



# Test Report: DPU -3200-48

---

3200W Power Supply with Single Output

## ■ 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

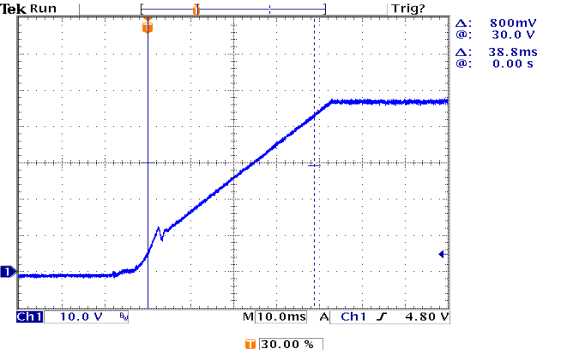
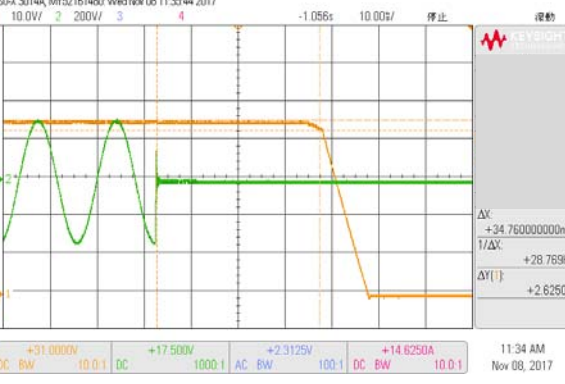
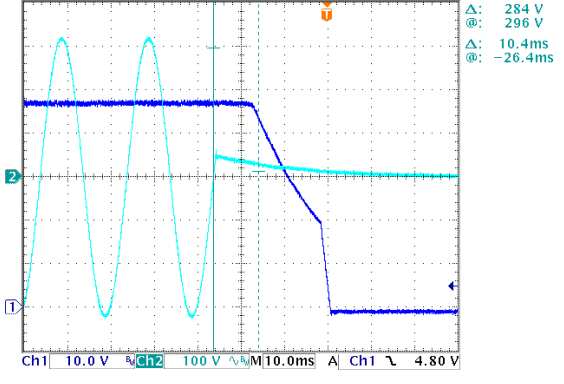
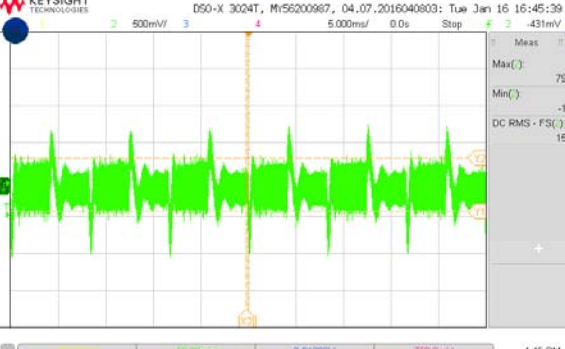
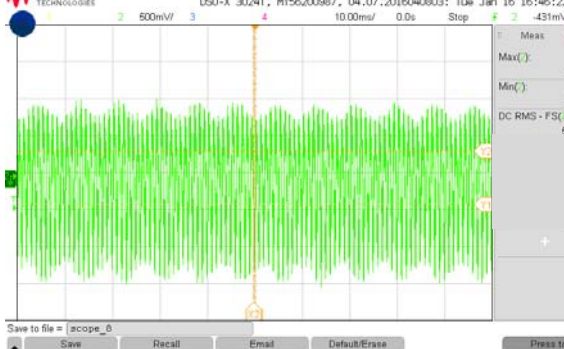
## ■ RELIABILITY TEST

