



Features :

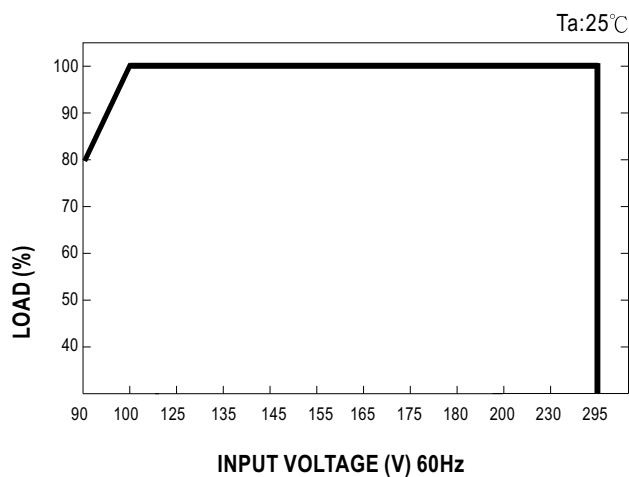
- Universal AC input / Full range (up to 295VAC)
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Output voltage and constant current level adjustable
- Built-in active PFC function
- IP66 design for indoor or outdoor installations
- Cooling by free air convection
- 100% full load burn-in test
- High reliability
- Suitable for LED lighting and moving sign applications
- Compliance to worldwide safety regulations for lighting
- Suitable for dry / damp / wet locations
- 3 years warranty



SPECIFICATION

MODEL		CEN-60-12	CEN-60-15	CEN-60-20	CEN-60-24	CEN-60-30	CEN-60-36	CEN-60-42	CEN-60-48	CEN-60-54
OUTPUT	DC VOLTAGE	12V	15V	20V	24V	30V	36V	42V	48V	54V
	CONSTANT CURRENT OPERATION VOLTAGE Note.5	9 ~ 12V	11.25 ~ 15V	15 ~ 20V	18 ~ 24V	22.5 ~ 30V	27 ~ 36V	31.5 ~ 42V	36 ~ 48V	40.5 ~ 54V
	RATED CURRENT	5A	4A	3A	2.5A	2A	1.7A	1.45A	1.3A	1.15A
	CURRENT RANGE	0 ~ 5A	0 ~ 4A	0 ~ 3A	0 ~ 2.5A	0 ~ 2A	0 ~ 1.7A	0 ~ 1.45A	0 ~ 1.3A	0 ~ 1.15A
	RATED POWER	60W	60W	60W	60W	60W	61.2W	60.9W	62.4W	62.1W
	RIPPLE & NOISE (max.) Note.2	2Vp-p	2.4Vp-p	1.8Vp-p	2.4Vp-p	3Vp-p	3.6Vp-p	4Vp-p	4.6Vp-p	5Vp-p
	VOLTAGE ADJ. RANGE (SVR1)	10.8 ~ 13.5V	13.5 ~ 17V	17 ~ 22V	22 ~ 27V	27 ~ 33V	33 ~ 40V	37 ~ 46V	43 ~ 53V	49 ~ 58V
	CURRENT ADJ. RANGE (SVR2)	3.75 ~ 5A	3 ~ 4A	2.3 ~ 3A	1.9 ~ 2.5A	1.5 ~ 2A	1.3 ~ 1.7A	1.1 ~ 1.45A	1 ~ 1.3A	0.9 ~ 1.15A
	VOLTAGE TOLERANCE Note.3	±10%								
	LINE REGULATION	±3.0%								
	LOAD REGULATION	±5.0%								
SETUP TIME	1400ms / 230VAC 2800ms / 115VAC at full load									
INPUT	VOLTAGE RANGE Note.4	90 ~ 295VAC 127 ~ 417VDC								
	FREQUENCY RANGE	47 ~ 63Hz								
	POWER FACTOR (Typ.)	PF ≥ 0.9 at 75 ~ 100% load, 115VAC / 230VAC ; PF>0.97 / 115VAC PF>0.95 / 230VAC at full load								
	EFFICIENCY (Typ.)	86%	87%	88%	89%	90%	90%	90%	91%	91%
	AC CURRENT (Typ.)	0.8A/115VAC 0.4A/230VAC								
	INRUSH CURRENT (Typ.)	45A/230VAC								
	LEAKAGE CURRENT	<0.75mA / 240VAC								
PROTECTION	OVER CURRENT	95 ~ 110% Protection type : Constant current limiting, recovers automatically after fault condition is removed								
	SHORT CIRCUIT	Hiccup mode, recovers automatically after fault condition is removed								
	OVER VOLTAGE	14.5 ~ 17V	17.5 ~ 21V	22.8 ~ 26V	28 ~ 34V	34 ~ 38V	41 ~ 46V	47 ~ 52V	54 ~ 60V	59 ~ 65V
	OVER TEMPERATURE	85℃ ±10℃ (RTH1)								
		Protection type : Shut down o/p voltage, re-power on to recover								
ENVIRONMENT	WORKING TEMP.	-30 ~ +70℃ (Refer to output load derating curve)								
	WORKING HUMIDITY	20 ~ 95% RH non-condensing								
	STORAGE TEMP., HUMIDITY	-40 ~ +80℃, 10 ~ 95% RH								
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)								
	VIBRATION	10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes								
SAFETY & EMC	SAFETY STANDARDS	UL8750, TUV EN61347-1, EN61347-2-13, IP66 approved								
	WITHSTAND VOLTAGE	I/P-O/P:3.75KVAC I/P-FG:1.88KVAC O/P-FG:0.5KVAC								
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25℃ / 70% RH								
	EMI CONDUCTION & RADIATION	Compliance to EN55015								
	HARMONIC CURRENT	Compliance to EN61000-3-2 Class C (≥ 75% load) ; EN61000-3-3								
	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, EN61547, light industry level (surge 4KV), criteria A								
	MTBF	523.4Khrs min. MIL-HDBK-217F (25℃)								
OTHERS	DIMENSION	183*62.5*40.5mm (L*W*H)								
	PACKING	0.56Kg;24pcs/14.4Kg/1.11CUFT								

