



Test Report: DRP -3200-48

3200W Rack Mountable Front End Rectifier

■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Control Function Test

Component Stress Test

■ SAFETY & E.M.C. TEST

Safety Test

E.M.C. Test

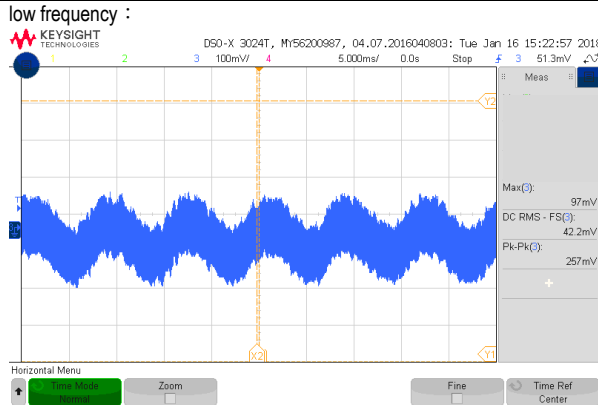
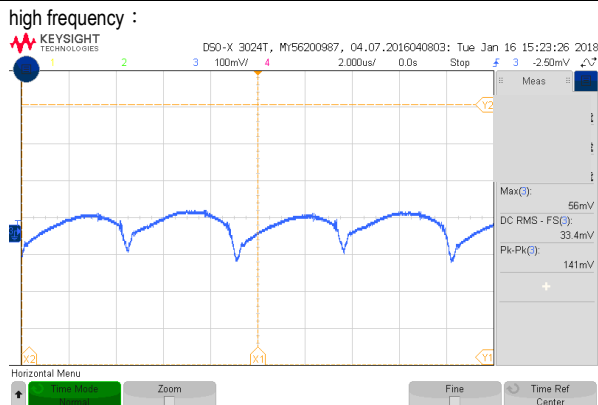
■ RELIABILITY TEST

ENVIRONMENT TEST

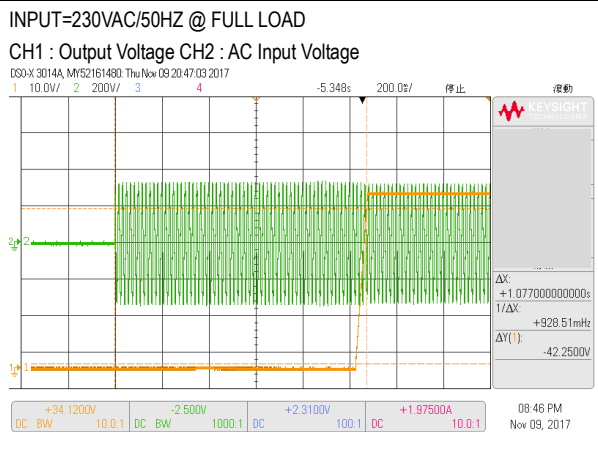
DESIGN VERIFY TEST

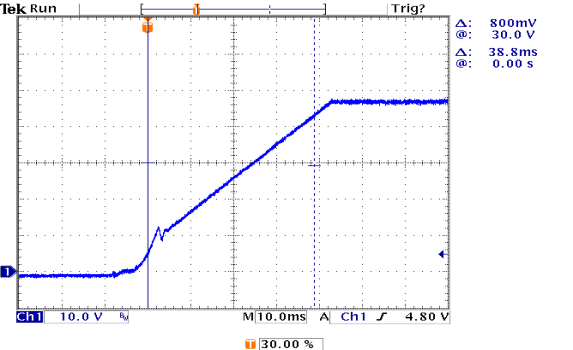
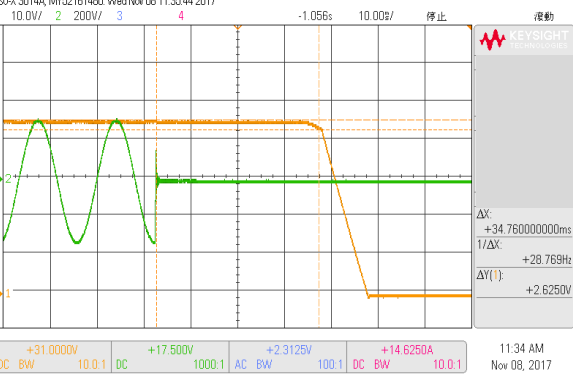
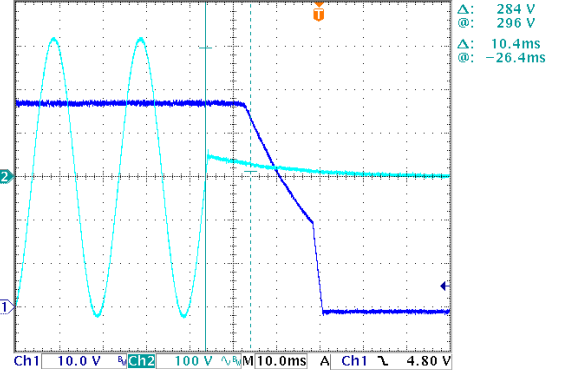
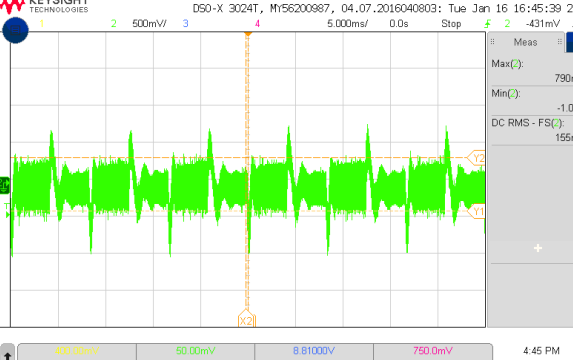
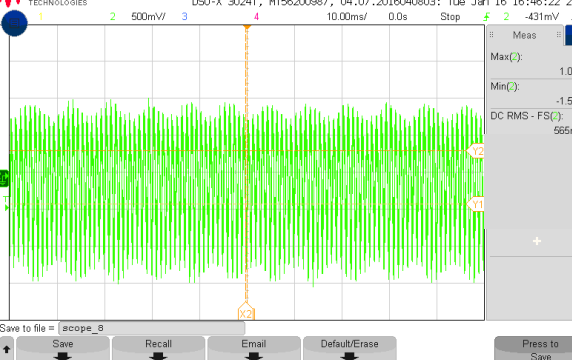
OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE ADJUST RANGE	CH1: 47.5 V~ 58.8V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	45.55V~ 61.78V/230VAC 45.55V~ 61.78V/115VAC
2	OUTPUT VOLTAGE(Max) TOLERANCE	V1: 1%~ -1%	I/P: 180VAC /264VAC O/P:FULL/ MIN. LOAD Ta:25°C	V1: 0.14%~-0.14%
3	LINE REGULATION (Max)	V1: 0.5%~-0.5%	I/P: 180VAC~ 264VAC O/P:FULL LOAD Ta:25°C	V1: 0%~-0.042%
4	LOAD REGULATION(Max)	V1: 0.5%~-0.5%	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: 0.083%~ -0.124%
5	OVER/UNDERSHOOT TEST	< ±10%	I/P: 230VAC O/P:FULL LOAD Ta:25°C	< 10%
6	RIPPLE & NOISE(Max)	V1: 480 mVp-p	I/P:230VAC O/P:FULL LOAD Ta:25°C	V1: 257 mVp-p

