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Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from, Europe, America and south Asia, supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts, Customers Priority, Honest Operation, and Considerate Service", our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip, ALPS, ROHM, Xilinx, Pulse, ON, Everlight and Freescale. Main products comprise IC, Modules, Potentiometer, IC Socket, Relay, Connector. Our parts cover such applications as commercial, industrial, and automotives areas.

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TRACO POWER

AC/DC Medical Power Supply

- High power density power supply (open frame)
- Certification according to IEC/EN/ES 60601-1 3rd edition for 2×MOPP
- Low leakage current <100 µA rated for BF applications
- EMC emission and immunity to IEC 60601-1-2 4th edition
- Risk management process according to ISO 14971 including risk management file
- Acceptance criteria for electronic assemblies according to IPC-A-610 Level 3
- Protection class I and II
- Operating up to 5000m altitude
- Ready to meet ErP directive, no load power consumption
- 5 year product warranty





The TPP 30A-J AC/DC power supplies feature a reinforced double I/O isolation system according to medical safety standards IEC/EN/ES 60601-1 3rd edition for 2 × MOPP approved for an operating altitude of 5000 m. The earth leakage current is below 100 μ A what makes the units suitable for BF (body floating) applications. The excellent efficiency of up to 91.5% offers a high power density in the packaging format 1.36" x 3.34". The full load operating temperature range covers -40°C to +60°C while it goes up to 85°C with 50% load derating. The units operate in compliance to the medical EMC emission and immunity levels according to latest standard IEC 60601-1-2 4th edition.

Models					
Order Code	Output Power	Output Voltage	Output Current	Efficiency	
	(max.)		(max.)	(typ.)	
TPP 30-103A-J	20 W	3.3 VDC	6'000 mA	84.0 %	
TPP 30-105A-J		5.0 VDC	6'000 mA	87.0 %	
TPP 30-109A-J		9.0 VDC	3'340 mA	88.0 %	
TPP 30-112A-J		12 VDC	2'500 mA	90.5 %	
TPP 30-115A-J	30 W	15 VDC	2'000 mA	90.5 %	
TPP 30-124A-J		24 VDC	1'250 mA	89.5 %	
TPP 30-136A-J		36 VDC	840 mA	90.0 %	
TPP 30-148A-J		48 VDC	630 mA	91.5 %	

TPP 30A-J Series, 30 Watt

TRACO POWER

Input voltage range AC range (universal input)	Input Specification	S			
- DC range 120 - 370 VDC Input format at full load - al. 1*5 VAC / 230 VAC 0.80 A max. / 0.40 A max. Input protection - al. 230 VAC 40 A max. Zero load power consumption 0.80 K typ. (acc. EP? directive) Output Specifications ± 10% Voltage adjustment ± 10% Voltage set accuracy ± 10% Regulation - Input invisit of the routput models 0.7% max. - Load variation (0 to 100%) 3.3 8.0 Vut models: 0.7% max. Minimum load - not required 160 ms max. Rispla and noise 2.3, 5.0 A 9.0 Vut models: 50 mVp-p typ. wr.as. 10//720V 106 X7R MICC C20 Mar Bandwidth 12, 5.0 A 9.0 Vut models: 50 mVp-p typ. wr.as. 10//720V 106 X7R MICC C20 Mar Bandwidth - Peak derivation (26% to ad step charge) 30% max. C20 Mar Bandwidth - Peak derivation (26% to ad step charge) 30% up typ. Carrent limitation - Peak derivation (26% to ad step charge) 30% up typ. Carrent limitation - Peak derivation (26% to ad step charge) 300 up typ. Carrent limitation - Peak derivation (26% to ad step charge)	Input voltage range	– AC range (universal inpu	t)		