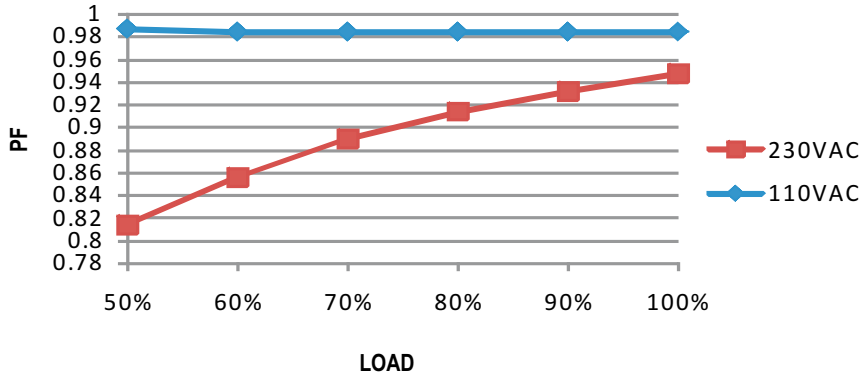
Unit:mm



Power Factor Characteristic

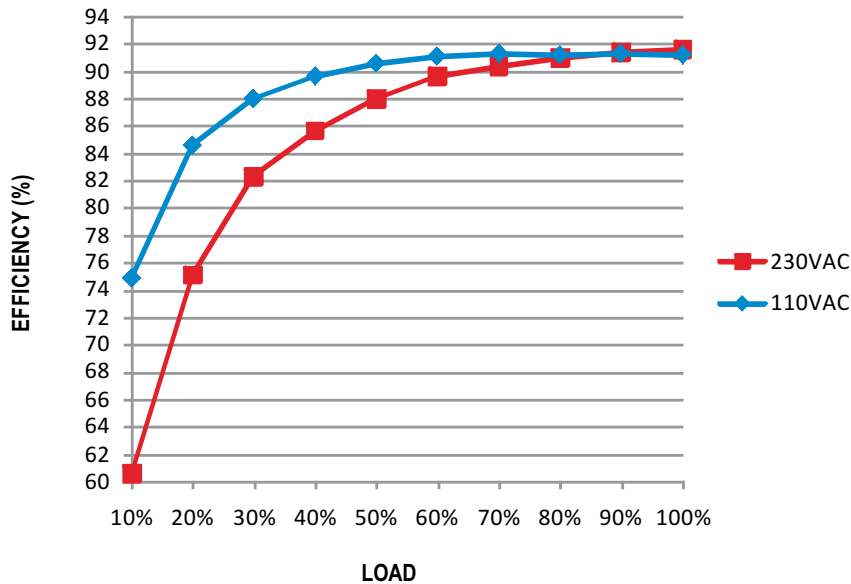
Power factor will be higher than 0.9 when output loading is 75% or higher.

Constant Current Mode



EFFICIENCY vs LOAD (48V Model)

CEN-60 series possess superior working efficiency that up to 91% can be reached in field applications.

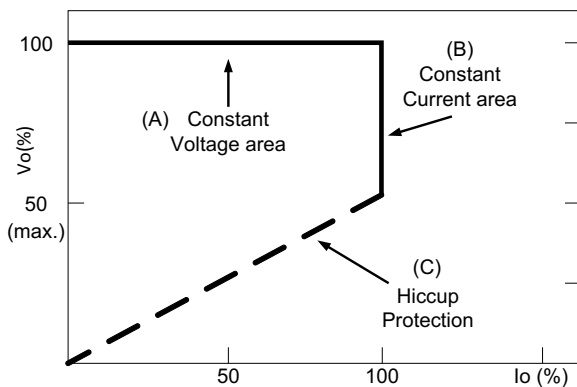


DRIVING METHODS OF LED MODULE

There are two major kinds of LED drive method "direct drive" and "with LED driver".

A typical LED power supply may either work in "constant voltage mode (CV) or constant current mode (CC)" to drive the LEDs.

Mean Well's LED power supply with CV+ CC characteristic can be operated at both CV mode [with LED driver, at area (A)] and CC mode [direct drive, at area (B)].



Typical LED power supply I-V curve



Test Report: CEN-60-24

60W Single Output LED Power Supply

■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Other Test

Component Stress Test

■ SAFETY & E.M.C. TEST

Safety Test

E.M.C. Test

■ RELIABILITY TEST

DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 2.4 Vp-p (Max)	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	V1: 1.45 Vp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 22 V ~ 27 V	I/P: 230 VAC I/P: 115VAC O/P: MIN LOAD Ta: 25°C	20.98V ~ 27.88 V / 230VAC 20.98V ~ 27.87 V / 115VAC	P
3	CURRENT ADJ RANGE	1.9 A ~ 2.5A	I/P: 230 VAC O/P: CV=Vo-2V Ta: 25°C	1.102 A ~ 2.63 A	P
4	CONSTANT CURRENT REGION	18 V ~ 24V	I/P: 230 VAC O/P: CV MODE Ta: 25°C	O/P=18 V: 2.572 A O/P=23 V: 2.566 A	P
5	OUTPUT VOLTAGE TOLERANCE	V1: 10% ~ -10 % (Max)	I/P: 100 VAC / 295VAC O/P: FULL / 0 % LOAD Ta: 25°C	V1: 3.2 % ~ -3.2%	P
6	LINE REGULATION	V1: 3 % ~ -3 % (Max)	I/P: 100 VAC ~ 295 VAC O/P: FULL LOAD Ta: 25°C	V1: 0.05% ~ -0.05%	P
7	LOAD REGULATION	V1: 5 % ~ -5 % (Max)	I/P: 230 VAC O/P: FULL ~ MIN LOAD Ta: 25°C	V1: 3.2 % ~ -3.2 %	P
8	SET UP TIME	230VAC/ 1400 ms (Max) 115VAC/ 2800 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P: FULL LOAD Ta: 25°C	230VAC/ 1018 ms 115 VAC/ 2036 ms	P
9	OVER/UNDERSHOOT TEST	< ±10%	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	TEST: < 10 %	P