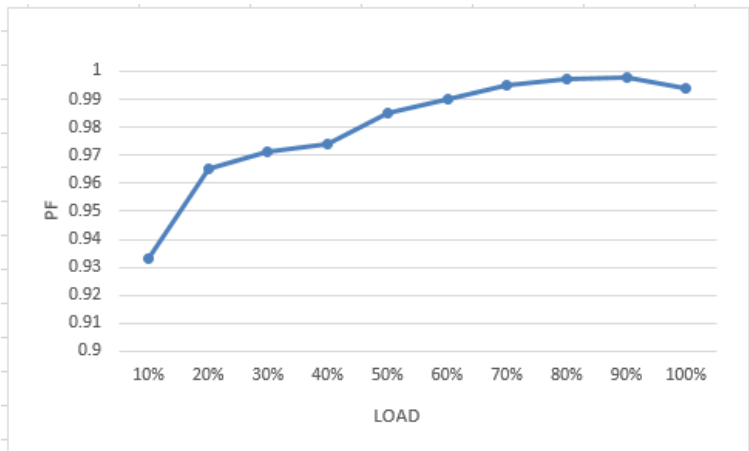


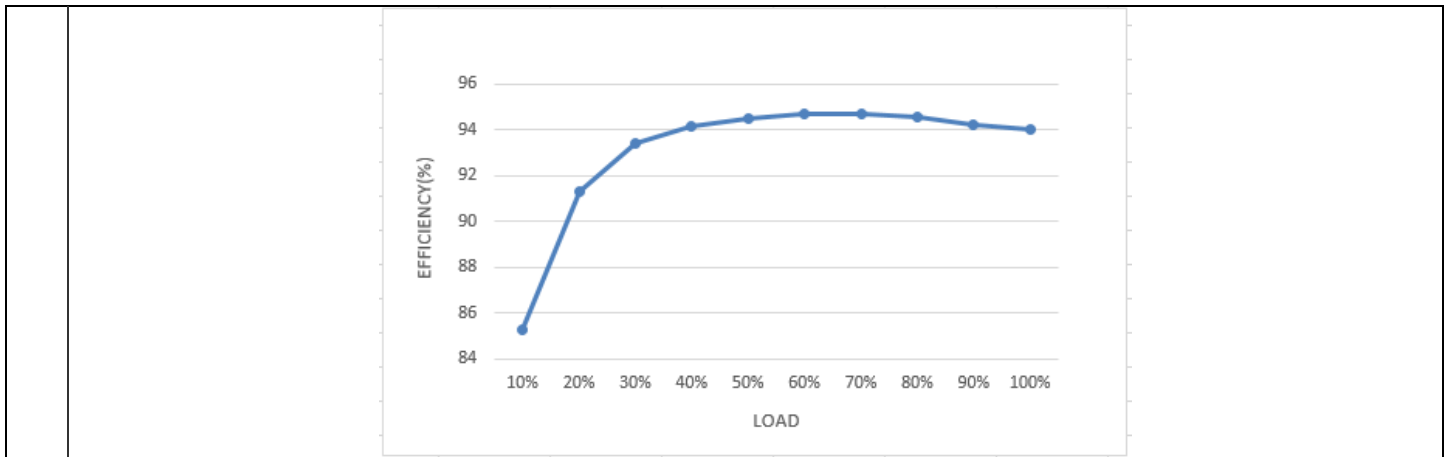
7	SET UP TIME(Max)	230VAC/1500ms	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 1077ms
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8	RISE TIME (Max)	230VAC/60ms	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 38.8ms
<p>INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage</p>  <p>Δ: 800mV @: 30.0 V Δ: 38.8ms @: 0.00 s</p>				
9	HOLD UP TIME (Typ.)	230VAC 75%/ 16ms 230VAC 100%/9ms	I/P : 230 VAC O/P : 75% LOAD O/P : 100% LOAD Ta : 25°C	34.76ms (75% load) 10.4ms (100% load)
<p>INPUT=230VAC/50HZ @75% LOAD CH1 : Output Voltage CH2 : AC Input V</p>  <p>ΔX: +34.76000000ms 1/ΔX: +28.769Hz ΔY(1): +2.6250V</p> <p>DC BW 10.0 1 DC 17.500V 1000.1 AC BW 100.1 DC BW 10.0 1</p> <p>11:34 AM Nov 08, 2017</p> <p>INPUT=230VAC/50HZ @100% LOAD CH1 : Output Voltage CH2 : AC Input Voltage</p>  <p>Δ: 284 V @: 296 V Δ: 10.4ms @: 26.4ms</p>				
10	DYNAMIC LOAD	V1: 4800 mVp-p	I/P: 230VAC O/P: (1)FULL /50% LOAD 50%DUTY / 120HZ (2)FULL /50% LOAD 50%DUTY / 1KHZ Ta:25°C	155Vp-p 565mVp-p
<p>FULL /50% LOAD 50%DUTY / 120HZ</p>  <p>Max(C): 790mV Min(C): -1.00V DC RMS - FS(C): 155mV</p> <p>4:45 PM Jan 16, 2018</p> <p>FULL /50% LOAD 50%DUTY / 1KHZ</p>  <p>Max(C): 1.06V Min(C): -1.50V DC RMS - FS(C): 565mV</p> <p>Press to Save</p>				

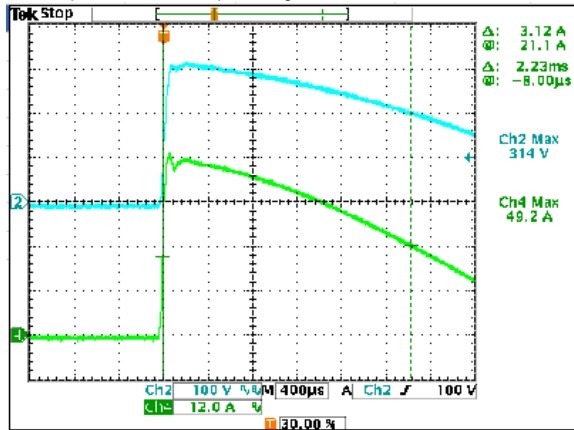
INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT																						
1	INPUT VOLTAGE RANGE	90VAC~264VAC	(1)I/P:AC TESTING O/P: FULL / 50% LOAD Ta:25°C	(1) 162Vac~264Vac/FULL LOAD 84Vac~264Vac/50%LOAD																						
