Model:GTD9X1002-WWWVV-TW December 7, 2022

Automotive / Aerospace / Medical Grade Rated Vehicle Adapter / Charger 120 Watts Peak

Information

Model Number	GTD9X1002-WWWVV-TW
Description	GTD9X1002-WWWVV-TW, ICT / ITE / Medical Power Supply/Class 2/Household Power Supply, 60601-1-4th Ed. , Desktop/External, DC-DC, , Input Rating: 12-36V, Lead Wire, see Blades/Cord Included for description, Output Rating: 100 Watts, Power rating with convection cooling (W) , 12-28V in 0.1V increments, Approvals: China RoHS; Double Insulation; PSE; RoHS; Ukraine; VCCI; WEEE; UKCA;
Model Picture	
Agency Documents	
CE EC-Declaration	https://www.globtek.com/pdf/ec_declaration/a0O0c00000QD1HqEAL
RoHS/RoHS2 Declaration	https://www.globtek.com/pdf/rohs_cert/a0O0c00000QD1HqEAL
REACH Declaration	https://www.globtek.com/pdf/iso_certificates/REACH.pdf
Conflict Minerals Declaration	https://www.globtek.com/pdf/conflict-minerals.pdf

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MODEL PARAMETERS

Type	Desktop/External
Technology	DC-DC
Category	ICT / ITE / Medical Power Supply/Class 2/Household Power Supply
Input Voltage	12-36V
I/P Amps (A)	17.5 A
Wattage (W)	100.0
Vout Range (V)	12-28
Efficiency Level	
Ingress Protection	IP43
Size (mm)	149.4 x 62.6 x 33.5

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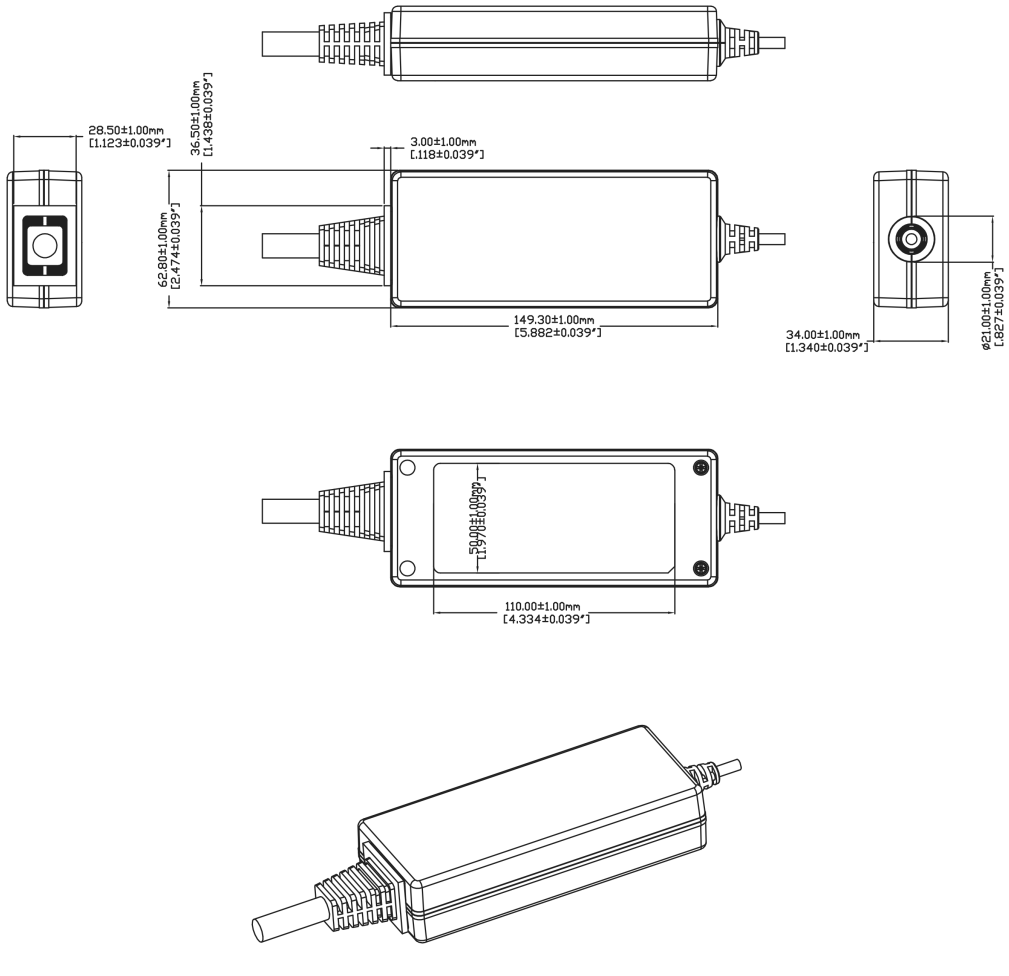
ENCLOSURE



