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ELECTRONICS

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Jameco Part Number 1952345



■ Features :

- Universal AC input / Full range
- No load power consumption < 0.3W
- Energy star(CEC) level IV compliant
- Energy star(CEC) draft V2.0 level V (12V~48V)
- 3 pole AC inlet IEC320-C14
- Class I power ( with earth pin)
- Protections: Short circuit / Overload / Over voltage
- Fully enclosed plastic case
- LED indicator for power on
- Approvals: UL / CUL / TUV / BSMI / CCC / CB / FCC / CE
- 2 years warranty

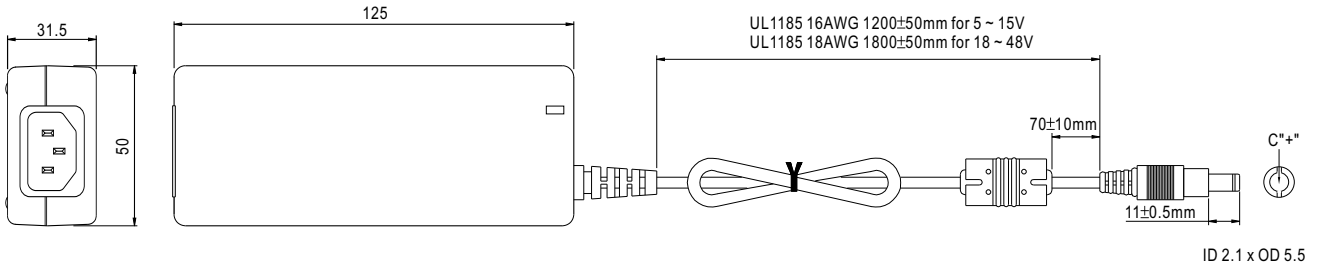


SPECIFICATION

ORDER NO.	GS40A05-P1J	GS40A07-P1J	GS40A09-P1J	GS40A12-P1J	GS40A15-P1J	GS40A18-P1J	GS40A24-P1J	GS40A48-P1J		
OUTPUT	SAFETY MODEL NO.	GS40A05	GS40A07	GS40A09	GS40A12	GS40A15	GS40A18	GS40A24	GS40A48	
	DC VOLTAGE <small>Note.2</small>	5V	7.5V	9V	12V	15V	18V	24V	48V	
	RATED CURRENT	5A	5.34A	4.45A	3.34A	2.67A	2.22A	1.67A	0.84A	
	CURRENT RANGE	0 ~ 5A	0 ~ 5.34A	0 ~ 4.45A	0 ~ 3.34A	0 ~ 2.67A	0 ~ 2.22A	0 ~ 1.67A	0 ~ 0.84A	
	RATED POWER (max.)	25W	40W	40W	40W	40W	40W	40W	40W	
	RIPPLE & NOISE (max.) <small>Note.3</small>	100mVp-p	100mVp-p	100mVp-p	100mVp-p	100mVp-p	150mVp-p	180mVp-p	240mVp-p	
	VOLTAGE TOLERANCE <small>Note.4</small>	±5.0%	±5.0%	±5.0%	±3.0%	±3.0%	±3.0%	±2.5%	±2.5%	
	LINE REGULATION <small>Note.5</small>	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	
	LOAD REGULATION	±5.0%	±5.0%	±5.0%	±3.0%	±3.0%	±3.0%	±2.5%	±2.5%	
	SETUP, RISE TIME <small>Note.7</small>	600ms, 30ms / 230VAC		600ms, 30ms / 115VAC at full load						
HOLD UP TIME (Typ.)	50ms / 230VAC		15ms / 115VAC at full load							
INPUT	VOLTAGE RANGE	90 ~ 264VAC		135 ~ 370VDC						
	FREQUENCY RANGE	47 ~ 63Hz								
	EFFICIENCY (Typ.)	81%	85.5%	85%	89%	89.5%	90%	91%	92.5%	
	AC CURRENT	1A / 115VAC		0.5A / 230VAC						
	INRUSH CURRENT (max.)	60A / 230VAC								
LEAKAGE CURRENT(max.)	0.75mA / 240VAC									
PROTECTION	OVERLOAD	105 ~ 140% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed								
	OVER VOLTAGE	5.25 ~ 6.75V	7.88 ~ 10.13V	9.45 ~ 12.15V	12.6 ~ 16.2V	15.75 ~ 20.25V	18.9 ~ 24.8V	25.2 ~ 32.4V	50.4 ~ 64.8V	
		Protection type : Shut down o/p voltage, re-power on to recover								
ENVIRONMENT	WORKING TEMP.	0 ~ +50°C (Refer to output load derating curve)								
	WORKING HUMIDITY	20% ~ 90% RH non-condensing								
	STORAGE TEMP., HUMIDITY	-20 ~ +85°C, 10 ~ 95% RH								
	TEMP. COEFFICIENT	±0.03% / °C (0~50°C)								
SAFETY & EMC (Note. 6)	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes								
	SAFETY STANDARDS	UL60950-1, TUV EN60950-1, BSMI CNS14336, CCC GB4943 approved								
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC		I/P-FG:1.5KVAC		O/P-FG:0.5KVAC				
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C / 70% RH								
	EMI CONDUCTION & RADIATION	Compliance to EN55022 class B, FCC PART 15 / CISPR22 class B, CNS13438 class B, GB9254 class B								
	HARMONIC CURRENT	Compliance to EN61000-3-2,3, GB17625.1								
OTHERS	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, light industry level, criteria A								
	MTBF	711Khrs min. MIL-HDBK-217F(25°C)								
	DIMENSION	125*50*31.5mm (L*W*H)								
CONNECTOR	PACKING	0.31Kg; 50pcs/16.5Kg/1.13CUFT								
	PLUG	Standard type P1J: 2.1φ * 5.5φ * 11mm, tuning fork type, center positive for stock ; Other type available by customer requested								
	CABLE	See page 2 ; Other type available by customer requested								
NOTE	<p>1. All parameters are specified at 230VAC input, rated load, 25°C 70% RH ambient.</p> <p>2. DC voltage: The output voltage set at point measure by plug terminal &amp; 50% load.</p> <p>3. Ripple &amp; noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1uf &amp; 47uf capacitor.</p> <p>4. Tolerance: includes set up tolerance, line regulation, load regulation.</p> <p>5. Line regulation is measured from low line to high line at rated load.</p> <p>6. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.</p> <p>7. Length of set up time is measured at first cold start. Turning ON/OFF the power supply may lead to increase of the set up time.</p>									