Input current at full lead - at 115 VAC / 230 VAC 0.80 A max. / 0.40 A max. Input protection T1.6 A/250 VAC 40 A max. Zero lead power consumption 0.05 W typ. (acc. ErP directive) Output Specifications Voltage adjustment ±10% Voltage adjustment ±10% Voltage set accuracy ±1% Regulation - hput variation (0 to 100%) 3.3 & 5.0 Yout models - Load variation (0 to 100%) 3.3 & 5.0 Yout models - Load variation (0 to 100%) 3.3 & 5.0 Yout models - Load variation (0 to 100%) 3.3 & 5.0 Yout models - Load variation (0 to 100%) 3.3 & 5.0 Yout models - Load variation (0 to 100%) 3.3 & 5.0 Yout models - Load variation (0 to 100%) 3.3 & 5.0 Yout models - Load variation (0 to 100%) 3.3 & 5.0 Yout models - Back deviation (0 to 100%) 3.3 & 5.0 Yout models - Repeated the set output models - A to 15 VAC 16 ms typ. Start-up time - at 115 VAC 16 ms typ. Ripple and noise 2.0 JK K K Ripple and noise - Peak deviation (25% load step change) 50 myp- ptyp. w.cap. 10µ7/20V 1208 X7R M CO - Peak deviation (25% load step change) 500 ye typ. Overvoltage protection 215 - 140% of nominal Yout 25 - 140% of nominal Yout 25 - 140% of nominal Yout 26 X7R M CO - Peak deviation (25% load step change) 3720 µF max. - Recovery time 500 ye typ. Overvoltage protection 215 - 140% of nominal Yout 25 - 140% of nominal Yout 25 - 140% of nominal Yout 25 - 140% of nominal Yout 27 YOU YOB X7R M CO - Stort circuit protection 215 - 140% of nominal Yout 25 - 140% of nominal Yout 25 - 140% of nominal Yout 25 - 140% of nominal Yout 26 YOU PF max. - Recovery time 500 ye typ. Overvintage - Operating APCC to +85°C APCC to +85°C APCC to +85°C APCC to +100°C APCC to +100°C APCC to +100°C APCC to +100°C + 10°C + 10°C + + 10°C + + + - + + + + - + + + + + + - +		– DC range			
Input protection T1.8 A/250 VAC (internal fuse) Input inrush current - at 230 VAC 40 A max. Zero load power consumption 0.05 W typ. (acc. EIP directive) Output Specifications *10% Voltage adjustment ±10% - Load variation (Vin min to Vin max) - Stort circuit protection 50 mVp-p typ. vcap. Up/70V 1008 X/R MIC - Load variation (Vin Min model - Mover of tage protection Capacitive load 3.3 Kout model: - Stort circuit protection 50 mVp-p typ. vcap. Up/70V 1008 X/R MIC - Load variation (Vin Min to Vin max) - Stort circuit protection Capacitive load 3.3 Kout model: - Stort circuit protection 1100 Vin Min to Vin max. - 2000 V p max. - Storage	Input frequency			47 – 63 Hz	
Input inrush current - at 230 VAC 40 A max. Zero load power consumption 0.05 W typ. Jacc. ErP directive) Output Specifications Voltage adjustment ±10% Regulation - input variation (Vin min. to Vin max) 0.2% max. - Load variation (Vin min. to Vin max) 0.2% max. 0.7% max. - Load variation (Vin min. to Vin max) 0.2% max. 0.7% max. Minimum load not required 1002%/K Temperature coefficient ±10.2%/K 160.00 ms max. Rise time 40 ms typ. 50 mVp- ptp. w cas: 10µF20V 1206 X7R MLC (20 MHz Bandwitch) 12, 15, 24 & 36 Vout models: 50 mVp- ptp. w. cas: 0µF20V 1206 X7R MLC (20 MHz Bandwitch) 12, 15, 24 & 36 Vout models: 50 mVp- ptp. w. cas: 0µF20V 1206 X7R MLC (20 MHz Bandwitch) 12, 15, 24 & 36 Vout models: 50 mVp- ptp. w. cas: 0µF20V 1206 X7R MLC (20 MHz Bandwitch) 12, 15, 24 & 36 Vout models: 50 mVp- ptp. w. cas: 0µF20V 1206 X7R MLC (20 MHz Bandwitch) 12, 15, 24 & 36 Vout models: 500 Wp- ptp. w. cas: 0µF20V 1206 X7R MLC (20 MHz Bandwitch) 12, 15, 24 & 36 Vout models: 500 Wp- ptp. w. cas: 0µF20V 1206 X7R MLC (20 MHz Bandwitch) 12, 15, 24 & 36 Vout models: 500 Wp. Nos: (20 MHz Bandwitch) 12, 15, 24 & 36 Vout models: 500 Wp. ptp.	Input current at full load	– at 115 VAC / 230 VAC		0.80 A max. / 0.40 A max.	
