



# Test Report: DPU-3200-24

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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

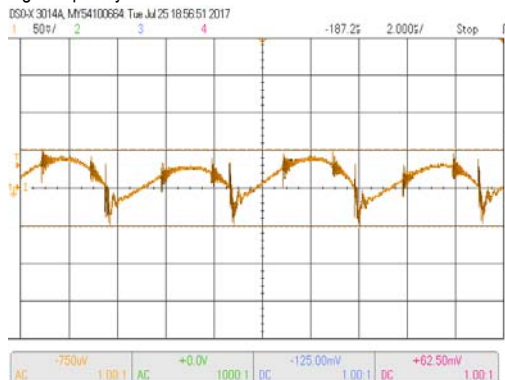
ENVIRONMENT TEST

## DESIGN VERIFY TEST

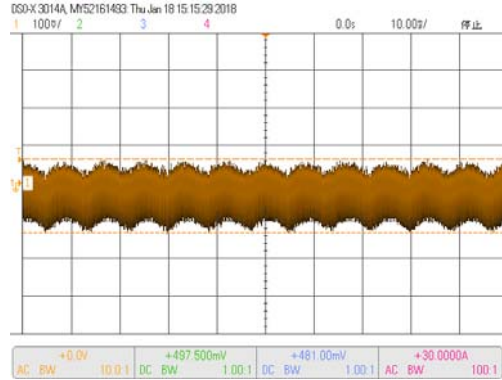
### OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE ADJUST RANGE	CH1: 23.5 V~ 30V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	22.86V~30.99V/230VAC 22.86V~30.99V/115VAC
2	OUTPUT VOLTAGE(Max) TOLERANCE	V1: 1%~ -1%	I/P: 180VAC /264VAC O/P:FULL/ MIN. LOAD Ta:25°C	V1: 0.6%~-0.08%
3	LINE REGULATION (Max)	V1: 0.5%~ -0.5%	I/P: 180VAC~ 264VAC O/P:FULL LOAD Ta:25°C	V1:0.04%~-0.04%
4	LOAD REGULATION(Max)	V1: 0.5%~ -0.5%	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: 0.2%~-0.24%
5	OVER/UNDERSHOOT TEST	±10%	I/P: 230VAC O/P:FULL LOAD Ta:25°C	<10%
6	RIPPLE & NOISE(Max)	V1: 300mVp-p	I/P:230VAC O/P:FULL LOAD Ta:25°C	V1 197 mVp-p

high frequency :



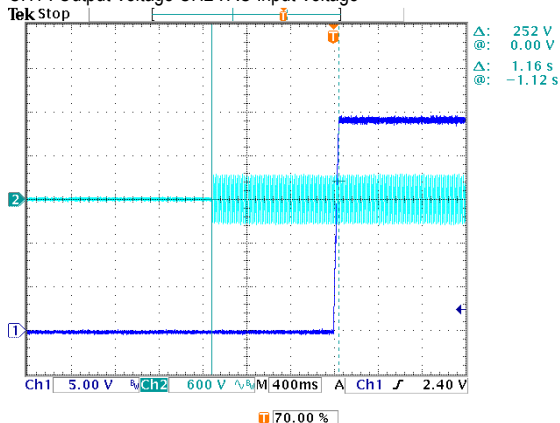
low frequency :