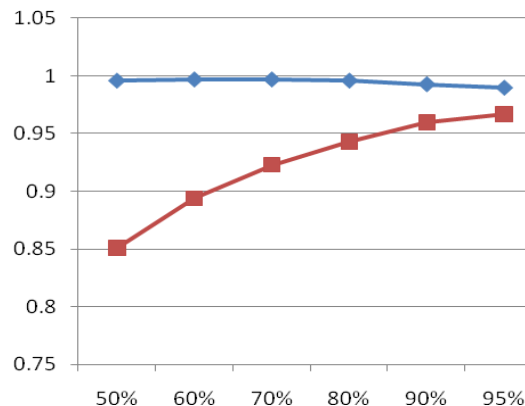
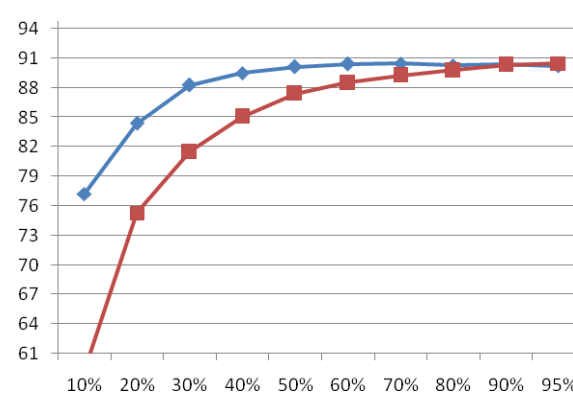
INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	90VAC~295 VAC	I/P:TESTING O/P:FULL LOAD Ta:25°C	43V~264V	P
			I/P: (1)LOW-LINE-3V=87 V (2)HIGH-LINE=305 V O/P:FULL/MIN LOAD ON: 30 Sec . OFF: 30 Sec 10MIN (AC POWER ON/OFF NO DAMAGE)	TEST: OK	
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE OSC	I/P: 100 VAC ~295AC O/P:FULL~MIN LOAD Ta:25°C	OK	P
3	POWER FACTOR	0.95/ 230 VAC FULL LOAD 0.97/ 115 VAC FULL LOAD 0.9/ 230 VAC 75% LOAD 0.9/ 115 VAC 75%LOAD	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD / 75% LOAD Ta:25°C	PF=0.963 /230V/100%LOAD PF=0.997 /115V/100%LOAD PF=0.943 /230V/75%LOAD PF=0.998 /115V/75%LOAD	P
4	EFFICIENCY	89% (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	90.46 %	P
5	INPUT CURRENT	230 V/ 0.4 A (Typ) 115 V/ 0.8 A (Typ)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 0.29 A/ 230VAC I = 0.58 A/ 115VAC	P
6	INRUSH CURRENT	230 V/ 45 A (Typ) COLD START	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	I = 40.6 A/ 230VAC	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	95 %~110 %	I/P: 230 VAC I/P: 115 VAC O/P:TESTING Ta:25°C	105 %/ 230VAC 104 %//115VAC Constant current limiting,	P
2	OVER VOLTAGE PROTECTION	V1: 28 V~ 32V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	30 V/ 230VAC 30 V/ 115VAC Shut down Re- power ON	P
3	OVER TEMPERATURE PROTECTION	SPEC: RTH1: 85±10°C O.T.P. NO DAMAGE	I/P: 230 VAC O/P:FULL LOAD	O.T.P. Active Shut down o/p voltage , re-power on to recover	P
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 295VAC O/P: FULL LOAD Ta:25°C	NO DAMAGE Hiccup Mode	P