Zero load power consumption OU5 W typ, (acc. CP directive) Output Specifications Voltage adjustment i 10% Voltage adjustment i 10% Regulation - Input variation (Vin min. to Vin max) - I cad variation (Vin to Vin to Vin	Input protection			T1.6 A/250 VAC (internal fuse)	
Output Specifications Voitage adjustment ±10% Voitage adjustment ±10% Regulation - input variation (Vin min. to Vin max) - Lead variation (0 to 100%] 3.3 8.50 Vout models: 0.7% max. 0.2% max. Aminum load not required Temperature coefficient ±0.02%/K Hold-up time - at 115 V/C 16 ms typ. Start-up time Rise time 40 ms typ. Start-up time 50 mVp-p typ. w cap 10µF/20V 1206 X/R MLCC Rise time 40 ms typ. Start-up time 50 mVp-p typ. w cap 10µF/20V 1206 X/R MLCC (20 MH2 Bandwidth) 12, 15, 24 & 86 Vout models: 50 mVp-p typ. w cap 10µF/20V 1206 X/R MLCC Transient response - Peak deviation (25% load step change) 3% max. - Recovery time 500 us typ. Stort unous (automatic recovery), hiccup Current limination at 140% tout typ. 10000 µF max. Stort circuit protection cortinuous (automatic recovery), hiccup Capacitive load 33 3.56 & 9 Vout models: 37/20 µF max. 12 Vout model: 2/208 µF max. 12/208 µF max. 12 Vout model: 3/208 µF max. 130 µF max.	Input inrush current	– at 230 VAC		40 A max.	
Voltage adjustment ± 10% Voltage set accuracy ± 1% Regulation - Input variation (Vin min. to Vin max.) - Load variation (0 to 100%) 0.2% max. 0.5% max. Minimum load - not required Temperature coefficient ±0.02%/K Hold-up time - at 115 VAC 16 ms typ. Start-up time 1500 ms max. Rise time 40 ms typ. Start-up time 50 MVp-p typ. w cap 10µF/20V 1206 X7R MLCC (20 MHz Bandwidth) 121, 15, 24 & 38 Vout models 50 MVp-p typ. w cap 10µF/20V 1206 X7R MLCC (20 MHz Bandwidth) 121, 15, 24 & 38 Vout models 50 MVp-p typ. w cap 10µF/20V 1206 X7R MLCC (20 MHz Bandwidth) 121, 15, 24 & 38 Vout models 50 MVp-p typ. w cap 10µF/20V 1206 X7R MLCC Corrent limitation at 140% load step change) 3% max. - Recovery time 500 up typ. countouts turbatic recovery), hiccup Capacitive load 3.3 Vout model: 10000 µF max. 12 Vout model: 12000 µF max. 12000 µF max. 12 Vout model: 1350 µF max. 1350 µF max. 12 Vout model: 1350 µF max. 1350 µF max. 24 Vout model: 1350 µF max.	Zero load power consumpt	ion		0.05 W typ. (acc. ErP directive)	
Voltage set accuracy ±1% Regulation - Input variation (Vin min. to Vin max) 0.2% max. . Load variation (0 to 100%) 3.3 & 5.0 Vout models 0.5% max. Minimum load not required Temperature coefficient ±0.02%/rK Hold-up time - at 115 VAC 16 ms typ. Start-up time 1500 ms max. Ripple and noise 3.3, 5.0.8.9 (Vout models) 50 mVp- byp. wcas 10µ5/20/ 1208 X7R MLCC (20 MHz Bandwidth) 12, 15, 24.8.8 (Vout models) 50 mVp- byp. wcas 10µ5/20/ 1208 X7R MLCC (20 MHz Bandwidth) 12, 15, 24.8.8 (Vout models) 50 mVp- byp. wcas 10µ5/20/ 1208 X7R MLCC (20 MHz Bandwidth) 12, 15, 24.8.3 (Vout models) 50 mVp- byp. wcas 10µ5/20/ 1208 X7R MLCC (20 MHz Bandwidth) 12, 15, 24.8.3 (Vout models) 50 mVp- byp. wcas 10µ5/20/ 1208 X7R MLCC Capacitive load - Peak deviation (25% load step change) 3% max. 3% max. Short circuit protection 25 - 140% of nominal Vout 20 Fmax. 3720 µF max. Capacitive load 3.3 Vout models 8 Vout models 3720 µF max. 3720 µF max. 32 Vout model 6 Vout models 8 Vout models 1350 µF max. 350 µF max.	Output Specificatio	ons			