			I/P: (1)LOW-LINE-3V=87V HIGH-LINE+15%=300V O/P:FULL/MIN LOAD (PLEASE CHECK DERATING CURVE) ON: 30 Sec OFF: 30 Sec 10MIN (2)230Vac ON: 0.5 Sec OFF: 0.5 Sec 20MIN (3)230Vac ON:3Sec OFF:3Sec 12HOURS (POWER ON/OFF NO DAMAGE) Ta:25°C	TEST:OK																						
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P:180 VAC ~264 VAC O/P:FULL ~MIN LOAD Ta:25°C	TEST: OK																						
3	INPUT CURRENT (Typ.)	230V/ 17 A	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	I = 15.19A/ 230VAC																						
4	LEAKAGE CURRENT	<1.5 mA / 230 VAC	I/P : 230 VAC O/P : Min LOAD Ta : 25°C	L-FG : 0.63 mA N-FG : 0.63 mA																						
5	POWER FACTOR (Typ.)	0.97 / 230VAC	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	PF= 0.992/230VAC																						
<p>P.F vs LOAD</p>  <table border="1"> <caption>P.F vs LOAD Data</caption> <thead> <tr> <th>LOAD (%)</th> <th>P.F.</th> </tr> </thead> <tbody> <tr><td>10</td><td>0.93</td></tr> <tr><td>20</td><td>0.965</td></tr> <tr><td>30</td><td>0.97</td></tr> <tr><td>40</td><td>0.975</td></tr> <tr><td>50</td><td>0.985</td></tr> <tr><td>60</td><td>0.99</td></tr> <tr><td>70</td><td>0.995</td></tr> <tr><td>80</td><td>0.998</td></tr> <tr><td>90</td><td>0.998</td></tr> <tr><td>100</td><td>0.995</td></tr> </tbody> </table>					LOAD (%)	P.F.	10	0.93	20	0.965	30	0.97	40	0.975	50	0.985	60	0.99	70	0.995	80	0.998	90	0.998	100	0.995
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6	EFFICIENCY(Typ.)	94.5% / (75% LOAD)	I/P:230 VAC O/P:75% LOAD Ta:25°C	94.59%																						
	EFFICIENCY vs LOAD																									



