GPC-9 series

9W Single Output Switching Power Supply





Features:

- Constant current design
- Universal AC input / Full range
- Protections: Short circuit
- Cooling by free air convection
- 100% full load burn-in test
- Isolation class II
- UL1310 Class 2 power unit, pass LPS
- Fully encapsulated with IP67 level

MODELGPC-9-350GPC-9-700OUTPUTOUTPUTNO OUTPUT DC VOLTAGEAVCU24V12VRATED CURRENT350mA700mAVOLTAGE RANGE3 ± 24V2 ± 12VRATED POWER8.4W8.4WCURRENT ACCURACY1 ± 3%LINE REGULATION1 1%VOLTAGE TOLERANCE [3]1 50mVs.aSETUP, RISE TIME [4]200mVs.a150mVs.aSETUP, RISE TIME [4]500ms, Z50ms at full loadHOLD UP TIME (typ.)2 4ms / 115VAC, 50ms / 230VAC at full loadFIPCEMENTVOLTAGE RANGEA 0 ÷ 264VACSETUP, RISE TIME [4]30 ÷ 264VACSETUP, RISE TIME [4]SOUTS, 250ms at full loadHOLD UP TIME (typ.)202/115VAC, 50ms / 230VAC at full loadFIFCIENCY (typ.)202/115VAC, 01A / 230VACINFURSTVOLTAGE CURRENT (typ.)202/115VAC, 01A / 230VACLEFICIENCY (typ.)202/115VAC, 01A / 230VACINFURSTVOLTAGE CURRENT (typ.)202/115VAC, 01A / 230VACLEFICIENCY (typ.)202/115VAC, 01A / 230VACINFURSTVOLTAGE CURRENT (typ.)202/115VAC, 01A / 230VACLEFICIENCY (typ.)202/115VAC, 0	ELECTRICAL SPECIFICATION		
NO OUTPUT DC VOLTAGE24V12√RATED CURRENT350mA700mAVOLTAGE RANGE3 ÷ 24V2 ÷ 12VRATED POWER8.4W8.4WCURRENT ACCURACY± 3%	MODEL	GPC-9-350	GPC-9-700
RATED CURRENT350mA700mAVOLTAGE RANGE3 + 24V2 + 12VRATED POWER8.4W8.4WRATED POWER8.4W8.4WCURRENT ACCURACY± 3%	OUTPUT		
VOLTAGE RANGE3 ÷ 24V2 ÷ 12VRATED POWER8.4W8.4WCURRENT ACCURACY± 3%CURRENT ACCURACY± 3%LINE REGULATION± 1%VOLTAGE TOLERANCE [3]± 3%RIPPLE & NOISE (mox.) [2]200mV,r150mV,rSETUP, RISE TIME [4]500ms, 250ms at full loadHOLD UP TIME (typ.)24ms / 115VAC, 50ms / 230VAC at full loadINPUT24ms / 115VAC, 50ms / 230VAC at full loadVOLTAGE RANGE90 ÷ 264VACFREQUENCY RANGE10 · 26 × 00 × 0.14 / 300VACUNDITY10 · 26 × 90% RH non-condensingVORKING TEMPERATURE400 · 400 · 26 · 00° · 10 · 55 % R	NO OUTPUT DC VOLTAGE	24V	12V
RATED POWER8.4WCURRENT ACCURACY13%LINE REGULATION11%VOLTAGE TOLERANCE [3]13%RIPPLE 8. NOISE (max.) [2]200mV+pSETUP, RISE TIME [4]500ms, 250ms at full loadHOLD UP TIME (typ.)24ms / 115VAC, 50ms / 230VAC at full loadHOLD UP TIME (typ.)24ms / 115VAC, 50ms / 230VAC at full loadINPUT24ms / 115VAC, 50ms / 230VAC at full loadVOLTAGE RANGE90 + 264VACFREQUENCY RANGE90 + 264VACFREQUENCY RANGE90 + 264VACFREQUENCY RANGE72%QUTAGE RANGE90 + 264VACFREQUENCY RANGE90 + 264VACFREQUENCY RANGE72%QUTAGE RANGE90 + 264VACFREQUENCY RANGE90 + 264VACFREQUENCY RANGE72%QUTAGE RANGE90 + 264VACFREQUENCY RANGE0.22/115VAC, 0.1A / 230VACLEAKAGE CURRENT (typ.)0.26/115VAC, 0.1A / 230VACVOR RENTYen bincup mode, auto-recovery.POTECTIONSYen bincup mode, auto-recovery.TOPUE TIME TOTO CIRCUENTYen bin condensing curve)ENVIRONMENTYen bin condensing Curve)WORKING TEMPERATURE90'C + 20'C (Refer to Derating Curve)WORKING TEMPERATURE AND HUMIDITY40'C' +	RATED CURRENT	350mA	700mA