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RATING TABLE

Model Number	Voltage	Amps(A)	Watts(W)	RFQ
GTD9X1002-10012-TW	12 V	8.333	100.00	RFQ
GTD9X1002-6015-TW	15 V	4	60.00	RFQ
GTD9X1002-10015-TW	15 V	6.666	99.99	RFQ
GTD9X1002-10018-TW	18 V	5.55	99.90	RFQ
GTD9X1002-10019-TW	19 V	5.263	100.00	RFQ
GTD9X1002-10022-TW	22 V	4.545	99.99	RFQ
GTD9X1002-10024-TW	24 V	4.166	99.98	RFQ
GTD9X1002-10028-TW	28 V	3.571	99.99	RFQ

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SPECIFICATIONS

Features

- 2 x MOPP medical isolation
- Aerospace qualified per RTCA/DO-160G, EMS-ready per IEC60601-1-12
- Wide "universal" DC input range
- Enhanced transient and automotive/aerospace surge handling capability
- Shock & vibration in accordance with IEC60601-1-12 (EMS) & DO-160G

Input

Input Voltage Range:	12 - 28VDC (nameplate, nominal) 9 - 36VDC (rated, -25% / +25%)
Input Current:	17.5A (max) @ 9VDC & 120W peak output current rating
No Load Input Power:	< 0.5W
Efficiency:	87% @ 12VDC, 90% @ 24VDC typ., at "typical" 60W usage scenario
Inrush Current:	< 1.5A @ 14VDC, satisfies DO-160G, Section 16.7.5.2

Output

Turn-on Delay:	< 2 seconds
Output Regulation	+1.5% / -4% max. (measured at the output connector)
Line Regulation:	± 0.1 % typ. (measured at the output connector)
Ripple:	1% max. (using a 10µF low-ESR electrolytic cap + 0.1µF ceramic cap, measured @ 20MHz BW, at the output connector)
Transient Response (Step Load):	10% max. deviation, 2ms max. recovery time (with 100W load step)
Transient Response (Load Dump):	5% max. deviation, 100ms max. recovery time (with 100W load dump)

Protections

Input Protection:	Input line fusing (high-breaking capacity) Reverse polarity protection (up to -36VDC)
Input Over-Voltage Protection:	"Ride-through" input over-voltage protection without interruption of output voltage (See 'Maximum Allowable Surge Duration' plot for details. See 'EMC' section for other conditions.) Output cycles on/off IF (50V < V_{in} < 85V) AND IF (surge duration is outside SOA region in the aforementioned plot), 1.5s (typ.) restart delay
Input Under-Voltage Protection:	Shut down @ 7.4V (typ.), Restore @ 9.0V (max.)

Output Over-Voltage Protection:	110 - 130%, Latching, cycle DC input voltage to reset
Output Over-Current Protection:	110 - 150%, Auto-recovery
Output Short-Circuit Protection:	Auto-recovery
Over-Temperature Protection:	Auto-recovery

Environmental

MTBF:	> 1,500,000 hours @ 25°C ambient (Telcordia SR-332, Issue 3) > 750,000 hours @ 50°C ambient (Telcordia SR-332, Issue 3)
Operating Temperature:	-10°C to 40°C (100W) Check derating curve for T > 40°C.
Storage Temperature:	-40°C to 80°C
Humidity:	0% to 95% relative humidity, non-condensing
Altitude	5000m
Cooling:	Natural convection
Shock:	End use handling: Half-sine, <3ms duration, 1.65m/s, 3 shocks per face Transportation simulation: Trapezoid, 60G acceleration, 5.75m/sec, 3 shocks per face General shock: Half-sine, 100G acceleration, 6ms duration, 3 shocks per face
Vibration:	IEC60601-1-12, Section 10.1.3, Clause B DO-160G, Section 8, Procedure 8.8, Category U, Zone 1A
Bump:	EN1789, Clause 6.4.1
Drop:	EN1789, Clause 6.4.2
Ingress Protection:	IP43
RoHS:	Complies with EU 2015/863 and China SJ/T 11363-2006

