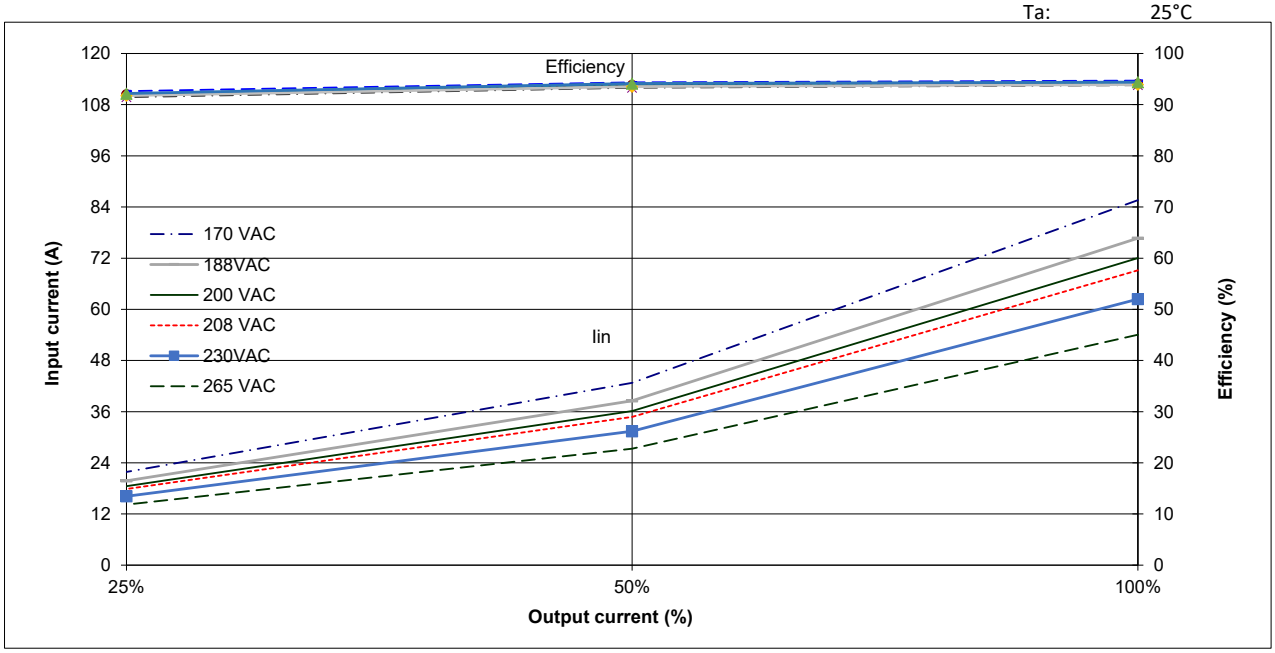
Conditions: Vin: 342~520 VAC
Vout: 100%
Ta: 25°C



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

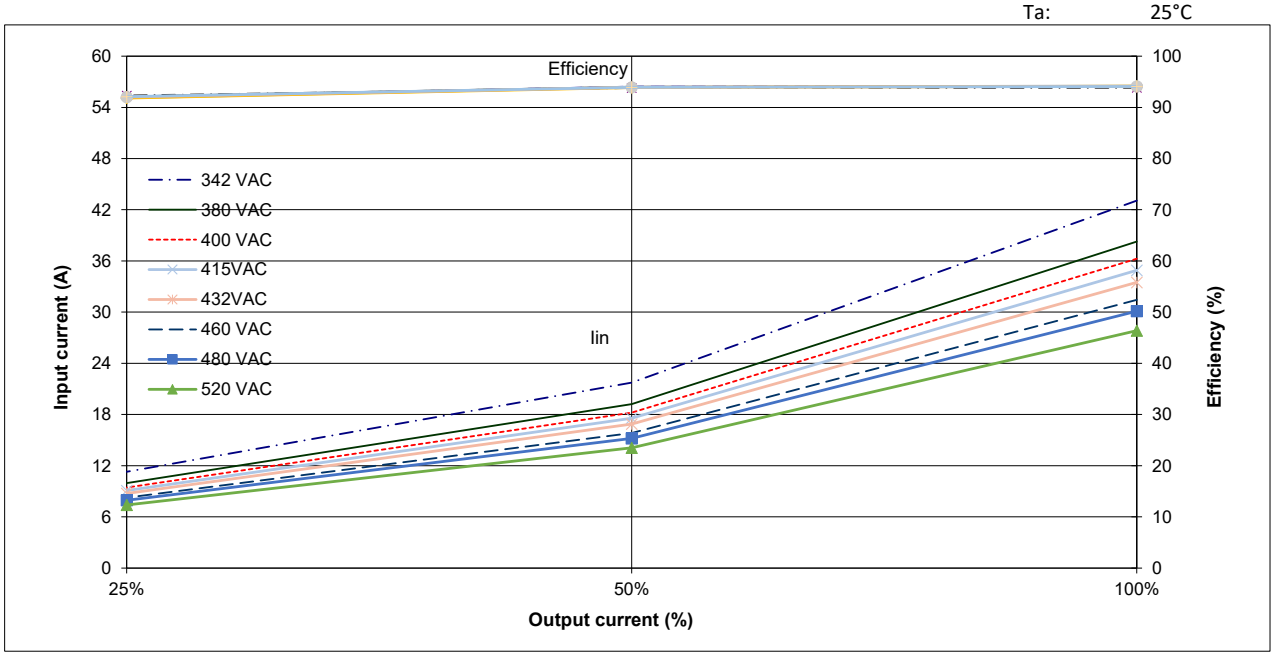
GSPL100-225 3Φ208

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



GSPL100-225 3Φ480

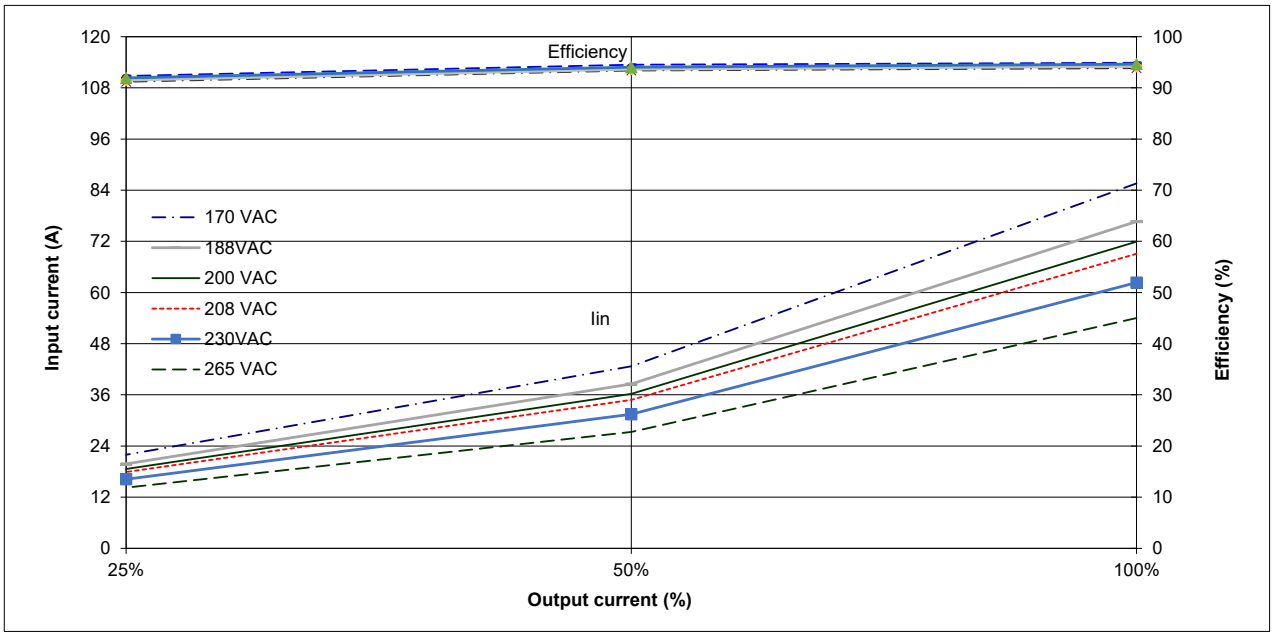
Conditions: Vin: 342~520 VAC
Vout: 100%
Ta: 25°C



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

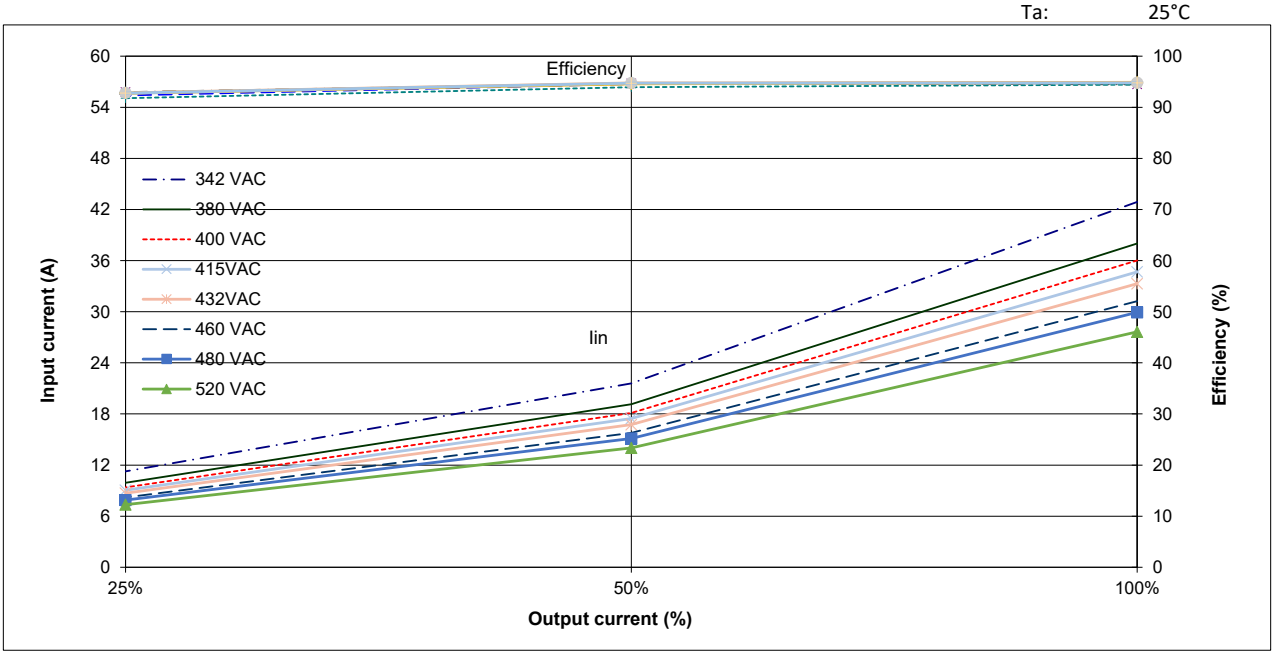
GSPL600-37.5 3Φ208

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



GSPL600-37.5 3Φ480

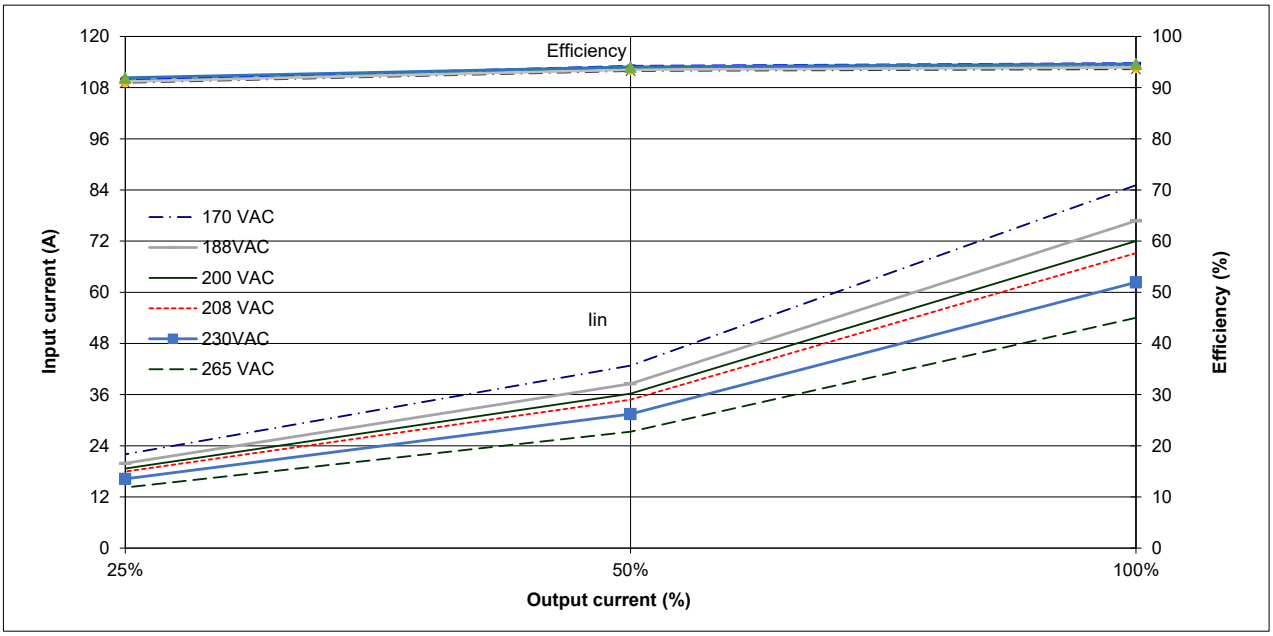
Conditions: Vin: 342~520 VAC
Vout: 100%
Ta: 25°C



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

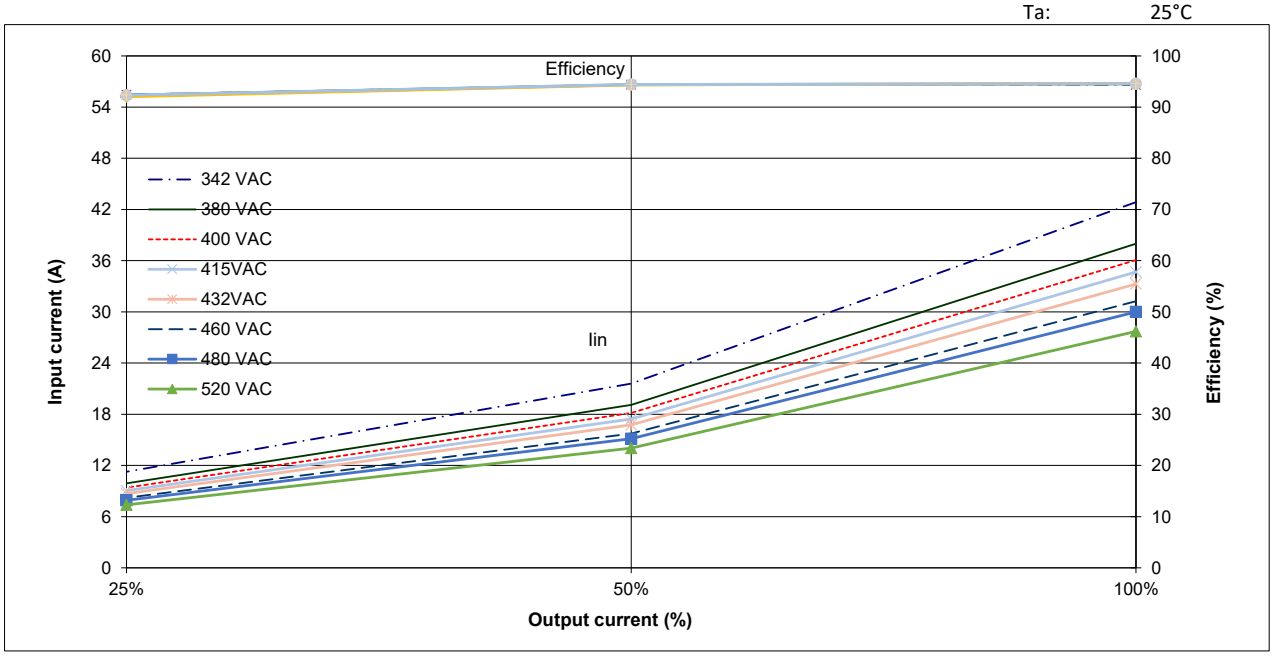
GSPL1500-15 3Φ208

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



GSPL1500-15 3Φ480

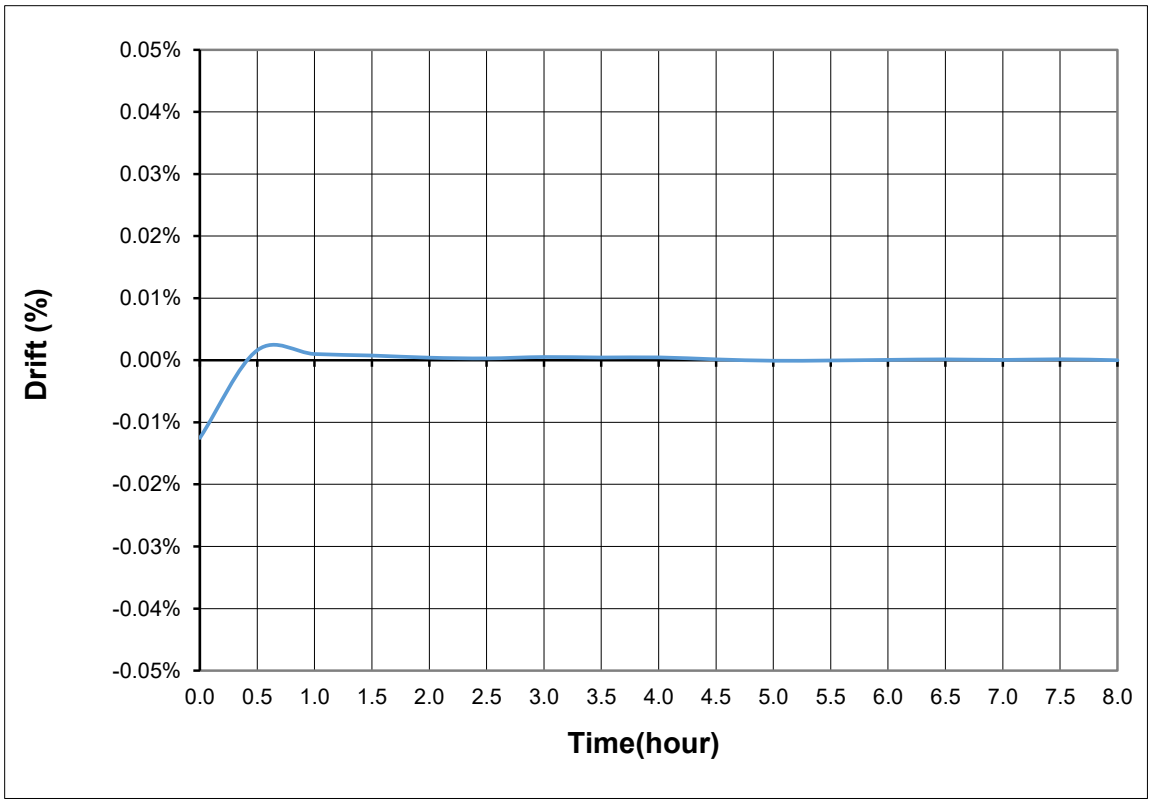
Conditions: Vin: 342~520 VAC
Vout: 100%
Ta: 25°C