ENVIRONMENT TEST

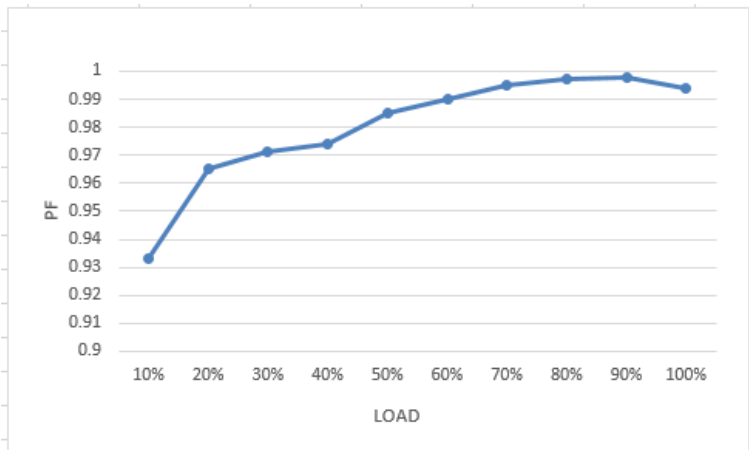
## DESIGN VERIFY TEST

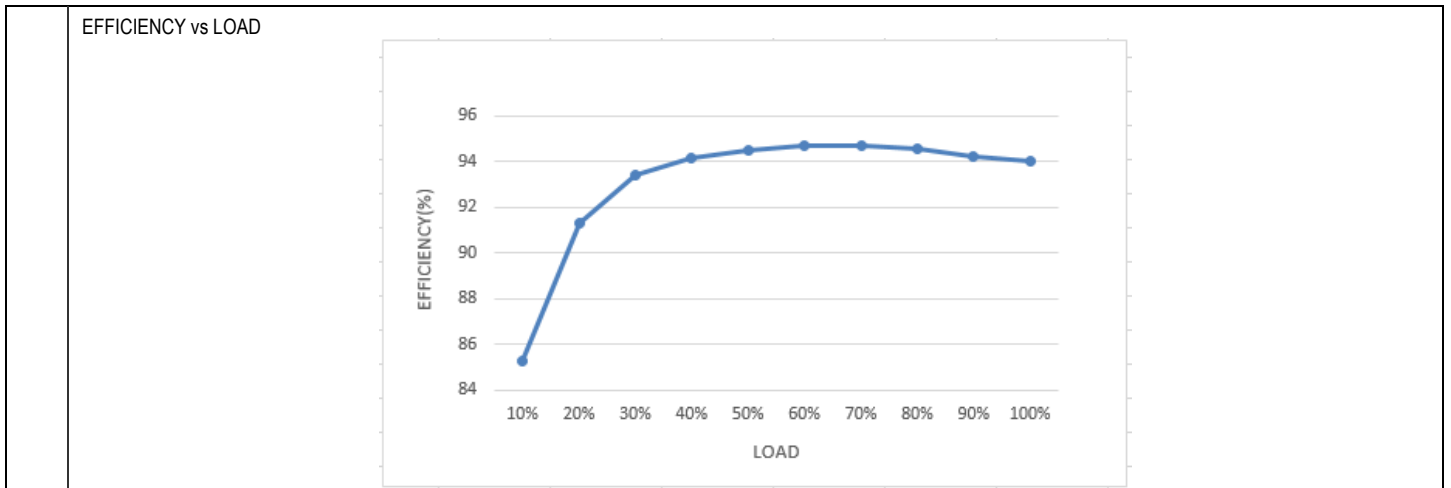
### OUTPUT FUNCTION TEST

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
<div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <p>high frequency :</p> </div> <div style="width: 45%;"> <p>low frequency :</p> </div> </div>				
7	SET UP TIME(Max)	230VAC/1500ms	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 1077ms
<p>INPUT=230VAC/50HZ @ FULL LOAD</p> <p>CH1 : Output Voltage CH2 : AC Input Voltage</p>				