Safety

Compliant Standards:	General medical: IEC60601-1 Emergency medical services (EMS): IEC60601-1-12 Information & communications technologies (ICT): IEC62368-1
Dielectric Withstand Voltage (Hi-Pot):	4300VDC from input to output, 1 minute 4300VDC from input to case, 1 minute 500VAC from output to case, 1 minute
Output Leakage Current:	NC: 8µA max. SFC: 40µA max.
Means of Protection (Primary-to-Secondary):	2 x MOPP
Protection Class:	Class II (reinforced insulation)

EMC

Compliant Standards:	Medical: IEC60601-1-2 Airborne Equipment: RTCA DO-160G Aftermarket automotive: EN50498
	CISPR25, Class 3

Conducted Emissions:	DO-160G, Section 21.4, Category M (measured with resistive load)
Radiated Emissions:	CISPR25, Class 3 DO-160G, Section 21.5, Category M EN50498 (measured with resistive load)
Electrical Transient Conduction Along Supply Lines:	ISO7637-2 (Test conditions for 12V nom. / 24V nom. systems, respectively) Test Pulse 1: - 100V / -600V (5,000 pulses) Test Pulse 2a: + 50V / + 50V (5,000 pulses) Test Pulse 2b: + 10V / + 20V (10 pulses) Test Pulse 3a: -150V / - 200V (1 hour) Test Pulse 3b: +100V / + 200V (1 hour) Test Pulse 4: -6V / -12V (1 pulse) ISO16750-2 Load Dump: 12V nom. system: Test Pulse A : Us = 87V, Ri = 2Ω, td = 400ms 24V nom. system: Test Pulse B: Us* = 65V, Ri = 2Ω, td = 350ms
Input Voltage Interruptions, Dips, Surges and Spikes (DO-160G):	DO-160G, Section 16.6.1.3, Category Z (Momentary interruption) DO-160G, Section 16.6.1.4, Category Z (Normal surge) DO-160G, Section 16.6.2.4, Category Z (Abnormal surge) DO-160G, Section 17, Category B (Spikes)
Electrostatic Discharge (ESD) Immunity:	EN61000-4-2, 10KV contact discharge, 18KV air discharge, Criterion A
Radiated RF Immunity:	EN61000-4-3, 20V/m @ 80MHz - 2.7GHz, 80% 1KHz AM, 80% 5Hz AM, Criterion A DO-160G, Section 20.5, Category R
Conducted RF Immunity:	EN61000-4-6, 3VRMS & 6VRMS (ISM & Amateur bands), 80% 1KHz AM, Criterion A DO-160G, Section 20.4, Category R

Enclosure

Housing:	High impact plastic, 94V0 polycarbonate, non-vented
Markings:	Adhesive backed label or laser engraving

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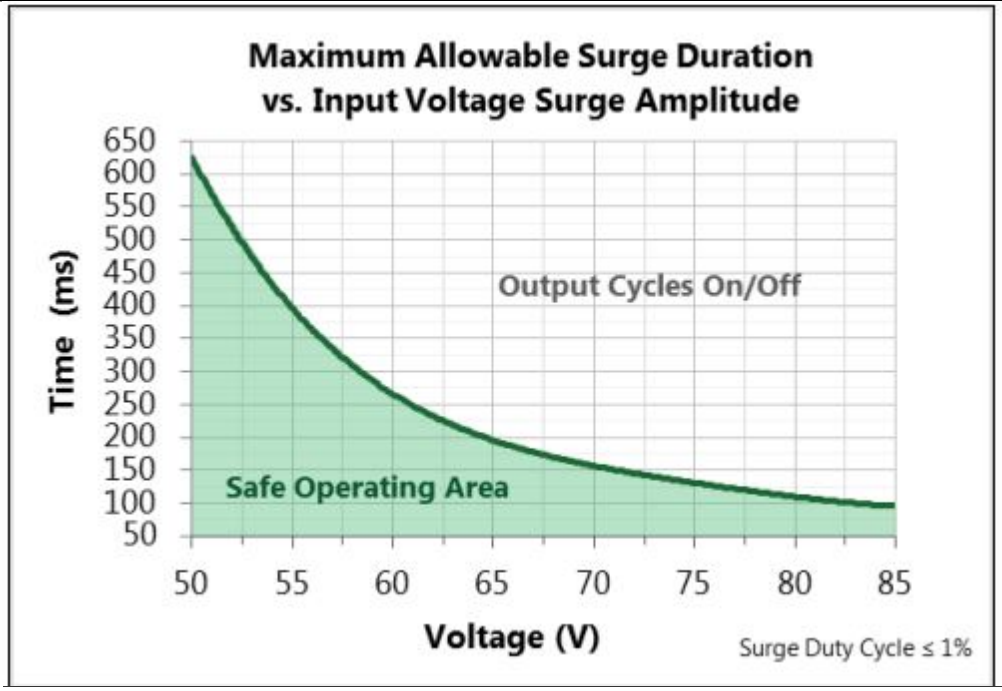