7	INRUSH CURRENT(Typ.) COLD START	230V/55 A	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	I = 49.2A/ 230VAC T50= 2230us/230V
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INPUT=230VAC/50HZ @ FULL LOAD
CH4 : Input current CH2: input voltage

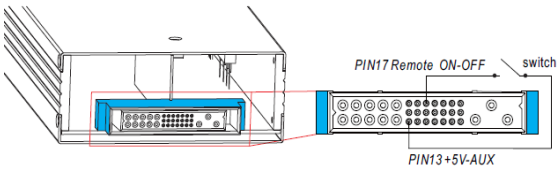


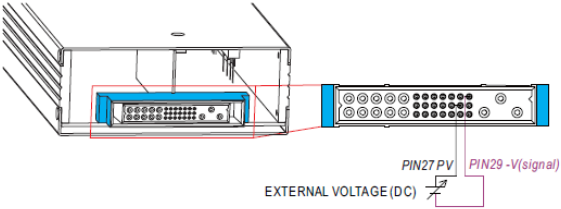
PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER LOAD PROTECTION	105%~ 115 % PROTECTION TYPE : Constant current limiting, shut down O/P voltage 5 sec. after O/P voltage is down low, re-power on to recover	I/P: 264VAC I/P: 230VAC I/P: 180VAC O/P: TESTING Ta:25°C	110%/ 264VAC 110%/ 230VAC 110%/180VAC Constant current limiting, shut down O/P voltage 5 sec. after O/P voltage is down low, re-power on to recover
2	OVER VOLTAGE PROTECTION	63V~ 75 V PROTECTION TYPE : Shut down o/p voltage, re-power on to recover	I/P: 264VAC I/P: 230VAC I/P: 90VAC O/P: MIN LOAD Ta:25°C	68.2V/ 264VAC 68.2V/ 230VAC 68.11V/ 90VAC PROTECTION TYPE : Shut down o/p voltage, re-power on to recover
3	OVER TEMPERATURE PROTECTION	NO DAMAGE PROTECTION TYPE : Shut down o/p voltage, recovers automatically after temperature goes down	I/P: 264VAC I/P: 180VAC O/P: FULL LOAD	O.T.P. Active PROTECTION TYPE : Shut down o/p voltage, recovers automatically after temperature goes down

4	SHORT PROTECTION	<p>SHORT EVERY OUTPUT 1 HOUR NO DAMAGE</p> <p>PROTECTION TYPE : Constant current limiting, shut down O/P voltage 5 sec. after O/P voltage is down low, re-power on to recover</p>	<p>I/P: 264VAC I/P: 90VAC O/P: FULL LOAD Ta:25°C</p>	<p>NO DAMAGE</p> <p>PROTECTION TYPE : Constant current limiting, shut down O/P voltage 5 sec. after O/P voltage is down low, re-power on to recover</p>
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CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT												
1	AUXILIARY POWER (AUX)	<p>1.Auxiliary voltage output, 10.6~13.2V, referenced to GND-AUX (pin2). The maximum load current is 0.8A. This output has the built-in "Oring diodes" and is not controlled by "Remote ON-OFF".</p> <p>2.Auxiliary voltage output, 4.5~5.5V, referenced to GND-AUX (pin2). The maximum load current is 0.3A. This output has the built-in "Oring diodes" and is not controlled by "Remote ON-OFF"</p> <p>I/P: 230 VAC O/P:FULL LOAD Ta:25°C</p> <p>Test Result :</p> <table border="1"> <thead> <tr> <th>AUX</th> <th>TOLERANCE</th> <th>RIPPLE</th> <th>TEST RESULT</th> </tr> </thead> <tbody> <tr> <td>12V / 0.8A</td> <td>10.8~13.2 V</td> <td>450mVp-p</td> <td>12.096V 0.8A 121 mVp-p</td> </tr> <tr> <td>5V / 0.3A</td> <td>4.5 ~ 5.5V</td> <td>150mVp-p</td> <td>4.73V/0.3A 117 mVp-p</td> </tr> </tbody> </table>	AUX	TOLERANCE	RIPPLE	TEST RESULT	12V / 0.8A	10.8~13.2 V	450mVp-p	12.096V 0.8A 121 mVp-p	5V / 0.3A	4.5 ~ 5.5V	150mVp-p	4.73V/0.3A 117 mVp-p		
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2	REMOTE ON/OFF CONTROL	<p>The power supply can be turned ON/OFF individually or along with other units by using the "Remote ON-OFF" function.</p>  <p>I/P: 230 VAC O/P:FULL LOAD Ta:25°C</p> <p>Test Result :</p> <table border="1"> <thead> <tr> <th>Between ON/OFF and +5V-AUX</th> <th>Power Supply Status</th> </tr> </thead> <tbody> <tr> <td>SW SHORT</td> <td>ON</td> </tr> <tr> <td>SW OPEN</td> <td>OFF</td> </tr> </tbody> </table>	Between ON/OFF and +5V-AUX	Power Supply Status	SW SHORT	ON	SW OPEN	OFF	<p>Between Remote ON-OFF and +5V-AUX</p> <table border="1"> <thead> <tr> <th>Between Remote ON-OFF and +5V-AUX</th> <th>Power Supply Status</th> </tr> </thead> <tbody> <tr> <td>Switch Short</td> <td>ON</td> </tr> <tr> <td>Switch Open</td> <td>OFF</td> </tr> </tbody> </table>	Between Remote ON-OFF and +5V-AUX	Power Supply Status	Switch Short	ON	Switch Open	OFF	
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Switch Open	OFF															
3	REMOTE SENSE	<p>S+ / S- 0.3V~0.5V Compensate voltage drop on the load wiring up to 0.5V.</p>	<p>I/P: 230 VAC O/P:FULL LOAD Ta:25°C</p>	0.3V~0.5V												