CURRENT ACCURACY ± 3% LINE REGULATION ± 1% VOLTAGE TOLERANCE [3] ± 3% RIPPLE & NOISE (max.) [2] 200mVxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	VOLTAGE RANGE	3 ÷ 24V	2 ÷ 12V
LINE REGULATION± 1%VOLTAGE TOLERANCE [3]± 3%RIPPLE & NOISE (max,) [2]200mVx.p150mVx.pSETUP, RISE TIME [4]500ms, 250ms at full loadHOLD UP TIME (typ.)24ms / 115VAC, 50ms / 230VAC at full loadHOLD UP TIME (typ.)24ms / 115VAC, 50ms / 230VAC at full loadINPUT500ms, 250ms at full loadVOLTAGE RANGE90 ± 264VACFREQUENCY RANGE90 ± 264VACFREQUENCY RANGE90 ± 264VACFREQUENCY RANGE72%COLTAGE RANGE72%AC CURRENT (typ.)72%OLA/115VAC, 0.1A / 230VAC72%INRUSH CURRENT (typ.)60A / 230VACIAKAGE CURRENT (typ.)60A / 230VACIAKAGE CURRENT (typ.)60A / 230VACPOTECTIONS50m / 240VACSHORT CIRCUITType: hiccup mode, auto-recovery.Range: 140°C ± 10°C detect on main control ICTope: shut off, recovers automatically after t=uret goes downENVIRONMENT30°C ± 70°C (Refer to Derating Curve)WORKING TEMPERATURE30°C ± 70°C (Refer to Derating Curve)WORKING HUMIDITY20 ± 90% RH non-condensingSTORAGE TEMPERATURE AND HUMIDITY40°C ± 80°C, 10 ± 95% RH non-condensingTORAGE TEMPERATURE AND HUMIDITY± 0.03% / °C 0°C + 50°C)	RATED POWER	8.4W	8.4W
VOLTAGE TOLERANCE [3]± 3%RIPPLE & NOISE (max.) [2]200mV _{PP} 150mV _{PP} SETUP, RISE TIME [4]500ms, 250ms at full loadHOLD UP TIME (typ.)24ms / 115VAC, 50ms / 230VAC at full loadINPUTVOLTAGE RANGE90 ÷ 264VACFREQUENCY RANGE47 ÷ 63H2EFFICIENCY (typ.)72%72%AC CURRENT (typ.)0.2A/115VAC, 0.1A / 230VACINRUSH CURRENT (typ.)0.2A/115VAC, 0.1A / 230VACIRAKAGE CURRENT (typ.)0.2A/115VAC, 0.1A / 230VACIRAKAGE CURRENT (typ.)0.25mA / 240VACPROTECTIONSVer TEMPERATURESHORT CIRCUITType: hiccup mode, auto-recovery.Range: 140°C ± 10°C detect on main control ICType: shut off, recovers automatically after temperature goes downENVIRONMENT-30°C ÷ 70°C (Refer to Derating Curve)WORKING TEMPERATURE-30°C ÷ 70°C (Refer to Derating Curve)VORKING HUMIDITY20 ÷ 90% RH non-condensingSTORAGE TEMPERATURE AND HUMIDITY-40°C ÷ 80°C, 10 ÷ 95% RH non-condensingFURMERATURE COEFFICIENT± 0.03% / °C (0°C ÷ 50°C)	CURRENT ACCURACY	± 3%	
RIPPLE & NOISE (max.) [2]200mV _{PP} 150mV _{PP} SETUP, RISE TIME [4]500ms, 250ms at full loadHOLD UP TIME (typ.)24ms / 115VAC, 50ms / 230VAC at full loadINPUT0VOLTAGE RANGE90 + 264VACFREQUENCY RANGE47 + 63H2EFFICIENCY (typ.)72%AC CURRENT (typ.)0.2A/115VAC, 0.1A / 230VACINRUSH CURRENT (typ.)0.2A/115VAC, 0.1A / 230VACIRRUSH CURRENT (typ.)0.2A/115VAC, 0.1A / 230VACIRRUSH CURRENT (typ.)0.2A/230VACIRRUSH CURRENT (typ.)0.25mA / 240VACPROTECTIONS25mA / 240VACSHORT CIRCUITType: hiccup mode, auto-recovery.Range: 140°C ± 10°C detect on main control ICType: shut off, recovers automatically after t=rature goes downENVIRONMENT-30°C ÷ 70°C (Refer to Derating Curve)WORKING TEMPERATURE-30°C ÷ 70°C (Refer to Derating Curve)WORKING HUMIDITY20 ÷ 90% RH non-condensingSTORAGE TEMPERATURE AND HUMIDITY-40°C ÷ 80°C, 10 ÷ 95% CH non-condensingFINEPERATURE COEFFICIENT±0.03% / °C (0°C ÷ 50°C)	LINE REGULATION	± 1%	