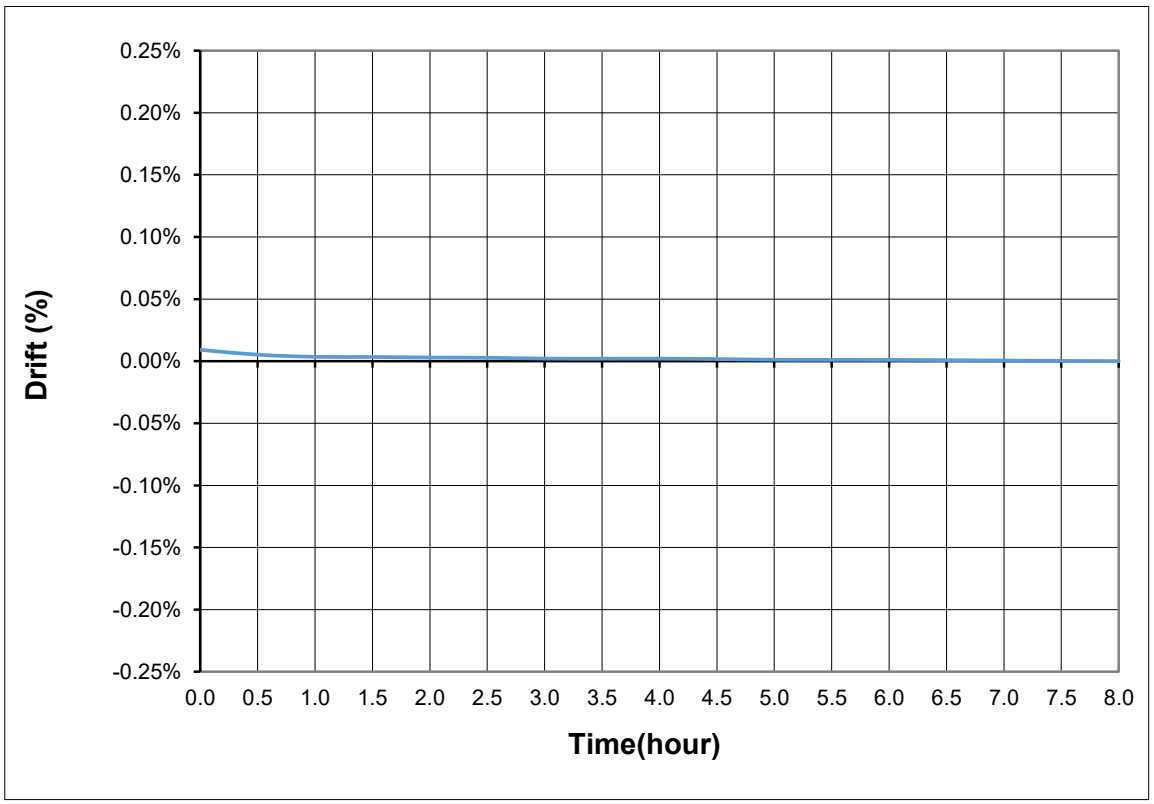
2.2 Warm up drift & stability

Conditions: Vset: 100%
Iout: 100%
Ta: 25°C

GSPL100-225 C.V mode



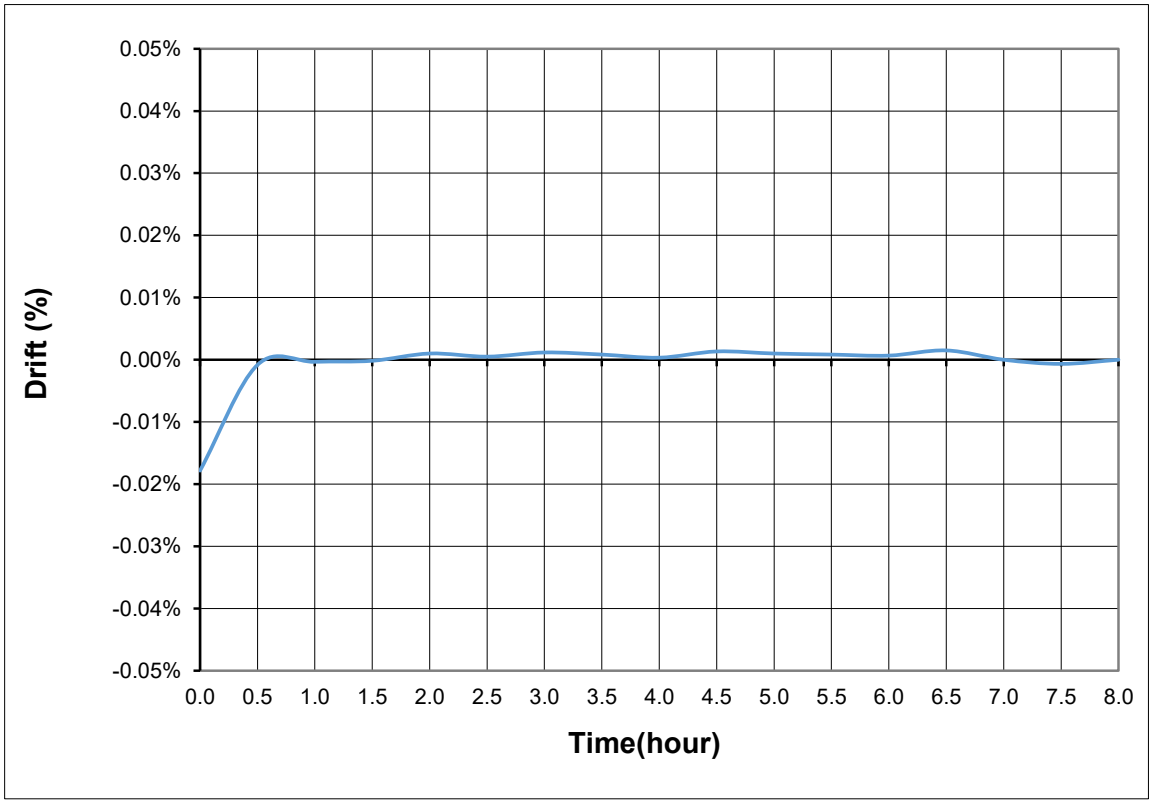
GSPL100-225 C.C mode



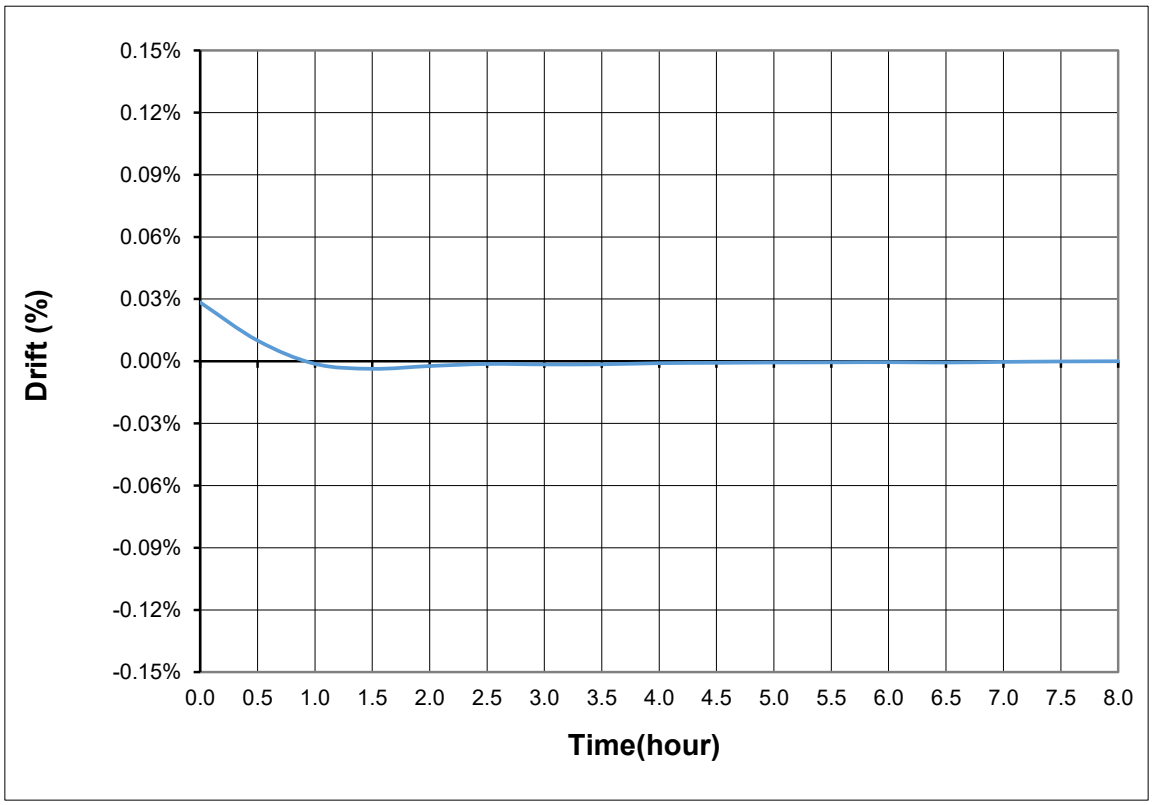
2.2 Warm up drift & stability

Conditions: Vset: 100%
Iout: 100%
Ta: 25°C

GSPL600-37.5 C.V mode



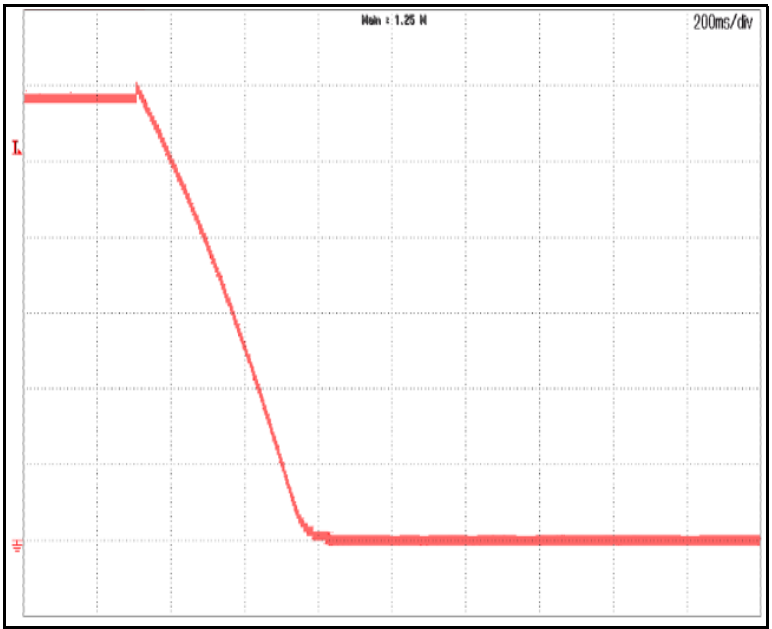
GSPL600-37.5 C.C mode



2.3 Over voltage protection (OVP) characteristic

Conditions: Vset: 100%
Iout: 0%
Ta: 25°C

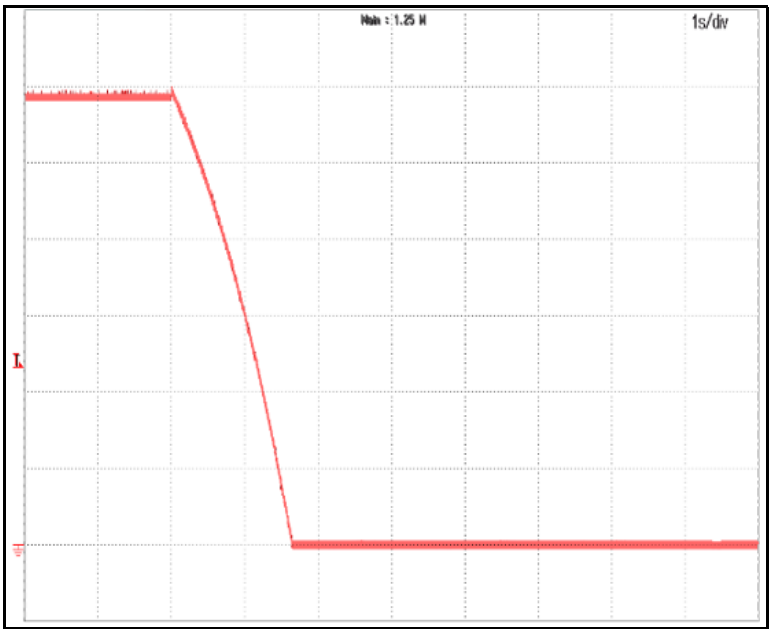
GSPL20-1125



$3.5^{V}/_{DIV}$	$200^{ms}/_{DIV}$

OVP setting: 21V

GSPL100-225



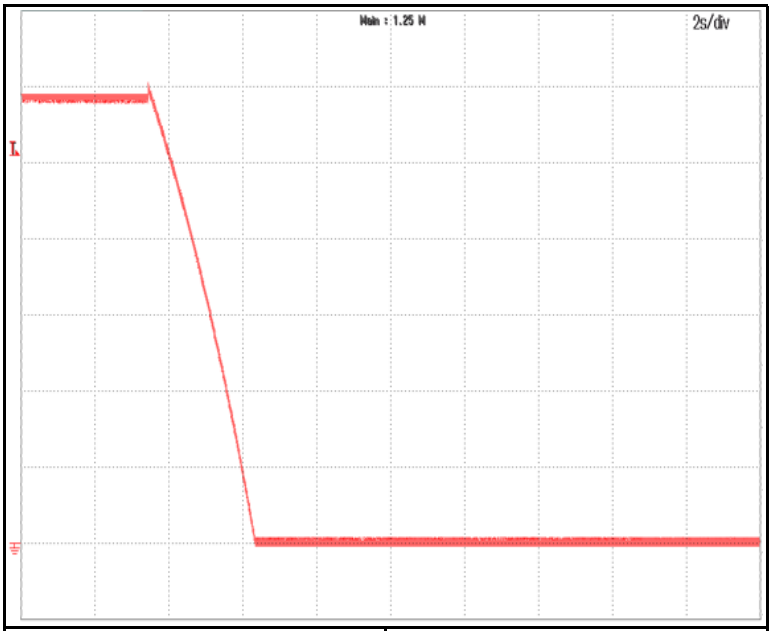
$17.6^{V}/_{DIV}$	$1^{s}/_{DIV}$

OVP setting: 105V

2.3 Over voltage protection (OVP) characteristic

Conditions: Vset: 100%
Iout: 0%
Ta: 25°C

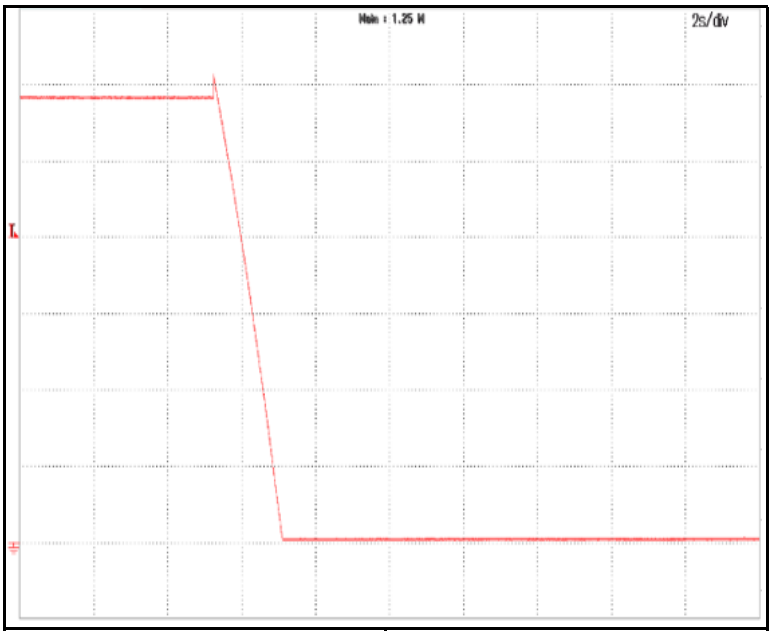
GSPL600-37.5



105V/DIV	2S/DIV

OVP setting: 630V

GSPL1500-15



260V/DIV	2S/DIV

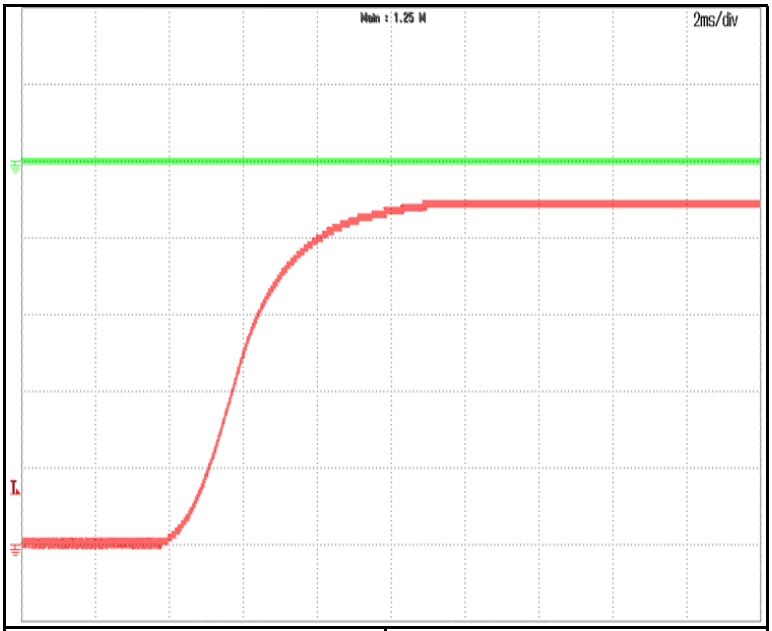
OVP setting: 1575V

2.4 ON/OFF Output rise characteristics

C.V mode

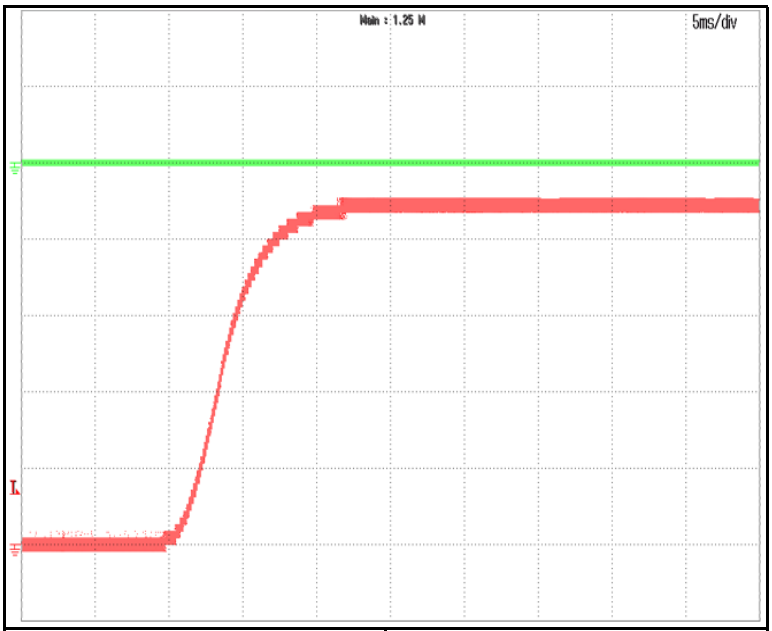
Conditions: Vin: Nominal
Vout: 100%
Iout: 0%
Iset: 105%
Ta: 25°C

GSPL20-1125



4.5V/DIV	2ms/DIV
1A/DIV	

GSPL100-225



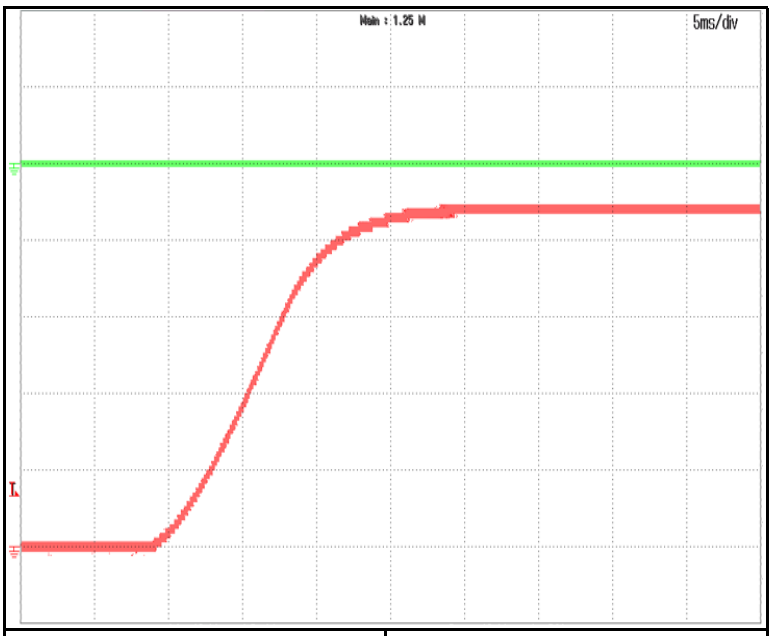
22.5V/DIV	5ms/DIV
1A/DIV	

2.4 ON/OFF Output rise characteristics

C.V mode

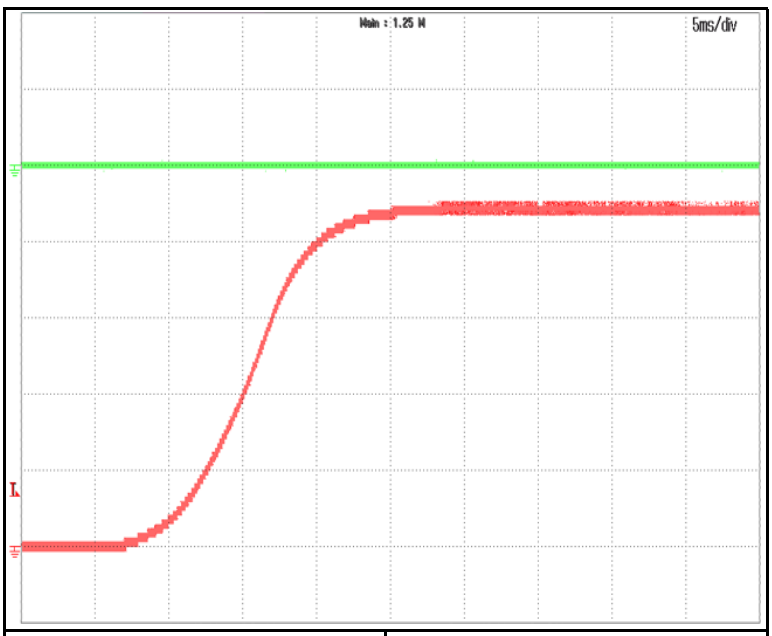
Conditions: Vin: Nominal
Vout: 100%
Iout: 0%
Iset: 105%
Ta: 25°C

GSPL600-37.5



136 V/DIV	5 ms/DIV
1 A/DIV	

GSPL1500-15



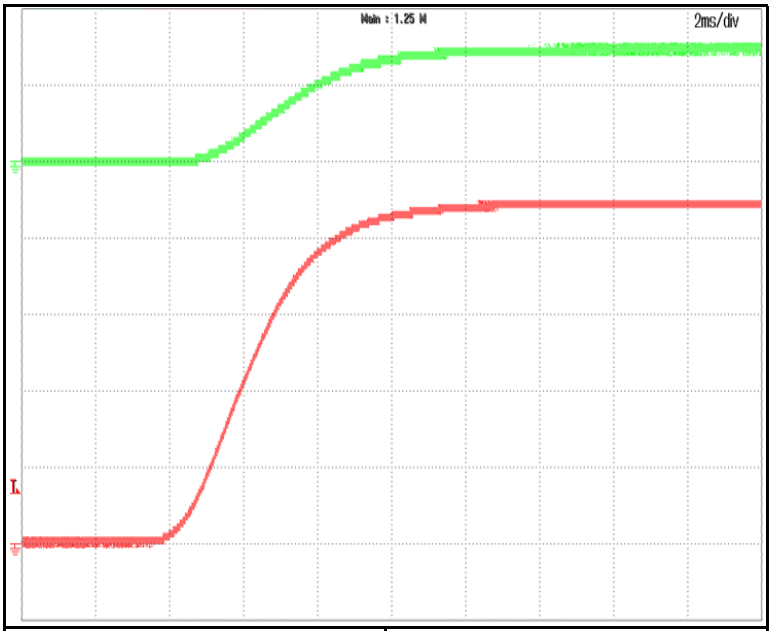
340 V/DIV	5 ms/DIV
1 A/DIV	

2.4 ON/OFF Output rise characteristics

C.V mode

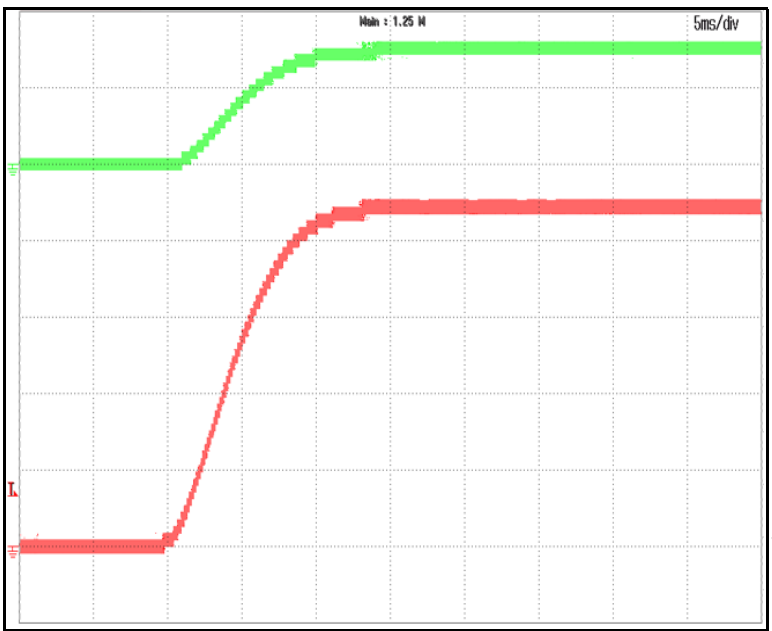
Conditions: Vin: Nominal
Vout: 100%
Iout: 100%
Iset: 105%
Load: CR
Ta: 25°C

GSPL20-1125



$4.5^{V}/_{DIV}$	$2^{ms}/_{DIV}$
$750^{A}/_{DIV}$	

GSPL100-225



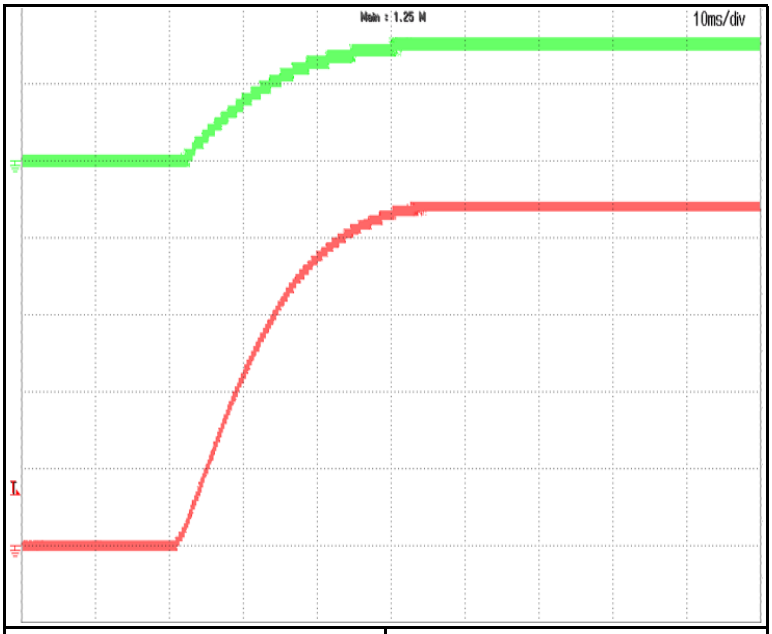
$22.5^{V}/_{DIV}$	$5^{ms}/_{DIV}$
$150^{A}/_{DIV}$	