<p>4</p> <p>ALARM SIGNAL</p>	<p>1. DC OK SIGNAL High (4.5 ~ 5.5V) : When the $V_{out} \leq 80\% \pm 5\%$. Low (-0.1 ~ 0.5V) : When $V_{out} \geq 80\% \pm 5\%$. The maximum sourcing current is 10mA and only for output. I/P: 230 VAC O/P: FULL LOAD $T_a: 25^\circ\text{C}$ Test Result :</p> <table border="1" data-bbox="472 521 948 629"> <thead> <tr> <th>Vout</th> <th>DC OK SIGNAL</th> </tr> </thead> <tbody> <tr> <td>$V_{out} \leq 75\%$</td> <td>4.98V</td> </tr> <tr> <td>$V_{out} \geq 85\%$</td> <td>0.0087v</td> </tr> </tbody> </table>	Vout	DC OK SIGNAL	$V_{out} \leq 75\%$	4.98V	$V_{out} \geq 85\%$	0.0087v	<p>2. AC OK SIGNAL High (4.5 ~ 5.5V) : When the input voltage is $\geq 87\text{Vrms}$. Low (-0.5 ~ 0.5V) : When the input voltage is $\leq 75\text{Vrms}$. The maximum sourcing current is 10mA and only for output. I/P: 230 VAC O/P: FULL LOAD $T_a: 25^\circ\text{C}$</p> <table border="1" data-bbox="1015 517 1481 622"> <thead> <tr> <th>Vin</th> <th>DC OK SIGNAL</th> </tr> </thead> <tbody> <tr> <td>$VAC \geq 87\text{Vrms}$</td> <td>4.98V</td> </tr> <tr> <td>$VAC \leq 75\text{Vrms}$</td> <td>-0.035V</td> </tr> </tbody> </table>	Vin	DC OK SIGNAL	$VAC \geq 87\text{Vrms}$	4.98V	$VAC \leq 75\text{Vrms}$	-0.035V						
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<p>5</p> <p>OUTPUT VOLTAGE PROGRAMMABLE(PV)</p>	<p>※ In addition to the adjustment via the built-in potentiometer, the output voltage can be trimmed to 50~125% of the nominal voltage by applying EXTERNAL VOLTAGE.</p>  <p>EXTERNAL VOLTAGE (DC) \rightarrow PIN27 PV / PIN29 -V(signal)</p> <p>⊙ For Remote Sense / Local Sense, please refer to "Voltage Drop Compensation" section.</p> <div style="display: flex; justify-content: space-around;"> <div data-bbox="472 1355 837 1635"> <p>Graph 1: Output Voltage (%) vs External Voltage (DC). The output voltage is constant at 100% for 0V to 0.4V, drops to 50% at 1V, and then increases linearly to 125% at 4.7V.</p> </div> <div data-bbox="917 1355 1308 1601"> <p>Graph 2: Output Current (%) vs Output Voltage (%). The output current is constant at 80% for 50% to 90% output voltage, peaks at 100% between 95% and 100% output voltage, and then drops to 80% at 125% output voltage.</p> </div> </div> <p>⊙ The rated current should change with the Output Voltage Programming accordingly. ⊙ For Remote Sense / Local Sense, please refer to "Voltage Drop Compensation" section.</p> <p>I/P: 230 VAC O/P: FULL LOAD $T_a: 25^\circ\text{C}$ TEST RESULT :</p> <table border="1" data-bbox="539 1787 1433 1977"> <thead> <tr> <th>MODEL \ PV</th> <th><0.4V</th> <th>1V</th> <th>3.479V</th> <th>4.7V</th> <th>5V</th> </tr> </thead> <tbody> <tr> <td>SPEC</td> <td>$48\text{V} \pm 5\%$</td> <td>$24\text{V} \pm 5\%$</td> <td>$48\text{V} \pm 5\%$</td> <td>$60\text{V} \pm 5\%$</td> <td>$60\text{V} \pm 5\%$</td> </tr> <tr> <td>Vout</td> <td>48.167V</td> <td>23.89V</td> <td>48.29V</td> <td>60.5 V</td> <td>61.76V</td> </tr> </tbody> </table>		MODEL \ PV	<0.4V	1V	3.479V	4.7V	5V	SPEC	$48\text{V} \pm 5\%$	$24\text{V} \pm 5\%$	$48\text{V} \pm 5\%$	$60\text{V} \pm 5\%$	$60\text{V} \pm 5\%$	Vout	48.167V	23.89V	48.29V	60.5 V	61.76V
MODEL \ PV	<0.4V	1V	3.479V	4.7V	5V															
SPEC	$48\text{V} \pm 5\%$	$24\text{V} \pm 5\%$	$48\text{V} \pm 5\%$	$60\text{V} \pm 5\%$	$60\text{V} \pm 5\%$															
Vout	48.167V	23.89V	48.29V	60.5 V	61.76V															

6 OUTPUT CURRENT PROGRAMMABLE (PC)

※ The constant current level can be trimmed to 20~ 100% of the rated current by applying EXTERNAL VOLTAGE.