SETUP, RISE TIME [4]500ms, 250ms at full loadHOLD UP TIME (typ.)24ms / 115VAC, 50ms / 230VAC at full loadINPUTVOLTAGE RANGE90 ÷ 264VACFREQUENCY RANGE47 ÷ 63HzEFFICIENCY (typ.)72%AC CURRENT (typ.)0.2A/115VAC, 0.1A / 230VACINRUSH CURRENT (typ.)0.2A/115VAC, 0.1A / 230VACIRUSH CURRENT (typ.)0.25mA / 240VACPROTECTIONS0.25mA / 240VACSHORT CIRCUITType: hiccup mode, auto-recovery.Range: 140°C ± 10°C detect on main control ICType: shut off, recovers automatically after t==reture goes downENVIRONMENT-30°C ÷ 70°C (Refer to Derating Curve)WORKING TEMPERATURE-30°C ÷ 70°C (Refer to Derating Curve)WORKING HUMIDITY20 ÷ 90% RH non-condensingSTORAGE TEMPERATURE AND HUMIDITY40°C + 80°C, 10 ÷ 95% RH non-condensingFUMPERATURE COEFFICIENT± 0.03% / °C (0°C ÷ 50°C)	VOLTAGE TOLERANCE [3]	± 3%	
HOLD UP TIME (typ.)24ms / 115VAC, 50ms / 230VAC at full loadINPUTVOLTAGE RANGE90 ÷ 264VACFREQUENCY RANGE90 ÷ 264VACFREQUENCY RANGE47 ÷ 63HzEFFICIENCY (typ.)72%AC CURRENT (typ.)0.24/115VAC, 0.1A / 230VACINRUSH CURRENT (typ.)30A / 230VACLEAKAGE CURRENT(max.)0.25mA / 240VACPROTECTIONSImpose in the constraint of t	RIPPLE & NOISE (max.) [2]	200mV _{P-P}	150mV _{P-P}
INPUTVOLTAGE RANGE90 ÷ 264VACFREQUENCY RANGE47 ÷ 63HzEFFICIENCY (typ.)72%AC CURRENT (typ.)72%0.2A/115VAC, 0.1A / 230VAC72%INRUSH CURRENT (typ.)30A / 230VACLEAKAGE CURRENT(max.)0.25mA / 240VACPROTECTIONS79e hiccup mode, auto-recovery.SHORT CIRCUITType: hiccup mode, auto-recovery.Nange: 140°C ± 10°C detect on main control ICType: shut off, recovers automatically after terrerature goes downENVIRONMENT-30°C ÷ 70°C (Refer to Derating Curve)WORKING HUMIDITY20 ÷ 90% RH non-condensingSTORAGE TEMPERATURE AND HUMIDITY-40°C ÷ 80°C, 10 ÷ 95% RH non-condensingTEMPERATURE COEFFICIENT± 0.03% / °C (0°C ÷ 50°C)	SETUP, RISE TIME [4]	500ms, 250ms at full load	
VOLTAGE RANGE 90 ÷ 264VAC FREQUENCY RANGE 47 ÷ 63Hz EFFICIENCY (typ.) 72% AC CURRENT (typ.) 72% AC CURRENT (typ.) 0.2A/115VAC, 0.1A / 230VAC INRUSH CURRENT (typ.) 30A / 230VAC LEAKAGE CURRENT (typ.) 0.25mA / 240VAC PROTECTIONS 0.25mA / 240VAC SHORT CIRCUIT Type: hiccup mode, auto-recovery. Range: 140°C ± 10°C detect on main control IC OVER TEMPERATURE Range: 140°C ± 10°C detect on main control IC Type: shut off, recovers automatically after t==rature goes down ENVIRONMENT 20 ÷ 90% RH non-condensing WORKING HUMIDITY 20 ÷ 90% RH non-condensing STORAGE TEMPERATURE AND HUMIDITY 40°C ÷ 80°C, 10 ÷ 95% RH non-condensing TEMPERATURE COEFFICIENT ±0.03% / °C (0°C ÷ 50°C)	HOLD UP TIME (typ.)	24ms / 115VAC, 50ms / 230VAC at full load	
