



Test Report: GSC25B-350

25W Single Output LED Power Supply

■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection 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	RIPPLE & NOISE(Max)	V1: 7.2 Vp-p (Max)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	V1: 3.22 Vp-p
2	CURRENT ACCURACY	±8%	I/P: 230 VAC I/P:115VAC O/P:FULL LOAD Ta:25°C	0.349 A /230VAC@CV MAX-1V 0.351 A /230VAC@CV MIN 0.335 A/115VAC@CV MAX-1V 0.346 A/115VAC@CV MIN
3	SET UP TIME	230VAC/ 500 ms (Max) 115VAC/1000ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/154ms 115 VAC/232ms
4	OVER/UNDERSHOOT TEST	< ±15%	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	TEST: < 2.2 %
5	NO LOAD OUTPUT VOLTAGE (max.)	90V	I/P: 230 VAC O/P:NO LOAD Ta:25°C	86.4V

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	90VAC~277 VAC	I/P:TESTING O/P:FULL LOAD Ta:25°C	42.3V~277 V
			I/P: (1)LOW-LINE=3V=87 V HIGH-LINE=300 V O/P:FULL/MIN LOAD ON: 30 Sec . OFF: 30 Sec 10MIN (POWER ON/OFF NO DAMAGE) (2) I/P:230Vac ON: 0.5 Sec . OFF: 0.5 Sec 20MIN	(1).TEST: OK (2).TEST : OK
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P: 90 VAC ~277VAC O/P:FULL~MIN LOAD Ta:25°C	OK
3	POWER FACTOR(TYP)	0.92/230 VAC FULL LOAD 0.98/115 VAC FULL LOAD 0.91/277 VAC FULL LOAD	I/P: 230 VAC/115VAC/277VAC O/P:FULL LOAD Ta:25°C	PF=0.966/ 230V/100%LOAD PF=0.9887/ 115V/100%LOAD PF=0.9461/ 277V/100%LOAD
4	EFFICIENCY (TYP)	89.5 %	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	91.08%
5	INPUT CURRENT (TYP)	277VAC/ 0.2 A 230 VAC/ 0.3 A 115 VAC/ 0.6 A	I/P: 277VAC/230 VAC/115 VAC O/P:FULL LOAD Ta:25°C	I=0.108 A / 277VAC I =0.1238A/ 230VAC I =0.2406A/ 115VAC
6	INRUSH CURRENT (TYP)	230 V/ 17 A COLD START (twidh=110us measured at 50% Ipeak) COLD START	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	I = 11.9 A/ 230VAC T50= 63.2 us

7	TOTAL HARMONIC DISTORTION	Total harmonic distortion will be lower than 20% when output loading is 75% or higher	I/P : 230VAC I/P : 277VAC I/P : 115VAC O/P : 75% LOAD Ta : 25°C	THD : 16.464 % THD : 17.738 % THD : 13.489 %
8	NO LOAD POWER CONSUMPTION	< 0.15 W	I/P : 240VAC O/P : NO LOAD Ta : 25°C	< 0.096 W

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 277VAC O/P: FULL LOAD Ta:25°C	NO DAMAGE Hiccup Mode

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated 6A/650V	I/P:High-Line +3V =280V O/P: (1)Full Load input on/off (2)Output Short Ta:25°C	Q1 VDS (1) 566 V (2) 478 V
2	Diode Peak Voltage	D100 Rated 4A/600V	I/P:High-Line +3V = 280 V O/P: (1)Full Load input on/off (2)Output Short (3)NO LOAD Ta:25°C	(1) 358V (2) 304V (3) 376V
3	Control IC Voltage Test	U 1 Rated 9V~30V	I/P:High-Line +3V =280 V O/P:(1) FULL LOAD (2)SHORT (3)NO LOAD (4)NO LOAD(LOW LINE) Ta:25°C	(1) 21.2 V (2) 16.3 V (3) 26.5 V (4) 26.3V

SAFETY & EMC TEST

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	IEC60950-1 I/P-O/P: 3.75KVAC/min	I/P-O/P: 4 KVAC/min Ta:25°C	I/P-O/P: 1.48 mA NO DAMAGE
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ	I/P-O/P: 500 VDC Ta:25°C	I/P-O/P:>30 GΩ NO DAMAGE
3	LEAKAGE CURRENT	IEC60950-1 < 0.5mA / 240VAC	I/P: 240 VAC O/P:Min LOAD Ta:25°C	L-FG:0.005 mA N-FG:0.005 mA