OTHER TEST

NO	TEST ITEM	RESULT
1	POWER FACTOR CHARACTERISTIC CONSTANT CURRENT MODE	CONSTANT CURRENT MODE I/P:230V/110V O/P:100/90/80/70/60/50% LOAD Ta:25°C  BLUE WIRE=110V ; RED WIRE=230V
2	EFFICIENCY VS LOAD	I/P:230V/110V O/P:100/90/80/70/60/50/40/30/20/10% LOAD Ta:25°C  BLUE WIRE=110V ; RED WIRE=230V

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated TK13A60D 13A/600V	I/P : High-Line +3V = 298 V O/P : (1)Full Load Turn on (2) Output Short (3)Full load continue Ta : 25°C	(1) 530 V (2) 464 V (3) 514 V	P
2	Diode Peak Voltage	D100 Rated BYV32E-200 20A/200V	I/P : High-Line +3V = 298 V O/P : (1)Full Load Turn on (2)Output Short (3)Full load continue Ta : 25°C	(1) 132 V (2) 105 V (3) 127 V	P
3	Clamp Diode Peak Voltage	D2 Rated 3A/800V GP30K	I/P : High-Line +3V = 298 V O/P : (1)Full Load Turn on (2)Output Short (3)Full load continue Ta : 25°C	(1) 512 V (2) 452 V (3) 498 V	P
4	Control IC Voltage Test	U 1 Rated TDA4863G 10.5V~21V	I/P : High-Line +3V = 298 V O/P : (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change Ta : 25°C	(1) 14.588 V (2) 14.617 V (3) 14.628 V	P

SAFETY & EMC TEST

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	IEC60950-1 I/P-O/P: 3.75KVAC/min<10mA I/P-FG:1.88 KVAC/min<10mA O/P-FG:0.5KVAC/min<10mA	I/P-O/P: 4 KVAC/min I/P-FG: 2.256KVAC/min O/P-FG: 0.6 KVAC/min Ta:25°C	I/P-O/P: 4.62 mA I/P-FG: 3.42 mA O/P-FG: 3.61 mA NO DAMAGE	P
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 GΩ I/P-FG: 22.6 GΩ O/P-FG: 30 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	IEC60950-1 FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40A / 2min Ta:25°C	9 mΩ	P
4	LEAKAGE CURRENT	IEC60950-1 < 0.75 mA / 240VAC	I/P: 264 VAC O/P:Min LOAD Ta:25°C	L-FG: 0.34 mA N-FG: 0.34 mA	P

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS C	I/P: 230VAC/50HZ LOAD:LED/ELECTRONIC LOAD O/P:100%/75%/60% LOAD Ta:25°C	PASS	P
2	CONDUCTION	EN55015 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL/50% LOAD Ta:25°C	PASS Test by certified Lab	P
3	RADIATION	EN55015 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL LOAD Ta:25°C	PASS Test by certified Lab	P
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	P
5	E.F.T	EN61000-4-4 INDUSTRY INPUT: 2KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
6	SURGE	IEC61000-4-5 INDUSTRY L-N :2KV L,N-PE:4KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P