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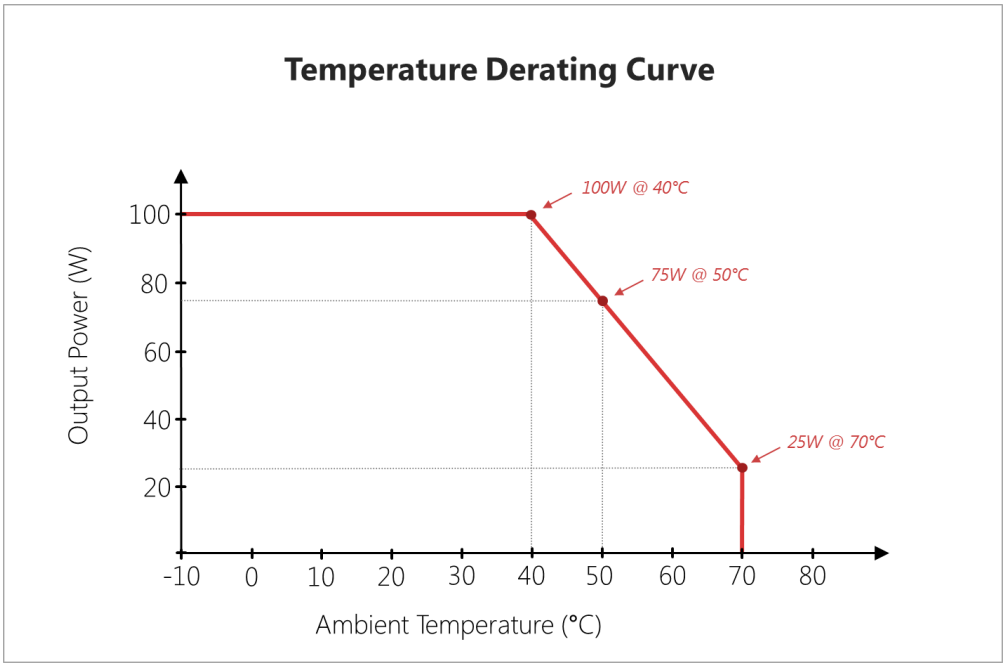
DERATING CURVE



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INPUT CONFIGURATION

Description	Lead Wire, see Blades/Cord Included for description

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OUTPUT CONFIGURATION

Common output connector options:

 L Type (Coaxial 5.5x2.5mm plug)	 C Type (Coaxial 5.5x2.1mm plug)	 K Type (Coaxial 3.5x1.3mm plug)	 LL Type (5.5x2.5mm Locking 760k type)	 CL Type (5.5x2.1mm Locking S761k type)	 ML2 Type (Molex housing 43025-0200)
 YL3 Type (KPPX-3P)	 YL4 Type (KPPX-4P)	 EJ1/2/3/4/5 (EIAJ RC-5320A type connectors)	 MSB Type (Micro USB)	 USBC Type (USB Type C)	 Inquire for custom design

For a comprehensive list of options, click here

Contact GlobTek for your specific requirements or custom solutions.

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Approvals

Logo	Description
	CHINA SJ/T 11364-2014, China RoHS Chart: http://en.globtek.com/globtek-rohs.php
	
	Indoor Use Only - Mark is on the label or Molded in the case
	JAPAN TUV R-PSE, Cert. No. JD 50469658, to J62368-1(H30) , J55032(H29),J3000(H25)[15V or less]. Please reference the following website for guidelines on PSE regulations: http://en.globtek.com/importing-ite-and-medical-power-supplies-ac-adaptors-to-japan/
RoHS	Specifications of directive 2011/65/EU Annex VI (ROHS-2) with amendment 2015/863-EU (ROHS-3) http://www.ce-mark.com/Rohs%20final.pdf
	UKCA Certification
	Ukraine UKRSepro (Document: www.globtek.com/html/iso_certificates/GT_Ukraine.pdf)
	Japan: Voluntary Control Council for Interference (VCCI)
	WEEE: Complies with EU 2012/19/EU (http://ec.europa.eu/environment/waste/weee/index_en.htm) Mark is on the label or Molded in the case