Regulation - Input variation (Vin min. to Vin max) - Load variation (0 to 10096) 3.3 & 8.50 Vout models: 0.7% max. 0.7% max. Minimum load not required Temperature coefficient ±0.02%/K Hold-up time - at 115 VAC 16 ms typ. Start-up time 1500 ms max. Rise time 40 ms typ. Ripple and noise 3.3, 50 & 9.0 Vout models: 50 mVp-p typ. w cap. 10//720V 1206 X7R MLCC (20 MHz Bandwidth) 12, 15, 24 & 36 Vout models: 50 mVp-p typ. w cap. 10//720V 1206 X7R MLCC Transient response - Peak deviation (25% load stop change) 3% max. Overvoltage protection 125 - 140% of nominal Vout Current limitation at 140% lout typ. Short circuit protection continuous (automatic recovery), hiccup Capacitive load 3.3 Vout model: 10'000 µF max. 12 Vout model: 12/000 µF max. 12'000 µF max. 12 Vout model: 13/0 µF max. 13/0 µF max. 12 Vout model: 13/0 µF max. 13/0 µF max. 12 Vout model: 13/0 µF max. 13/0 µF max. 12 Vout model: 13/0 µF max. 13/0 µF max. 13 Vout model: <td< td=""><td>Voltage adjustment</td><td></td><td></td><td>±10%</td></td<>	Voltage adjustment			±10%	
- Lead variation (0 to 100%) 3.3 & 5.0 Yout models 0.7% max. Minimum load not required Temperature coefficient ±0.02%/K Hold-up time - at 115 VAC 16 ms typ. Start-up time 1500 ms max. Rise time 40 ms typ. Ripple and noise 3.3, 50 & 9.0 Vout models 50 mVp- ptyp. wcap. 10µP/20V 1206 X7R MLCC (20 MHz Bandwidth) 12, 15, 24 & 3.8 Vout models 50 mVp- ptyp. wcap. 01µF/100V 1206 X7R MLCC (20 MHz Bandwidth) 12, 15, 24 & 3.8 Vout models 50 mVp- ptyp. wcap. 01µF/100V 1206 X7R MLCC (20 MHz Bandwidth) 12, 15, 24 & 3.8 Vout models 50 mVp- ptyp. wcap. 01µF/100V 1206 X7R MLCC Carrent limitation at 140% lout typ. 50 of us typ. Overvoltage protection 125 – 140% of nominal Vout Capacitive load 3.3 Vout models 17/200 µF max. S Vout model 12/200 µF max. 15/200 µF max. 12 Vout models 135 µF max. 220 µF max. 24 Vout models 135 µF max. 220 µF max. 36 Vout models 135 µF max. 36 µF max. 36 Vout models 135 µF max. 36 µF max. 32 µF max. <t< td=""><td>Voltage set accuracy</td><td></td><td></td><td>±1%</td></t<>	Voltage set accuracy			±1%	
difference 0.5% max. Minimum load not required Temperature coefficient ±0.02%/K Hold-up time - at 115 VAC 16 ms typ. Start-up time 1500 ms max. Rise time 40 ms typ. Ripple and noise 33, 50.8.90 Vout models: 50 mVp- ptyp. w cap 10µF/00V 1206 X/R MLCC (20 MHz Bandwidth) 12, 15, 24.8.36 Vout models: 50 mVp- ptyp. w cap 01µF/100V 1206 X/R MLCC Transient response - Peak deviation (25% load step change) 3% max. - Recovery time 500 us typ. 0000 vout models: Overvoltage protection 125 - 140% of nominal Vout 125 - 140% of nominal Vout Current limitation 122 - 140% of nominal Vout 125 - 140% of nominal Vout Capacitive load 3.3 Vout model: 10'000 µF max. Stort circuit protection continuous (automatic recovery), hiccup Capacitive load 3.3 Vout model: 10'200 µF max. Stort medet 12 Vout model: 135 Vout model: 135 Vout model: 135 Vout model: 135 Vout model: 135 Vout model: 135 Vout model: 135 µF max. <t< td=""><td>Regulation</td><td colspan="2">– Input variation (Vin min. to Vin max.)</td><td>0.2% max.</td></t<>	Regulation	– Input variation (Vin min. to Vin max.)		0.2% max.	