RELIABILITY TEST

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																																																															
1.	THERMO TRACER TEST (ROOM AMBIENT)	MODEL:CEN-60-24 TEST CONDITION: 100 VAC FULL LOAD ROOM AMBIENT = 25.3 °C 96140003.1R1 (定點測溫) 95 87 79 71 62 54 46 38 30 21 13 熱像調整 座標: 92, 42 原資料溫度: 34.2℃(E0.94) 放射率: 0.94 高溫87.1℃ 低溫25.8℃ 自動調整 修正後溫度: 34.2℃(E0.94) 環境溫度: 25.3℃ 最高溫(H):87.1℃ 座標:223,103 最低溫(L):25.8℃ 座標: 62,182 全城放射率: 0.940 p 1: 61.0℃ 286x, 68y p 2: 56.9℃ 289x,109y p 3: 52.5℃ 290x,147y p 4: 56.6℃ 262x,100y p 5: 63.9℃ 246x,104y p 6: 77.1℃ 212x, 73y p 7: 60.2℃ 222x,122y p 8: 50.6℃ 254x,146y p 9: 51.5℃ 212x,154y p10: 66.8℃ 181x,128y p11: 81.1℃ 84x, 76y p12: 59.4℃ 88x,103y p13: 51.1℃ 84x,148y p14: 56.3℃ 51x, 89y p15: 50.7℃ 55x,133y 日期: 2009/ 6/14 時間: 15:27:32	<table><tr><th></th><th>Position</th><th>Temp</th><th>VERDICT</th></tr><tr><td>P1</td><td>BD1</td><td>61.0℃</td><td>PASS</td></tr><tr><td>P2</td><td>LF2</td><td>56.9℃</td><td>PASS</td></tr><tr><td>P3</td><td>LF1</td><td>52.5℃</td><td>PASS</td></tr><tr><td>P4</td><td>C7</td><td>56.6℃</td><td>PASS</td></tr><tr><td>P5</td><td>C8</td><td>63.9℃</td><td>PASS</td></tr><tr><td>P6</td><td>Q1</td><td>77.1℃</td><td>PASS</td></tr><tr><td>P7</td><td>L1</td><td>60.2℃</td><td>PASS</td></tr><tr><td>P8</td><td>C5</td><td>50.6℃</td><td>PASS</td></tr><tr><td>P9</td><td>C47</td><td>51.5℃</td><td>PASS</td></tr><tr><td>P10</td><td>T1 CODE</td><td>66.8℃</td><td>PASS</td></tr><tr><td>P11</td><td>D100</td><td>81.1℃</td><td>PASS</td></tr><tr><td>P12</td><td>C105</td><td>59.4℃</td><td>PASS</td></tr><tr><td>P13</td><td>C108</td><td>51.1℃</td><td>PASS</td></tr><tr><td>P14</td><td>C106</td><td>56.3℃</td><td>PASS</td></tr><tr><td>P15</td><td>C109</td><td>50.7℃</td><td>PASS</td></tr></table>		Position	Temp	VERDICT	P1	BD1	61.0℃	PASS	P2	LF2	56.9℃	PASS	P3	LF1	52.5℃	PASS	P4	C7	56.6℃	PASS	P5	C8	63.9℃	PASS	P6	Q1	77.1℃	PASS	P7	L1	60.2℃	PASS	P8	C5	50.6℃	PASS	P9	C47	51.5℃	PASS	P10	T1 CODE	66.8℃	PASS	P11	D100	81.1℃	PASS	P12	C105	59.4℃	PASS	P13	C108	51.1℃	PASS	P14	C106	56.3℃	PASS	P15	C109	50.7℃	PASS	P
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2	TEMPERATURE RISE TEST	MODEL : CEN-60-24 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 25 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 61.7 °C <table><tr><th>NO</th><th>Position</th><th>P/N</th><th>ROOM AMBIENT Ta= 25 °C</th><th>HIGH AMBIENT Ta= 50.4 °C</th></tr><tr><td>1</td><td>L1</td><td>TR951</td><td>55.2℃</td><td>75.7℃</td></tr><tr><td>2</td><td>BD1</td><td>4A/800V GLASS GBU408</td><td>43.0℃</td><td>64.3℃</td></tr><tr><td>3</td><td>Q1</td><td>TK13A60D 