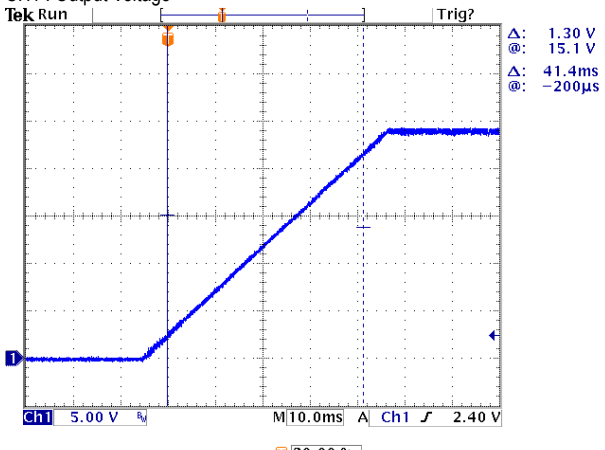
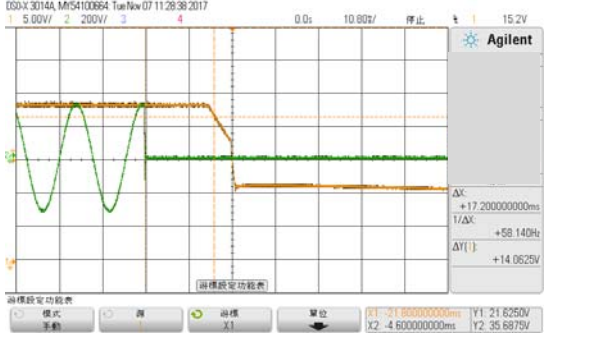
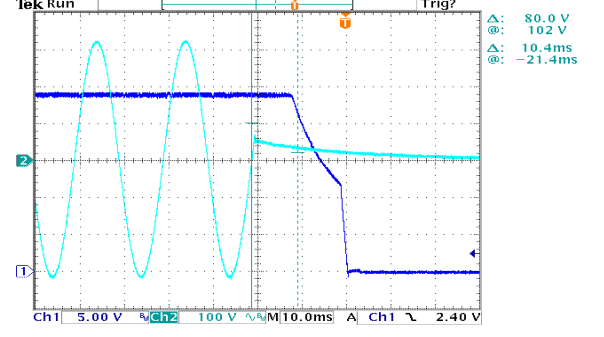
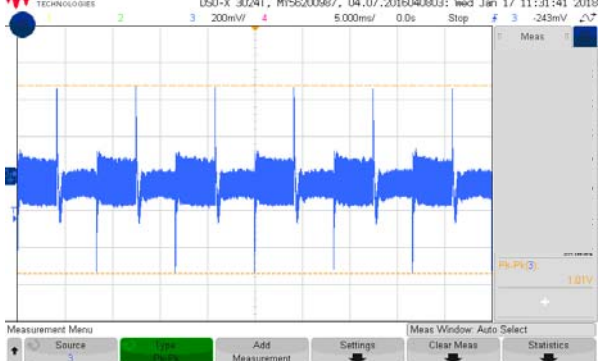
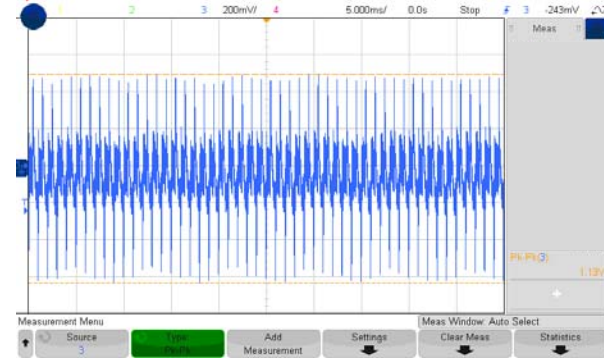


7	SET UP TIME(Max)	230VAC/1500ms	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 1160 ms
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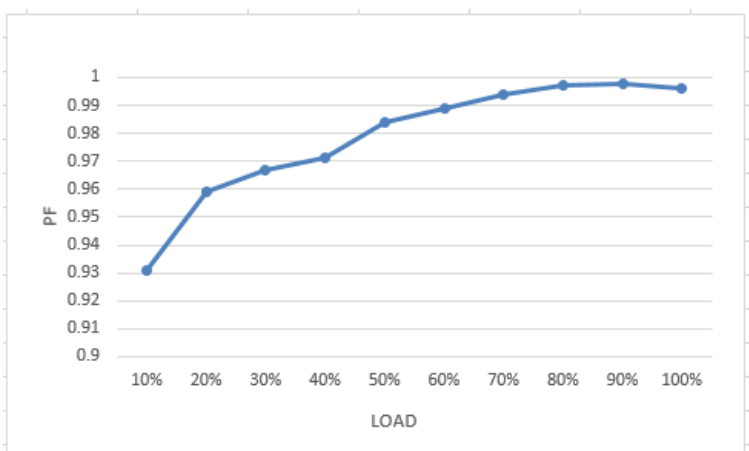
INPUT=230VAC/50HZ @ FULL LOAD