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	EN61000-3-2 CLASS A CLASS C	I/P: 230VAC/50HZ O/P:100%/50% LED LOAD I/P :277VAC 60HZ O/P:100/75% LED LOAD Ta:25°C	PASS
2	CONDUCTION	EN55015 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL/50% LOAD Ta:25°C	PASS Test by certified Lab
3	RADIATION	EN55015 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL LOAD Ta:25°C	PASS Test by certified Lab
4	E.S.D	EN61000-4-2 LIGHT 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 LIGHT INDUSTRY INPUT: 1KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A
6	SURGE	IEC61000-4-5 LIGHT INDUSTRY L-N :1KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A

RELIABILITY TEST

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT																																				
1	TEMPERATURE RISE TEST	MODEL : GSC25B-1400 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 35.1 °C 2. HIGH AMBIENT BURN-IN : 1.5 HRS I/P : 230VAC O/P : FULL LOAD Ta= 48.2 °C																																						
			<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta=35.1°C</th> <th>HIGH AMBIENT Ta=48.2°C</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Q1</td> <td>85.6°C</td> <td>95.5°C</td> </tr> <tr> <td>2</td> <td>T1</td> <td>74.0°C</td> <td>83.2°C</td> </tr> <tr> <td>3</td> <td>C101</td> <td>61.1°C</td> <td>71.3°C</td> </tr> <tr> <td>4</td> <td>D100</td> <td>69.5°C</td> <td>79.4°C</td> </tr> <tr> <td>5</td> <td>C40</td> <td>64.6°C</td> <td>74.5°C</td> </tr> <tr> <td>6</td> <td>U1</td> <td>66.2°C</td> <td>76.2°C</td> </tr> <tr> <td>7</td> <td>L2</td> <td>68.8°C</td> <td>78.4°C</td> </tr> <tr> <td>8</td> <td>D3</td> <td>68.0°C</td> <td>78.1°C</td> </tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta=35.1°C	HIGH AMBIENT Ta=48.2°C	1	Q1	85.6°C	95.5°C	2	T1	74.0°C	83.2°C	3	C101	61.1°C	71.3°C	4	D100	69.5°C	79.4°C	5	C40	64.6°C	74.5°C	6	U1	66.2°C	76.2°C	7	L2	68.8°C	78.4°C	8	D3	68.0°C	78.1°C	
NO	Position	ROOM AMBIENT Ta=35.1°C	HIGH AMBIENT Ta=48.2°C																																					
1	Q1	85.6°C	95.5°C																																					
2	T1	74.0°C	83.2°C																																					
3	C101	61.1°C	71.3°C																																					
4	D100	69.5°C	79.4°C																																					
5	C40	64.6°C	74.5°C																																					
6	U1	66.2°C	76.2°C																																					
7	L2	68.8°C	78.4°C																																					
8	D3	68.0°C	78.1°C																																					
2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 230VAC/90VAC O/P : 100 % LOAD Ta= -35 °C	TEST : OK																																				
3	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 °C NO DAMAGE	I/P : 305 VAC O/P : FULL LOAD Ta= 50 °C HUMIDITY= 95 %R.H	TEST : OK																																				



25W Single Output LED Power Supply

GSC25B series

4	TEMPERATURE COEFFICIENT	$\pm 0.03\%/^{\circ}\text{C}$ (0~50°C)	I/P : 230 VAC O/P : FULL LOAD	$\pm 0.0021\%/^{\circ}\text{C}$ (0~50°C)
5	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 : 5 CYCLE 5. Input/Output condition : STATIC		OK
6	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 : 10 CYCLE 5. Input/Output condition : 230VAC/Full Load AC ON/OFF TEST turn on 58sec ; turn off 2sec		OK
7	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°C		TEST : OK
8	CAPACITOR LIFE CYCLE	SUPPOSE C101 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) 410469HRS (2) 83951HRS (3) 104725HRS (4) 129043HRS
9	MTBF	MIL-HDBK-217F TOTAL FAILURE RATE : 367.2 KHRS		
10	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure(Expected Life) : 30,000 hours @ Tcase 75°C ; 50,000 hours @ Tcase70°C		

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

12.10.30 A50-F031