13A/600V</td><td>49.7℃</td><td>70.9℃</td></tr><tr><td>4</td><td>D100</td><td>BYV32E-200 20A/200V</td><td>52.5℃</td><td>73.0℃</td></tr><tr><td>5</td><td>C105</td><td>1000u/35V UL10Kh 12.5*20 ZLH</td><td>50.6℃</td><td>70.8℃</td></tr><tr><td>6</td><td>T1</td><td>TF2038</td><td>53.3℃</td><td>73.2℃</td></tr><tr><td>7</td><td>RTH1</td><td>220KΩ 3Φ TTC3A224F4371EY 1%</td><td>50.3℃</td><td>71.3℃</td></tr><tr><td>8</td><td>C5</td><td>10u/450V 105℃ 10*20 PX</td><td>49.3℃</td><td>70.2℃</td></tr><tr><td>9</td><td>C47</td><td>47u/50V UL10Kh 6.3*11 YXM</td><td>55.4℃</td><td>75.6℃</td></tr><tr><td>10</td><td>D2</td><td>3A/800V GP30K</td><td>74.5℃</td><td>97.8℃</td></tr><tr><td>11</td><td>CASE</td><td>UP CASE</td><td>39.6℃</td><td>61.7℃</td></tr></table>			NO	Position	P/N	ROOM AMBIENT Ta= 25 °C	HIGH AMBIENT Ta= 50.4 °C	1	L1	TR951	55.2℃	75.7℃	2	BD1	4A/800V GLASS GBU408	43.0℃	64.3℃	3	Q1	TK13A60D 13A/600V	49.7℃	70.9℃	4	D100	BYV32E-200 20A/200V	52.5℃	73.0℃	5	C105	1000u/35V UL10Kh 12.5*20 ZLH	50.6℃	70.8℃	6	T1	TF2038	53.3℃	73.2℃	7	RTH1	220KΩ 3Φ TTC3A224F4371EY 1%	50.3℃	71.3℃	8	C5	10u/450V 105℃ 10*20 PX	49.3℃	70.2℃	9	C47	47u/50V UL10Kh 6.3*11 YXM	55.4℃	75.6℃	10	D2	3A/800V GP30K	74.5℃	97.8℃	11	CASE	UP CASE	39.6℃	61.7℃	P			
NO	Position	P/N	ROOM AMBIENT Ta= 25 °C	HIGH AMBIENT Ta= 50.4 °C																																																																
1	L1	TR951	55.2℃	75.7℃																																																																
2	BD1	4A/800V GLASS GBU408	43.0℃	64.3℃																																																																
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7	RTH1	220KΩ 3Φ TTC3A224F4371EY 1%	50.3℃	71.3℃																																																																
8	C5	10u/450V 105℃ 10*20 PX	49.3℃	70.2℃																																																																
9	C47	47u/50V UL10Kh 6.3*11 YXM	55.4℃	75.6℃																																																																
10	D2	3A/800V GP30K	74.5℃	97.8℃																																																																
11	CASE	UP CASE	39.6℃	61.7℃																																																																
3	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 100 % LOAD Ta : 25℃	TEST : OK	P																																																															
4	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 295VAC/100VAC O/P : 100 % LOAD Ta= -35 °C	TEST : OK	P																																																															
5	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 °C NO DAMAGE	I/P : 295 VAC O/P : FULL LOAD Ta= 50 °C HUMIDITY= 95 %R.H	TEST : OK	P																																																															