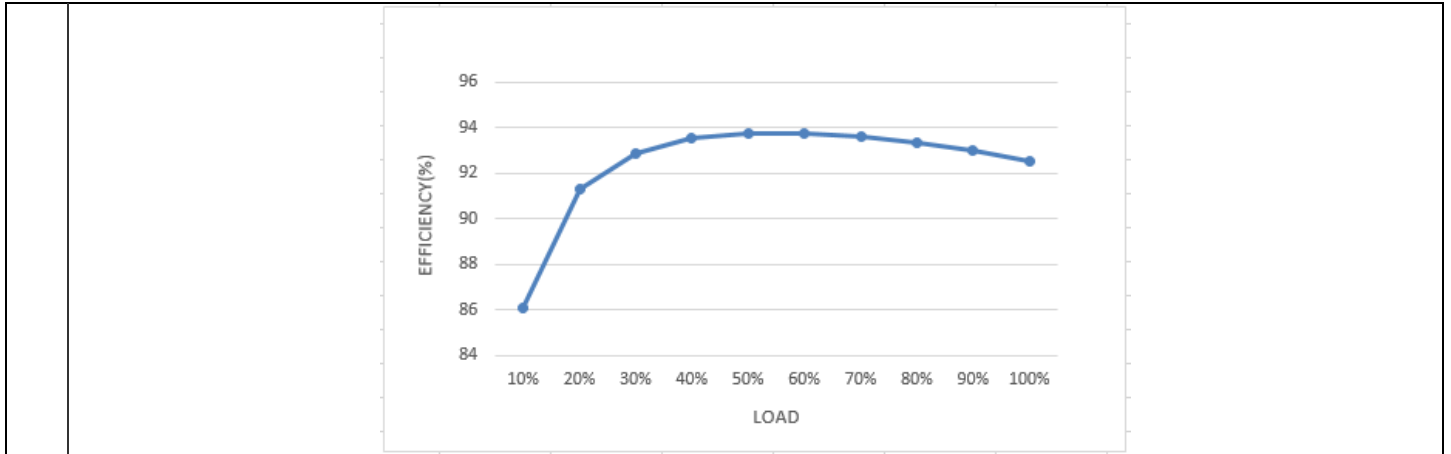
CH1 : Output Voltage CH2 : AC Input Voltage



<b>8</b> RISE TIME (Max)	230VAC/60ms	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 41.4ms
<p>INPUT=230VAC/50HZ @ FULL LOAD</p> <p>CH1 : Output Voltage</p>  <p> <math>\Delta</math>: 1.30 V  <math>\textcircled{}</math>: 15.1 V  <math>\Delta</math>: 41.4ms  <math>\textcircled{}</math>: -200µs     </p>			
<b>9</b> 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	17.2ms (75% load) 10.4ms (100% load)
<p>INPUT=230VAC/50HZ @75% LOAD</p> <p>CH1 : Output Voltage CH2 : AC Input Voltage</p>  <p> <math>\Delta</math>: +17.200000000ms  <math>\text{T}/\Delta</math>: +58.140Hz  <math>\Delta</math>(I): +14.0625V     </p> <p>INPUT=230VAC/50HZ @100% LOAD</p> <p>CH1 : Output Voltage CH2 : AC Input Voltage</p>  <p> <math>\Delta</math>: 80.0 V  <math>\textcircled{}</math>: 10.2 V  <math>\Delta</math>: 10.4ms  <math>\textcircled{}</math>: -21.4ms     </p>			
<b>10</b> DYNAMIC LOAD	V1: 2400 mVp-p	I/P: 230VAC O/P: (1)FULL /50% LOAD 50%DUTY / 120HZ (2)FULL /50% LOAD 50%DUTY / 1KHZ Ta:25°C	1010mVp-p(120HZ) 1130mVp-p(1KHZ)
<p>FULL /50% LOAD 50%DUTY / 120HZ</p>  <p>FULL /50% LOAD 50%DUTY / 1KHZ</p> 			