EXTERNAL VOLTAGE (DC) PIN26 PC PIN29 -V(signal)

◎ For Remote Sense / Local Sense, please refer to "Voltage Drop Compensation" section.

I/P: 230 VAC
O/P: TESTING
Ta: 25°C

ADJ V	<0.4V	1V	4.7V	5V
SPEC	110%±5%	20%±5%	100%±5%	100%±5%
TEST	110%	19.7%	100.89%	102.6%

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated 52A/600V Q3 Rated 52A/600V	I/P: High-Line +3V =(267V) AC ON/OFF VDS: O/P: (1) Full Load (2) Output Short (3) Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4) Dynamic Load Full Load/ Min. Load 90%Duty/3KHz (5) Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (6) Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (7) 0%→400% Load. PV=1V (8) 80% LOAD(53.6A) (9) 50% LOAD(33.5A) (10) 10% LOAD(6.7A) Ta: 25°C	Q1: 267VAC: (1) 481V (2) 469V (3) 432V (4) 428V (5) 428V (6) 444V (7) 469V (8) 485V (9) 485V (10) 473V Q3: 267VAC: (1) 504V (2) 488V (3) 504V (4) 504V (5) 504V (6) 508V (7) 488V (8) 496V (9) 496V (10) 484V
2	P.F.C Transistor (D to S) or (C to E) Peak Voltage	Q 900 Rated 52A/600V	I/P: High-Line +3V =(267V) AC ON/OFF	Q 900 267VAC: Q 902 267VAC:

		Q 902 Rated 52A/600V	<p>VDS: O/P: (1)Full Load (2)Output Short (3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4)Dynamic Load Full Load/ Min. Load 90%Duty/3KHz (5)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (6)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (7)0%→400% Load. Ta:25°C</p>	<p>(1)509V (2)436V (3)440V (4)440V (5)448V (6)440V (7)440V</p>	<p>(1)439V (2)448V (3)493V (4)493V (5)493V (6)485V (7)473V</p>
3	P.F.C DIODE	D8 Rated : 16A/600V	<p>I/P:High-Line +3V = (267V) AC ON/OFF O/P: (1)Full Load (2)Output Short (3)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (4)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz Ta:25°C</p>	<p>(1) 452V (2) 444V (3) 448V (4) 444V</p>	
4	Diode Peak Voltage	<p>Q101 Rated 87A/150V</p> <p>Q104 Rated 87A/150V</p> <p>Q107 Rated 87A/150V</p> <p>Q110 Rated 87A/150V</p>	<p>I/P:High-Line +3V = 267V AC ON/OFF VDS: O/P: (1)Full Load (2)Output Short (3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4)Dynamic Load Full Load/ Min. Load 90%Duty/3KHz (5)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (6)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (7)0%→400% Load. (8).NO LOAD (9) burst mode Ta:25°C</p>	<p>Q101: VDS: (1)116.2V (2)31V (3)107.4V (4)107.4V (5)106.6V (6)106.6V (7)122.6V (8)108.2V (9)108.2V</p> <p>Q107: VDS: (1)119.4V (2)26.2V (3)108.2V (4)108.2V (5)108.2V (6)109V (7)125.9V (8)108.2V (9)109V</p>	<p>Q104: VDS: (1)114.6V (2)22.2V (3)109V (4)109V (5)114.6V (6)109V (7)119.7V (8)109.8V (9)109V</p> <p>Q110: VDS: (1)117.8V (2)23V (3)110.6V (4)110.6V (5)110.6V (6)110.6V (7)113.8V (8)110.6V (9)110.6V</p>
5	Input Capacitor Voltage	C5 Rated: : 330μ/ 450V 105°C	<p>I/P:High-Line +3V =267V) O/P: (1)Full Load input on/off (2) Min load input on /Off (3)Full Load /Min load Change (4)Full load continue Ta:25°C</p>	<p>(1)436V (2)428V (3)440V (4)432V</p>	
6	Control IC Voltage Test	<p>PWM IC U201 Rated 3V~18V</p> <p>PFC IC U900 Rated</p>	<p>I/P:High-Line +3V = (267V) AC ON/OFF O/P(1)FULL LOAD (2) Output Short</p>	<p>U201 (1) 13.72V</p>	<p>U900 (1) 11.95V</p>

		4.5V~20V	(3)O.L.P (4)O.V.P. (5)NO LOAD VRMIN (LOW LINE) Ta:25°C	(2) 13.48V (2) 11.71V (3) 12.92V (3) 11.71V (4) 13V (4)11.63V (5) 10.83V (5) 11.15V
7	TOP SWITCHING STAND BY POWER	U 71 Rated 20A/800V	I/P:High-Line +3V = (267V) AC ON/OFF O/P: (1)Full Load (2)Remote On/Off Ta:25°C	(1) 589V (2) 585V