2.4 ON/OFF Output rise characteristics

C.V mode

Conditions: Vin: Nominal
Vout: 100%
Iout: 100%
Iset: 105%
Load: CR
Ta: 25°C

GSPL600-37.5

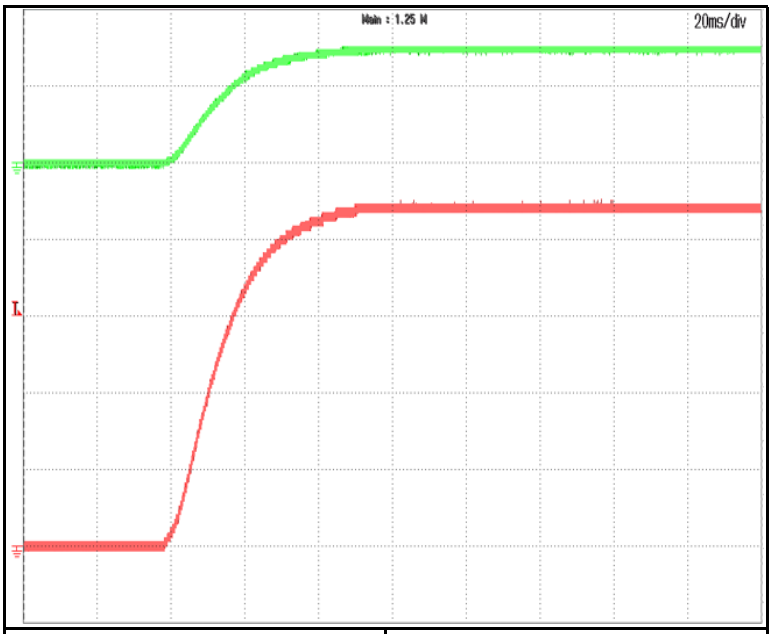


Iout

Vout

136 V/DIV	10 ms/DIV
25 A/DIV	

GSPL1500-15



Iout

Vout

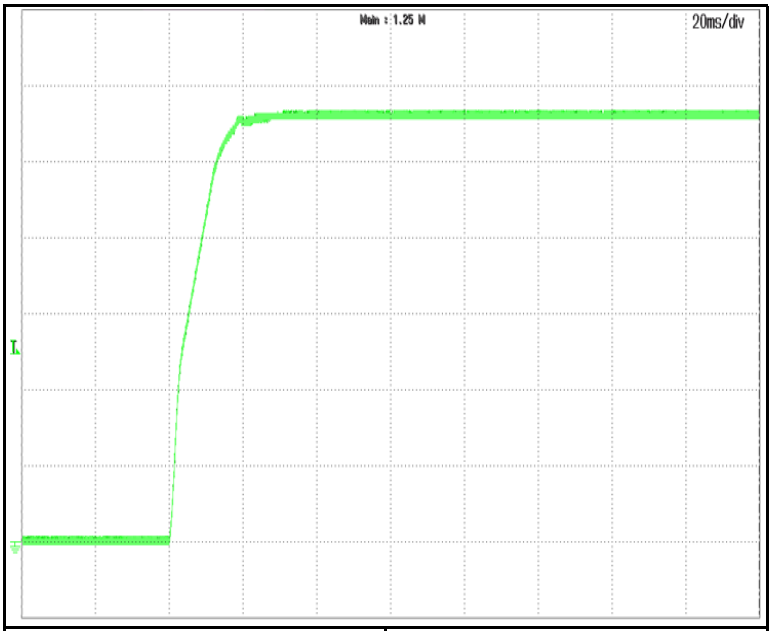
340 V/DIV	20 ms/DIV
10 A/DIV	

2.4 ON/OFF Output rise characteristics

C.C mode

Conditions: Vin: Nominal
Vout: 100%
Iout: 100%
Vset: 105%
Load: CR
Ta: 25°C

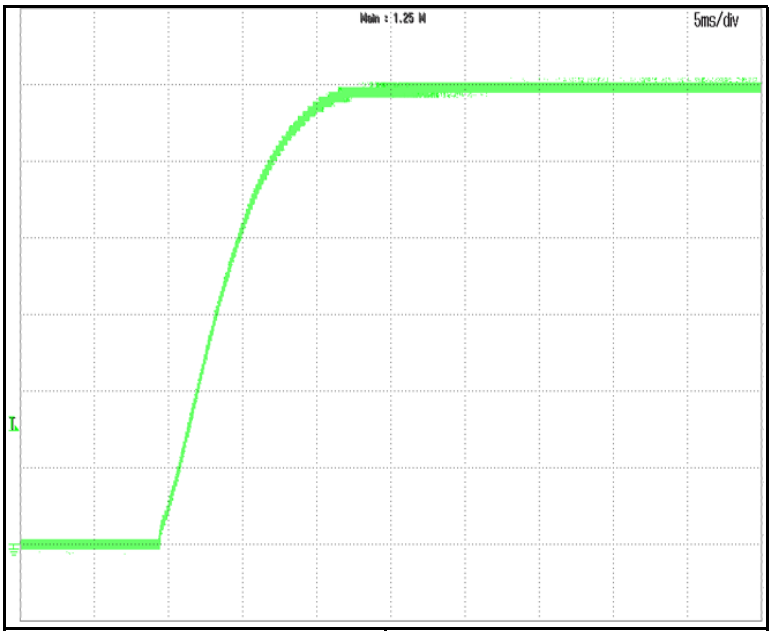
GSPL20-1125



Iout

200 A/DIV	20 ms/DIV

GSPL100-225



Iout

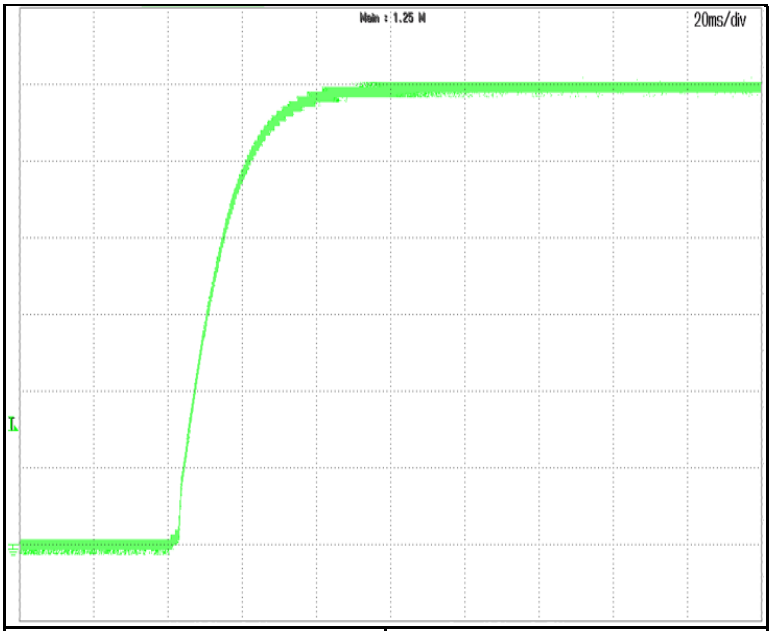
37.8 A/DIV	5 ms/DIV

2.4 ON/OFF Output rise characteristics

C.C mode

Conditions: Vin: Nominal
Vout: 100%
Iout: 100%
Vset: 105%
Load: CR
Ta: 25°C

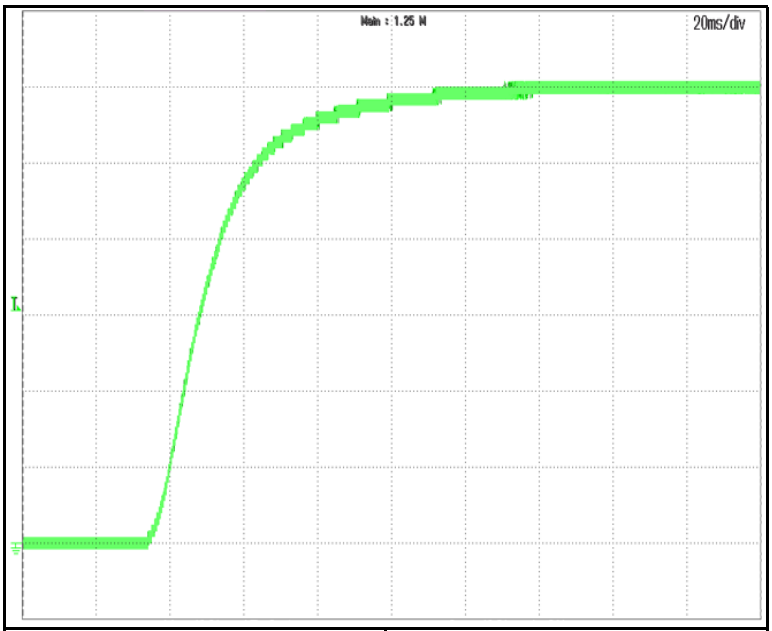
GSPL600-37.5



Iout

$6.3^{A}/_{DIV}$	$20^{ms}/_{DIV}$

GSPL1500-15



Iout

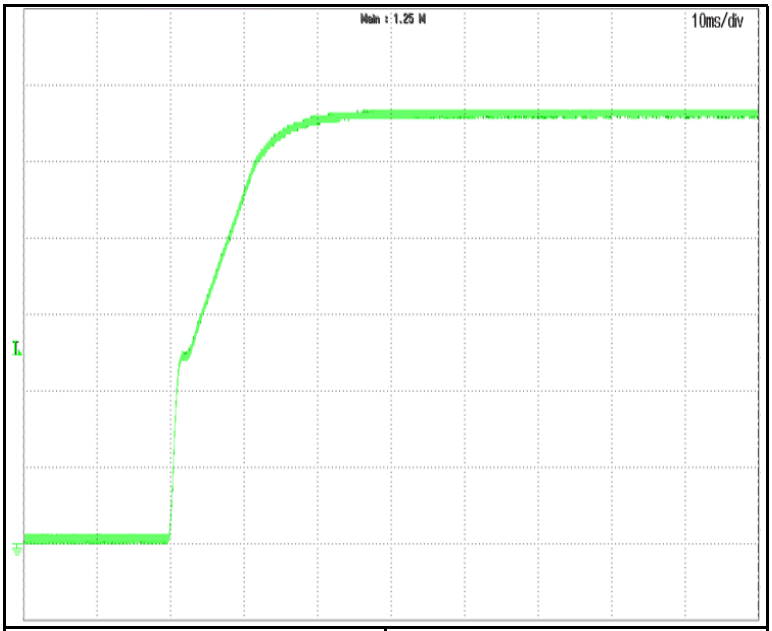
$2.5^{A}/_{DIV}$	$20^{ms}/_{DIV}$

2.4 ON/OFF Output rise characteristics

C.C mode

Conditions: Vin: Nominal
Iout: 100%
Vset: 105%
shorted output
Ta: 25°C

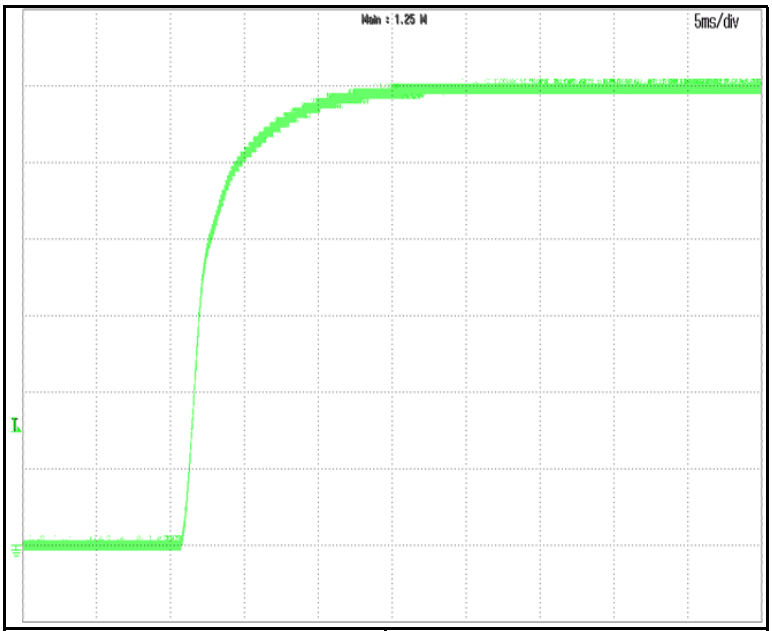
GSPL20-1125



Iout

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

GSPL100-225



Iout

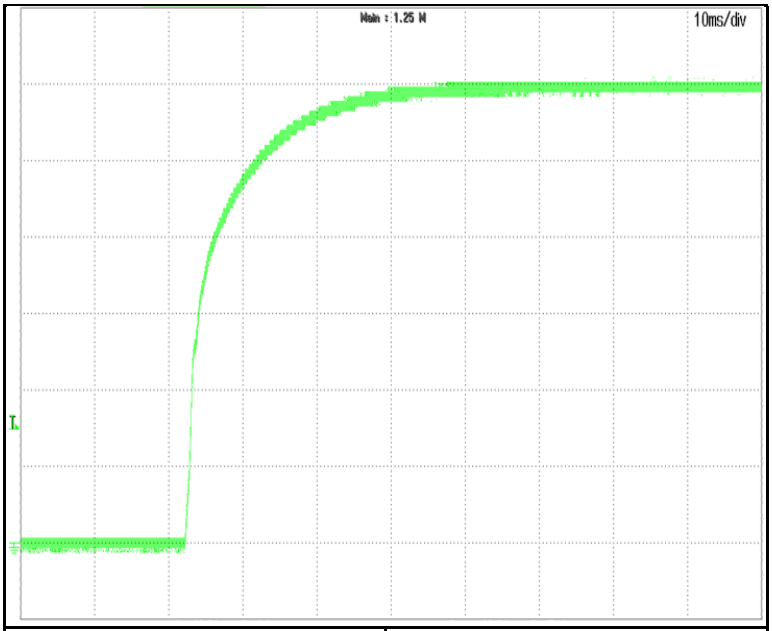
$37.8^{A}/_{DIV}$	$5^{ms}/_{DIV}$

2.4 ON/OFF Output rise characteristics

C.C mode

Conditions: Vin: Nominal
Iout: 100%
Vset: 105%
shorted output
Ta: 25°C

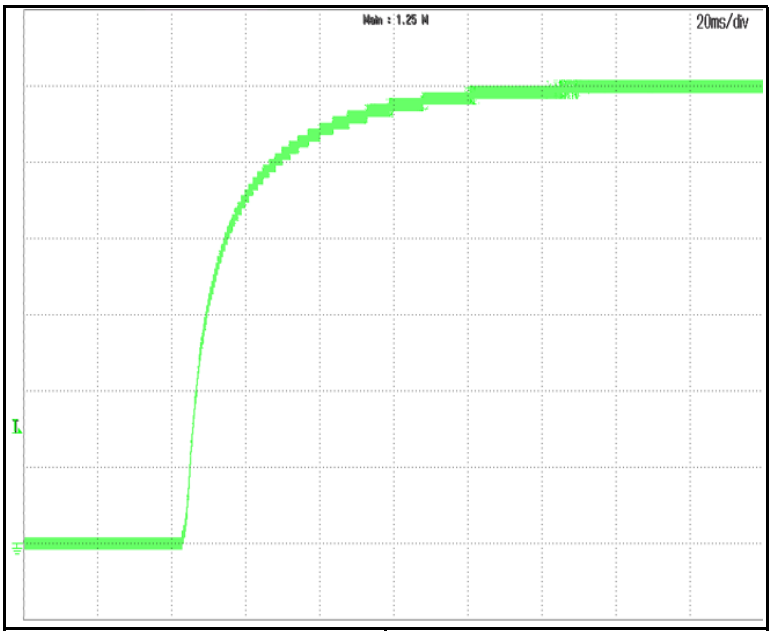
GSPL600-37.5



Iout

6.3$^{A}/_{DIV}$	10$^{ms}/_{DIV}$

GSPL1500-15



Iout

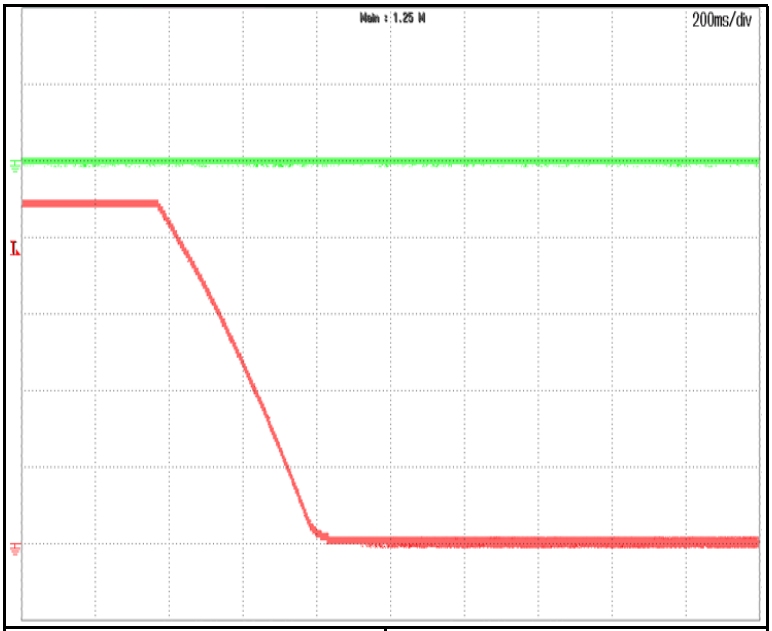
2.5$^{A}/_{DIV}$	20$^{ms}/_{DIV}$

2.5 ON/OFF Output fall characteristics

C.V mode

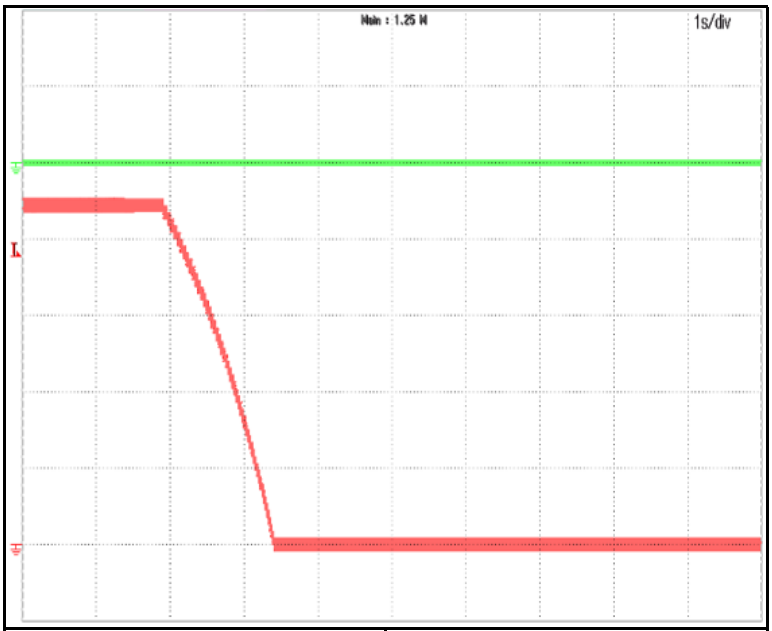
Conditions: Vin: Nominal
Vout: 100%
Iout: 0%
Ta: 25°C

GSPL20-1125



$4.5^{V}/_{DIV}$	$200^{ms}/_{DIV}$
$1^{A}/_{DIV}$	

GSPL100-225



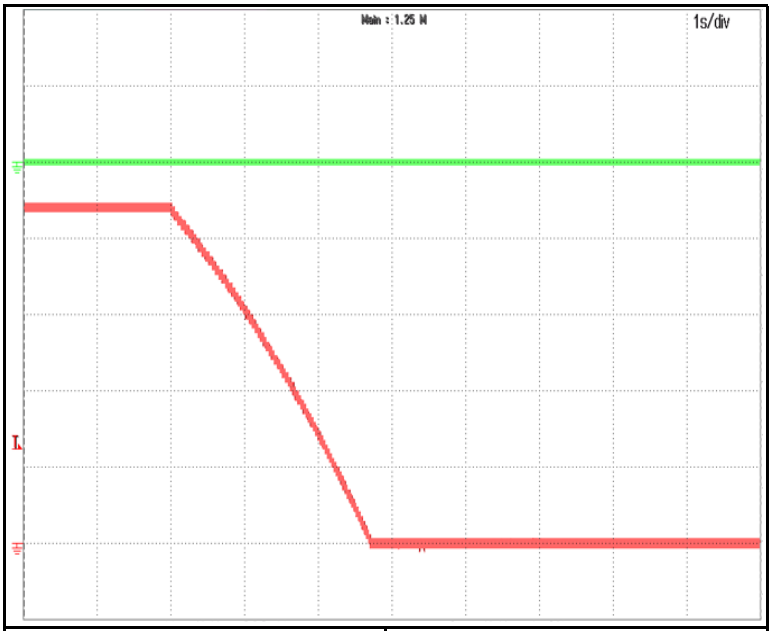
$22.5^{V}/_{DIV}$	$1^{s}/_{DIV}$
$1^{A}/_{DIV}$	

2.5 ON/OFF Output fall characteristics

C.V mode

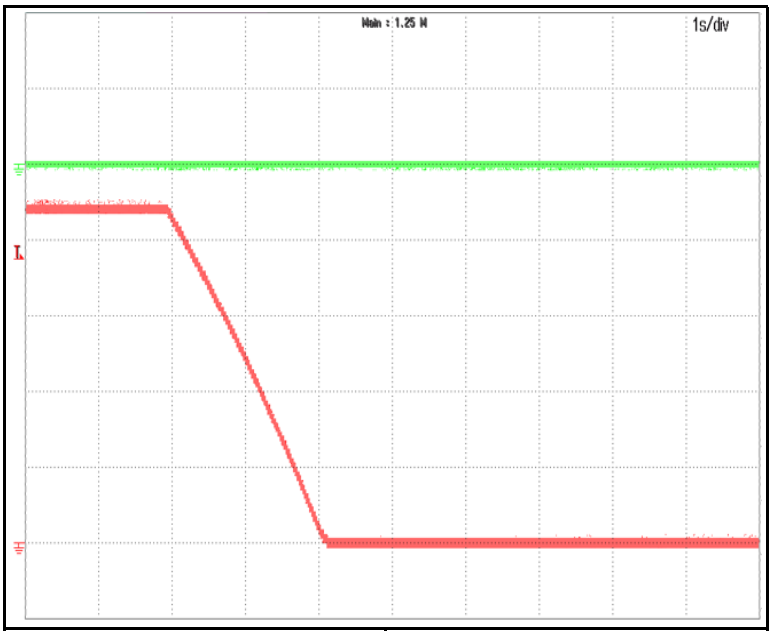
Conditions: Vin: Nominal
Vout: 100%
Iout: 0%
Ta: 25°C

GSPL600-37.5



136 V/DIV	1 s/DIV
1 A/DIV	

GSPL1500-15



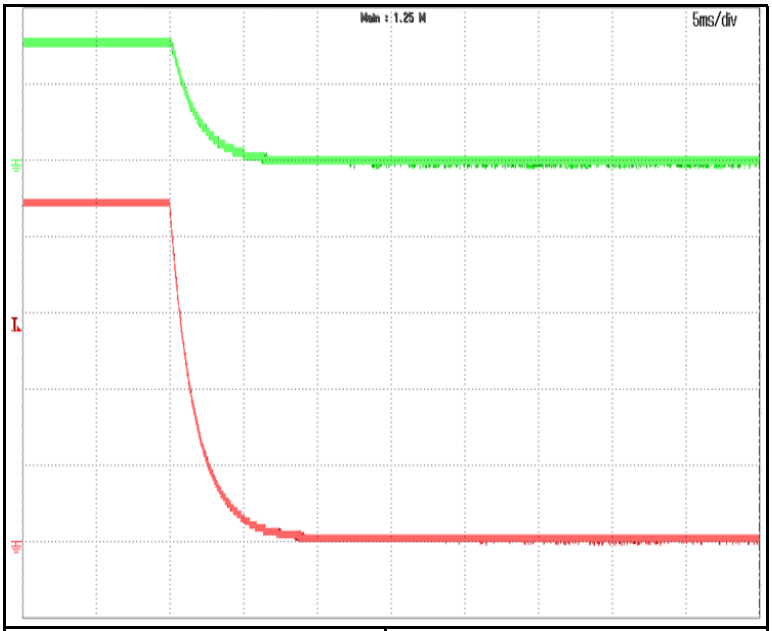
340 V/DIV	1 s/DIV
1 A/DIV	

2.5 ON/OFF Output fall characteristics

C.V mode

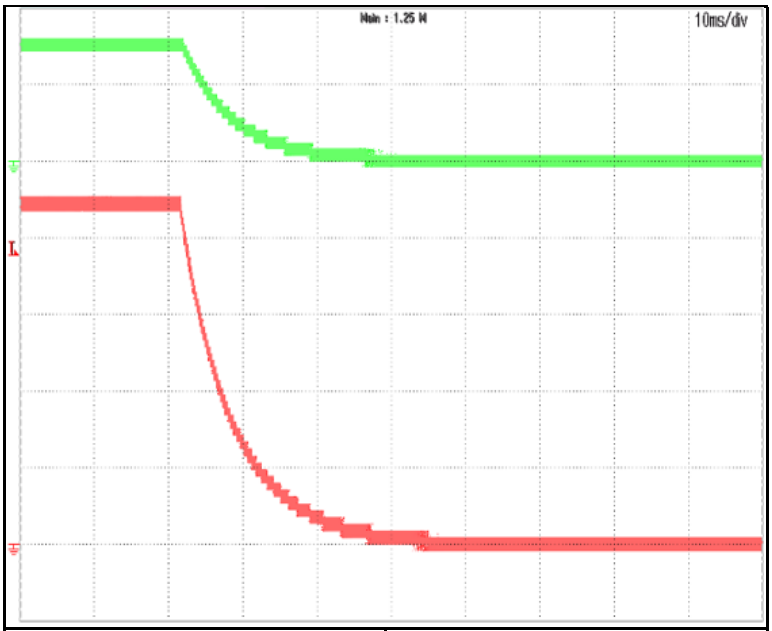
Conditions: Vin: Nominal
Vout: 100%
Iout: 100%
Load: CR
Ta: 25°C

GSPL20-1125



$4.5^{V}/_{DIV}$	$5^{ms}/_{DIV}$
$750^{A}/_{DIV}$	

GSPL100-225



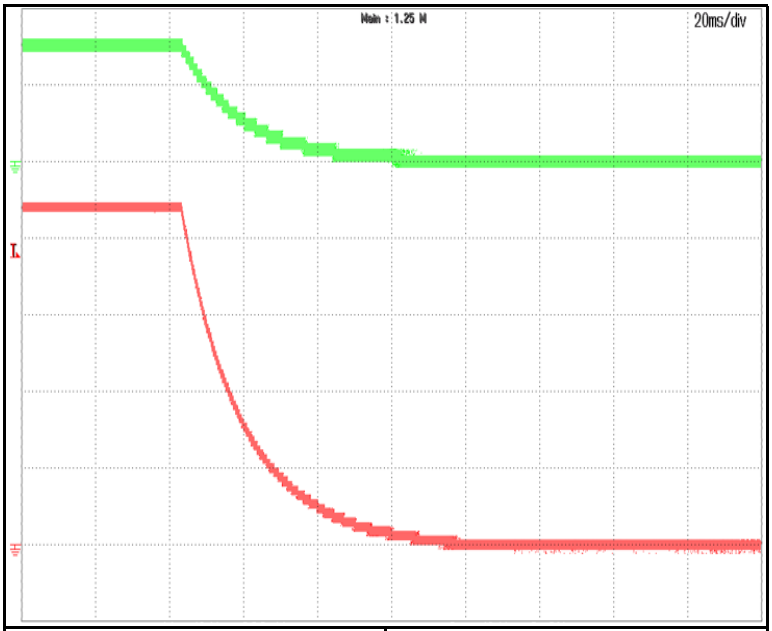
$22.5^{V}/_{DIV}$	$10^{ms}/_{DIV}$
$150^{A}/_{DIV}$	

2.5 ON/OFF Output fall characteristics

C.V mode

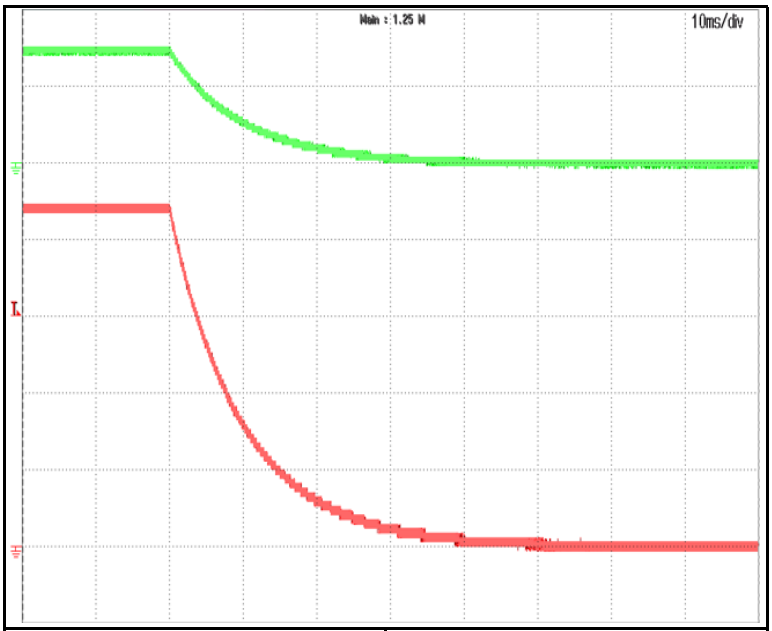
Conditions: Vin: Nominal
Vout: 100%
Iout: 100%
Load: CR
Ta: 25°C

GSPL600-37.5



$136^{V}/_{DIV}$	$20^{ms}/_{DIV}$
$25^{A}/_{DIV}$	

GSPL1500-15



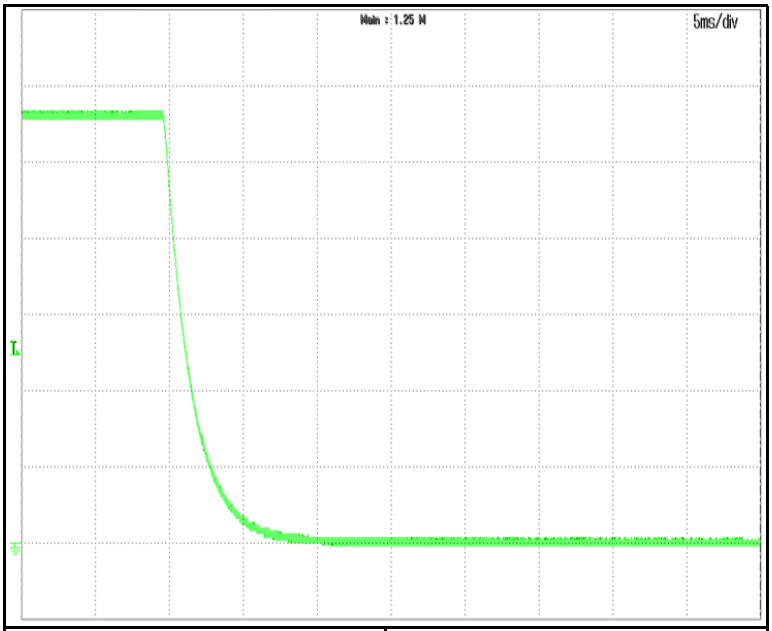
$340^{V}/_{DIV}$	$10^{ms}/_{DIV}$
$10^{A}/_{DIV}$	

2.5 ON/OFF Output fall characteristics

C.C mode

Conditions: Vin: Nominal
Vout: 100%
Iout: 100%
Load: CR
Ta: 25°C

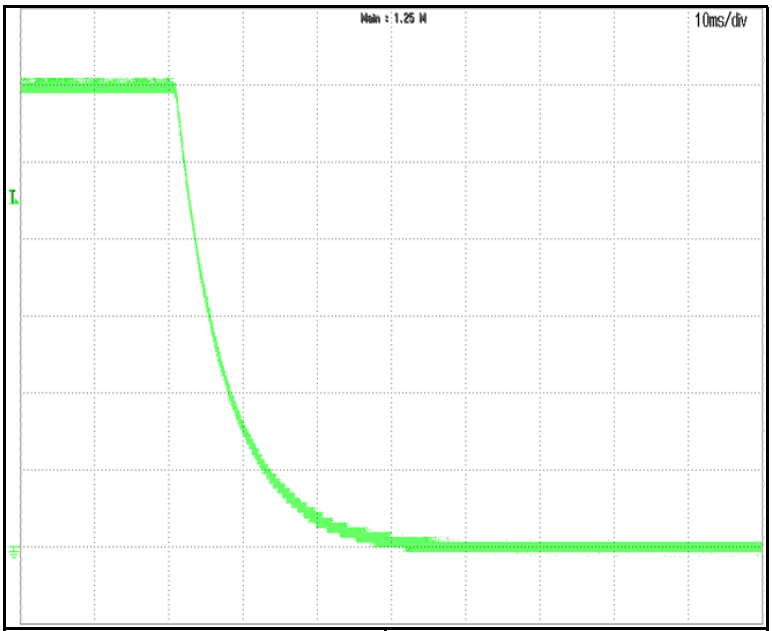
GSPL20-1125



Iout

200A/DIV	5ms/DIV

GSPL100-225



Iout

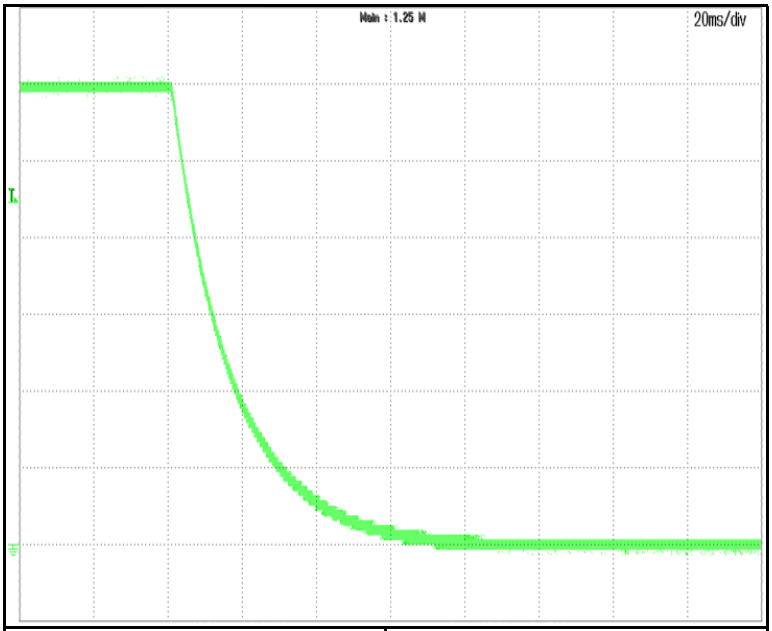
37.8A/DIV	10ms/DIV

2.5 ON/OFF Output fall characteristics

C.C mode

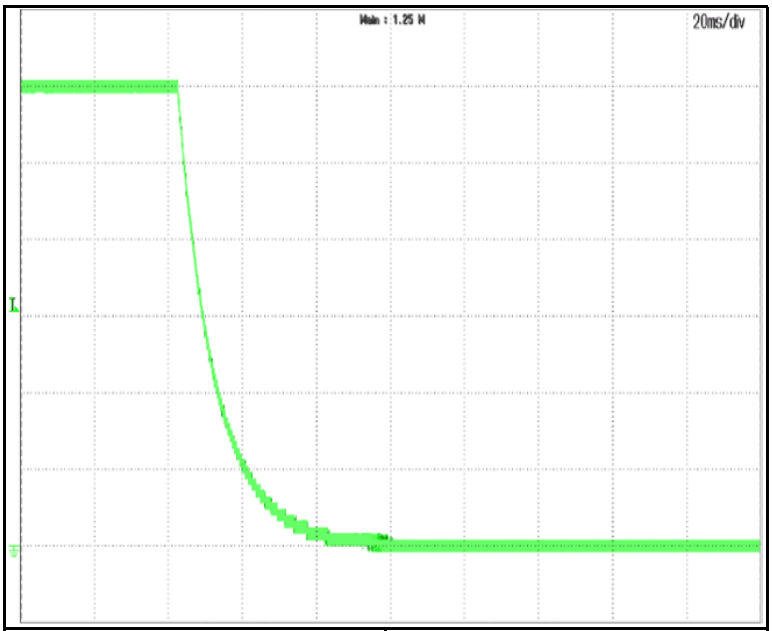
Conditions: Vin: Nominal
Vout: 100%
Iout: 100%
Load: CR
Ta: 25°C