Minimum load not required Temperature coefficient ±0.02%/K Hold-up time - at 115 VAC 16 ms typ. Start-up time 1500 ms max. Rise time 40 ms typ. Ripple and noise 3.3, 5.0.8, 9.0 Vout models: 50 mVp-p typ. w cap 10µ7/20V 1206 X7R MLC0 (20 MHz Bandwidth) 12, 15, 24.8, 36 Vout models: 50 mVp-p typ. w cap 10µ7/20V 1206 X7R MLC0 (20 MHz Bandwidth) 12, 15, 24.8, 36 Vout models: 50 mVp-p typ. w cap 10µ7/20V 1206 X7R MLC0 (20 MHz Bandwidth) 12, 15, 24.8, 36 Vout models: 50 mVp-p typ. w cap 0µ7/20V 1206 X7R MLC0 (20 MHz Bandwidth) 12, 15, 24.8, 36 Vout models: 50 mVp-p typ. w cap 0µ7/20V 1206 X7R MLC0 Transient response - Peak deviation (25% load step change) 3% max. Overvoltage protection 125 - 140% of nominal Vout 20 Exp. Current limitation at 140% lout typ. 20 Exp. Short circuit protection continuous (automatic recovery), hiccup Capacitive load 3.3 Vout models: 2700 µF max. 12 Vout model: 12000 µF max. 12000 µF max. 12 Vout model: 235 µF max. 130 µF max. 24 Vout models: 236 Wit m		– Load variation (0 to 100			
Temperature coefficient ±0.02%/K Hold-up time - at 115 VAC 16 ms typ. Start-up time 1500 ms max. Rise time 40 ms typ. Ripple and noise 33, 50.8.9.0 Vout models: 50 mVp-p typ. w cap 10/F/20V 1206 X/7R MLC0 (20 MHz Bandwidth) 12, 15, 24.8.36 Vout models: 50 mVp-p typ. w cap 10/F/100V 1206 X/7R MLC0 Transient response - Peak deviation (26% load step change) 3% max. - Recovery time 500 Up typ. 00 typ. Overvoltage protection 125 - 140% of nominal Vout Current limitation at 140% lout typ. Short circuit protection continuous (automatic recovery), hiccup Capacitive load 3.3 Vout model: 10'000 µF max. 9 Vout model: 2085 µF max. 12 Vout press. 12 Vout model: 2035 µF max. 235 µF max. 130 µF max. 33 Vout model: 30 µF max. 12 Vout model: 2035 µF max. 130 µF max. 13 Vout model: 130 µF max. 24 Vout model: 235 µF max. 13 Vout model: 130 µF max. 24 Vout model: 236 %/K abo	Minimum load		other output models.		
Hold-up time - at 115 VAC 16 ms typ. Start-up time 1500 ms max. Rise time 40 ms typ. Ripple and noise 3.3, 5.0 & 9.0 Vout models: 50 mVp- ptyp. w cap 10µF/20V 1206 X7R MLC0 (20 MHz Bandwidth) 12, 15, 24 & 36 Vout models: 50 mVp- ptyp. w cap 10µF/20V 1206 X7R MLC0 (20 MHz Bandwidth) 12, 15, 24 & 36 Vout models: 50 mVp- ptyp. w cap 10µF/20V 1206 X7R MLC0 Transient response - Peak deviation (25% load step change) 3% max. - Recovery time 500 µs typ. 500 µs typ. Overvoltage protection 12 1- 140% of nominal Vout Current limitation at 140% lout typ. Short circuit protection continuous (automatic recovery), hiccup Capacitive load 3.3 Vout model: 3'720 µF max. 12 Vout model: 12000 µF max. 2085 µF max. 12 Vout model: 130 µF max. 235 µF max. 130 µF max. 235 µF max. 130 µF max. 235 µF max. 130 µF max. 235 µF max. 130 µF max. 225 µF Kas. 225 µF Kas. Capacitive load - Operating - 40°C to +85°C - Storage - 40°C to +85°C				•	