FREQUENCY RANGE47 ÷ 63HzEFFICIENCY (typ.)72%72%AC CURRENT (typ.)0.2A/115VAC, 0.1A / 230VAC72%INRUSH CURRENT (typ.)30A / 230VAC	INPUT		
EFFICIENCY (typ.)72%AC CURRENT (typ.)0.2A/115VAC, 0.1A / 230VACINRUSH CURRENT (typ.)30A / 230VACLEAKAGE CURRENT(max.)0.25mA / 240VACPROTECTIONSSHORT CIRCUITType: hiccup mode, auto-recovery.OVER TEMPERATURERange: 140°C ± 10°C detect on main control ICType: shut off, recovers automatically after temperature goes downENVIRONMENTWORKING TEMPERATURE-30°C ÷ 70°C (Refer to Derating Curve)WORKING HUMIDITY20 ÷ 90% RH non-condensingSTORAGE TEMPERATURE AND HUMIDITY-40°C ÷ 80°C, 10 ÷ 95% RH non-condensingTEMPERATURE COEFFICIENT± 0.03% / °C (0°C ÷ 50°C)	VOLTAGE RANGE	90 ÷ 264VAC	
AC CURRENT (typ.)0.2A/115VAC, 0.1A / 230VACINRUSH CURRENT (typ.)30A / 230VACLEAKAGE CURRENT(max.)0.25mA / 240VACPROTECTIONSSHORT CIRCUITType: hiccup mode, auto-recovery.OVER TEMPERATURERange: 140°C ± 10°C detect on main control IC Type: shut off, recovers automatically after temperature goes downENVIRONMENT-30°C ÷ 70°C (Refer to Derating Curve)WORKING HUMIDITY20 ÷ 90% RH non-condensingSTORAGE TEMPERATURE AND HUMIDITY-40°C ÷ 80°C, 10 ÷ 95% RH non-condensingENVIRONMENT± 0.03% / °C (0°C ÷ 50°C)	FREQUENCY RANGE	47 ÷ 63Hz	
INRUSH CURRENT (typ.)30A / 230VACLEAKAGE CURRENT(max.)0.25mA / 240VACPROTECTIONSSHORT CIRCUITType: hiccup mode, auto-recovery.OVER TEMPERATURERange: 140°C ± 10°C detect on main control ICType: shut off, recovers automatically after temperature goes downENVIRONMENTWORKING TEMPERATURE-30°C ÷ 70°C (Refer to Derating Curve)WORKING HUMIDITY20 ÷ 90% RH non-condensingSTORAGE TEMPERATURE AND HUMIDITY-40°C ÷ 80°C, 10 ÷ 95% RH non-condensingTEMPERATURE COEFFICIENT± 0.03% / °C (0°C ÷ 50°C)	EFFICIENCY (typ.)	72%	72%
LEAKAGE CURRENT(max.) 0.25mA / 240VAC PROTECTIONS Type: hiccup mode, auto-recovery. SHORT CIRCUIT Type: hiccup mode, auto-recovery. OVER TEMPERATURE Range: 140°C ± 10°C detect on main control IC Type: shut off, recovers automatically after temperature goes down Type: shut off, recovers automatically after temperature goes down ENVIRONMENT -30°C ÷ 70°C (Refer to Derating Curve) WORKING HUMIDITY 20 ÷ 90% RH non-condensing STORAGE TEMPERATURE AND HUMIDITY -40°C ÷ 80°C, 10 ÷ 95% RH non-condensing TEMPERATURE COEFFICIENT ± 0.03% / °C (0°C ÷ 50°C)	AC CURRENT (typ.)	0.2A/115VAC, 0.1A / 230VAC	
PROTECTIONSSHORT CIRCUITType: hiccup mode, auto-recovery.OVER TEMPERATURERange: 140°C ± 10°C detect on main control ICOVER TEMPERATUREType: shut off, recovers automatically after temperature goes downENVIRONMENTWORKING TEMPERATURE-30°C ÷ 70°C (Refer to Derating Curve)WORKING HUMIDITY20 ÷ 90% RH non-condensingSTORAGE TEMPERATURE AND HUMIDITY-40°C ÷ 80°C, 10 ÷ 95% RH non-condensingTEMPERATURE COEFFICIENT± 0.03% / °C (0°C ÷ 50°C)	INRUSH CURRENT (typ.)	30A / 230VAC	