GSPL600-37.5



$6.3^{A}/_{DIV}$	$20^{ms}/_{DIV}$

GSPL1500-15



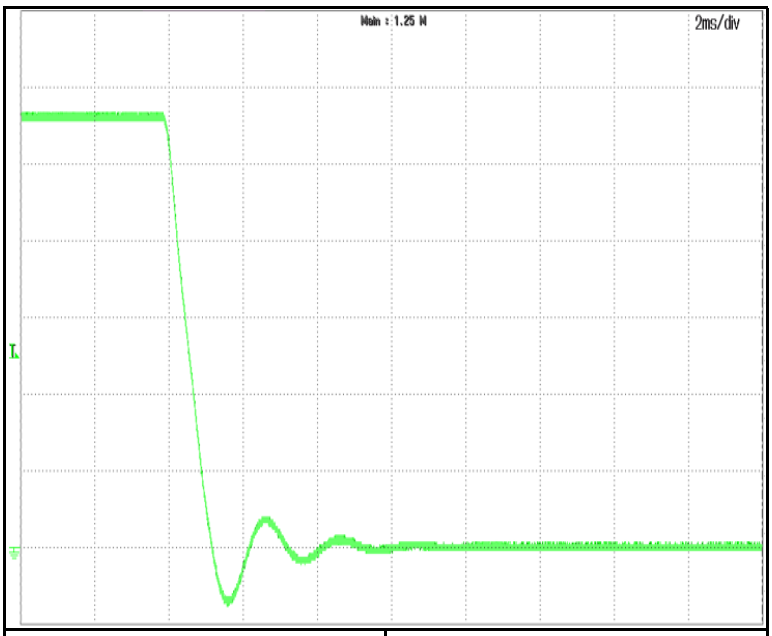
$2.5^{A}/_{DIV}$	$20^{ms}/_{DIV}$

2.5 ON/OFF Output fall characteristics

C.C mode

Conditions: Vin: Nominal
shorted output
Iout: 100%
Ta: 25°C

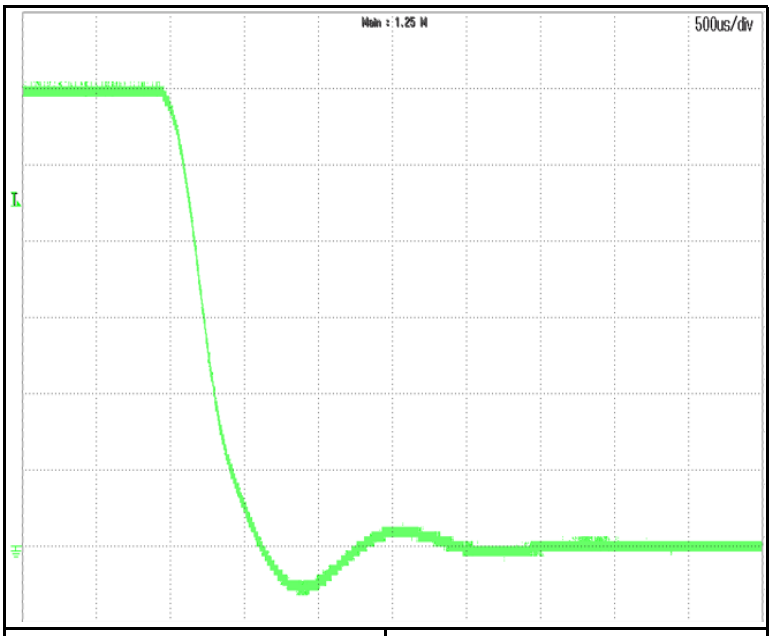
GSPL20-1125



Iout

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

GSPL100-225



Iout

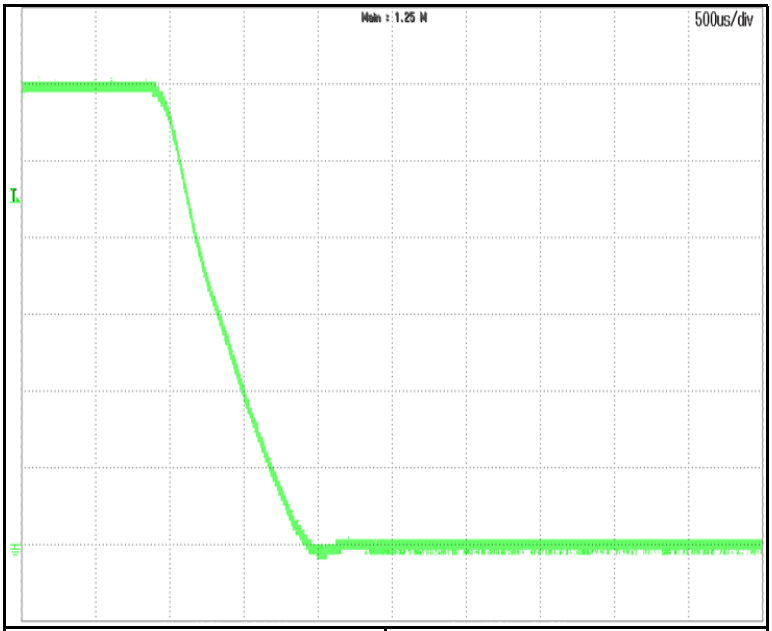
$37.8^{A}/_{DIV}$	$500^{us}/_{DIV}$

2.5 ON/OFF Output fall characteristics

C.C mode

Conditions: Vin: Nominal
shorted output
Iout: 100%
Ta: 25°C

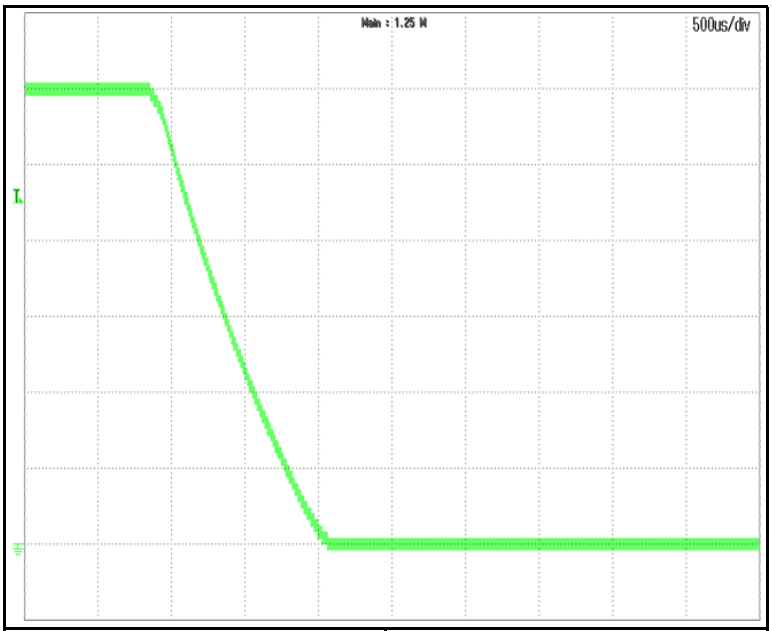
GSPL600-37.5



Iout

6.3A/DIV	500us/DIV

GSPL1500-15



Iout

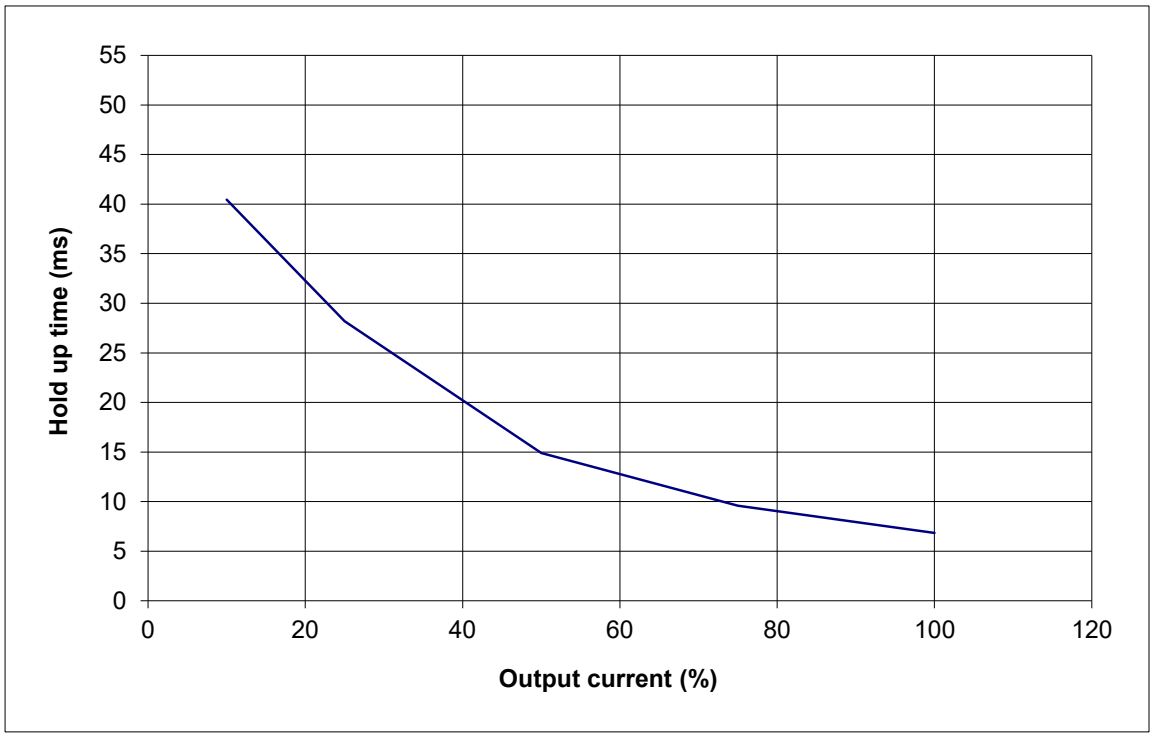
2.5A/DIV	500us/DIV

2.6 Holdup time characteristics

Conditions: Vout: 100%
Ta: 25°C

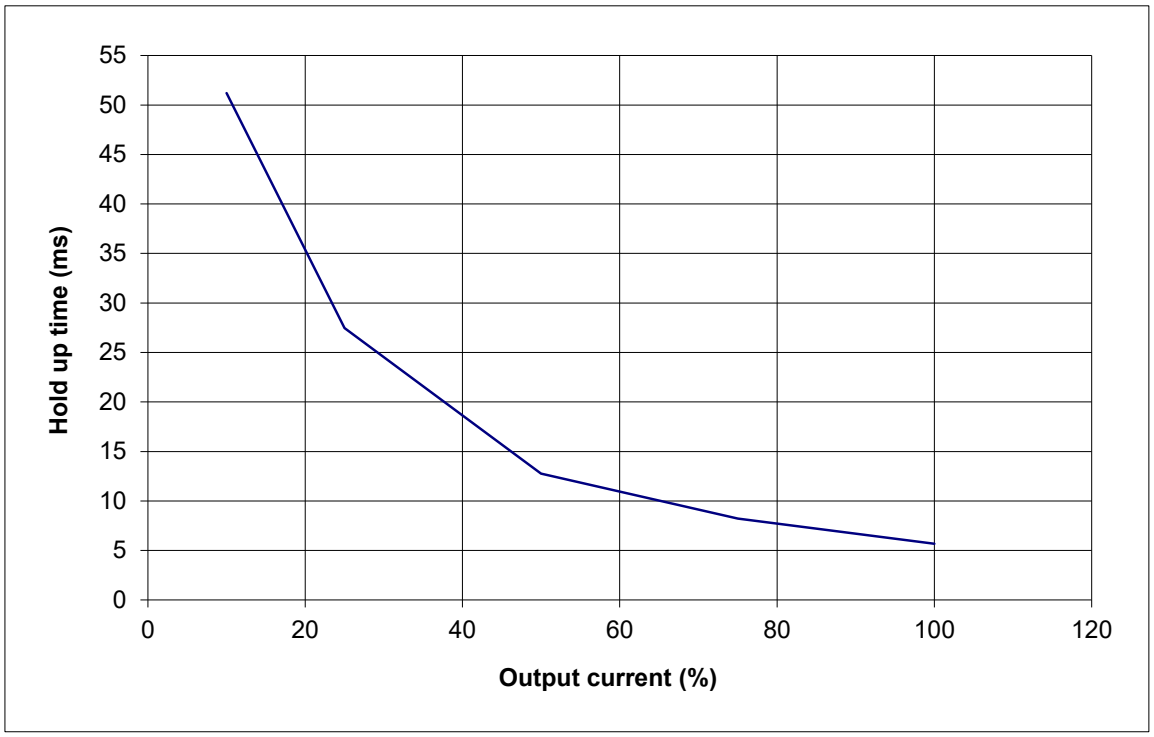
GSPL20-1125 3Φ208

Vin:200VAC



GSPL20-1125 3Φ480

Vin:400VAC

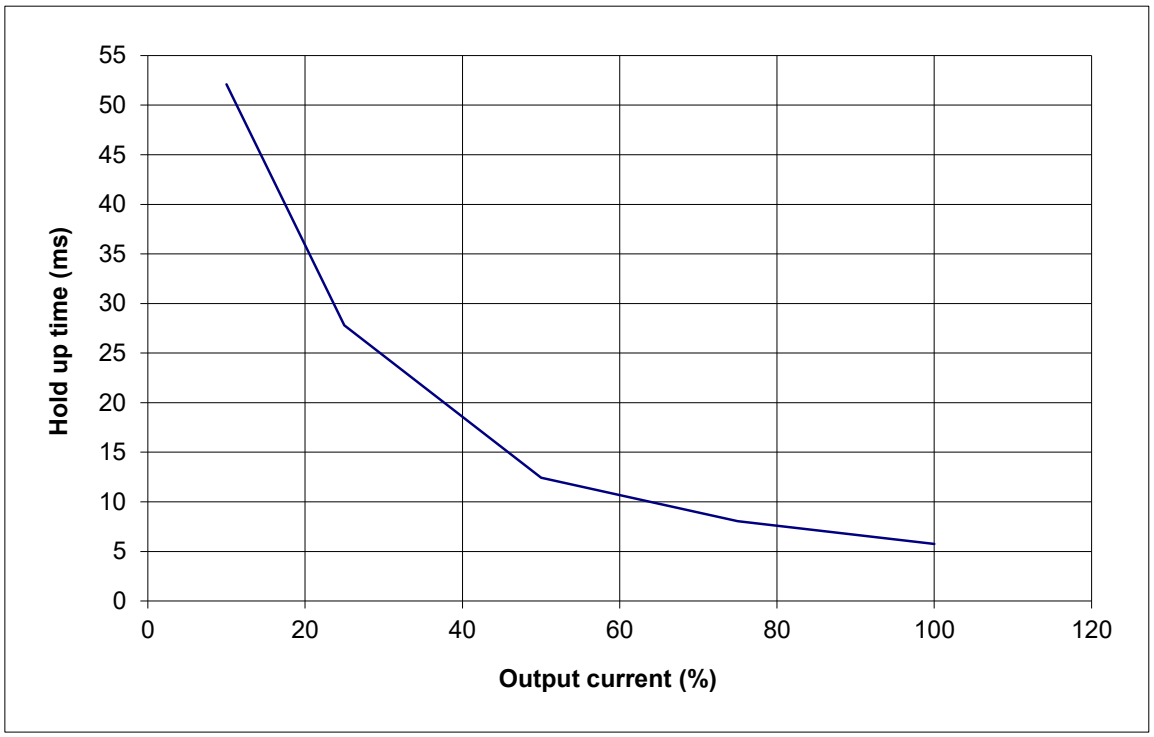


2.6 Holdup time characteristics

Conditions: Vout: 100%
Ta: 25°C

GSPL20-1125 3Φ480

Vin:480VAC

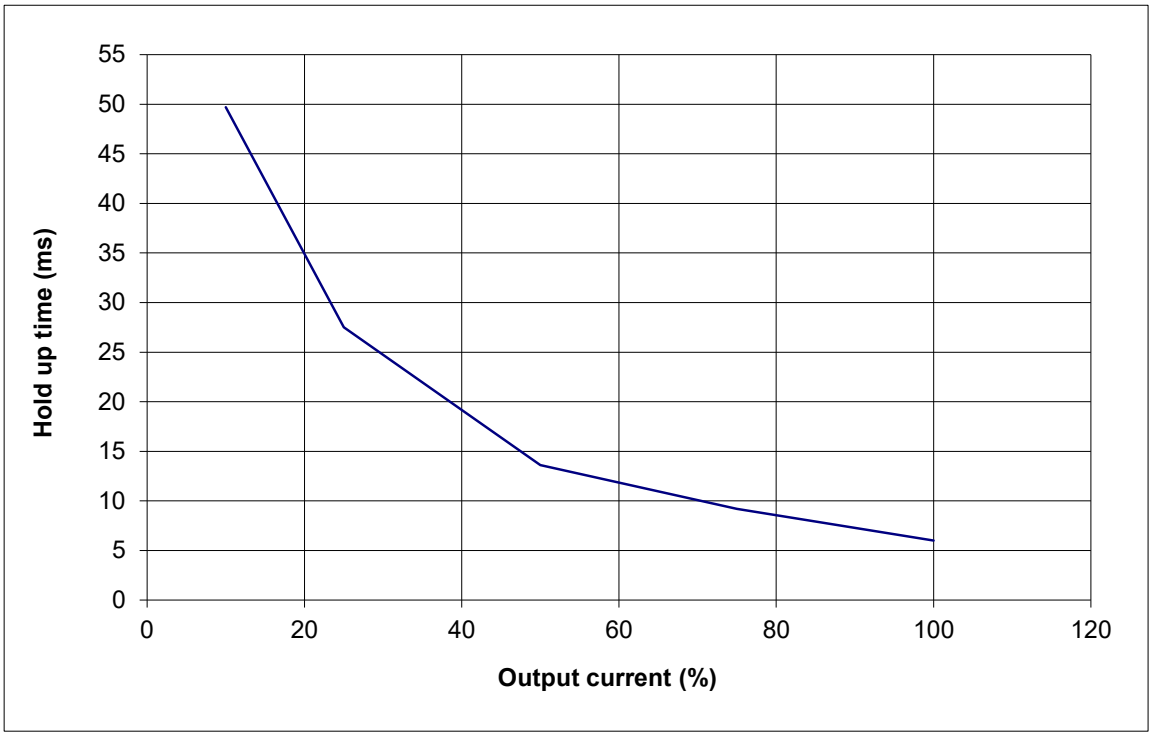


2.6 Holdup time characteristics

Conditions: Vout: 100%
Ta: 25°C

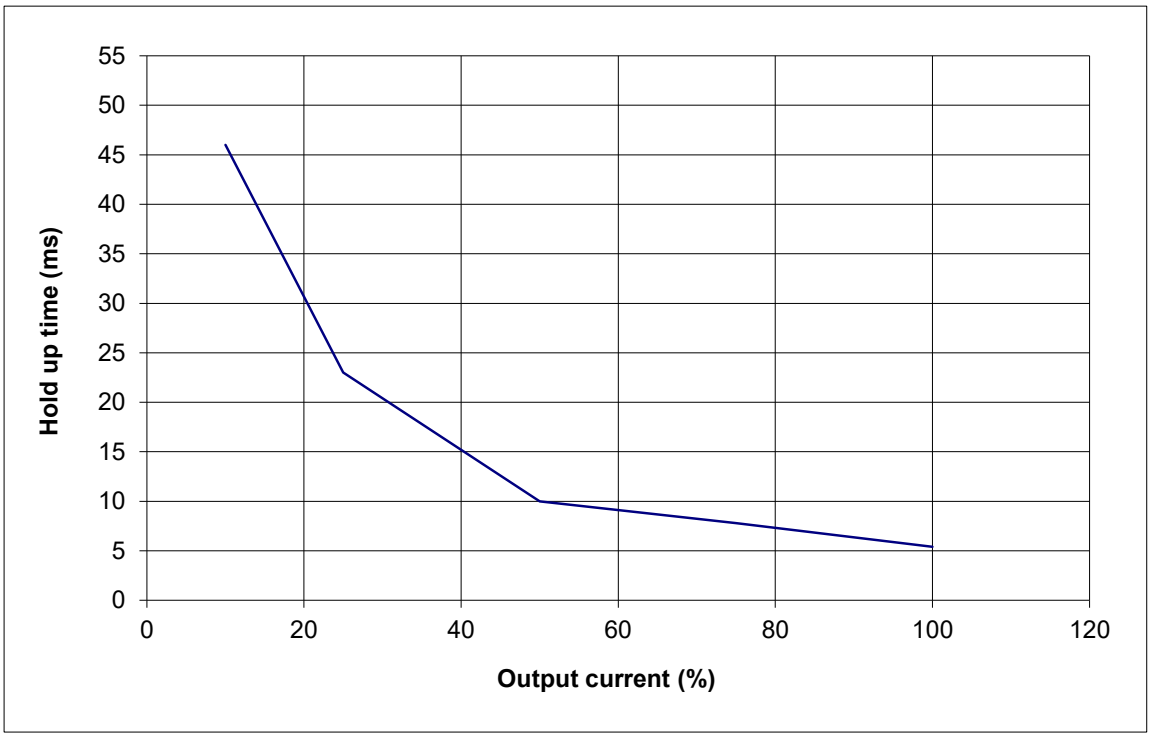
GSPL1500-15 3Φ208

Vin:200VAC



GSPL1500-15 3Φ480

Vin:400VAC

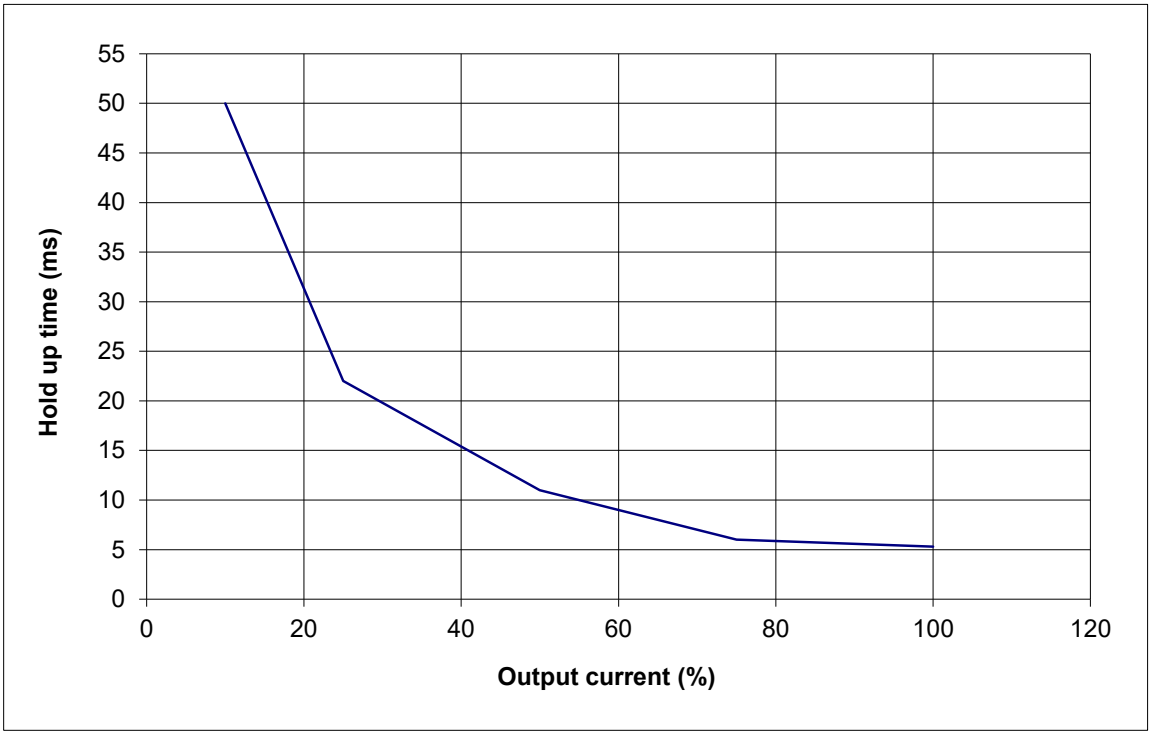


2.6 Holdup time characteristics

Conditions: Vout: 100%
Ta: 25°C

GSPL1500-15 3Φ480

Vin:480VAC

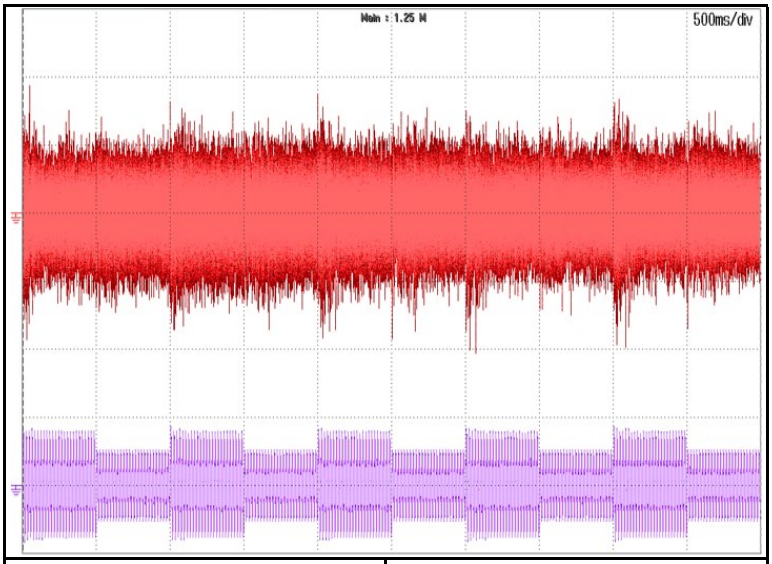


2.7 Dynamic line response characteristics

C.V mode

GSPL20-1125 3Φ208

Conditions: Vout: 100%
Iout: 100%
Vin: 170↔265V
Ta: 25°C



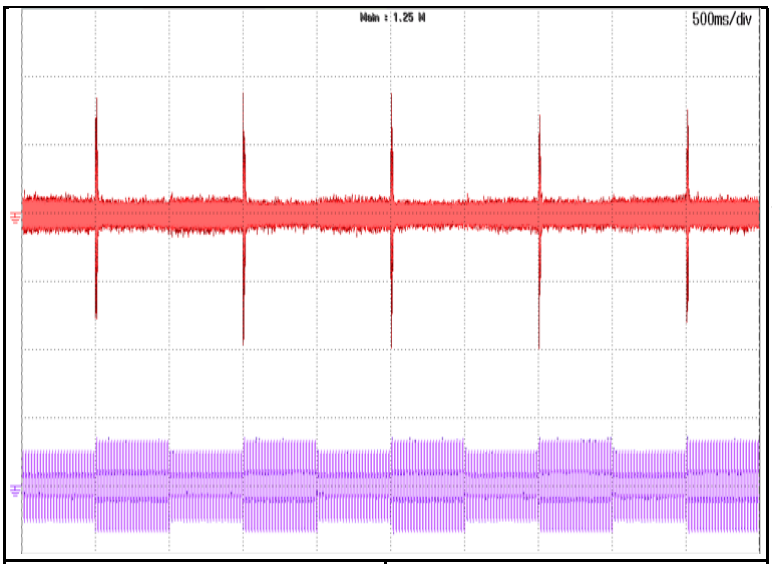
Vout

Vin

Vout: $10^{mv}/_{DIV}$	$500^{ms}/_{DIV}$
Vin: $500^{v}/_{DIV}$	

GSPL20-1125 3Φ480

Conditions: Vout: 100%
Iout: 100%
Vin: 342↔460V
Ta: 25°C



Vout

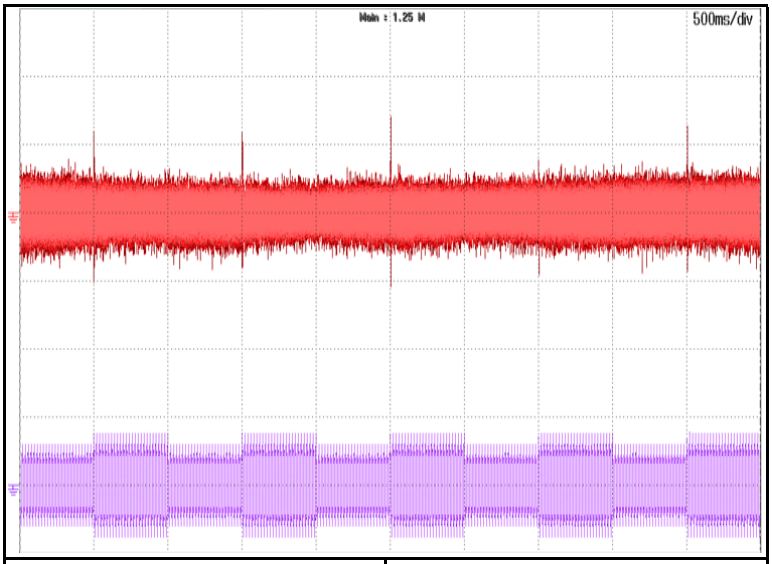
Vin

Vout: $50^{mv}/_{DIV}$	$500^{ms}/_{DIV}$
Vin: $1000^{v}/_{DIV}$	

2.7 Dynamic line response characteristics
C.V mode

GSPL20-1125 3Φ480

Conditions: Vout: 100%
Iout: 100%
Vin: 396↔520V
Ta: 25°C



Vout

Vin

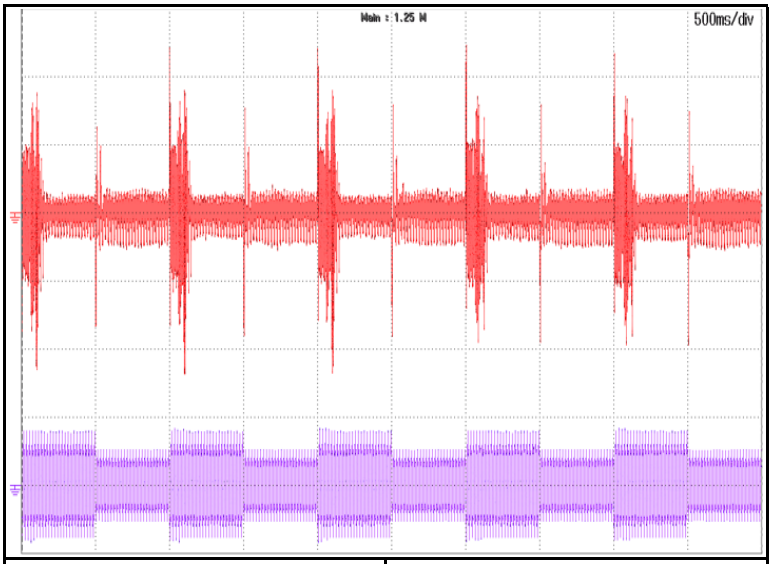
Vout: $20^{mv}/_{DIV}$	$500^{ms}/_{DIV}$
Vin: $1000^{v}/_{DIV}$	

2.7 Dynamic line response characteristics

C.C mode

GSPL20-1125 3Φ208

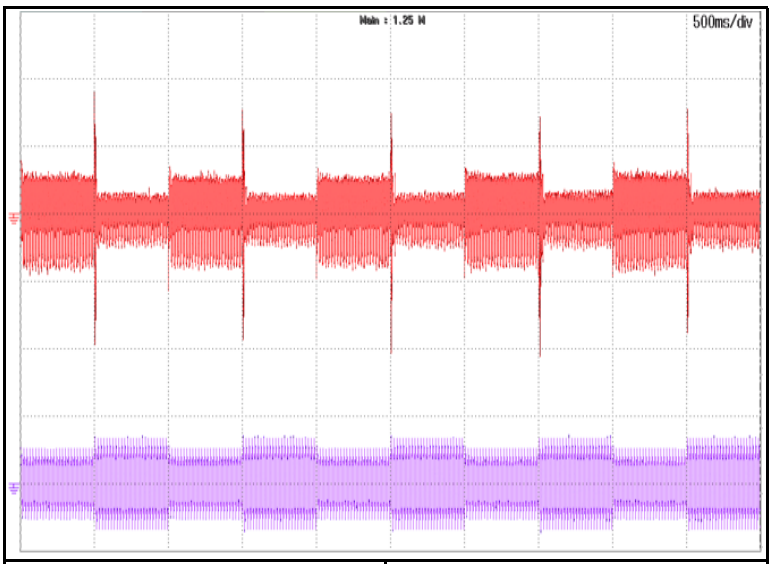
Conditions: Vout: 100%
Iout: 100%
Vin: 170↔265V
Ta: 25°C



Iout: 2.81$^{A}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 500$^{v}/_{DIV}$	

GSPL20-1125 3Φ480

Conditions: Vout: 100%
Iout: 100%
Vin: 342↔460V
Ta: 25°C

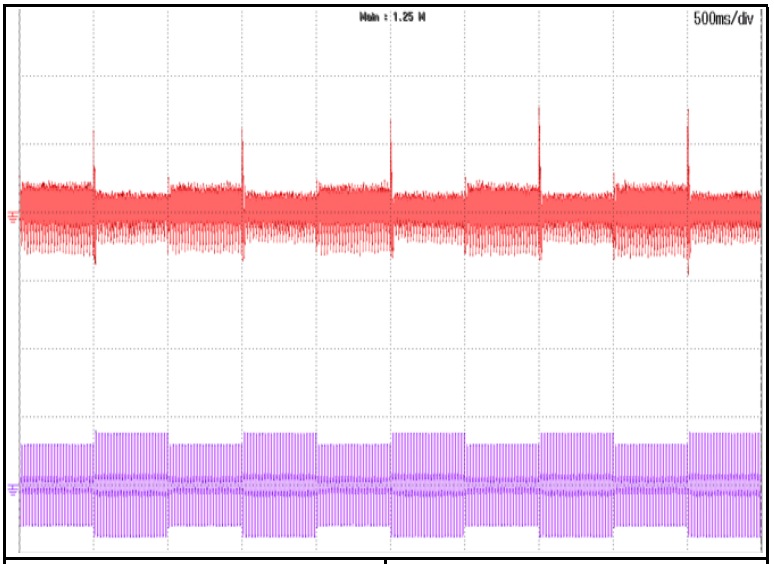


Iout: 2.81$^{A}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 1000$^{v}/_{DIV}$	