■ Mechanical Specification

Case No. 974A Unit:mm

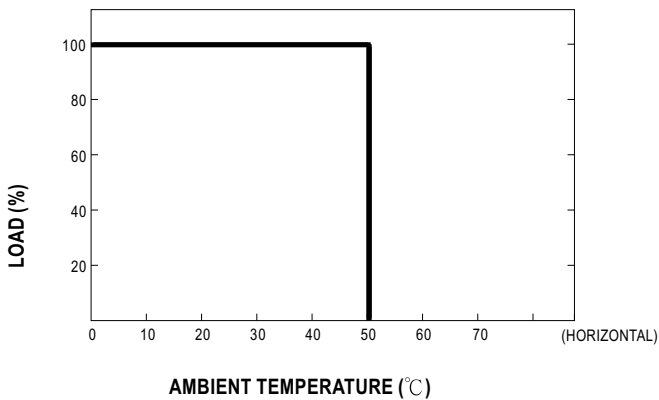


■ Plug Assignment

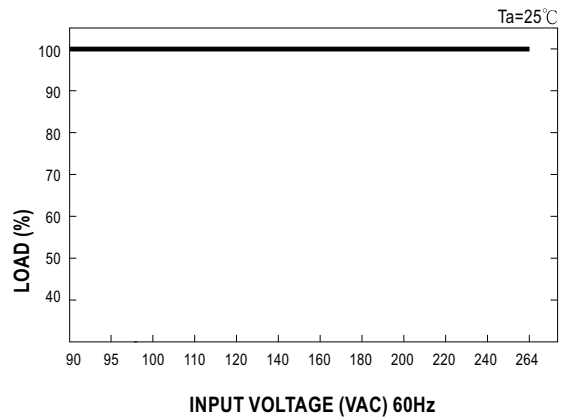
Standard plug: P1J (option)

P1J	
P/N	OUTPUT
CENTER	+

■ Derating Curve



■ Static Characteristics



MODEL : GS40A12-P1J

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1:100 mVp-p (Max)	I/P: 230VAC O/P:FULL LOAD Ta:25°C	V1: 52 mVp-p (Max)	P
2	OUTPUT VOLTAGE TOLERANCE	V1: 3 %- -3% (Max)	I/P: 100 VAC / 264 VAC O/P:FULL/ MIN LOAD Ta:25°C	V1: 0.8 %- -0.8 %	P
3	LINE REGULATION	V1: 1 %- -1 % (Max)	I/P: 100 VAC ~ 264 VAC O/P:FULL LOAD Ta:25°C	V1: 0 %- 0 %	P
4	LOAD REGULATION	V1: 3 %- -3 % (Max)	I/P: 230 VAC O/P:FULL -MIN LOAD Ta:25°C	V1: 0.8 %- -0.8 %	P
5	SET UP TIME	230VAC: 600 ms (Max) 115 VAC: 600 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 381 ms 115VAC/ 381 ms	P
6	RISE TIME	230VAC: 30 ms (Max) 115VAC: 30 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 11 ms 115VAC/ 11 ms	P
7	HOLD UP TIME	230VAC: 50 ms (TYP) 115VAC: 15 ms (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 140 ms 115VAC/ 29 ms	P
8	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	TEST: <5 %	P
9	DYNAMIC LOAD	V1: 1200 mVp-p	I/P: 230 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25°C	282 mVp-p	P

### INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	90VAC~264 VAC	I/P:TESTING O/P:FULL LOAD Ta:25°C	75V~264V	P
			I/P: LOW-LINE-3V= 87 V HIGH-LINE+15%=300 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 ~ 264 VAC O/P:FULL~MIN LOAD Ta:25°C	TEST: OK	P
3	EFFICIENCY	89% (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	89.42%	P
4	INPUT CURRENT	230V/ 0.5 A (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 0.4 A/ 230 VAC	P
		115V/ 1 A (TYP)		I = 0.7 A/ 115 VAC	
5	INRUSH CURRENT	230V/ 65 A (TYP)  COLD START	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	I = 62.3 A/ 230 VAC	P
6	LEAKAGE CURRENT	< 0.75 mA / 240 VAC	I/P: 264 VAC O/P:Min LOAD Ta:25°C	L-FG: 0.03 mA 5 N-FG: 0.03 mA 5	P
7	NO LOAD CONSUMPTION	< 0.3 W/240VAC	I/P: 240 VAC O/P:NO LOAD Ta:25°C	0.2 W	P

### PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105 %- 150 %	I/P: 230 VAC I/P: 115 VAC O/P:TESTING Ta:25°C	120%/ 230 VAC 125%/ 115 VAC Hiccup Mode	P
2	OVER VOLTAGE PROTECTION	CH1: 12.6 V~ 16.2 V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	14.3V/ 230 VAC 14.3V/ 115 VAC Shut down Re- power ON	P
3	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 264 VAC O/P:FULL LOAD Ta:25°C	NO DAMAGE Hiccup Mode	P

## ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	TEMPERATURE RISE TEST	MODEL : GS40A12-P1J 1. ROOM AMBIENT BURN-IN : 12HRS I/P: 230VAC O/P: FULL LOAD Ta=30.7°C 2. HIGH AMBIENT BURN-IN : 1.5 HRS I/P: 230VAC O/P: FULL LOAD Ta=53.3°C			P
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR ( MIN )	I/P: 230 VAC O/P:118% LOAD Ta:30.7°C	TEST : OK	P
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P:264 VAC O/P:100% LOAD Ta= -15 °C	TEST : OK	P
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	P
5	TEMPERATURE COEFFICIENT	± 0.03 %(0-50°C)	I/P: 230 VAC O/P:FULL LOAD	± 0.02%(0-50°C)	P
6	VIBRATION TEST	1 Carton & 1 Set (1) Waveform: Sine Wave (2) Frequency:10-500Hz (3) Sweep Time:10min/sweep cycle (4) Acceleration:2G (5) Test Time:1 hour in each axis (X.Y.Z) (6) Ta:25°C		TEST : OK	P

### SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P: 3 KVAC/min I/P-FG: 1.5 KVAC/min O/P-FG: 0.5 KVAC/min	I/P-O/P: 3.6 KVAC/min I/P-FG: 1.8 KVAC/min O/P-FG: 0.6 KVAC/min Ta:25°C	I/P-O/P: 1.65 mA I/P-FG: 0.65 mA O/P-FG: 0.16 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 / 70%RH	I/P-O/P: 30 GΩ I/P-FG: 1.79 GΩ O/P-FG: 30 GΩ NO DAMAGE	P
3	APPROVAL	TUV: Certificate NO : S50127275 UL: File NO :			P

### E.M.C TEST

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

### M.T.B.F & LIFE CYCLE CALCULATION

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	GS40A12-P1J :SUPPOSE C105 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P:FULL LOAD Ta=25 °C LIFE TIME=311684 HRS I/P: 230VAC O/P:FULL LOAD Ta=50 °C LIFE TIME=108738 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 711K HRS			P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor ( D to S) or (C to E) <b>Peak Voltage</b>	Q 1 Rated 2SK3673-01MR 10A/700V	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Output Short Ta:25°C	(1) 264 V (2) 550 V	P
2	Diode <b>Peak Voltage</b>	D 100 Rated STPS30H60CT 30A/60V	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2)Output Short Ta:25°C	(1) 57.5 V (2) 55 V	P
3	Clamp Diode <b>Peak Voltage</b>	D 1 Rated GP20K : 800 V 2 A	I/P:High-Line +3V = 267 V O/P: (1) Dynamic Load 90%Duty/1KHz Ta:25°C	(1) 548 V	P
4	<b>Input Capacitor Voltage</b>	C 5 Rated 120u/400V 105°C	I/P:High-Line +3V = 267 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) 386 V (2) 390 V (3) 390 V	P
5	<b>Control IC Voltage Test</b>	U 1Rated NCP1230D65R2G : 18 V	I/P:High-Line +3V = 267 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) 12.02 V (2) 9.94 V (3) 12.02 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2008/1/22	RD SAMPLE	PASS	SANFORD SU	VINCENT TSENG
2008/5/2	PRODUCT SAMPLE W0803D95	PASS	SANFORD SU	VINCENT TSENG

2003/12/12 A50-F023