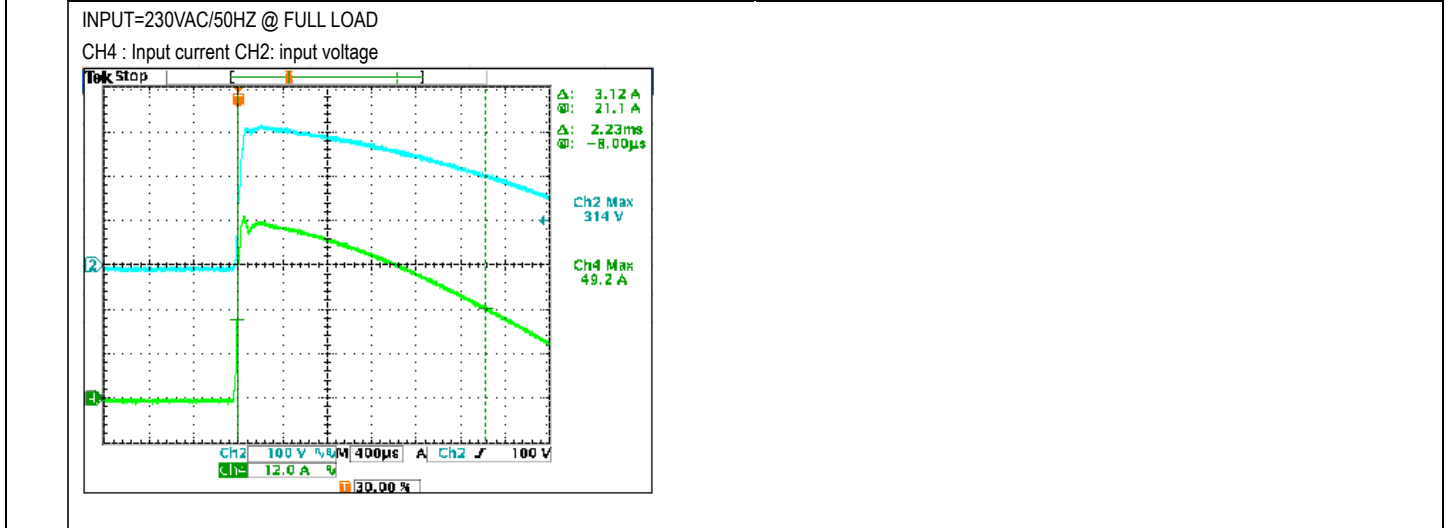
8	RISE TIME (Max)	230VAC/60ms	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 38.8ms
<p>INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage</p>  <p>Δ: 800mV @: 30.0 V Δ: 38.8ms @: 0.00 s</p>				
9	HOLD UP TIME (Typ.)	230VAC 75%/ 16ms 230VAC 100%/9ms	I/P : 230 VAC O/P : 75% LOAD O/P : 100% LOAD Ta : 25°C	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]: +2.8250V</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(): 790mV Min(): -1.00V DC RMS - FS(): 155mV</p> <p>FULL /50% LOAD 50%DUTY / 1KHZ</p>  <p>Max(): 1.05V Min(): -1.50V DC RMS - FS(): 565mV</p>				

## INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT																						
1	INPUT VOLTAGE RANGE	90VAC~264VAC 127VDC~370VDC	(1) I/P: AC TESTING O/P: FULL / 50% LOAD  (2) I/P: DC TESTING(L:- N:-) O/P: FULL / 50% LOAD  (3) I/P: DC TESTING(L:- N:+) O/P: FULL / 50% LOAD Ta: 25°C	(1) 162Vac~264Vac/FULL LOAD 84Vac~264Vac/50%LOAD (2) 246Vdc~370Vdc/FULL LOAD 112Vdc~370Vdc/50% LOAD (3) 246Vdc~370Vdc/FULL LOAD 111Vdc~370Vdc/50% LOAD																						
			I/P: (1) LOW-LINE-3V=87V HIGH-LINE+15%V=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	<2 mA / 230 VAC	I/P : 230 VAC O/P : Min LOAD Ta : 25°C	L-FG : 0.7 mA N-FG : 0.7 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>0.995</td></tr> <tr><td>90%</td><td>0.995</td></tr> <tr><td>100%</td><td>0.99</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%	0.995	90%	0.995	100%	0.99
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%	0.995																									
90%	0.995																									
100%	0.99																									
6	EFFICIENCY(Typ.)	94.5% / (75% LOAD)	I/P: 230 VAC O/P: 75% LOAD Ta: 25°C	94.59%																						