2.7 Dynamic line response characteristics
C.C mode

GSPL20-1125 3Φ480

Conditions: Vout: 100%
Iout: 100%
Vin: 396↔520V
Ta: 25°C



Iout

Vin

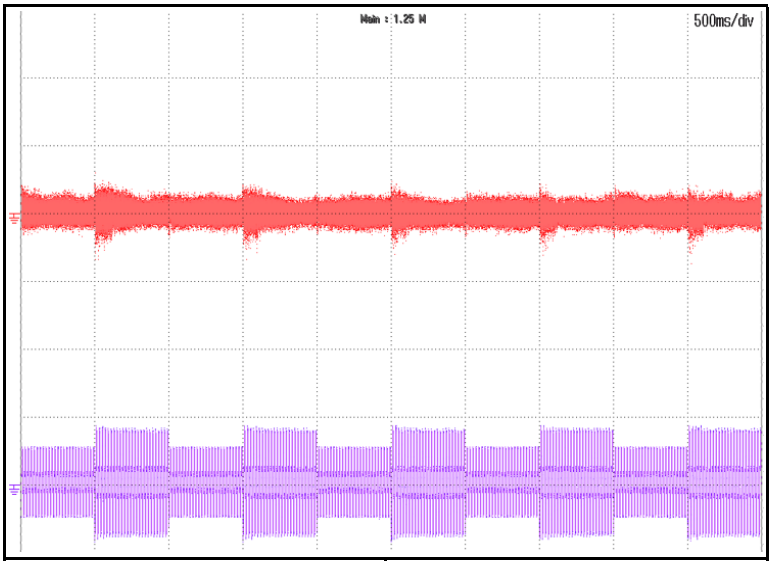
Iout: 2.81$^{A}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 1000$^{v}/_{DIV}$	

2.7 Dynamic line response characteristics

C.V mode

GSPL100-225 3Φ208

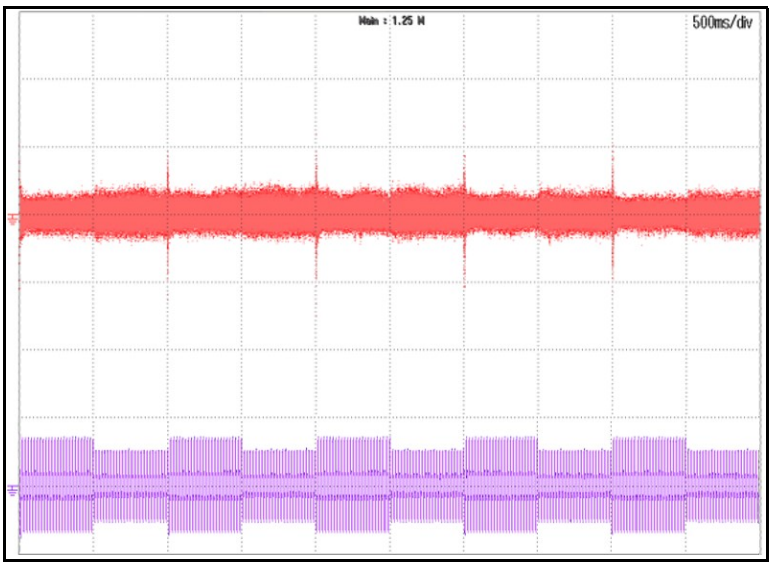
Conditions: Vout: 100%
Iout: 100%
Vin: 170↔265V
Ta: 25°C



Vout: 50$^{mv}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 500$^{v}/_{DIV}$	

GSPL100-225 3Φ480

Conditions: Vout: 100%
Iout: 100%
Vin: 342↔460V
Ta: 25°C

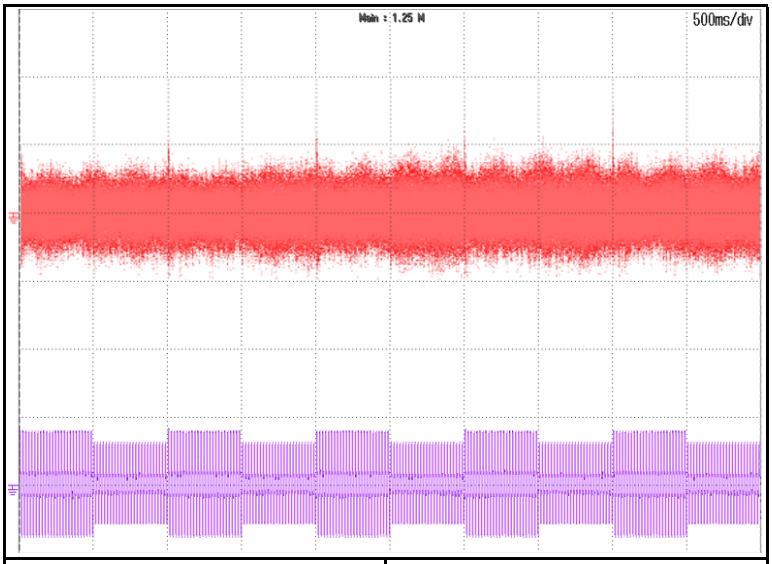


Vout: 40$^{mv}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 1000$^{v}/_{DIV}$	

2.7 Dynamic line response characteristics
C.V mode

GSPL100-225 3Φ480

Conditions: Vout: 100%
Iout: 100%
Vin: 396↔520V
Ta: 25°C



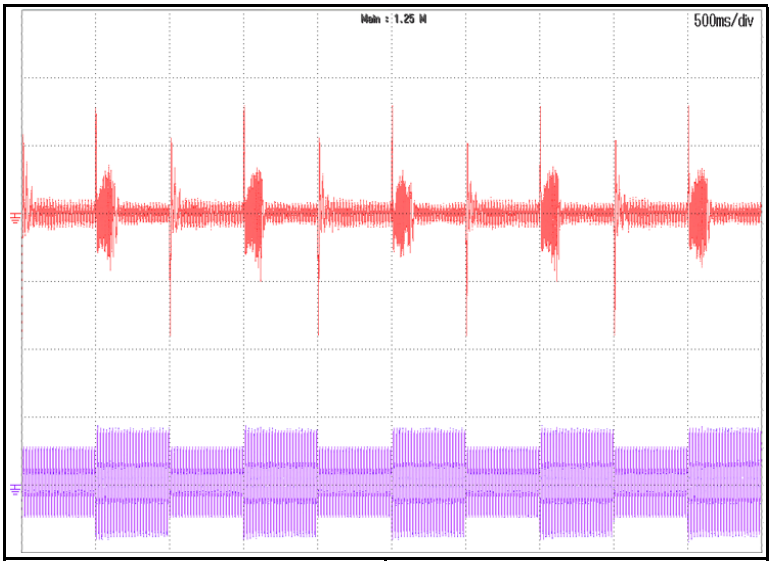
Vout: 15$^{mv}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 1000$^{v}/_{DIV}$	

2.7 Dynamic line response characteristics

C.C mode

GSPL100-225 3Φ208

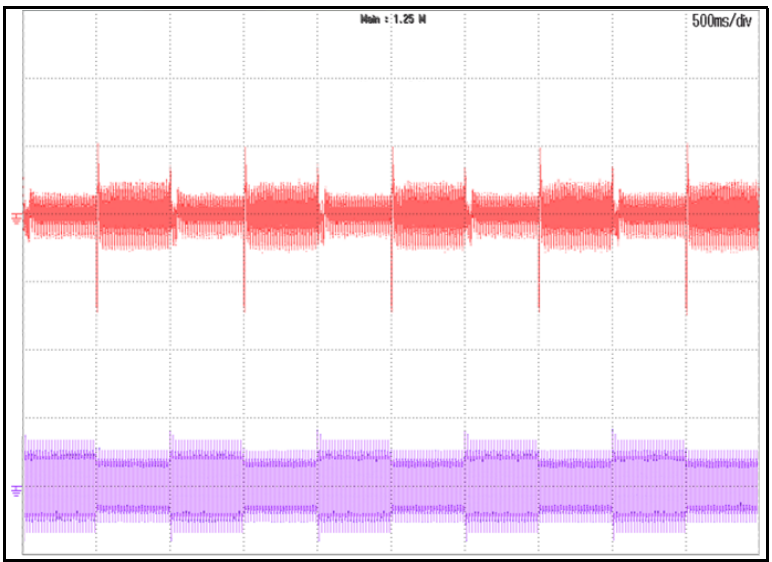
Conditions: Vout: 100%
Iout: 100%
Vin: 170↔265V
Ta: 25°C



Iout: 450mA/DIV	500ms/DIV
Vin: 500V/DIV	

GSPL100-225 3Φ480

Conditions: Vout: 100%
Iout: 100%
Vin: 342↔460V
Ta: 25°C

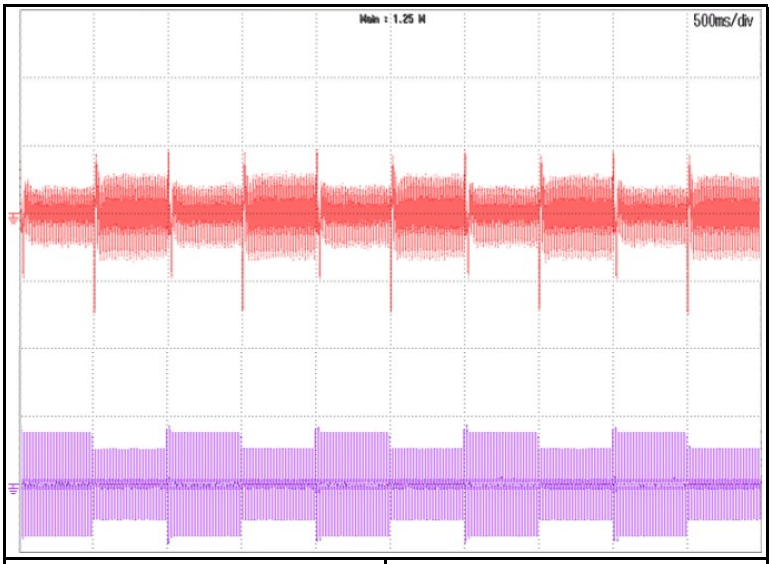


Iout: 346mA/DIV	500ms/DIV
Vin: 1000V/DIV	

2.7 Dynamic line response characteristics
C.C mode

GSPL100-225 3Φ480

Conditions: Vout: 100%
Iout: 100%
Vin: 396↔520V
Ta: 25°C



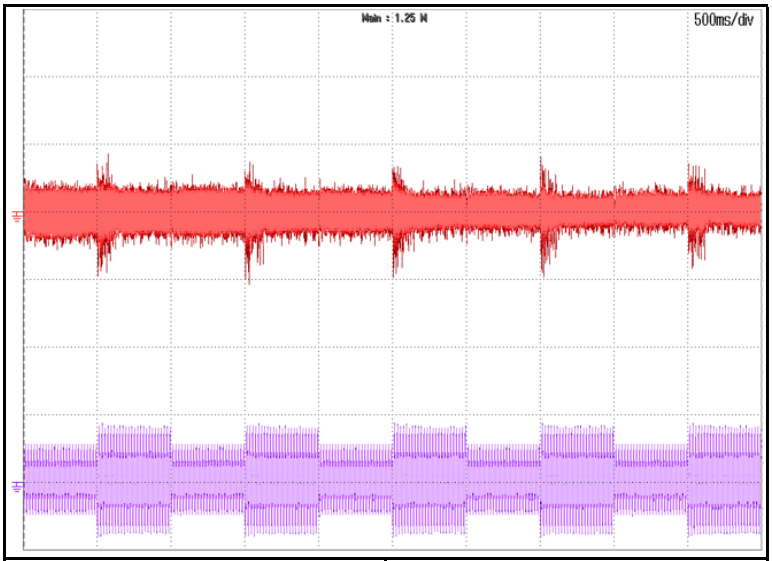
Iout: 198$^{mA}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 1000$^{v}/_{DIV}$	

2.7 Dynamic line response characteristics

C.V mode

GSPL600-37.5 3Φ208

Conditions: Vout: 100%
Iout: 100%
Vin: 170↔265V
Ta: 25°C



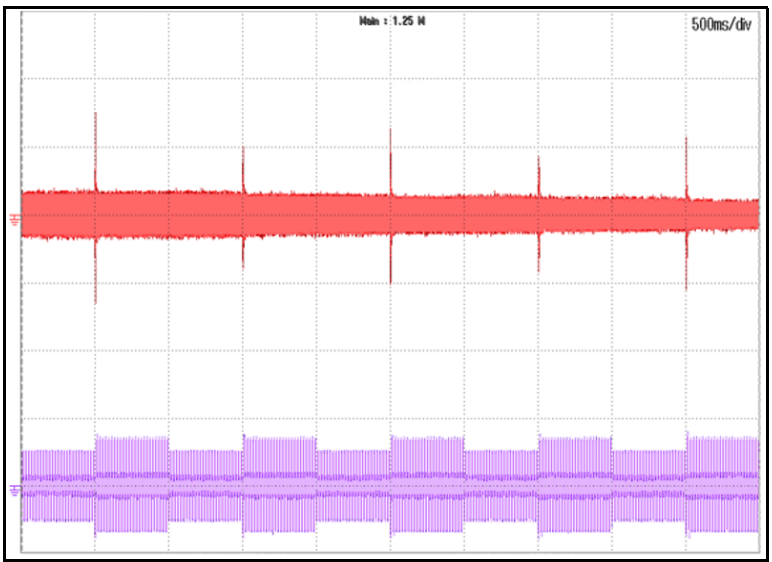
Vout

Vin

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

GSPL600-37.5 3Φ480

Conditions: Vout: 100%
Iout: 100%
Vin: 342↔460V
Ta: 25°C



Vout

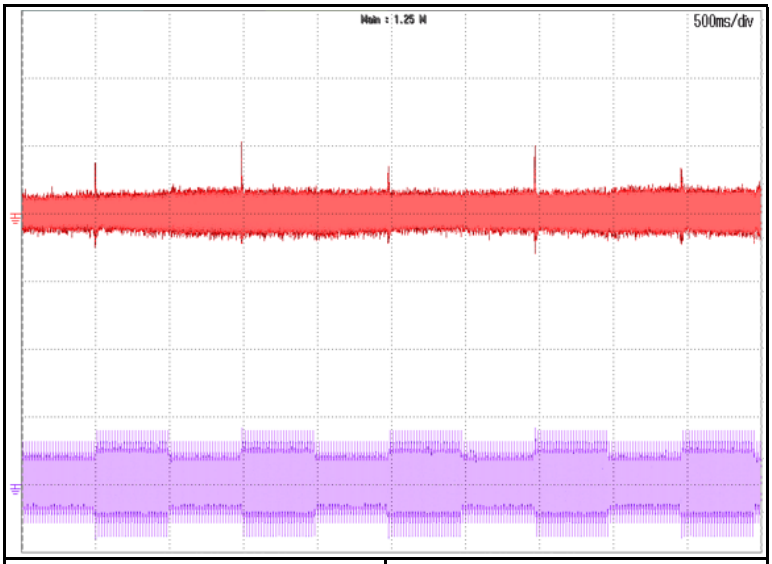
Vin

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

2.7 Dynamic line response characteristics
C.V mode

GSPL600-37.5 3Φ480

Conditions: Vout: 100%
Iout: 100%
Vin: 396↔520V
Ta: 25°C



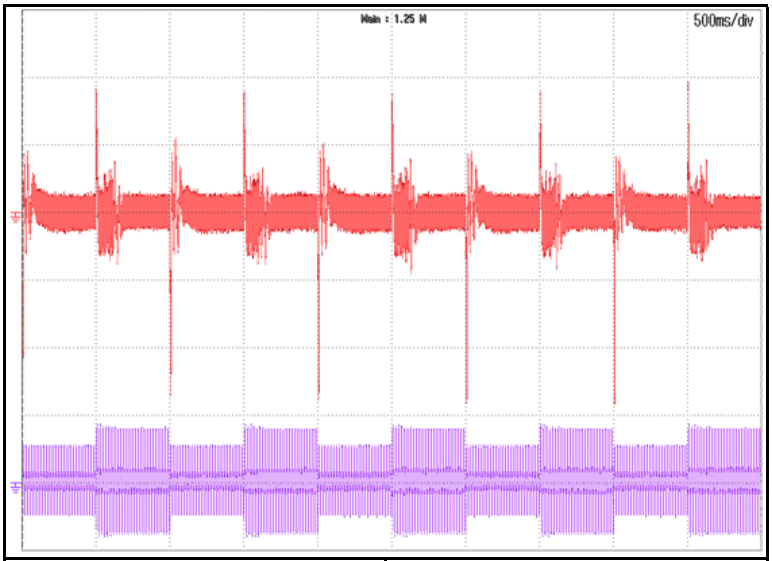
Vout: 200$^{mv}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 1000$^{v}/_{DIV}$	

2.7 Dynamic line response characteristics

C.C mode

GSPL600-37.5 3Φ208

Conditions: Vout: 100%
Iout: 100%
Vin: 170↔265V
Ta: 25°C



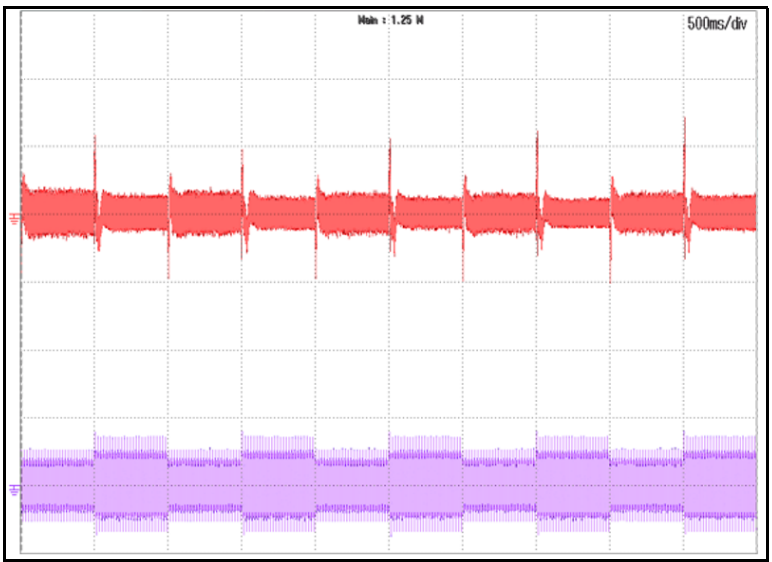
Iout

Vin

Iout: 31.25$^{mA}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 500$^{V}/_{DIV}$	

GSPL600-37.5 3Φ480

Conditions: Vout: 100%
Iout: 100%
Vin: 342↔460V
Ta: 25°C



Iout

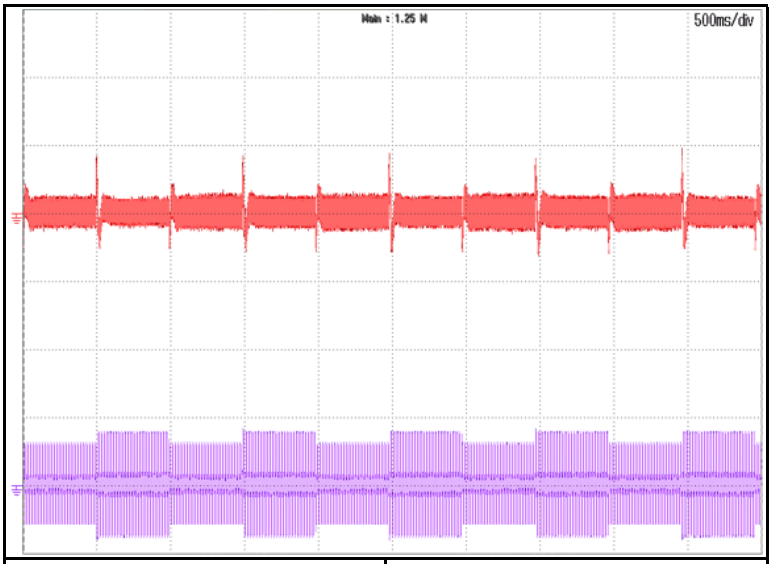
Vin

Iout: 31.3$^{mA}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 1000$^{V}/_{DIV}$	

2.7 Dynamic line response characteristics
C.C mode

GSPL600-37.5 3Φ480

Conditions: Vout: 100%
Iout: 100%
Vin: 396↔520V
Ta: 25°C



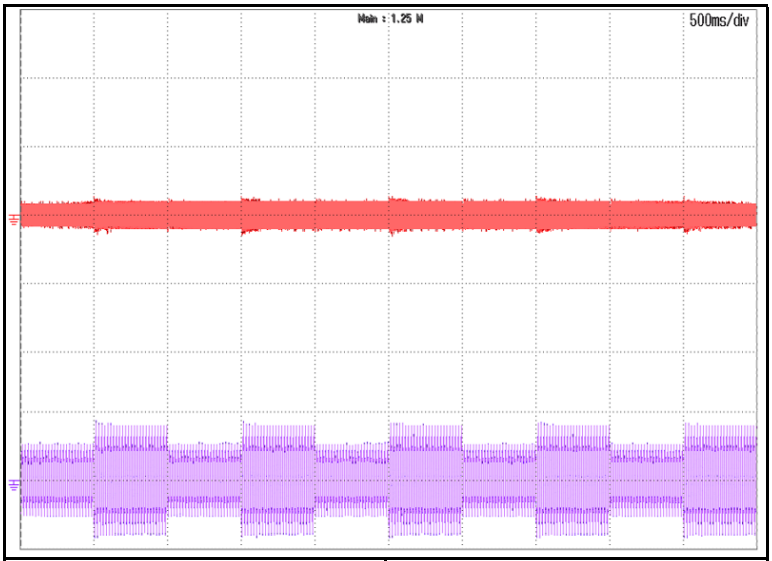
Iout: 28.8$^{mA}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 1000$^{v}/_{DIV}$	

2.7 Dynamic line response characteristics

C.V mode

GSPL1500-15 3Φ208

Conditions: Vout: 100%
Iout: 100%
Vin: 170↔265V
Ta: 25°C



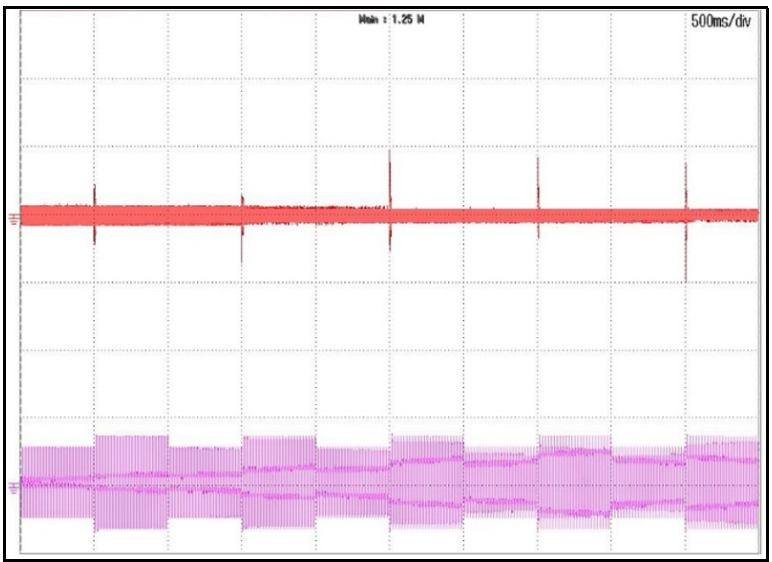
Vout

Vin

Vout: $5^{V}/_{DIV}$	$500^{ms}/_{DIV}$
Vin: $500^{V}/_{DIV}$	

GSPL1500-15 3Φ480

Conditions: Vout: 100%
Iout: 100%
Vin: 342↔460V
Ta: 25°C



Vout

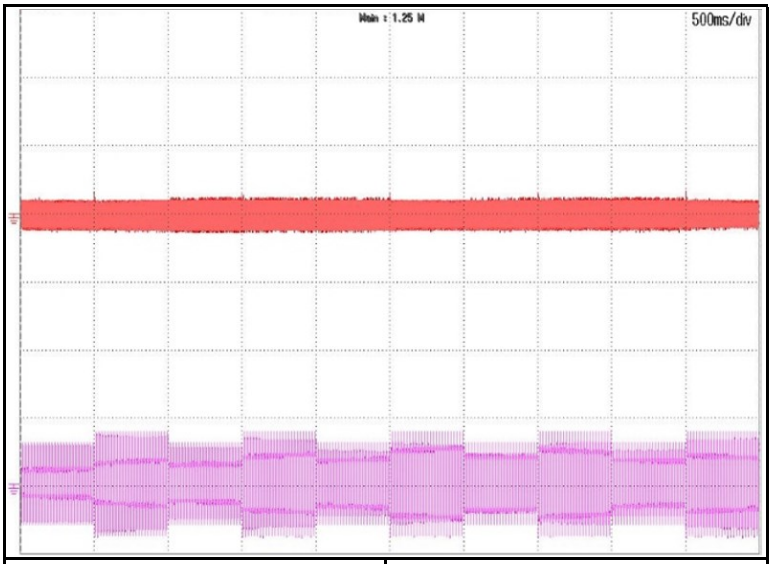
Vin

Vout: $5^{V}/_{DIV}$	$500^{ms}/_{DIV}$
Vin: $1000^{V}/_{DIV}$	

2.7 Dynamic line response characteristics
C.V mode

GSPL1500-15 3Φ480

Conditions: Vout: 100%
Iout: 100%
Vin: 396↔528V
Ta: 25°C



Vout

Vin

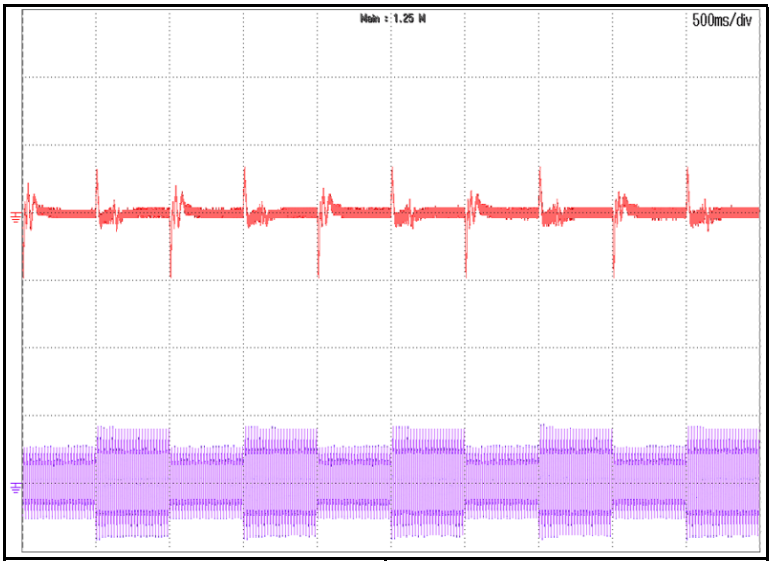
Vout: $2^{V}/_{DIV}$	$500^{ms}/_{DIV}$
Vin: $1000^{V}/_{DIV}$	

2.7 Dynamic line response characteristics

C.C mode

GSPL1500-15 3Φ208

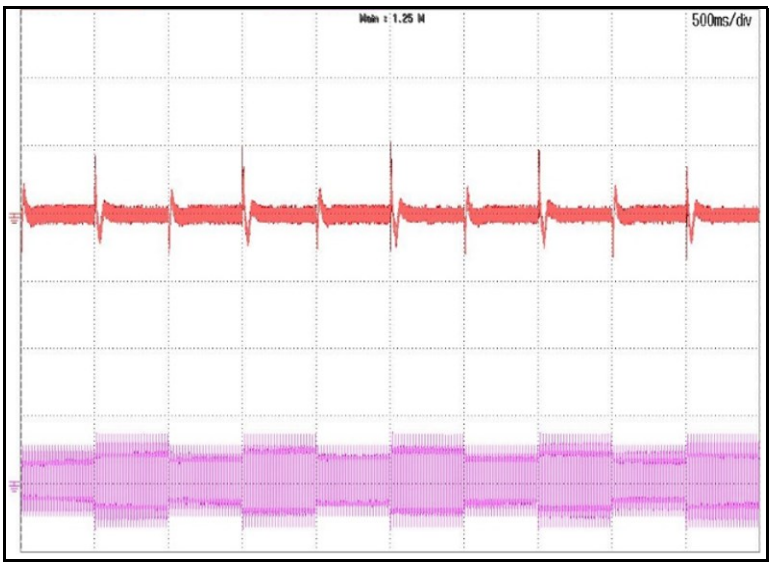
Conditions: Vout: 100%
Iout: 100%
Vin: 170↔265V
Ta: 25°C



Iout: 100mA/DIV	500ms/DIV
Vin: 500V/DIV	

GSPL1500-15 3Φ480

Conditions: Vout: 100%
Iout: 100%
Vin: 342↔460V
Ta: 25°C

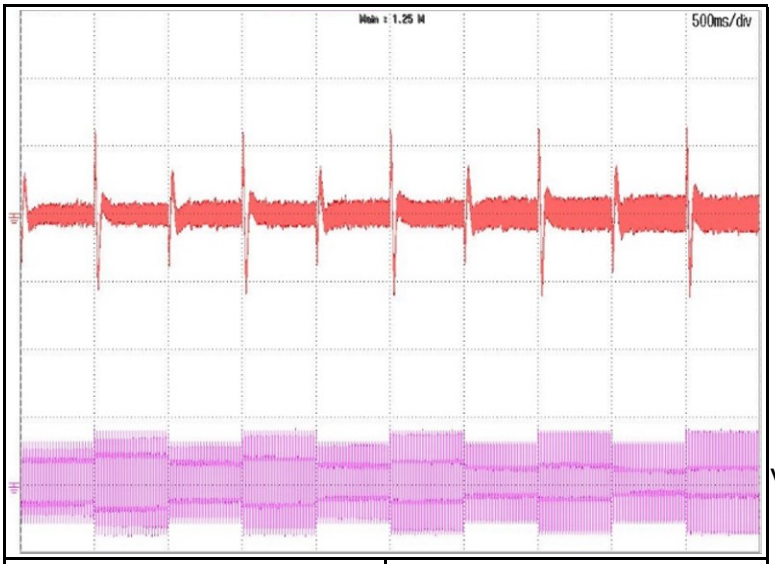


Iout: 50mA/DIV	500ms/DIV
Vin: 1000V/DIV	

2.7 Dynamic line response characteristics
C.C mode

GSPL1500-15 3Φ480

Conditions: Vout: 100%
Iout: 100%
Vin: 396↔528V
Ta: 25°C



Iout

Vin

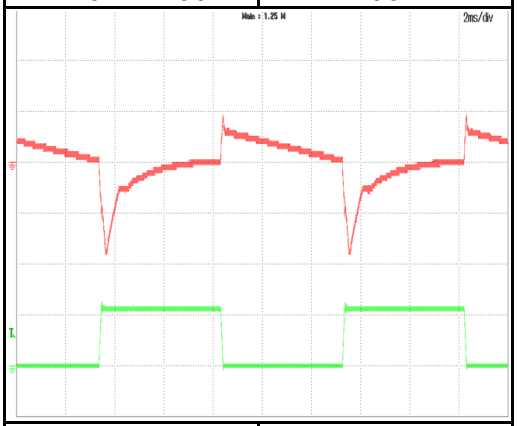
Iout: $20^{mA}/_{DIV}$	$500^{ms}/_{DIV}$
Vin: $1000^{v}/_{DIV}$	