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 3KVAC/min I/P-FG :2KVAC/min O/P-FG:1.5KVAC/min	I/P-O/P: 3.6 KVAC/min I/P-FG: 2.4 KVAC/min O/P-FG:1.8 KVAC/min Ta:25°C	I/P-O/P: 11.88 mA I/P-FG: 10.63 mA O/P-FG:13.3 mA NO DAMAGE
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ I/P-FG: 500VDC>100MΩ O/P-FG:500VDC>100MΩ	I/P-O/P: 500 VDC I/P-FG: 500 VDC O/P-FG: 500 VDC Ta:25°C	I/P-O/P: 22.6 GΩ I/P-FG: 20 GΩ O/P-FG: 10GΩ NO DAMAGE
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40A / 2min Ta:25°C	25mΩ

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	EN61000-3-2 CLASS A	I/P:230VAC/50HZ O/P:100% LOAD Ta:25°C	PASS
2	CONDUCTION	EN55022 CLASS B	I/P : 230 VAC (50HZ) O/P : FULL/50% LOAD Ta : 25°C	PASS Test by certified Lab
3	RADIATION	EN55022 CLASS A	I/P : 230 VAC (50HZ) O/P : FULL LOAD Ta : 25°C	PASS Test by certified Lab
4	E.S.D	EN61000-4-2 INDUSTRY AIR : 8KV / Contact : 4KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
5	E.F.T	EN61000-4-4 INDUSTRY INPUT : 2KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
6	SURGE	IEC61000-6-2 INDUSTRY L-N : 2KV L,N-PE : 4KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
7	Test by certified Lab & Test Report Prepare			

RELIABILITY TEST

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
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1	TEMPERATURE RISE TEST	<p>MODEL : DRP-3200-48</p> <p>1. ROOM AMBIENT BURN-IN : 1 HRS I/P : 230VAC O/P : FULL LOAD</p> <p>2. HIGH AMBIENT BURN-IN : 1 HRS I/P : 230VAC O/P : FULL LOAD</p> <table border="1" data-bbox="502 436 1460 1892"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta= 25°C</th> <th>HIGH AMBIENT Ta= 50°C</th> </tr> </thead> <tbody> <tr><td>1</td><td>BD1</td><td>53.5°C</td><td>78.7°C</td></tr> <tr><td>2</td><td>RY1</td><td>44.1°C</td><td>70.4°C</td></tr> <tr><td>3</td><td>D7</td><td>63.2°C</td><td>88.9°C</td></tr> <tr><td>4</td><td>D8</td><td>76.6°C</td><td>102.3°C</td></tr> <tr><td>5</td><td>T3</td><td>40.0°C</td><td>65.5°C</td></tr> <tr><td>6</td><td>U900</td><td>42.9°C</td><td>68.2°C</td></tr> <tr><td>7</td><td>Q900</td><td>60.0°C</td><td>85.8°C</td></tr> <tr><td>8</td><td>Q902</td><td>59.6°C</td><td>84.6°C</td></tr> <tr><td>9</td><td>C5</td><td>30.8°C</td><td>54.4°C</td></tr> <tr><td>10</td><td>U902</td><td>48.7°C</td><td>74.4°C</td></tr> <tr><td>11</td><td>Q1</td><td>53.8°C</td><td>80.0°C</td></tr> <tr><td>12</td><td>Q3</td><td>51.2°C</td><td>77.0°C</td></tr> <tr><td>13</td><td>T1-2</td><td>64.7°C</td><td>91.1°C</td></tr> <tr><td>14</td><td>T1-1</td><td>80.1°C</td><td>106.4°C</td></tr> <tr><td>15</td><td>T2-2</td><td>57.7°C</td><td>82.7°C</td></tr> <tr><td>16</td><td>T2-1</td><td>70.6°C</td><td>96.9°C</td></tr> <tr><td>17</td><td>T301</td><td>34.0°C</td><td>57.9°C</td></tr> <tr><td>18</td><td>U71</td><td>39.5°C</td><td>63.2°C</td></tr> <tr><td>19</td><td>U201</td><td>40.6°C</td><td>65.8°C</td></tr> <tr><td>20</td><td>C111</td><td>50.9°C</td><td>76.2°C</td></tr> <tr><td>21</td><td>C121</td><td>45.6°C</td><td>70.4°C</td></tr> <tr><td>22</td><td>C115</td><td>46.4°C</td><td>71.2°C</td></tr> <tr><td>23</td><td>C116</td><td>45.9°C</td><td>70.8°C</td></tr> <tr><td>24</td><td>Q401</td><td>59.8°C</td><td>85.5°C</td></tr> <tr><td>25</td><td>Q411</td><td>59.5°C</td><td>85.2°C</td></tr> <tr><td>26</td><td>Q101</td><td>54.8°C</td><td>80.2°C</td></tr> <tr><td>27</td><td>Q108</td><td>53.8°C</td><td>79.3°C</td></tr> <tr><td>28</td><td>U110</td><td>49.4°C</td><td>74.5°C</td></tr> <tr><td>29</td><td>RT90</td><td>40.0°C</td><td>64.2°C</td></tr> <tr><td>30</td><td>U903</td><td>34.1°C</td><td>58.5°C</td></tr> <tr><td>31</td><td>U501</td><td>47.2°C</td><td>71.7°C</td></tr> <tr><td>32</td><td>RG76</td><td>85.4°C</td><td>110.3°C</td></tr> <tr><td>33</td><td>L1</td><td>43.3°C</td><td>68.0°C</td></tr> <tr><td>34</td><td>L3</td><td>62.1°C</td><td>87.2°C</td></tr> <tr><td>35</td><td>R900</td><td>47.1°C</td><td>71.8°C</td></tr> <tr><td>36</td><td>ZR2</td><td>37.9°C</td><td>63.3°C</td></tr> <tr><td>37</td><td>LF1</td><td>51.6°C</td><td>78.0°C</td></tr> <tr><td>38</td><td>C2</td><td>43.5°C</td><td>69.0°C</td></tr> <tr><td>39</td><td>C10</td><td>50.4°C</td><td>76.3°C</td></tr> <tr><td>40</td><td>ZR1</td><td>48.5°C</td><td>74.0°C</td></tr> <tr><td>41</td><td>RT1</td><td>37.2°C</td><td>62.4°C</td></tr> </tbody> </table>			NO	Position	ROOM AMBIENT Ta= 25°C	HIGH AMBIENT Ta= 50°C	1	BD1	53.5°C	78.7°C	2	RY1	44.1°C	70.4°C	3	D7	63.2°C	88.9°C	4	D8	76.6°C	102.3°C	5	T3	40.0°C	65.5°C	6	U900	42.9°C	68.2°C	7	Q900	60.0°C	85.8°C	8	Q902	59.6°C	84.6°C	9	C5	30.8°C	54.4°C	10	U902	48.7°C	74.4°C	11	Q1	53.8°C	80.0°C	12	Q3	51.2°C	77.0°C	13	T1-2	64.7°C	91.1°C	14	T1-1	80.1°C	106.4°C	15	T2-2	57.7°C	82.7°C	16	T2-1	70.6°C	96.9°C	17	T301	34.0°C	57.9°C	18	U71	39.5°C	63.2°C	19	U201	40.6°C	65.8°C	20	C111	50.9°C	76.2°C	21	C121	45.6°C	70.4°C	22	C115	46.4°C	71.2°C	23	C116	45.9°C	70.8°C	24	Q401	59.8°C	85.5°C	25	Q411	59.5°C	85.2°C	26	Q101	54.8°C	80.2°C	27	Q108	53.8°C	79.3°C	28	U110	49.4°C	74.5°C	29	RT90	40.0°C	64.2°C	30	U903	34.1°C	58.5°C	31	U501	47.2°C	71.7°C	32	RG76	85.4°C	110.3°C	33	L1	43.3°C	68.0°C	34	L3	62.1°C	87.2°C	35	R900	47.1°C	71.8°C	36	ZR2	37.9°C	63.3°C	37	LF1	51.6°C	78.0°C	38	C2	43.5°C	69.0°C	39	C10	50.4°C	76.3°C	40	ZR1	48.5°C	74.0°C	41	RT1	37.2°C	62.4°C
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 110 % LOAD Ta : 25°C	TEST : OK																																																																																																																																																																								