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
---	------------------------------------	-----------	---	---------------------------------------

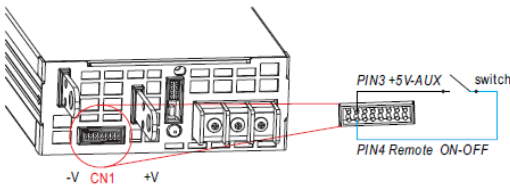


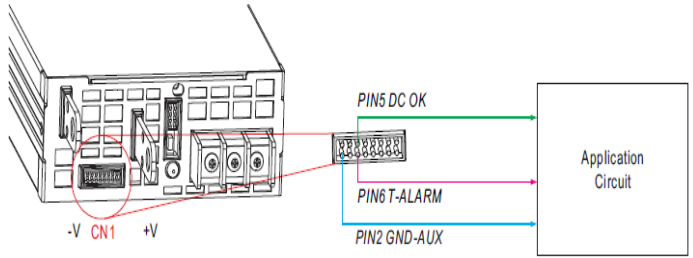
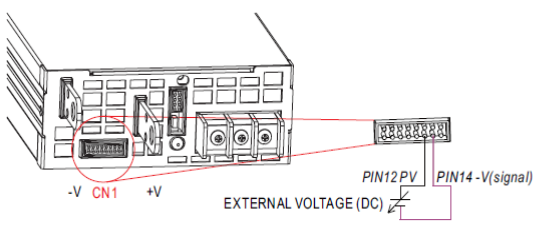
## PROTECTION FUNCTION TEST

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>
---	------------------	---	--	---

## 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		
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													
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>  <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> <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 Remote ON-OFF and +5V-AUX	Power Supply Status	Switch Short	ON	Switch Open	OFF	Between ON/OFF and +5V-AUX	Power Supply Status	SW SHORT	ON	SW OPEN	OFF		
Between Remote ON-OFF and +5V-AUX	Power Supply Status															
Switch Short	ON															
Switch Open	OFF															
Between ON/OFF and +5V-AUX	Power Supply Status															
SW SHORT	ON															
SW OPEN	OFF															
3	REMOTE SENSE	<p>S+ / S- &gt;0.5V</p> <p>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>	> 0.5 V												