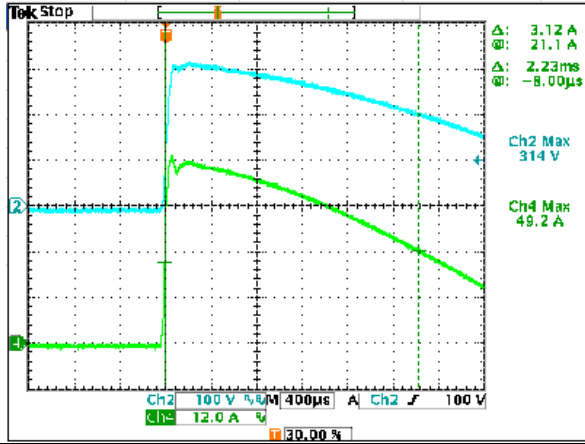
## INPUT FUNCTION TEST

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) 164Vac~264Vac/FULL LOAD 85Vac~264Vac/50%LOAD (2) 242Vdc~370Vdc/FULL LOAD 108Vdc~370Vdc/50% LOAD (3) 242Vdc~370Vdc/FULL LOAD 107Vdc~370Vdc/50% LOAD																						
			I/P: (1) LOW-LINE-3V=87V HIGH-LINE+15%=300 V 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 = 15.32 A/ 230VAC																						
4	LEAKAGE CURRENT	<2 mA / 230 VAC	I/P : 230 VAC O/P : Min LOAD Ta : 25°C	L-FG : 0.85 mA N-FG : 0.85 mA																						
5	POWER FACTOR (Typ.)	0.97 / 230VAC	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	PF = 0.996/230VAC																						
<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>0.96</td></tr> <tr><td>30%</td><td>0.965</td></tr> <tr><td>40%</td><td>0.97</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>0.996</td></tr> <tr><td>90%</td><td>0.996</td></tr> <tr><td>100%</td><td>0.99</td></tr> </tbody> </table>					LOAD (%)	P.F	10%	0.93	20%	0.96	30%	0.965	40%	0.97	50%	0.985	60%	0.99	70%	0.995	80%	0.996	90%	0.996	100%	0.99
LOAD (%)	P.F																									
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60%	0.99																									
70%	0.995																									
80%	0.996																									
90%	0.996																									
100%	0.99																									
6	EFFICIENCY(Typ.)	93.5% / (75%LOAD)	I/P: 230 VAC O/P: 75%LOAD Ta: 25°C	93.63%																						
	EFFICIENCY vs LOAD																									



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

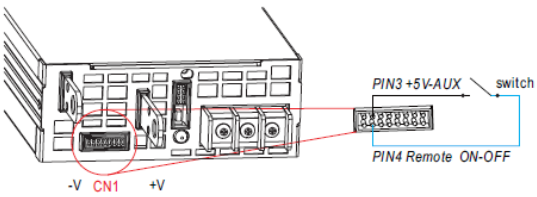


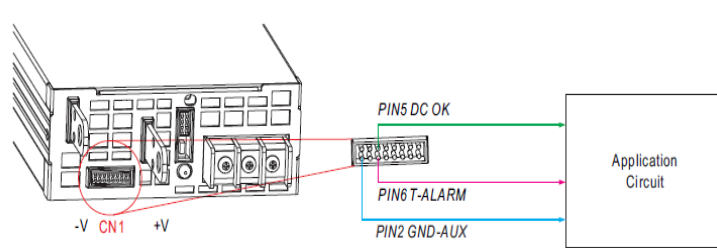
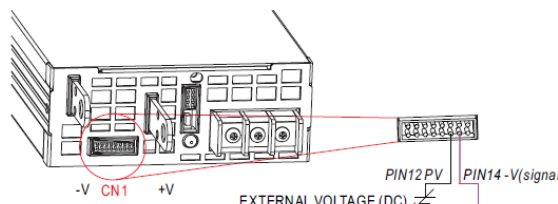
## PROTECTION FUNCTION TEST

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	110.45%/ 264VAC 110.45%/ 230VAC 110.22%/180VAC  PROTECTION TYPE : 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	31.5 V~ 37.5 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	33.35V/ 264VAC 33.33V/ 230VAC 33.35V/ 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 ROTECTION 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>12.128V /0.8A 121 mVp-p</td> </tr> <tr> <td>5V / 0.3A</td> <td>4.5 ~ 5.5V</td> <td>150mVp-p</td> <td>4.71V/0.3A 117 mVp-p</td> </tr> </tbody> </table>	AUX	TOLERANCE	RIPPLE	TEST RESULT	12V / 0.8A	10.8~13.2 V	450mVp-p	12.128V /0.8A 121 mVp-p	5V / 0.3A	4.5 ~ 5.5V	150mVp-p	4.71V/0.3A 117 mVp-p		
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12V / 0.8A	10.8~13.2 V	450mVp-p	12.128V /0.8A 121 mVp-p													
5V / 0.3A	4.5 ~ 5.5V	150mVp-p	4.71V/0.3A 117 mVp-p													
2	REMOTE CONTROL ON/OFF	<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 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>➤ 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.</p> <p>I/P: 230 VAC  O/P: FULL LOAD  Ta: 25°C</p> <p>Test Result :</p> <table border="1" data-bbox="478 918 989 1030"> <thead> <tr> <th>Vout</th> <th>DC OK SIGNAL</th> </tr> </thead> <tbody> <tr> <td><math>V_{out} \leq 75\%</math></td> <td>4.9612V</td> </tr> <tr> <td><math>V_{out} \geq 85\%</math></td> <td>0.0081v</td> </tr> </tbody> </table> <p>➤ 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</p> <p>I/P: 230 VAC  O/P: FULL LOAD  Ta: 25°C</p> <p>Test Result :</p> <table border="1" data-bbox="478 1299 1276 1411"> <thead> <tr> <th>PSU 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>0.0081v</td> </tr> <tr> <td>OTP</td> <td>0V</td> <td>4.5~5.5V</td> <td>4.961V</td> </tr> <tr> <td>FAN LOCK</td> <td>0V</td> <td>4.5~5.5V</td> <td>4.961V</td> </tr> </tbody> </table>	Vout	DC OK SIGNAL	$V_{out} \leq 75\%$	4.9612V	$V_{out} \geq 85\%$	0.0081v	PSU STATUS	Vo	T-ALARM SPEC	T-ALARM TEST	NORMAL	100%±2%	-0.1 ~ 0.5V	0.0081v	OTP	0V	4.5~5.5V	4.961V	FAN LOCK	0V	4.5~5.5V	4.961V
Vout	DC OK SIGNAL																							
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FAN LOCK	0V	4.5~5.5V	4.961V																					
<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>																						