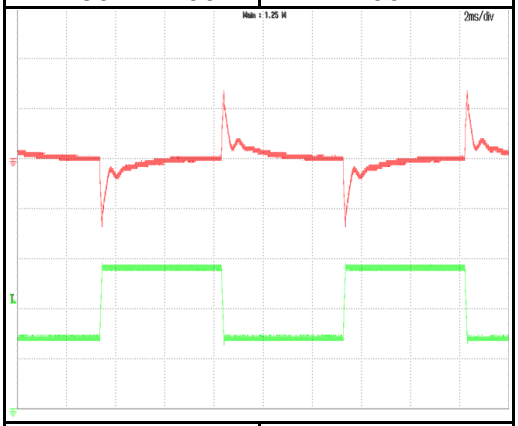
2.8 Dynamic load response characteristics

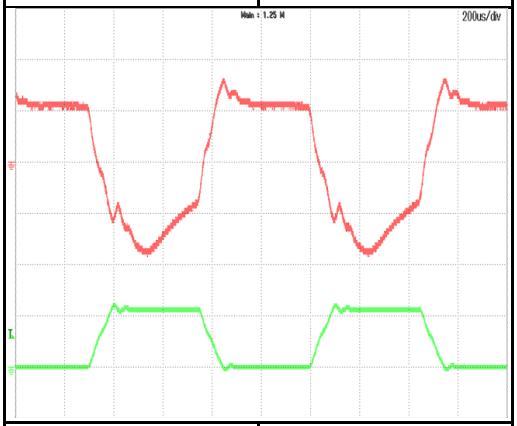
C.V mode

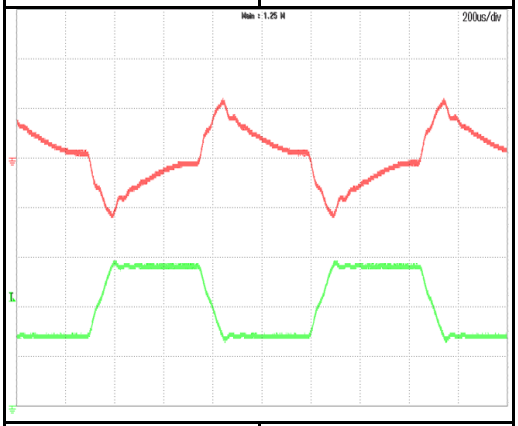
Conditions: Vin: Nominal
Vout: 100%
Ta: 25°C
Load current: tr=tf=100us

GSPL20-1125

Iout:0%↔100%	f:100Hz
	
1.5V/DIV	2ms/DIV
7.20%	1000A/DIV
-14.00%	

Iout:50%↔100%	f:100Hz
	
500mV/DIV	2ms/DIV
3.40%	400A/DIV
-3.40%	

Iout:0%↔100%	f:1KHz
	
710mV/DIV	200us/DIV
5.80%	1000A/DIV
-6.60%	

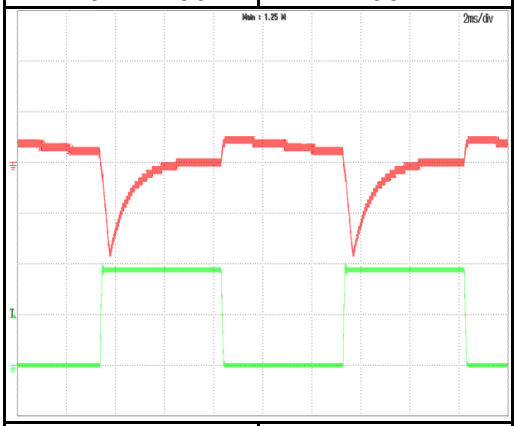
Iout:50%↔100%	f:1KHz
	
500mV/DIV	200us/DIV
3.00%	400A/DIV
3.00%	

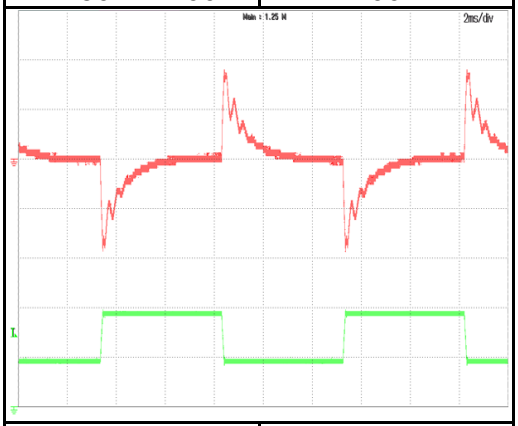
2.8 Dynamic load response characteristics

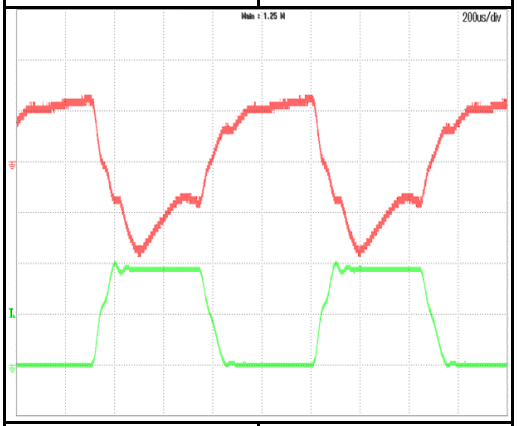
C.V mode

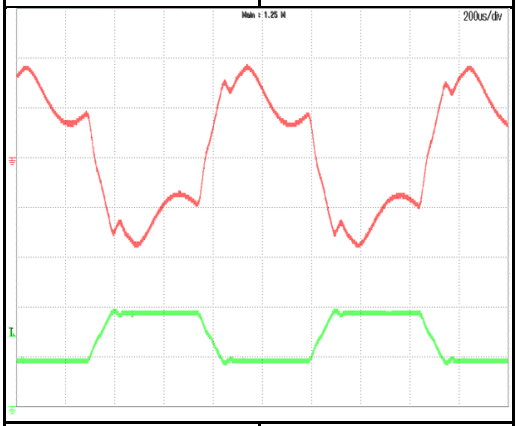
Conditions: Vin: Nominal
Vout: 100%
Ta: 25°C
Load current: tr=tf=100us

GSPL100-225

Iout:0%↔100%	f:100Hz
	
$2.7^{V}/_{DIV}$	$2^{ms}/_{DIV}$
1.40%	$120^{A}/_{DIV}$
-5.00%	

Iout:50%↔100%	f:100Hz
	
$310^{mV}/_{DIV}$	$2^{ms}/_{DIV}$
0.56%	$120^{A}/_{DIV}$
-0.58%	

Iout:0%↔100%	f:1KHz
	
$580^{mV}/_{DIV}$	$200^{us}/_{DIV}$
0.76%	$120^{A}/_{DIV}$
-1.08%	

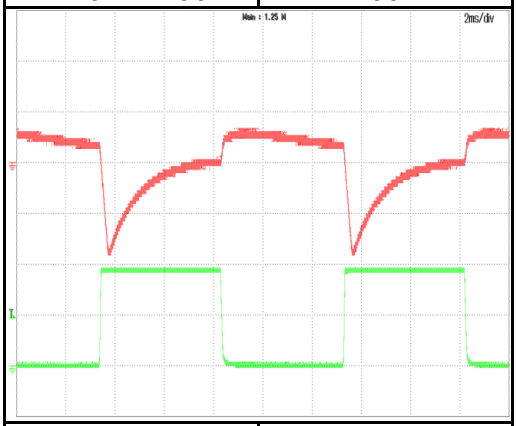
Iout:50%↔100%	f:1KHz
	
$204^{mV}/_{DIV}$	$200^{us}/_{DIV}$
0.38%	$120^{A}/_{DIV}$
-0.37%	

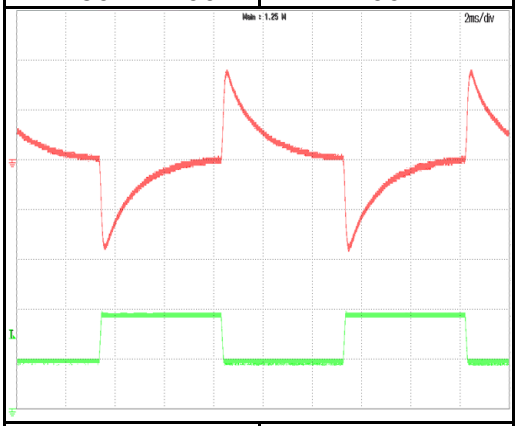
2.8 Dynamic load response characteristics

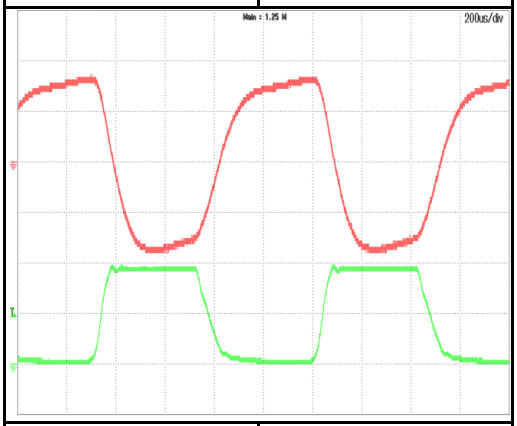
C.V mode

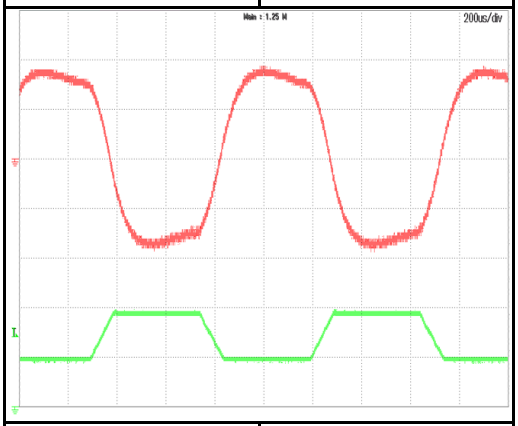
Conditions: Vin: Nominal
Vout: 100%
Ta: 25°C
Load current: tr=tf=100us

GSPL600-37.5

Iout:0%↔100%	f:100Hz
	
5.9V/DIV	2ms/DIV
0.66%	20A/DIV
-1.80%	

Iout:50%↔100%	f:100Hz
	
1V/DIV	2ms/DIV
0.30%	20A/DIV
-0.31%	

Iout:0%↔100%	f:1KHz
	
1.4V/DIV	200us/DIV
0.40%	20A/DIV
-0.41%	

Iout:50%↔100%	f:1KHz
	
620mV/DIV	200us/DIV
0.19%	20A/DIV
-0.19%	

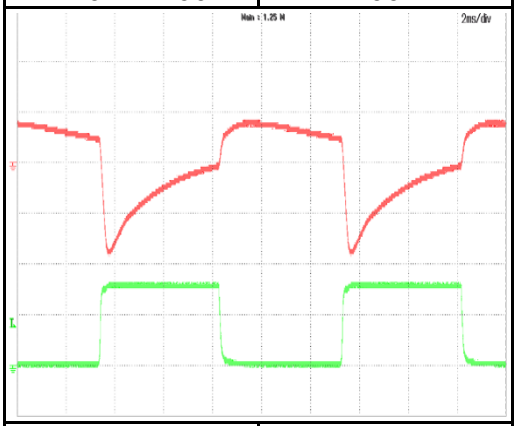
2.8 Dynamic load response characteristics

C.V mode

Conditions: Vin: Nominal
Vout: 70%(*)
Ta: 25°C
Load current: tr=tf=100us

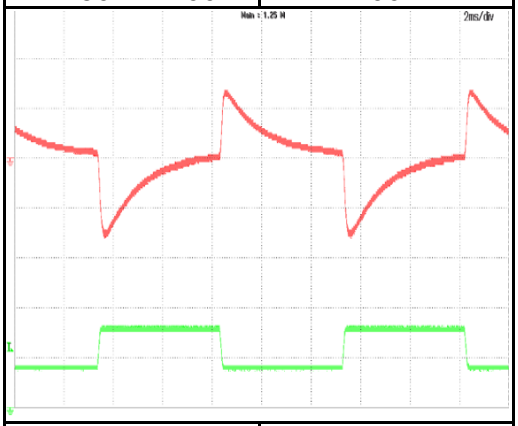
GSPL1500-15

Iout:0%↔100%	f:100Hz



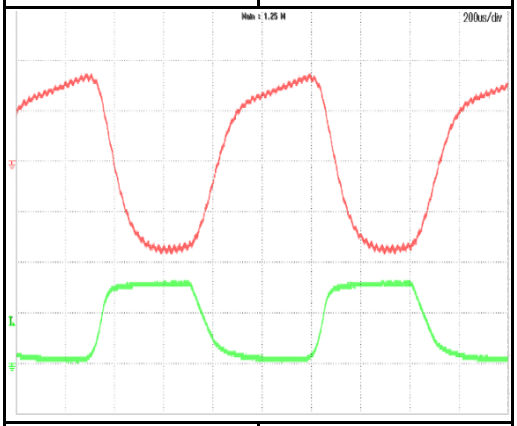
$18.2^{V}/_{DIV}$	$2^{ms}/_{DIV}$
1.01%	$10^{A}/_{DIV}$
-2.24%	

Iout:50%↔100%	f:100Hz



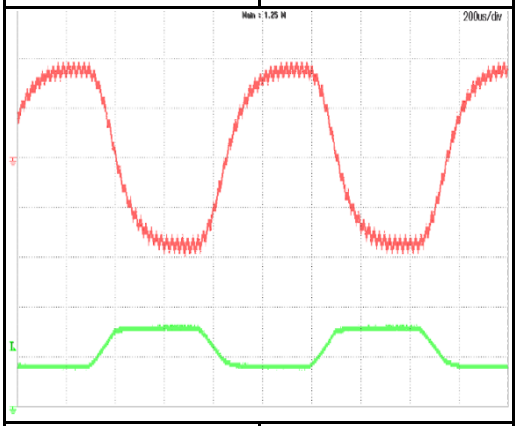
$5^{V}/_{DIV}$	$2^{ms}/_{DIV}$
0.45%	$10^{A}/_{DIV}$
-0.53%	

Iout:0%↔100%	f:1KHz



$5.5^{V}/_{DIV}$	$200^{us}/_{DIV}$
0.62%	$10^{A}/_{DIV}$
-0.66%	

Iout:50%↔100%	f:1KHz



$2.6^{V}/_{DIV}$	$200^{us}/_{DIV}$
0.33%	$10^{A}/_{DIV}$
0.34%	

Notes:
(*) Electronic load max dynamic voltage 1050V

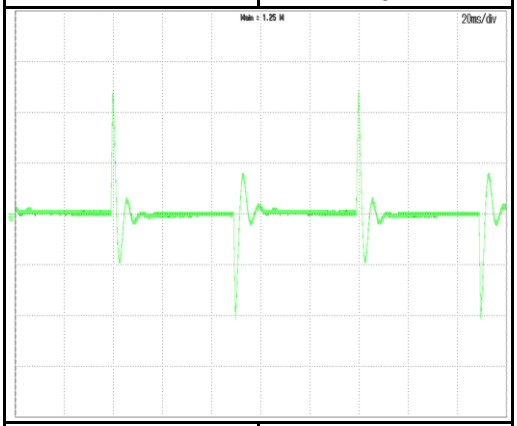
2.8 Dynamic load response characteristics

C.C mode

Conditions: Vin: Nominal
Ta: 25°C

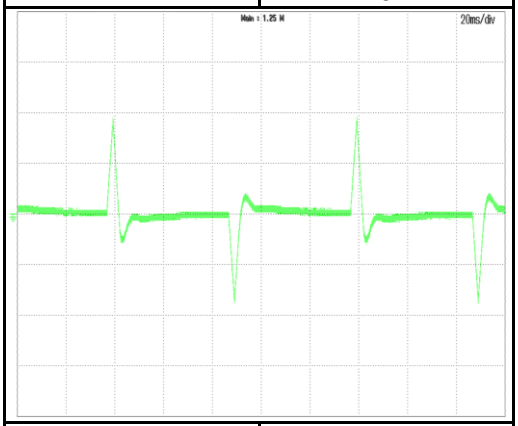
GSPL20-1125

Io=1125A

Vout:18↔15V	f:10Hz
	
100A/DIV	20ms/DIV
	-18.48%

Iout

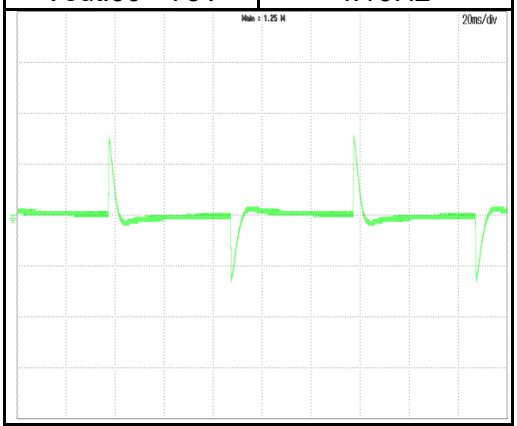
Io=562.5A

Vout:18↔15V	f:10Hz
	
40A/DIV	20ms/DIV
	-6.60%

Iout

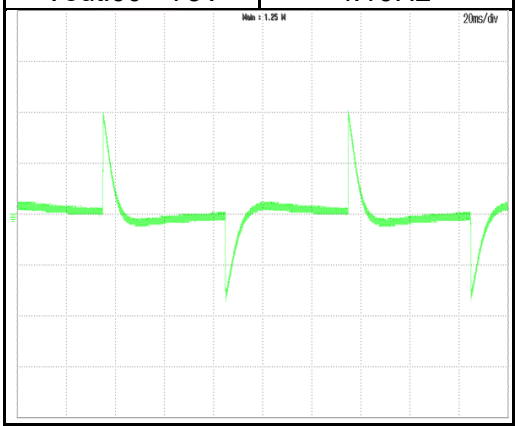
GSPL100-225

Io=225A

Vout:90↔75V	f:10Hz
	
30A/DIV	20ms/DIV
	-17.60%

Iout

Io=112.5A

Vout:90↔75V	f:10Hz
	
12A/DIV	20ms/DIV
	-9.18%

Iout

2.8 Dynamic load response characteristics

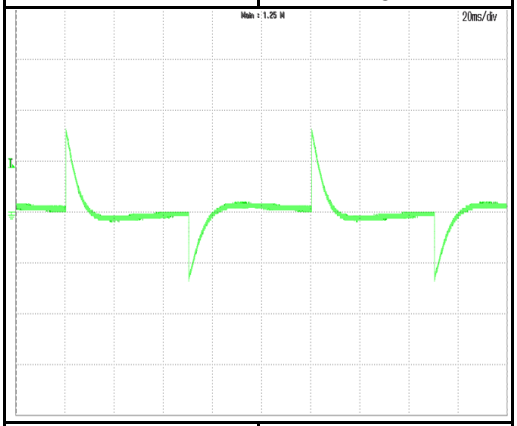
C.C mode

Conditions: Vin: Nominal
Ta: 25°C

GSPL600-37.5

Io=37.5A

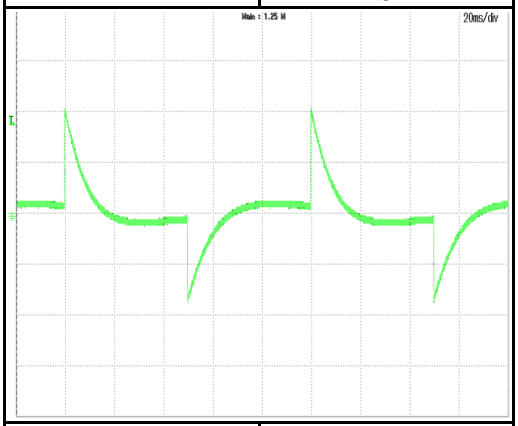
Vout:540↔450V	f:10Hz



5A/DIV	20ms/DIV
	-18.13%

Io=18.75A

Vout:540↔450V	f:10Hz

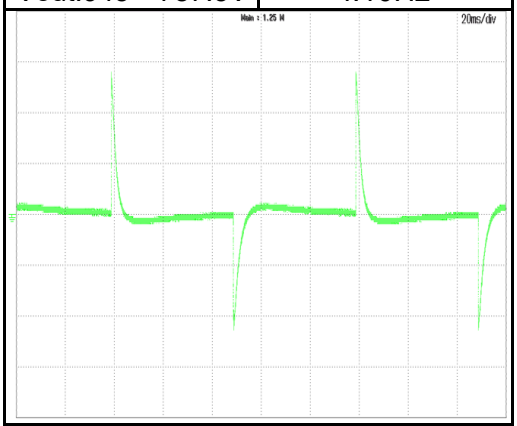


2.2A/DIV	20ms/DIV
	-9.38%

GSPL1500-15

Io=15A

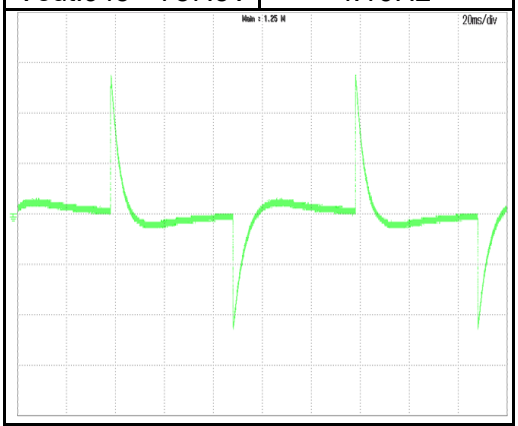
Vout:945↔787.5V	f:10Hz



1A/DIV	20ms/DIV
	-16.00%

Io=7.5A

Vout:945↔787.5V	f:10Hz



515mA/DIV	20ms/DIV
	-7.86%

Notes:
(*) Electronic load max dynamic voltage 1050V

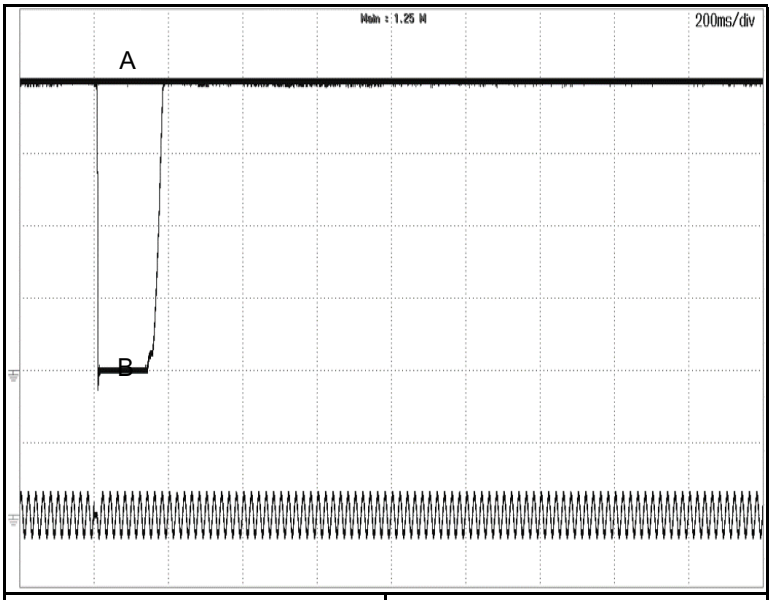
2.9 Response to brown-out characteristics

C.V mode

Conditions: Vout: 100%
Iout: 100%
Ta: 25°C

GSPL20-1125 3Φ208

Vin: 200VAC

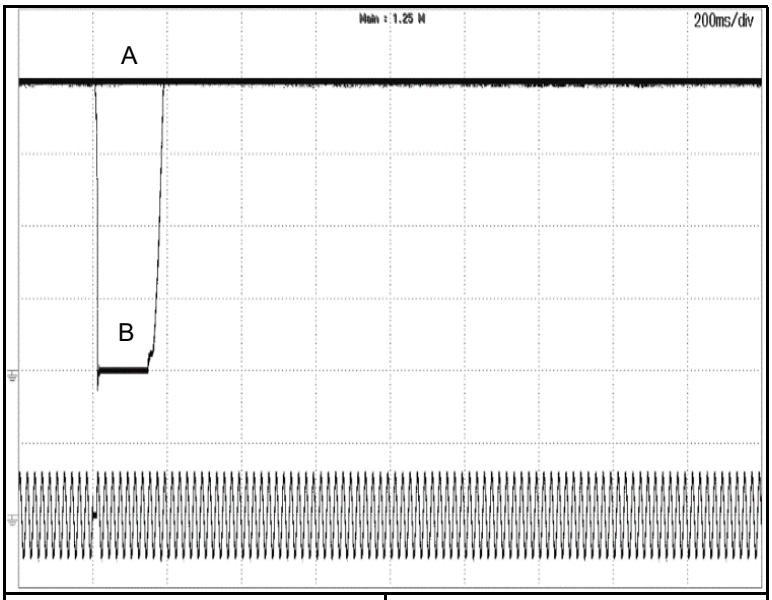


Brown-out time
A - 8ms
B - 9ms

Vout: $5^{V}/_{DIV}$	$200^{ms}/_{DIV}$
Vin: $1000^{V}/_{DIV}$	

GSPL20-1125 3Φ480

Vin: 400VAC



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

Vout: $5^{V}/_{DIV}$	$200^{ms}/_{DIV}$
Vin: $1000^{V}/_{DIV}$	

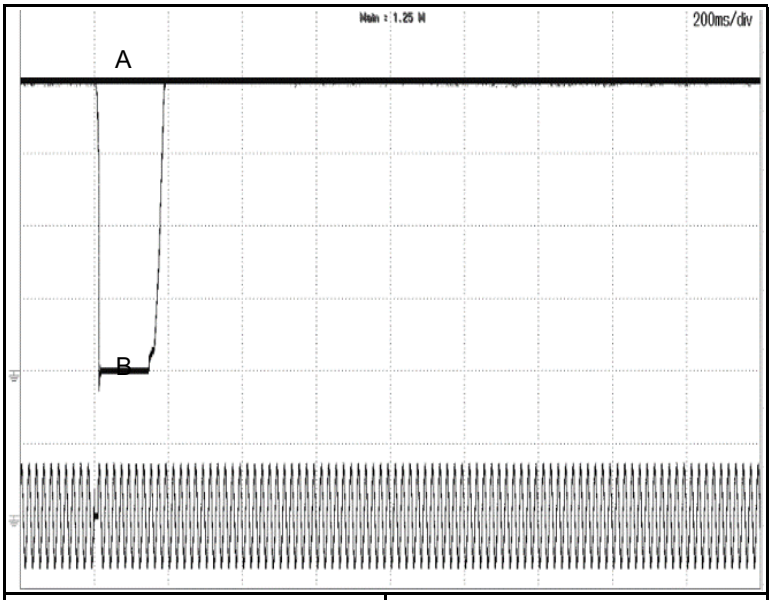
2.9 Response to brown-out characteristics

C.V mode

Conditions: Vout: 100%
Iout: 100%
Ta: 25°C

Vin: 480VAC

GSPL20-1125 3Φ480



← Vout: 100%

← Vout: 0V

← Vin

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

Vout: $5^{V}/_{DIV}$	$200^{ms}/_{DIV}$
Vin: $1000^{V}/_{DIV}$	

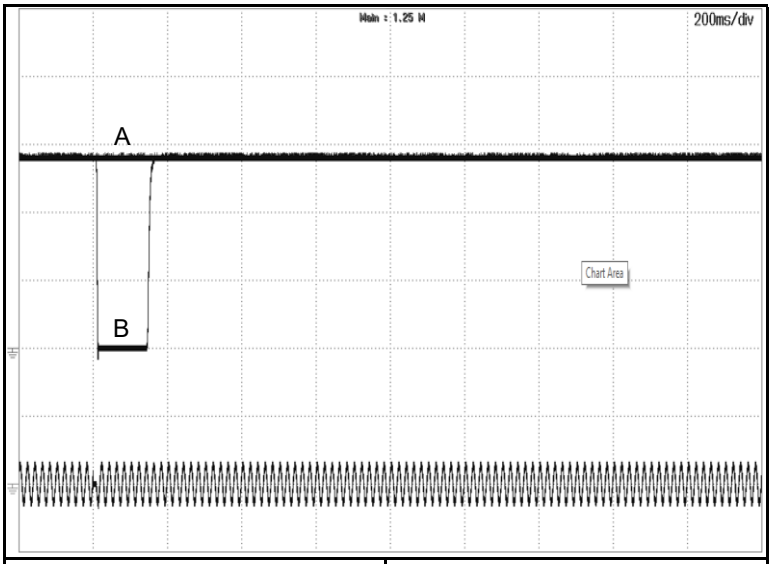
2.9 Response to brown-out characteristics