<p>4</p> <p>ALARM SIGNAL</p>	<p>※ There are 2 alarm signals, DC OK and T-ALARM, in TTL signal form, on CN1. These signals are isolated from output. The maximum sink current is 10mA.</p>  <p>1. DC OK SIGNAL          High (4.5 ~ 5.5V) : When the <math>V_{out} \leq 80\% \pm 5\%</math>.          Low (-0.1 ~ 0.5V) : When <math>V_{out} \geq 80\% \pm 5\%</math>.          The maximum sourcing current is 10mA and only for output.          I/P: 230 VAC          O/P: FULL LOAD          Ta: 25°C          Test Result :</p> <table border="1" data-bbox="526 913 1045 1019"> <thead> <tr> <th>Vout</th> <th>DC OK SIGNAL</th> </tr> </thead> <tbody> <tr> <td><math>V_{out} \leq 75\%</math></td> <td>4.92V</td> </tr> <tr> <td><math>V_{out} \geq 85\%</math></td> <td>0.0087v</td> </tr> </tbody> </table> <p>2. T-ALARM          High (4.5 ~ 5.5V) : When the internal temperature exceeds the limit of temperature alarm, or when Fan fails.          Low (-0.1 ~ 0.5V) : When the internal temperature is normal, and when Fan works normally.          The maximum sourcing current is 10mA and only for output          I/P: 230 VAC          O/P: FULL LOAD          Ta: 25°C          Test Result :</p> <table border="1" data-bbox="526 1276 1284 1384"> <thead> <tr> <th>P.SU STATUS</th> <th>Vo</th> <th>T-ALARM SPEC</th> <th>T-ALARM TEST</th> </tr> </thead> <tbody> <tr> <td>NORMAL</td> <td>100%±2%</td> <td>-0.1 ~ 0.5V</td> <td>-0.0975V</td> </tr> <tr> <td>OTP</td> <td>0V</td> <td>4.5~5.5V</td> <td>5.003V</td> </tr> <tr> <td>FAN LOCK</td> <td>0V</td> <td>4.5~5.5V</td> <td>5.003V</td> </tr> </tbody> </table>	Vout	DC OK SIGNAL	$V_{out} \leq 75\%$	4.92V	$V_{out} \geq 85\%$	0.0087v	P.SU STATUS	Vo	T-ALARM SPEC	T-ALARM TEST	NORMAL	100%±2%	-0.1 ~ 0.5V	-0.0975V	OTP	0V	4.5~5.5V	5.003V	FAN LOCK	0V	4.5~5.5V	5.003V
Vout	DC OK SIGNAL																						
$V_{out} \leq 75\%$	4.92V																						
$V_{out} \geq 85\%$	0.0087v																						
P.SU STATUS	Vo	T-ALARM SPEC	T-ALARM TEST																				
NORMAL	100%±2%	-0.1 ~ 0.5V	-0.0975V																				
OTP	0V	4.5~5.5V	5.003V																				
FAN LOCK	0V	4.5~5.5V	5.003V																				
<p>5</p> <p>OUTPUT VOLTAGE PROGRAMMABLE(PV)</p>	<p>. Output Voltage Programming (or, PV / remote voltage programming / remote adjust / margin programming / dynamic voltage trim)          ※ 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>© For Remote Sense / Local Sense, please refer to "Voltage Drop Compensation" section.</p>																						

<p>5</p>		<p>             I/P: 230 VAC              O/P: FULL LOAD              Ta: 25°C              TEST RESULT :         </p> <table border="1"> <thead> <tr> <th>PV</th> <th>&lt;0.4V</th> <th>1V</th> <th>3.479V</th> <th>4.7V</th> <th>5V</th> </tr> </thead> <tbody> <tr> <td>MODEL</td> <td>&lt;0.4V</td> <td>1V</td> <td>3.479V</td> <td>4.7V</td> <td>5V</td> </tr> <tr> <td>SPEC</td> <td>48V±5%</td> <td>24V±5%</td> <td>48V±5%</td> <td>60V±5%</td> <td>60V±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> <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>	PV	<0.4V	1V	3.479V	4.7V	5V	MODEL	<0.4V	1V	3.479V	4.7V	5V	SPEC	48V±5%	24V±5%	48V±5%	60V±5%	60V±5%	Vout	48.167V	23.89V	48.29V	60.5 V	61.76V
PV	<0.4V	1V	3.479V	4.7V	5V																					
MODEL	<0.4V	1V	3.479V	4.7V	5V																					
SPEC	48V±5%	24V±5%	48V±5%	60V±5%	60V±5%																					
Vout	48.167V	23.89V	48.29V	60.5 V	61.76V																					
<p>6</p>	<p>OUTPUT CURRENT PROGRAMMABLE (PC)</p>	<p>             I/P: 230 VAC              O/P: TESTING              Ta: 25°C         </p> <table border="1"> <thead> <tr> <th>ADJ V</th> <th>&lt;0.4V</th> <th>1V</th> <th>4.7V</th> <th>5V</th> </tr> </thead> <tbody> <tr> <td>SPEC</td> <td>110%±5%</td> <td>20%±5%</td> <td>100%±5%</td> <td>100%±5%</td> </tr> <tr> <td>TEST</td> <td>110%</td> <td>19.7%</td> <td>100.89%</td> <td>102.6%</td> </tr> </tbody> </table> <p>             © For Remote Sense / Local Sense, please refer to "Voltage Drop Compensation" section.         </p>	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%									
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  Q 902 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. Ta:25°C	Q 900 267VAC:: (1)509V (2)436V (3)440V (4)440V (5)448V (6)440V (7)440V  Q 902 267VAC: (1)439V (2)448V (3)493V (4)493V (5)493V (6)485V (7)473V
3	P.F.C DIODE	D8 Rated : 16A/600V	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	(1) 452V (2) 444V (3) 448V (4) 444V
4	Diode Peak Voltage	Q101 Rated 87A/150V  Q104 Rated 87A/150V	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/	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  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>Q107 Rated 87A/150V</p> <p>Q110 Rated 87A/150V</p>	<p>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>(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>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 4.5V~20V</p>	<p>I/P:High-Line +3V = (267V) AC ON/OFF O/P(1)FULL LOAD (2) Output Short (3)O.L.P (4)O.V.P. (5)NO LOAD VRMIN (LOW LINE) Ta:25°C</p>	<p>U201 U900</p> <p>(1) 13.72V (1) 11.95V (2) 13.48V (2) 11.71V (3) 12.92V (3) 11.71V (4) 13V (4)11.63V (5) 10.83V (5) 11.15V</p>
7	TOP SWITCHING STAND BY POWER	U 71 Rated 20A/800V	<p>I/P:High-Line +3V = (267V) AC ON/OFF O/P: (1)Full Load (2)Remote On/Off Ta:25°C</p>	<p>(1) 589V (2) 585V</p>