		<div style="display: flex; justify-content: space-around;"> </div> <p>             I/P: 230 VAC              O/P: FULL LOAD              Ta: 25°C              TEST RESULT :         </p> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>PV \ MODEL</th> <th>&lt;0.3V</th> <th>1V</th> <th>3.435V</th> <th>4.7V</th> <th>5V</th> </tr> </thead> <tbody> <tr> <td>SPEC</td> <td>24V±5%</td> <td>12V±5%</td> <td>24V±5%</td> <td>30V±5%</td> <td>30V±5%</td> </tr> <tr> <td>Vout</td> <td>24.03V</td> <td>12.063V</td> <td>24.068V</td> <td>30.47V</td> <td>30.99V</td> </tr> </tbody> </table> <p style="font-size: small;">             © 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 \ MODEL	<0.3V	1V	3.435V	4.7V	5V	SPEC	24V±5%	12V±5%	24V±5%	30V±5%	30V±5%	Vout	24.03V	12.063V	24.068V	30.47V	30.99V
PV \ MODEL	<0.3V	1V	3.435V	4.7V	5V															
SPEC	24V±5%	12V±5%	24V±5%	30V±5%	30V±5%															
Vout	24.03V	12.063V	24.068V	30.47V	30.99V															
<p>6</p>	<p>OUTPUT CURRENT PROGRAMMABLE (PC)</p>	<div style="display: flex; justify-content: space-around;"> </div> <p>             I/P: 230 VAC              O/P: TESTING              Ta: 25°C         </p> <table border="1" style="width: 100%; text-align: center;"> <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>110.37%</td> <td>21.2%</td> <td>100%</td> <td>102.25%</td> </tr> </tbody> </table> <p style="font-size: small;">             © 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	110.37%	21.2%	100%	102.25%			
ADJ V	<0.4V	1V	4.7V	5V																
SPEC	110%±5%	20%±5%	100%±5%	100%±5%																
TEST	110.37%	21.2%	100%	102.25%																



## COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor (D to S) or (C to E) <b>Peak Voltage</b>	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)100% LOAD (9)50% LOAD (10)10% LOAD	Q1: VDS: (1)477 V (2)481 V (3)489V (4)493V (5)497V (6)493V (7)501V (8)477 V (9)469V (10)433V  Q3 VDS: (1)493 V (2)501 V (3) 493V (4)497V (5)501V (6)493V (7)493V (8)497 V (9) 493V (10)413 V
2	P.F.C Transistor (D to S) or (C to E) <b>Peak Voltage</b>	Q 900 Rated 52 A/600V  Q 902 Rated 52 A/600V	I/P:High-Line +3V =267 V 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.	Q900: VDS: (1)505V (2)505V (3)505V (4)501V (5)503V (6)473V (7)477V  Q902: VDS: (1)493V (2)493V (3)491V (4)493V (5)497V (6)477V (7)457V
3	P.F.C DIODE	D8 Rated 16 A/600V	I/P:High-Line +3V =267 V 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) 441V (2) 449V (3) 421V (4) 421V
4	Diode <b>Peak Voltage</b>	Q101 Rated 100 A/100 V  Q104 Rated 100 A/100 V  Q107 Rated 100 A/100 V	I/P:High-Line +3V =267 V 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	Q101: VDS: (1)85.7V (2)95V (3)68.8V (4)68.8V (5)68.8V (6)68V (7)67.2V (8)68V (9)58.3  Q104: VDS: (1)72.1V (2)83.4V (3)64.9V (4)64.1V (5)64.9V (6)62.5V (7)64.1V (8)71.3V (9)60.3V