SHORT CIRCUIT Type: hiccup mode, auto-recovery. POVER TEMPERATURE Range: 140°C ± 10°C detect on main control IC Type: shut off, recovers automatically after temperature goes down ENVIRONMENT WORKING TEMPERATURE -30°C ÷ 70°C (Refer to Derating Curve) WORKING HUMIDITY 20 ÷ 90% RH non-condensing STORAGE TEMPERATURE AND HUMIDITY -40°C ÷ 80°C, 10 ÷ 95% RH non-condensing TEMPERATURE COEFFICIENT ± 0.03% / °C (0°C ÷ 50°C)	LEAKAGE CURRENT(max.)	0.25mA / 240VAC	
OVER TEMPERATURE Range: 140°C ± 10°C detect on main control IC Type: shut off, recovers automatically after temperature goes down ENVIRONMENT WORKING TEMPERATURE -30°C ÷ 70°C (Refer to Derating Curve) WORKING HUMIDITY 20 ÷ 90% RH non-condensing STORAGE TEMPERATURE AND HUMIDITY -40°C ÷ 80°C, 10 ÷ 95% RH non-condensing temperature coefficient ± 0.03% / °C (0°C ÷ 50°C)	PROTECTIONS		
OVER TEMPERATURE Type: shut off, recovers automatically after temperature goes down ENVIRONMENT •30°C ÷ 70°C (Refer to Derating Curve) WORKING TEMPERATURE •30°C ÷ 70°C (Refer to Derating Curve) WORKING HUMIDITY 20 ÷ 90% RH non-condensing STORAGE TEMPERATURE AND HUMIDITY •40°C ÷ 80°C, 10 ÷ 95% RH non-condensing TEMPERATURE COEFFICIENT ± 0.03% / °C (0°C ÷ 50°C)	SHORT CIRCUIT	Type: hiccup mode, auto-recovery.	
Type: shut off, recovers automatically after temperature goes down ENVIRONMENT WORKING TEMPERATURE -30°C ÷ 70°C (Refer to Derating Curve) WORKING HUMIDITY 20 ÷ 90% RH non-condensing STORAGE TEMPERATURE AND HUMIDITY -40°C ÷ 80°C, 10 ÷ 95% RH non-condensing TEMPERATURE COEFFICIENT ± 0.03% / °C (0°C ÷ 50°C)	OVER TEMPERATURE	Range: 140°C ± 10°C detect on main control IC	
WORKING TEMPERATURE-30°C ÷ 70°C (Refer to Derating Curve)WORKING HUMIDITY20 ÷ 90% RH non-condensingSTORAGE TEMPERATURE AND HUMIDITY-40°C ÷ 80°C, 10 ÷ 95% RH non-condensingTEMPERATURE COEFFICIENT± 0.03% / °C (0°C ÷ 50°C)		Type: shut off, recovers automatically after temperature goes down	
WORKING HUMIDITY20 ÷ 90% RH non-condensingSTORAGE TEMPERATURE AND HUMIDITY-40°C ÷ 80°C, 10 ÷ 95% RH non-condensingTEMPERATURE COEFFICIENT± 0.03% / °C (0°C ÷ 50°C)	ENVIRONMENT		
STORAGE TEMPERATURE AND HUMIDITY -40°C ÷ 80°C, 10 ÷ 95% RH non-condensing TEMPERATURE COEFFICIENT ± 0.03% / °C (0°C ÷ 50°C)	WORKING TEMPERATURE	-30°C ÷ 70°C (Refer to Derating Curve)	
TEMPERATURE COEFFICIENT ± 0.03% / °C (0°C ÷ 50°C)	WORKING HUMIDITY	20 ÷ 90% RH non-condensing	
	STORAGE TEMPERATURE AND HUMIDITY	-40°C ÷ 80°C, 10 ÷ 95% RH non-condensing	
VIBRATION 10 ÷ 500Hz, 2G, 10min / cycle, period for 60min. each along X, Y, Z axes	TEMPERATURE COEFFICIENT	± 0.03% / °C (0°C ÷ 50°C)	
	VIBRATION	10 ÷ 500Hz, 2G, 10min / cycle, period for 60min. each along X, Y, Z axes	