C.C mode

Conditions: Vout: 100%
Iout: 100%
Ta: 25°C

GSPL20-1125 3Φ208

Vin: 200VAC



← Iout: 100%

← Iout: 0A

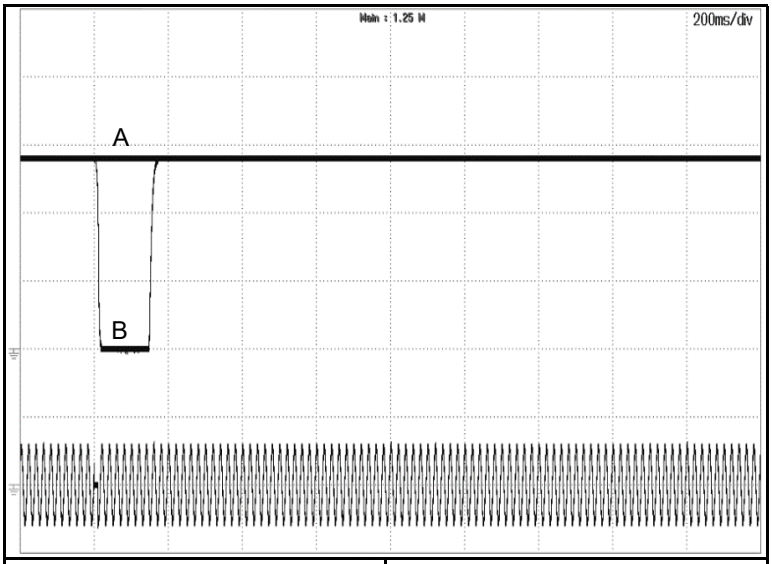
← Vin

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

Iout: 400$^{A}/_{DIV}$	200$^{ms}/_{DIV}$
Vin: 1000$^{V}/_{DIV}$	

GSPL20-1125 3Φ480

Vin: 400VAC



← Iout: 100%

← Iout: 0A

← Vin

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

Iout: 400$^{A}/_{DIV}$	200$^{ms}/_{DIV}$
Vin: 1000$^{V}/_{DIV}$	

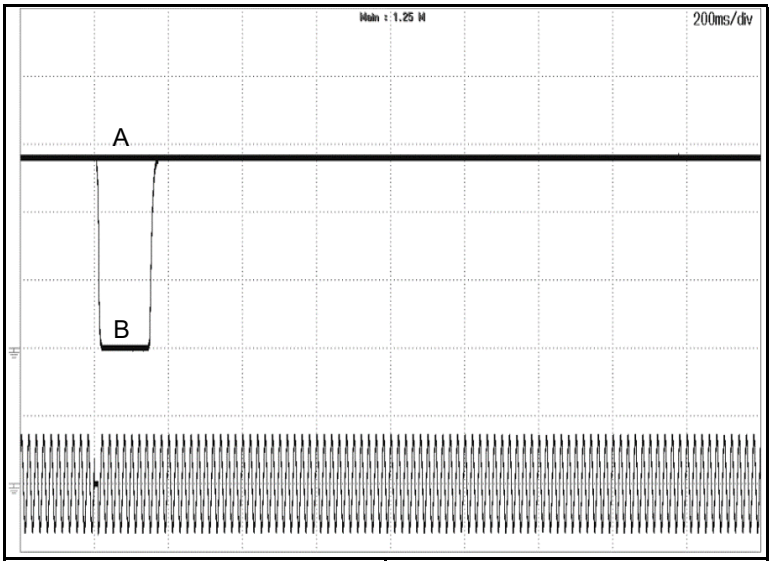
2.9 Response to brown-out characteristics

C.C mode

Conditions: Vout: 100%
Iout: 100%
Ta: 25°C

GSPL20-1125 3Φ480

Vin: 480VAC



← Iout: 100%

← Iout: 0A

← Vin

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

Iout: $400^{A}/_{DIV}$	$200^{ms}/_{DIV}$
Vin: $1000^{V}/_{DIV}$	

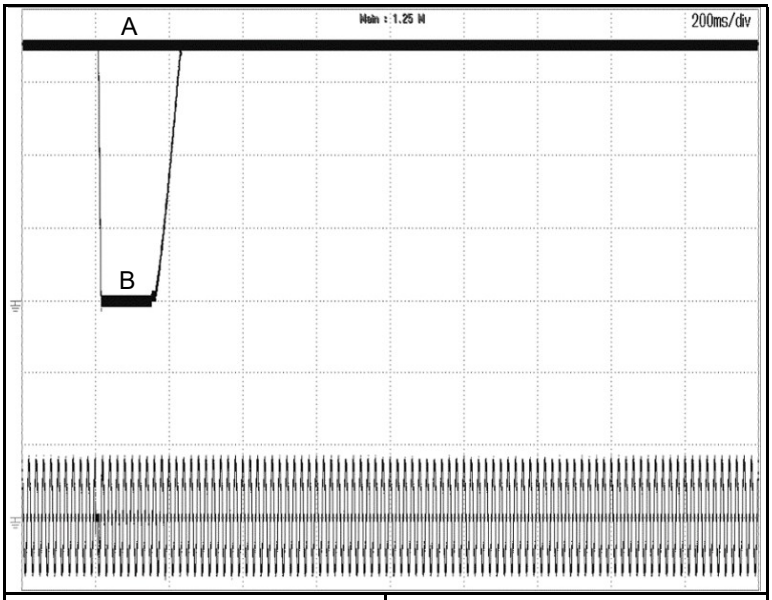
2.9 Response to brown-out characteristics

C.V mode

Conditions: Vout: 100%
Iout: 100%
Ta: 25°C

GSPL100-225 3Φ208

Vin: 200VAC



← Vout: 100%

← Vout: 0V

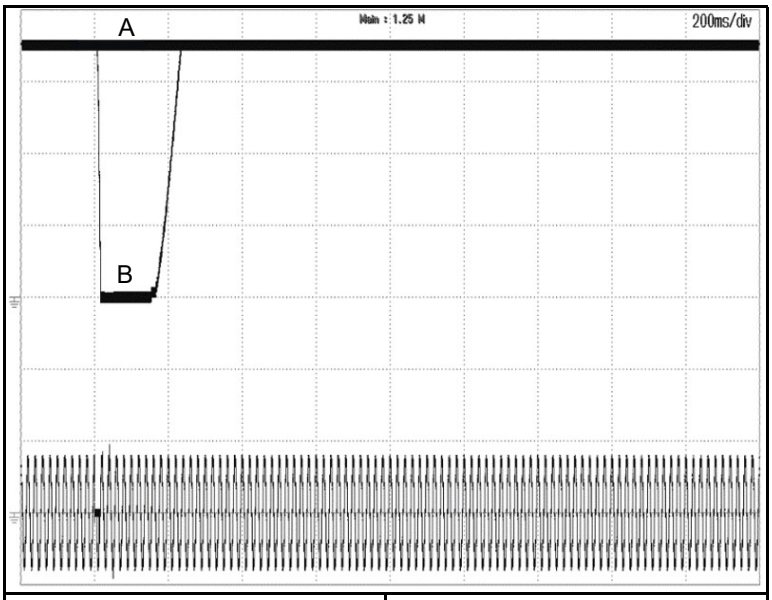
← Vin

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

Vout: 28.5V/DIV	200ms/DIV
Vin: 375V/DIV	

GSPL100-225 3Φ480

Vin: 400VAC



← Vout: 100%

← Vout: 0V

← Vin

Brown-out time
A - 8ms
B - 10ms

Vout: 28.5V/DIV	200ms/DIV
Vin: 750V/DIV	

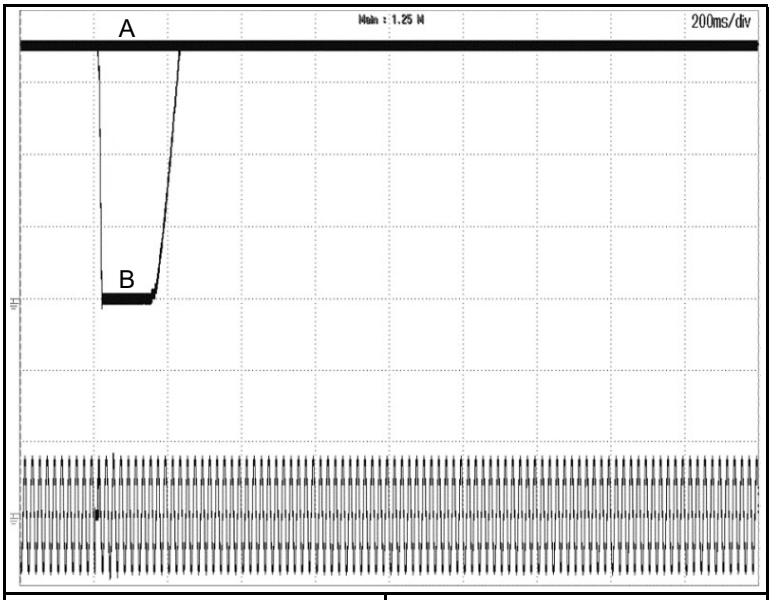
2.9 Response to brown-out characteristics

C.V mode

Conditions: Vout: 100%
Iout: 100%
Ta: 25°C

Vin: 480VAC

GSPL100-225 3Φ480



← Vout: 100%

← Vout: 0V

← Vin

Brown-out time
A - 8ms
B - 10ms

Vout: 28.5$^{V}/_{DIV}$	200$^{ms}/_{DIV}$
Vin: 900$^{V}/_{DIV}$	

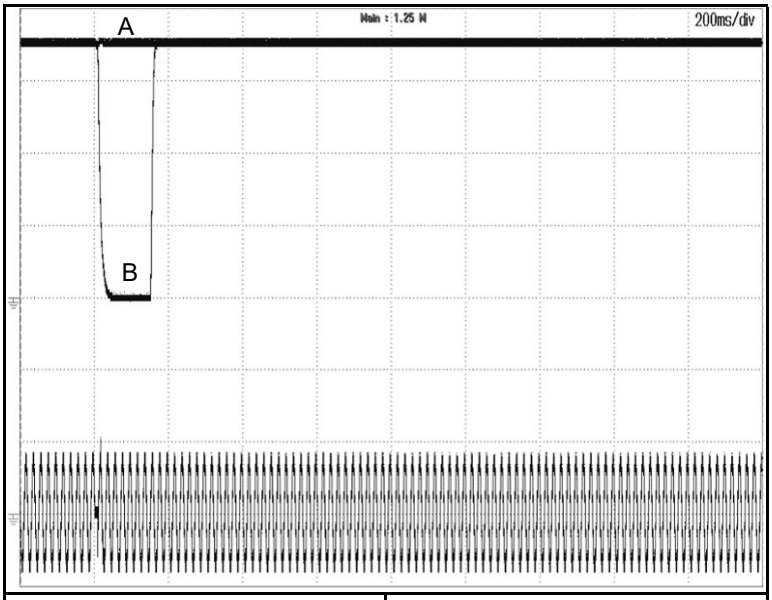
2.9 Response to brown-out characteristics

C.C mode

Conditions: Vout: 100%
Iout: 100%
Ta: 25°C

GSPL100-225 3Φ208

Vin: 200VAC



← Iout: 100%

← Iout: 0A

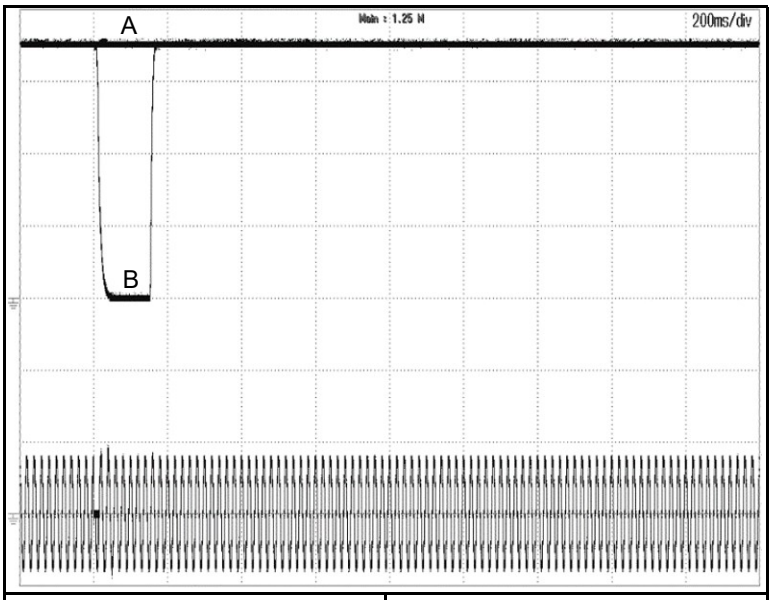
← Vin

Brown-out time
A - 8ms
B - 10ms

Iout: 64.2$^{A}/_{DIV}$	200$^{ms}/_{DIV}$
Vin: 375$^{V}/_{DIV}$	

GSPL100-225 3Φ480

Vin: 400VAC



← Iout: 100%

← Iout: 0A

← Vin

Brown-out time
A - 8ms
B - 10ms

Iout: 64.2$^{A}/_{DIV}$	200$^{ms}/_{DIV}$
Vin: 750$^{V}/_{DIV}$	

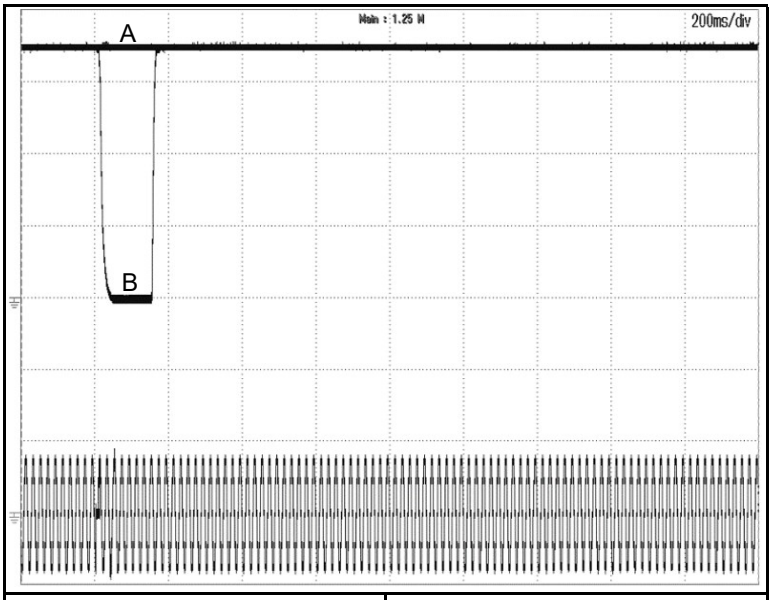
2.9 Response to brown-out characteristics

C.C mode

Conditions: Vout: 100%
Iout: 100%
Ta: 25°C

Vin: 480VAC

GSPL100-225 3Φ480



← Iout: 100%

← Iout: 0A

← Vin

Brown-out time
A - 8ms
B - 10ms

Iout: 64.2$^{A}/_{DIV}$	200$^{ms}/_{DIV}$
Vin: 900$^{V}/_{DIV}$	

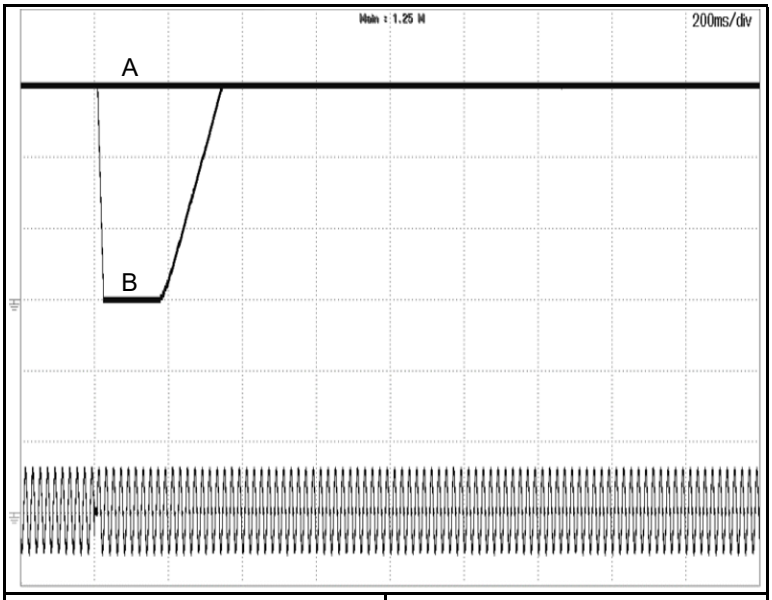
2.9 Response to brown-out characteristics

C.V mode

Conditions: Vout: 100%
Iout: 100%
Ta: 25°C

GSPL600-37.5 3Φ208

Vin: 200VAC

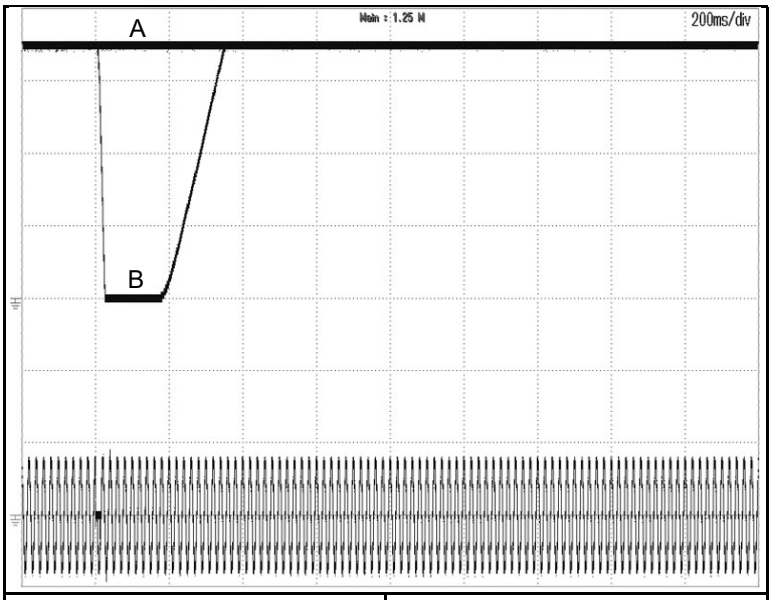


Brown-out time
A - 7ms
B - 8ms

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

GSPL600-37.5 3Φ480

Vin: 400VAC



Brown-out time
A - 7ms
B - 11ms

Vout: 172 V/DIV	200 ms/DIV
Vin: 750 V/DIV	

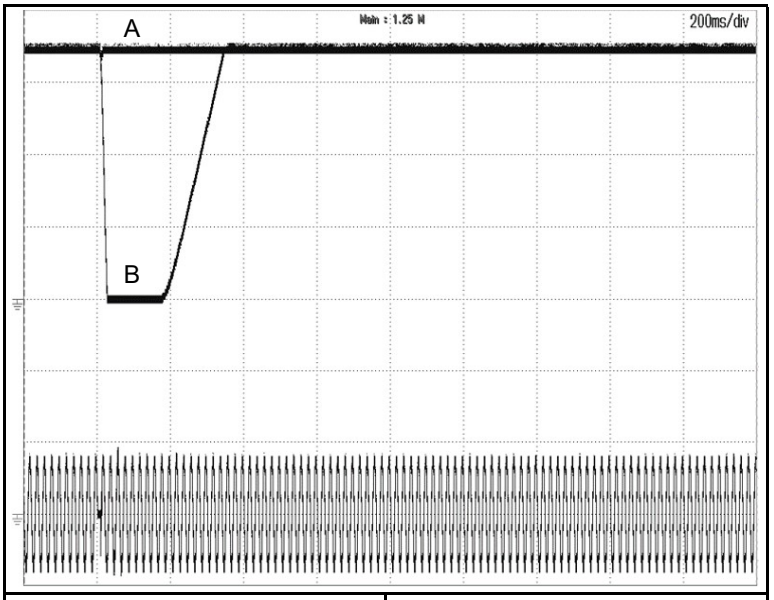
2.9 Response to brown-out characteristics

C.V mode

Conditions: Vout: 100%
Iout: 100%
Ta: 25°C

Vin: 480VAC

GSPL600-37.5 3Φ480



← Vout: 100%

← Vout: 0V

← Vin

Brown-out time
A - 7ms
B - 11ms

Vout: 172 $^{V}/_{DIV}$	200 $^{ms}/_{DIV}$
Vin: 900 $^{V}/_{DIV}$	

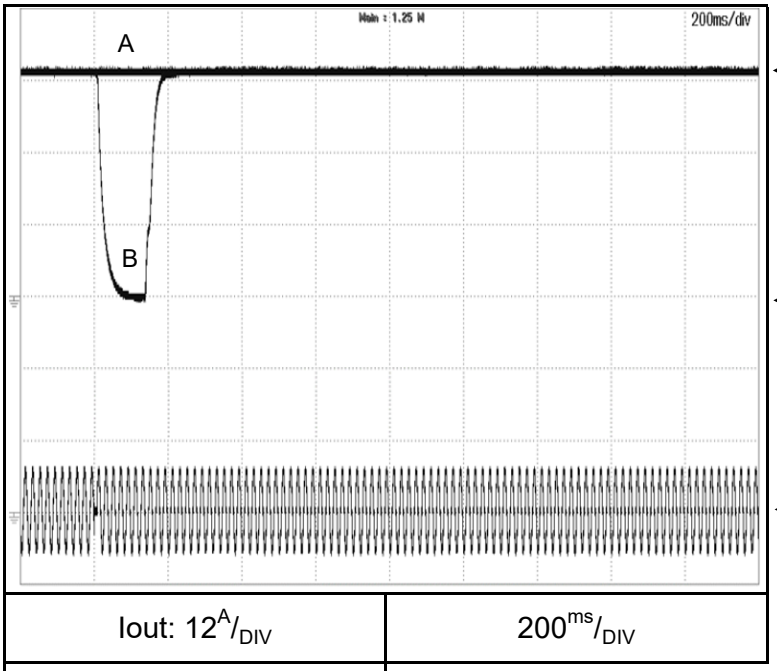
2.9 Response to brown-out characteristics

C.C mode

Conditions: Vout: 100%
Iout: 100%
Ta: 25°C

GSPL600-37.5 3Φ208

Vin: 200VAC

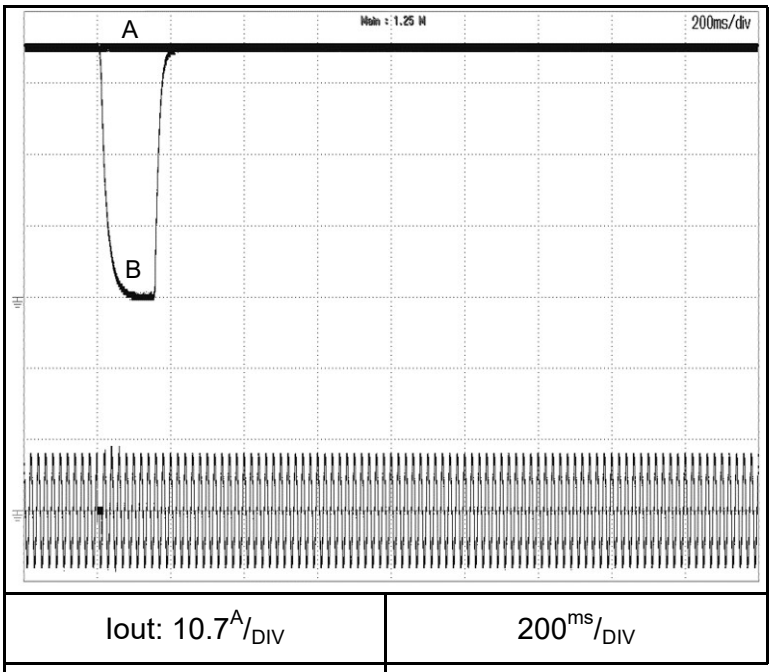


Brown-out time
A - 7ms
B - 8ms

Iout: $12^{A}/_{DIV}$	$200^{ms}/_{DIV}$
Vin: $500^{V}/_{DIV}$	

GSPL600-37.5 3Φ480

Vin: 400VAC



Brown-out time
A - 8ms
B - 11ms

Iout: $10.7^{A}/_{DIV}$	$200^{ms}/_{DIV}$
Vin: $750^{V}/_{DIV}$	

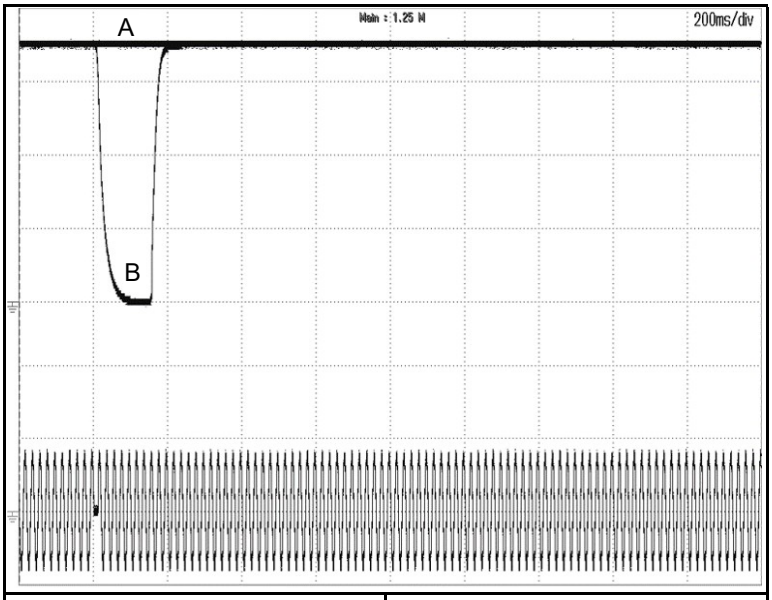
2.9 Response to brown-out characteristics

C.C mode

Conditions: Vout: 100%
Iout: 100%
Ta: 25°C

Vin: 480VAC

GSPL600-37.5 3Φ480



← Iout: 100%

← Iout: 0A

← Vin

Brown-out time
A - 8ms
B - 1ms

Iout: 10.7$^{A}/_{DIV}$	200$^{ms}/_{DIV}$
Vin: 900$^{V}/_{DIV}$	

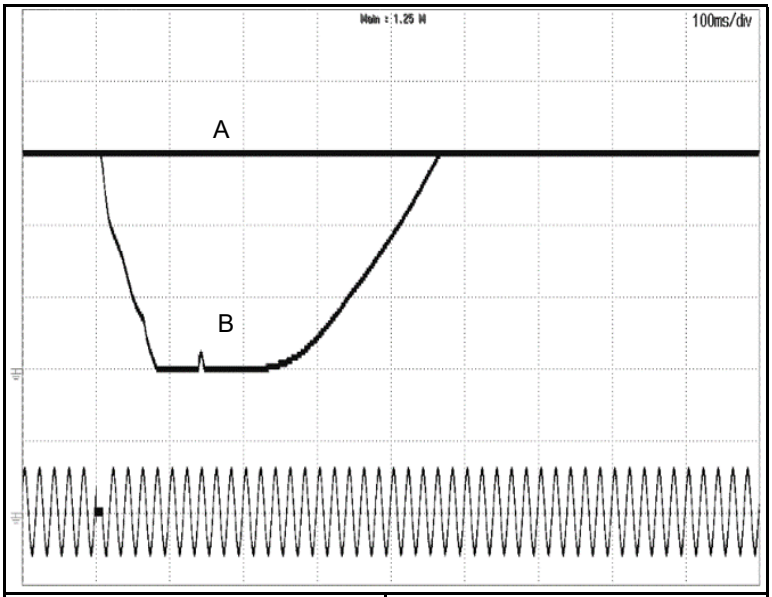
2.9 Response to brown-out characteristics

C.V mode

Conditions: Vout: 100%
Iout: 100%
Ta: 25°C

GSPL1500-15 3Φ208

Vin: 200VAC

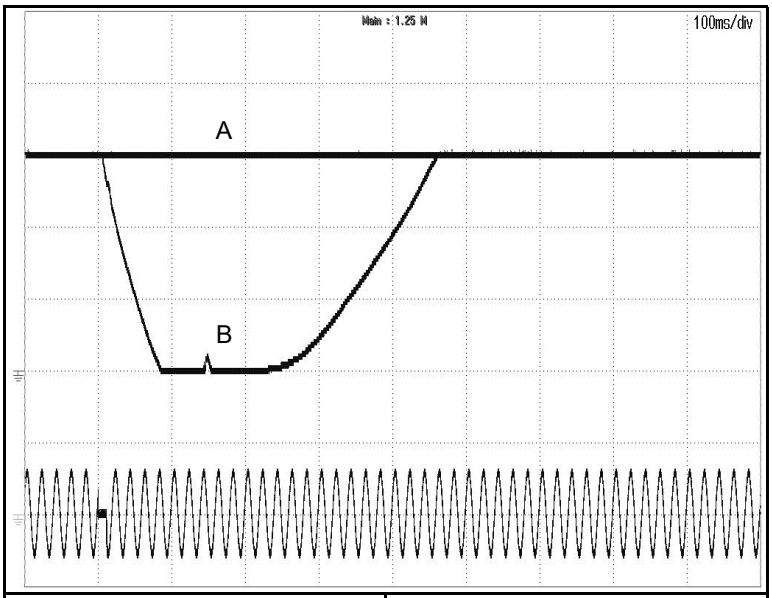


Brown-out time
A - 8ms
B - 9ms

Vout: 500 V/DIV	100 ms/DIV
Vin: 500 V/DIV	

GSPL1500-15 3Φ480

Vin: 400VAC



Brown-out time
A - 6ms
B - 11ms

Vout: 500 V/DIV	100 ms/DIV
Vin: 1000 V/DIV	

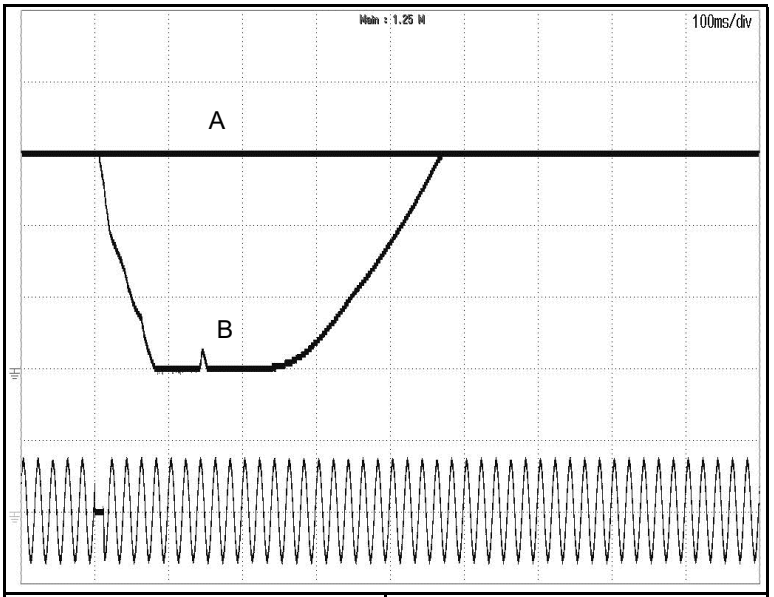
2.9 Response to brown-out characteristics