		Q110 Rated 100 A/100 V	(7)0%→400% Load. (8).NO LOAD (9) burst mode	Q107: VDS: (1)77.7V (2)96.2V (3)66.5V (4)68.1V (5)68.6V (6)69.4V (7)68.6V (8)69.4V (9)71V	Q110: VDS: (1)80.2V (2)93.1V (3)74.6V (4)73.4V (5)68.2V (6)69.8V (7)70.5V (8)61.8V (9)65.8V
5	Input Capacitor Voltage	C5 Rated: 330μ/ 450V 105 °C	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	(1)432V (2)424V (3)448V (4) 432V	
6	Control IC Voltage Test	PWM IC U201 Rated 6.5 V~30V  PFC IC U900 Rated 4.5V~20 V	I/P:High-Line +3V =267 V 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	U201 (1) 14.9V (2) 15.1V (3) 15.1 (4) 12.7V (5) 13.3V	U900 (1) 13.9V (2)14.5V (3)14.9V (4)13.5V (5)12.7V
7	TOP SWITCHING STAND BY POWER	U71 Rate 20 A/ 800V	I/P:High-Line +3V =267 V AC ON/OFF O/P: (1)Full Load (2)Remote On/Off Ta:25°C	(1) 645V (2) 645V	

## 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: 12.04 mA I/P-FG: 10.73mA O/P-FG: 23 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: 13 GΩ I/P-FG: 2.86GΩ O/P-FG: 5 GΩ 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	Test by certified Lab
2	CONDUCTION	EN55022 CLASS B	I/P : 230 VAC (50HZ) O/P : FULL/50% LOAD Ta : 25°C	Test by certified Lab



3	RADIATION	EN55022 CLASS A	I/P : 230 VAC (50HZ) O/P : FULL LOAD Ta : 25°C	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-3200-24 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	71.0°C	97.3°C
		2	RY1	36.7°C	62.6°C
		3	D7	71.0°C	98.2°C
		4	D8	68.9°C	96.3°C
		5	T3	47.2°C	73.3°C
		6	U900	39.8°C	66.3°C
		7	Q900	58.8°C	86.1°C
		8	Q902	69.0°C	96.9°C
		9	C5	52.9°C	81.7°C
		10	U902	43.4°C	70.5°C
		11	Q1	71.3°C	101.7°C
		12	Q3	74.1°C	104.9°C
		13	T1-2	70.0°C	99.3°C
		14	T1-1	71.7°C	100.9°C
		15	T2-2	81.8°C	112.2°C
		16	T2-1	83.8°C	114.9°C
		17	T301	58.0°C	85.3°C
		18	U71	77.7°C	107.4°C
		19	U201	60.0°C	89.6°C
		20	C111	28.4°C	52.9°C
		21	C121	41.0°C	66.8°C
		22	C115	33.4°C	58.7°C
		23	C116	39.0°C	64.8°C
		24	Q401	53.5°C	80.2°C
		25	Q411	41.7°C	67.2°C
		26	Q101	54.2°C	82.2°C
		27	Q108	75.3°C	105.0°C
		28	U425	49.9°C	77.3°C
		29	RT90	56.1°C	83.3°C
		30	U903	51.5°C	78.6°C
		31	RG76	51.5°C	77.3°C
		32	U501	35.2°C	60.2°C
		33	L1	53.0°C	79.9°C
		34	L3	77.7°C	104.7°C
		35	R900	46.4°C	72.6°C
		36	ZR2	31.4°C	57.1°C
		37	LF1	41.0°C	67.8°C
		38	C2	31.4°C	57.1°C
		39	C10	31.2°C	57.1°C
		40	ZR1	28.0°C	53.4°C
		41	RT1	31.7°C	57.3°C
		42	Q104	65.9°C	94.2°C
		43	RG75	43.6°C	68.6°C
		44	RG91	51.4°C	78.0°C
		45	D52	50.9°C	79.2°C
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR ( MIN )		I/P : 230 VAC O/P : 108 % 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) 284793HRS (2) 49666HRS (3) 186482HRS (4) 374724HRS
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