GPC-9 series

9W Single Output Switching Power Supply



SAFETY & EMC REGULATIONS		
SAFETY STANDARDS	Compliance to EN61347-1, EN61347-2-13, IP67	
WITHSTAND VOLTAGE	I-P/O-P: 3kVAC	
ISOLATION RESISTANCE	I-P/O-P; O-P/FG; I-P/FG: 100MΩ/500VDC/25°C/70%	
EMC EMISSION	Compliance to EN55015	
EMC IMMUNITY	Compliance to EN61547; EN55024; EN61000-4-2, -3, -4, -5, -6, -8, -11	
HARMONIC CURRENT	Compliance to EN61000-3-3; EN61000-3-2	
OTHERS		
DIMENSIONS	129.5 x 25 x 20mm	
WEIGHT AND PACKING	0.13kg; 100pcs./box; box weight and dimensions: 20kg; 34.5 x 29 x 19.5cm	

1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.

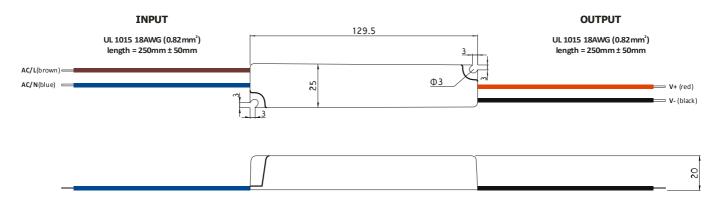
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1µF i 47µF parallel capacitor.

3. Tolerance incudes set up tolerance, line regulation and load regulation.

4. Setup and rise time is measured from 0 to 90% rated output voltage.

5. Power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment must be re-qualify to comply with EMC Directives.

MECHANICAL SPECIFICATION



DERATING CURVE