6	TEMPERATURE COEFFICIENT	$\pm 0.03\%$ (0~50℃)	I/P : 230 VAC O/P : FULL LOAD	$\pm 0.011\%$ (0~50℃)	P
7	STORAGE TEMPERATURE TEST	1. Thermal shock Temperature : -45℃~ +90℃ 2. Temperature change rate : 25℃ / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 5 CYCLE 5. Input/Output condition : STATIC		OK	P
8.	THERMAL SHOCK TEST	1. Thermal shock Temperature : -35℃~ +55℃ 2. Temperature change rate : 25℃ / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 10 CYCLE 5. Input/Output condition : 230VAC/Full Load AC ON/OFF TEST turn on 58sec ; turn off 2sec		OK	P
9	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 : 72min in each axis (X.Y.Z) (6) Ta : 25℃		TEST : OK	P
10	CAPACITOR LIFE CYCLE	CEN-60-24: SUPPOSE C105 IS THE MOST CRITICAL COMPONENT (1) I/P : 230VAC O/P : FULL LOAD Ta= 25 ℃ LIFE TIME (2) I/P : 230VAC O/P : FULL LOAD Ta= 50.4 ℃ LIFE TIME		(1) 530904 HRS (2) 134530 HRS	P
11	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE : 523.4 HRS			P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2010/1/21	RD SAMPLE	PASS	SANFORD SU	VINCENT TSENG
2010/3/1	PRODUCT SAMPLE W1002B53	PASS	SANFORD SU	VINCENT TSENG

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