3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 230VAC/180VAC O/P : 100 % LOAD Ta= -30°C/-25°C	TEST : OK
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 °C NO DAMAGE	I/P : 272 VAC O/P : FULL LOAD Ta= 50°C HUMIDITY= 95 %R.H	TEST : OK
5	TEMPERATURE COEFFICIENT	± 0.03 %/°C(0~50°C)	I/P : 230 VAC O/P : FULL LOAD	± 0.001 %/°C(0~50°C)
6	STORAGE TEMPERATURE TEST	1. Thermal shock Temperature : -45°C~+90°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 10 CYCLE 5. Input/Output condition : STATIC		OK
7	THERMAL SHOCK TEST	1. Thermal shock Temperature : -35°C~+55°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 16 CYCLE 5. Input/Output condition : 15cycle:230V/ FULL LOAD AC ON 3sec/AC OFF 1sec TEST 1cycle:230V/ FULL LOAD Burn In Test		OK
8	VIBRATION TEST	1 Carton & 1 Set (1) Waveform : Sine Wave (2) Frequency : 10~500Hz (3) Sweep Time : 12min/sweep cycle (4) Acceleration : 2G (5) Test Time : 60min in each axis (X.Y.Z) (6) Ta : 25°C		TEST : OK
9	CAPACITOR LIFE CYCLE	SUPPOSE C111 IS THE MOST CRITICAL COMPONENT (1) I/P : 230VAC O/P : FULL LOAD Ta= 25 °C LIFE TIME (2) I/P : 230VAC O/P : FULL LOAD Ta= 50 °C LIFE TIME (3) I/P : 230VAC O/P : 75% LOAD Ta= 50 °C LIFE TIME (4) I/P : 230VAC O/P : 50% LOAD Ta= 50 °C LIFE TIME		(1) 383955HRS (2) 66460HRS (3) 16891HRS (4) 294949HRS
10	MTBF	Conducted by Parts Stress Analysis Prediction 535.5K hrs min. Telcordia SR-332 (Bellcore) ; 44.6K hrs min. MIL-HDBK-217F (25°C)		
11	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure (Expected Life): Above 50,000 hours @ TA 50°C		

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	DANIEL GAO	SANFORD SU	VINCENT TSENG