C.V mode

Conditions: Vout: 100%
Iout: 100%
Ta: 25°C

Vin: 480VAC

GSPL1500-15 3Φ480



← Vout: 100%

← Vout: 0V

← Vin

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

Vout: 500 V/DIV	100 ms/DIV
Vin: 1000 V/DIV	

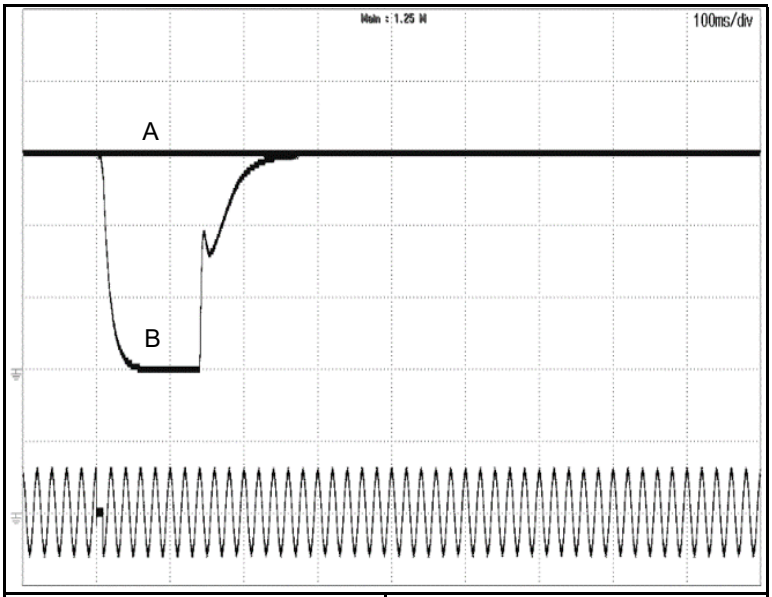
2.9 Response to brown-out characteristics

C.C mode

Conditions: Vout: 100%
Iout: 100%
Ta: 25°C

GSPL1500-15 3Φ208

Vin: 200VAC

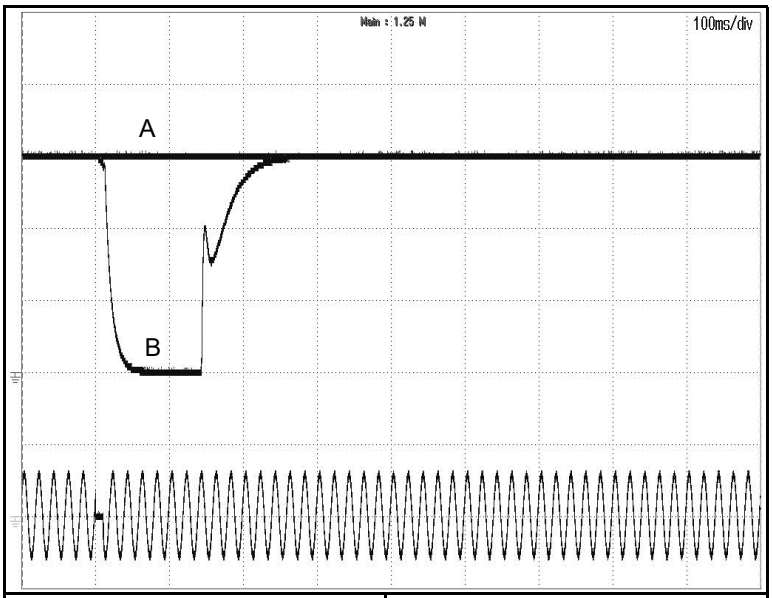


Brown-out time
A - 8ms
B - 9ms

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

GSPL1500-15 3Φ480

Vin: 400VAC



Brown-out time
A - 6ms
B - 10ms

Iout: 1.2$^{A}/_{DIV}$	100$^{ms}/_{DIV}$
Vin: 1000$^{V}/_{DIV}$	

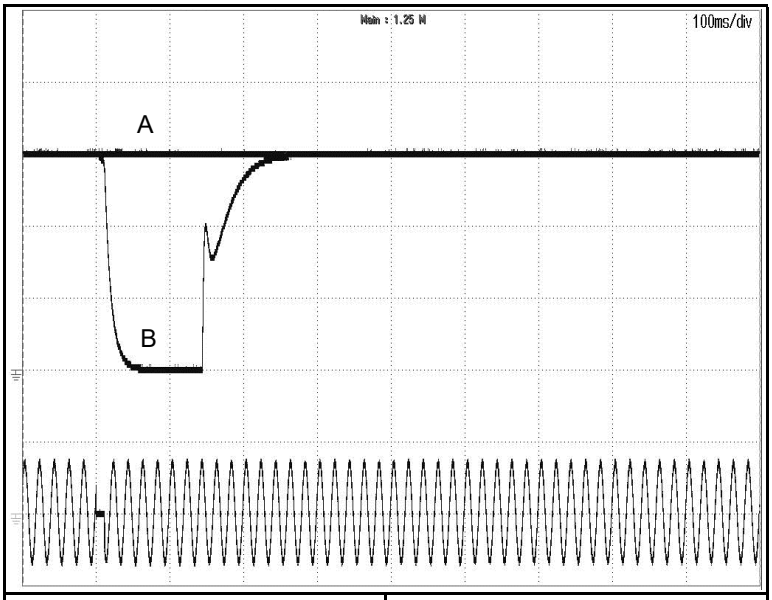
2.9 Response to brown-out characteristics

C.C mode

Conditions: Vout: 100%
Iout: 100%
Ta: 25°C

Vin: 480VAC

GSPL1500-15 3Φ480



← Iout: 100%

← Iout: 0A

← Vin

Brown-out time
A - 6ms
B - 10ms

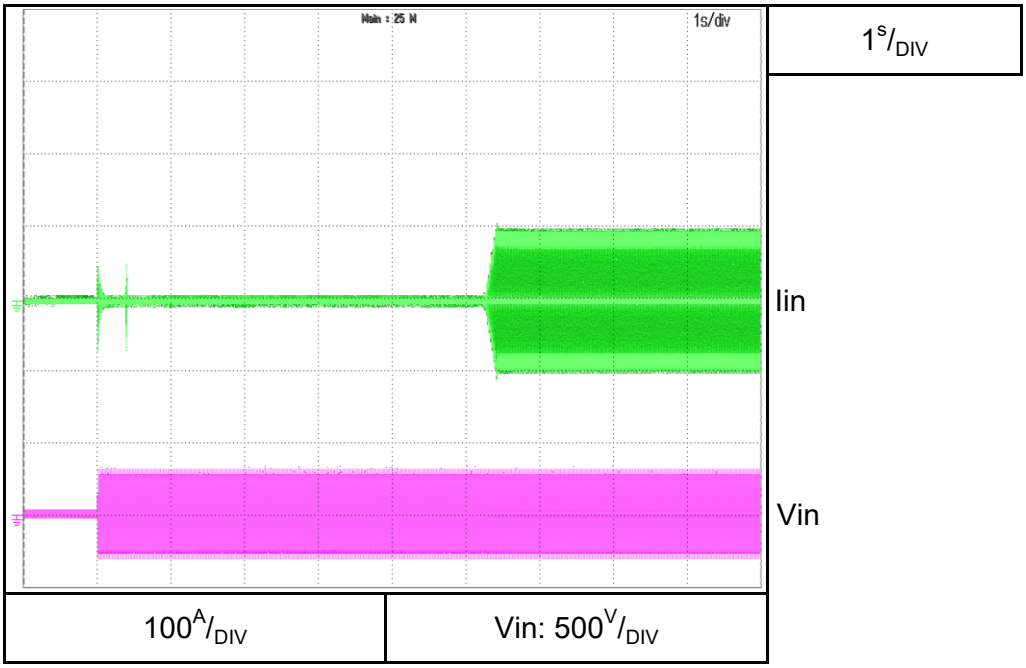
Iout: 1.2$^{A}/_{DIV}$	100$^{ms}/_{DIV}$
Vin: 1000$^{V}/_{DIV}$	

2.10 Inrush current waveform

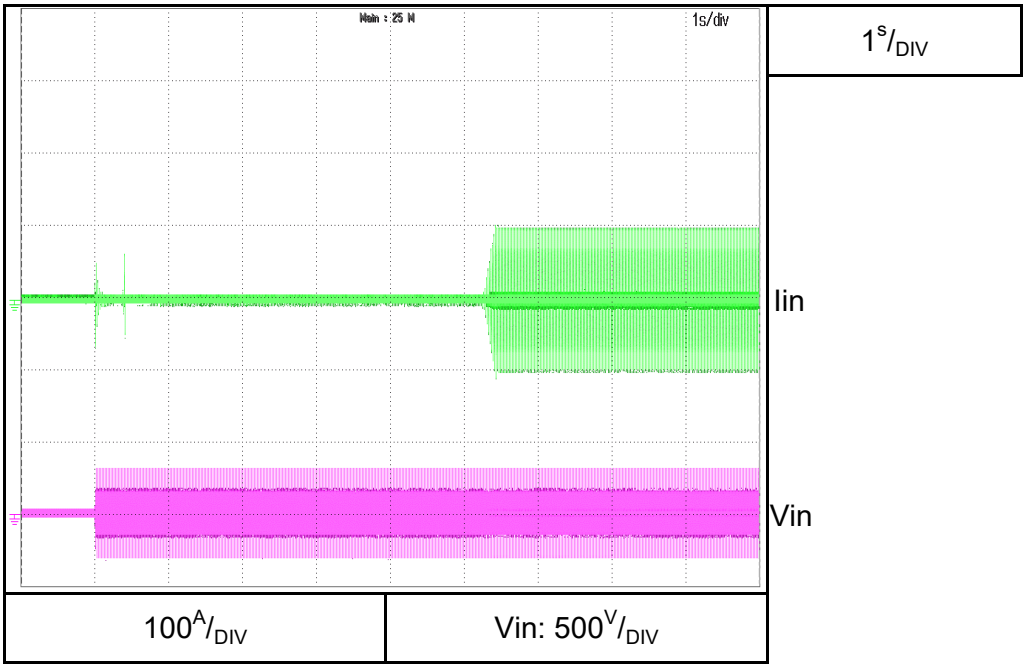
Conditions: Vin: 200VAC
Vout: 100%
Iout: 100%
Ta: 25°C

3Φ208 Input

Switch on phase angle of input AC voltage
Φ=0˚



Switch on phase angle of input AC voltage
Φ=90˚

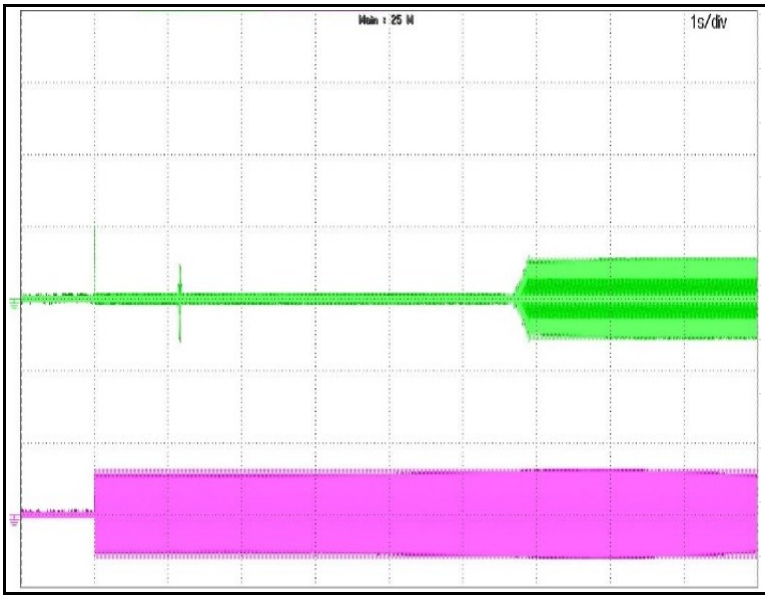


2.10 Inrush current waveform

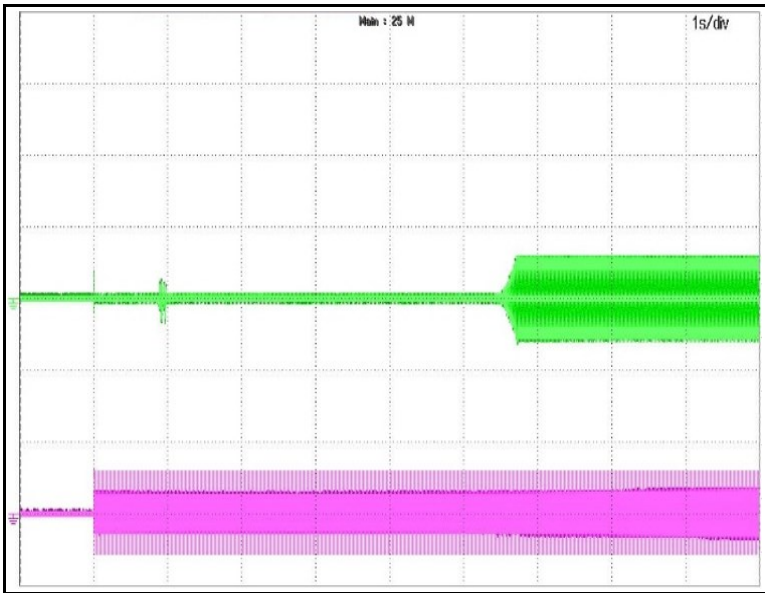
Conditions: Vin: 400VAC
Vout: 100%
Iout: 100%
Ta: 25°C

3Φ480 Input

Switch on phase angle of input AC voltage
Φ=0˚



Switch on phase angle of input AC voltage
Φ=90˚

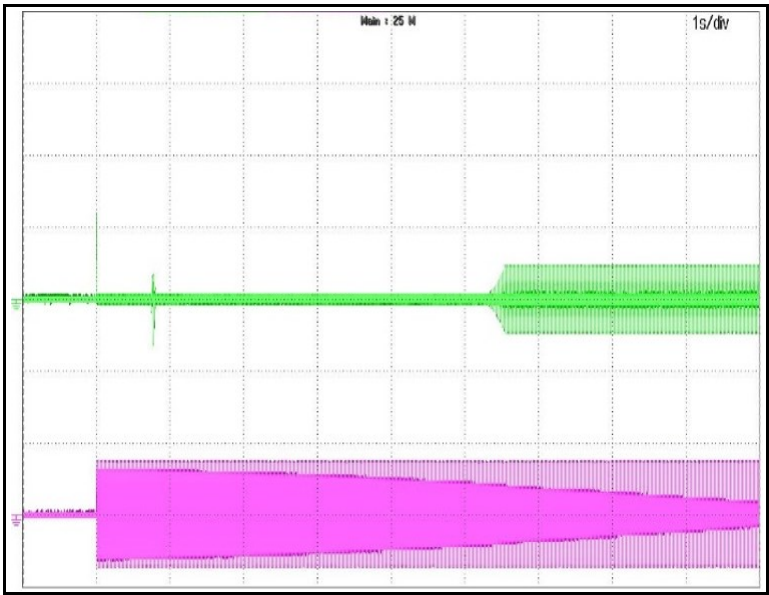


2.10 Inrush current waveform

Conditions: Vin: 480VAC
Vout: 100%
Iout: 100%
Ta: 25°C

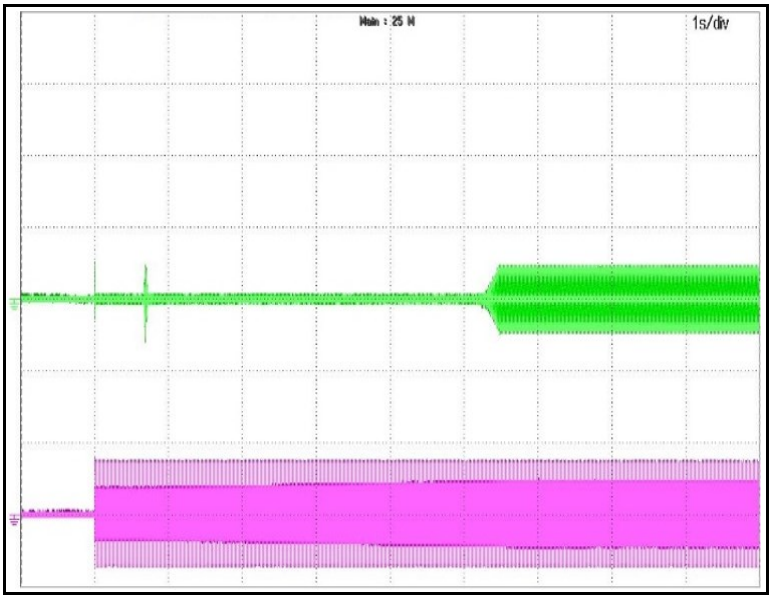
3Φ480 Input

Switch on phase angle of input AC voltage
Φ=0˚



$100^{A}/_{DIV}$	Vin: $1000^{V}/_{DIV}$	$1^{s}/_{DIV}$

Switch on phase angle of input AC voltage
Φ=90˚

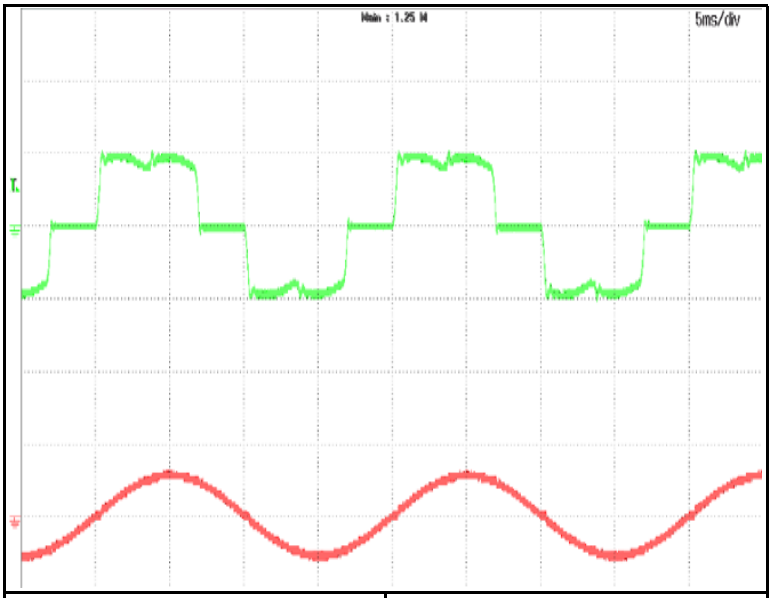


$100^{A}/_{DIV}$	Vin: $1000^{V}/_{DIV}$	$1^{s}/_{DIV}$

2.11 Input current waveform

Conditions: Vin: 200VAC
Vout: 100%
Iout: 100%
Ta: 25°C

3Φ208 Input

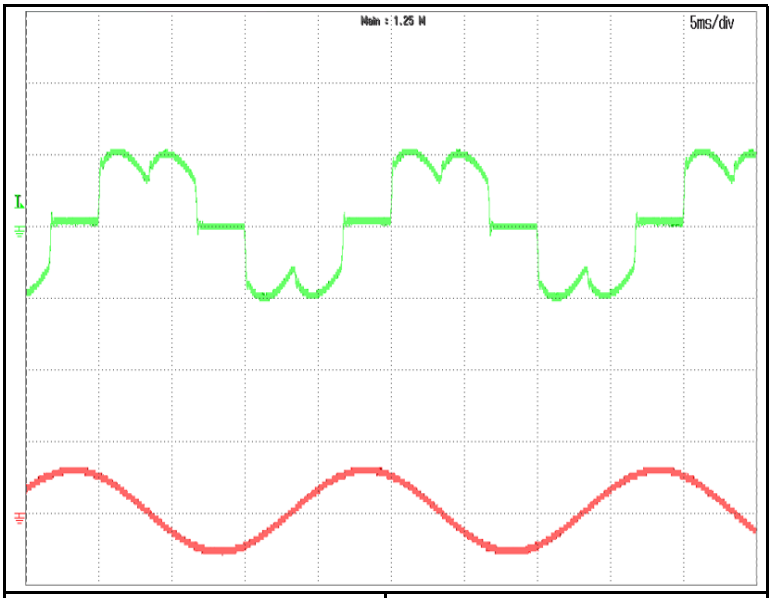


$100^{A}/_{DIV}$	$5^{ms}/_{DIV}$
$500^{V}/_{DIV}$	

2.11 Input current waveform

Conditions: Vin: 400VAC
Vout: 100%
Iout: 100%
Ta: 25°C

3Φ480 Input

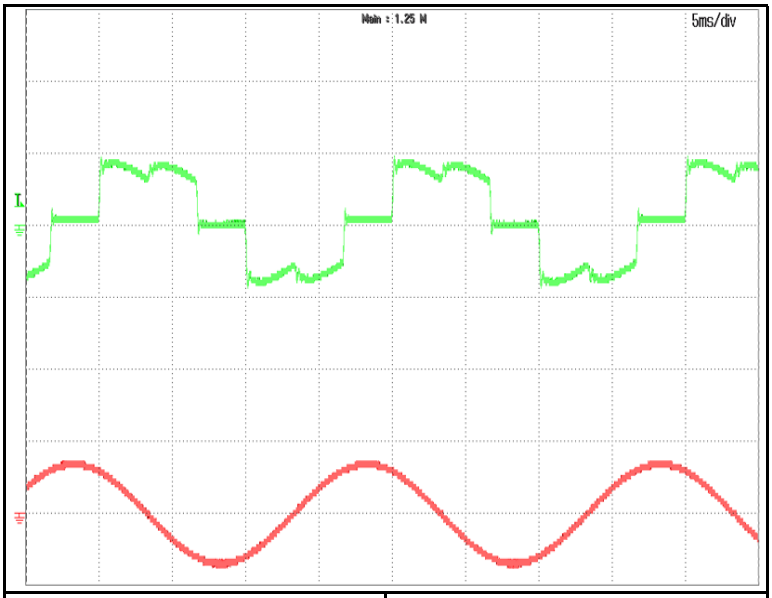


$50^{A}/_{DIV}$	$5^{ms}/_{DIV}$
$1000^{V}/_{DIV}$	

2.11 Input current waveform

Conditions: Vin: 480VAC
Vout: 100%
Iout: 100%
Ta: 25°C

3Φ480 Input



$50^{A}/_{DIV}$	$5^{ms}/_{DIV}$
$1000^{V}/_{DIV}$	

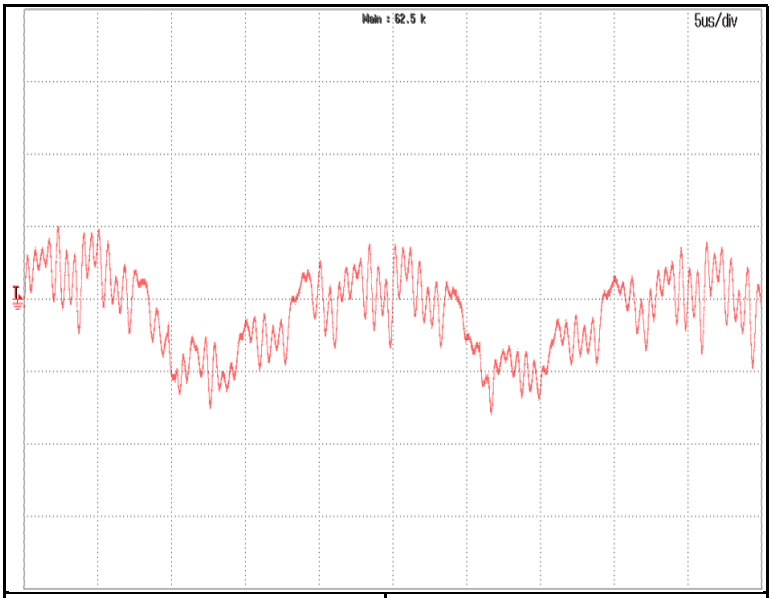
2.12 Output ripple & noise waveform

C.V mode

Conditions: Vout: 100%
Iout: 100%
Ta: 25°C

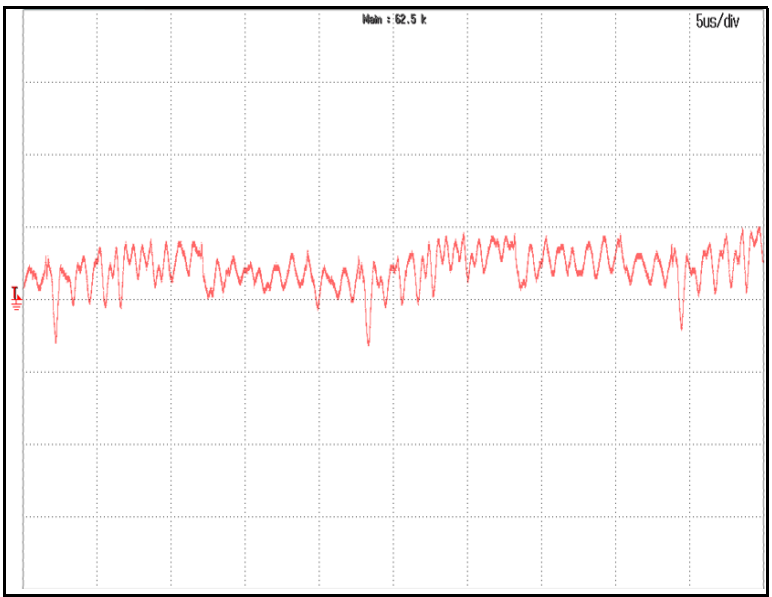
Normal Mode

GSPL20-1125



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

GSPL100-225



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

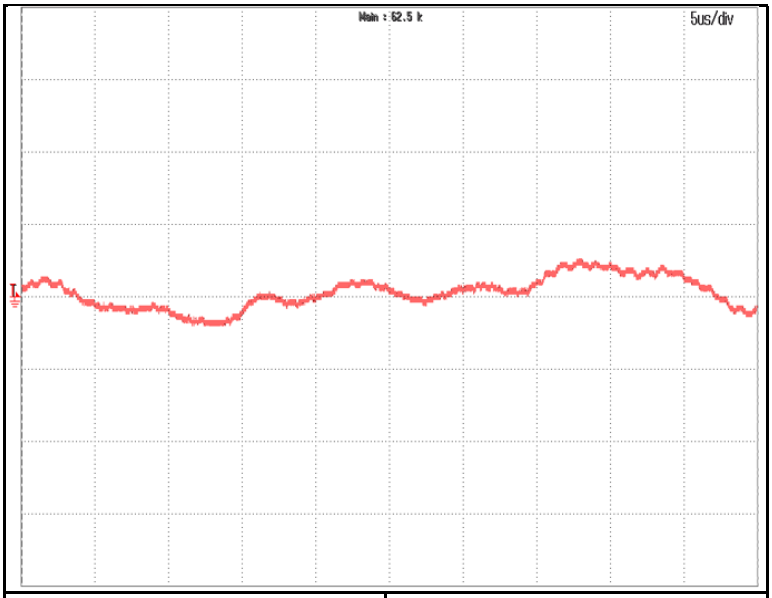
2.12 Output ripple & noise waveform

C.V mode

Conditions: Vout: 100%
Iout: 100%
Ta: 25°C

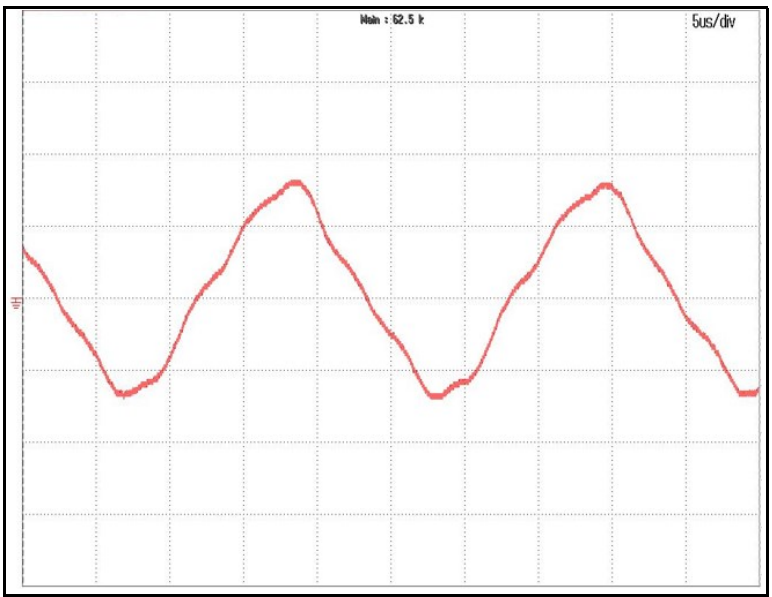
Normal Mode

GSPL600-37.5



200 mV/DIV	5 us/DIV

GSPL1500-15



500 mV/DIV	5 us/DIV