## SAFETY TEST

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

## E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	<p>EN61000-3-2 CLASS A</p>	<p>I/P:230VAC/50HZ O/P:100% LOAD Ta:25°C</p>	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
1	TEMPERATURE RISE TEST	MODEL : DPU-3200-48 1. ROOM AMBIENT BURN-IN : 1 HRS I/P : 230VAC O/P : FULL LOAD 2. HIGH AMBIENT BURN-IN : 1 HRS I/P : 230VAC O/P : FULL LOAD		

		NO	Position	ROOM AMBIENT Ta= 25°C	HIGH AMBIENT Ta= 50°C
		1	BD1	69.4°C	94.1°C
		2	RY1	39.2°C	63.7°C
		3	D7	68.2°C	93.1°C
		4	D8	66.8°C	91.7°C
		5	T3	43.1°C	68.0°C
		6	U900	44.6°C	70.8°C
		7	Q900	60.2°C	86.1°C
		8	Q902	64.6°C	91.2°C
		9	C5	42.5°C	67.1°C
		10	U902	38.3°C	63.5°C
		11	Q1	63.0°C	90.2°C
		12	Q3	57.5°C	84.1°C
		13	T1-2	67.3°C	93.9°C
		14	T1-1	70.2°C	96.0°C
		15	T2-2	68.8°C	95.6°C
		16	T2-1	65.0°C	90.3°C
		17	T301	46.5°C	73.2°C
		18	U71	74.6°C	103.0°C
		19	U201	48.9°C	74.5°C
		20	C111	27.0°C	50.0°C
		21	C121	33.4°C	57.9°C
		22	C115	28.8°C	52.8°C
		23	C116	27.7°C	51.7°C
		24	Q401	34.8°C	59.7°C
		25	Q411	33.6°C	58.5°C
		26	Q101	44.5°C	69.1°C
		27	Q108	49.9°C	74.5°C
		28	U110	36.1°C	60.1°C
		29	RT90	60.3°C	86.2°C
		30	U903	46.1°C	73.2°C
		31	U501	33.9°C	58.0°C
		32	RG76	47.4°C	71.4°C
		33	L1	46.3°C	70.4°C
		34	L3	75.3°C	99.5°C
		35	R900	45.6°C	71.2°C
		36	ZR2	32.1°C	56.8°C
		37	LF1	36.2°C	62.2°C
		38	C2	30.7°C	55.3°C
		39	C10	29.4°C	54.1°C
		40	ZR1	26.9°C	51.9°C
		41	RT1	27.8°C	52.0°C
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 %/°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 C121 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) 1291380HRS (2) 205703HRS (3) 346894HRS (4) 479160HRS
10	MTBF	Conducted by Parts Stress Analysis Prediction 168K hrs min. Telcordia SR-332 (Bellcore) ; 44.9K 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