Start-up time 1500 ms max. Rise time 40 ms typ. Ripple and noise 3.3, 5.0 & 9.0 Vout models: 50 mVp- ptyp. w. cap. 10µF/20V 1206 X7R MLCC (20 MHz Bandwidth) 12, 15, 24 & 36 Vout models: 50 mVp- ptyp. w. cap. 10µF/20V 1206 X7R MLCC (20 MHz Bandwidth) 48 Vout models: 50 mVp- ptyp. w. cap. 10µF/20V 1206 X7R MLCC Transient response - Peak deviation (25% load step change) 3% max. - Recovery time 30 ms typ. Overvoltage protection 125 - 140% of nominal Vout Current limitation at 140% lout typ. Short circuit protection continuous (automatic recovery), hiccup Capacitive load 3.3 Vout model: 10'000 µF max. 12 Vout model: 2'020 µF max. 1280 µF max. 12 Vout model: 2'350 µF max. 130 µF max. 24 Vout model: 235 µF max. 130 µF max. 235 µF max. 235 µF max. 235 µF max. 326 Vout model: 2.6 %/K above +60°°C 3.6 %/K above +75°C - Low input voltage - A0°C to +85°C - A0°C to +85°C - Low input voltage 5.0 9V models: 2.6 %/K above +75°C - Low input voltage	•	at 115 V/AC			
Rise time 40 ms typ. Ripple and noise 3.3, 5.0.8 9.0 Vout models: 50 mVp-p typ. w cap. 10µF/20V 1206 X7R MLCC (20 MHz Bandwidth) 12, 15, 24.8.36 Vout models: 50 mVp-p typ. w cap. 01µF/100V 1206 X7R MLCC Transient response - Peak deviation (25% load step change) 3% max. - Recovery time 30 m pax. 500 µs typ. Overvoltage protection 125 - 140% of nominal Vout Current limitation at 140% lout typ. Short circuit protection continuous (automatic recovery), hiccup Capacitive load 3.3 Vout model: 5 Vout model: 10'000 µF max. 5 Vout model: 10'000 µF max. 12 Vout model: 10'08 µF max. 130 µF max. 226 µF max. 130 µF		- at 113 VAC			
Ripple and noise (20 MHz Bandwidth) 3.3, 5.0.8, 9.0 Vout models (20 MHz Bandwidth) 50 mVp-p typ. w. cap. 10µF/20V 1206 X7R MLCC 50 mVp-p typ. w. cap. 10µF/20V 1206 X7R MLCC 50 mVp-p typ. w. cap. 01µF/100V 1206 X7R MLCC 50 mVp- typ. w. cap. 01µF/100V 1206 X7R MLCC 50 mVp. w. cap. 01µF/100V 1206 X7R MLCC 50 000 µF max. 5100 µF max. 510 µF max.	· ·				
(20 MH2 Bandwidth) 12, 15, 24 & 36 Vout models: 48 Vout model: 50 mVp-p typ. w. cap. 01, IP700V 1206 X7R MLCC 50 mVp-p typ. w. cap. 01, IP7100V 1206 X7R MLCC 50 mVp. 1206 X7R MLCC 50 mVp. 1200 Vp max. 50 Vot model: 125 - 140% of nominal Vout 12 Vout model: 12000 µF max. 24 Vout model: 12000 µF max. 24 Vout model: 1250 µF max. 24 Vout model: 1250 µF max. 24 Vout model: 1250 µF max. 24 Vout model: 1350 µF max. 36 Vout model: 130 µF max. 48 Vout model: 230 µF max. 48 Vout model: 230 µF max. 48 Vout model: 245 W/K above +60°C 0 + Low input voltage - Low input voltage - Low input voltage - Low input voltage - Input / Voutput (60 s) - Input / Floating (60 s) - Input / Floating (60 s) - Nut /					
Image: Production 500 µs typ. Overvoltage protection 125 - 140% of nominal Vout Current limitation at 140% lout typ. Short circuit protection continuous (automatic recovery), hiccup Capacitive load 3.3 Vout model: 5 Vout model: 12'000 µF max. 5 Vout model: 2085 µF max. 12 Vout model: 2085 µF max. 12 Vout model: 2085 µF max. 15 Vout model: 2085 µF max. 15 Vout model: 2085 µF max. 15 Vout model: 2085 µF max. 16 Vout model: 2085 µF max. 24 Vout model: 2085 µF max. 24 Vout model: 2085 µF max. 250 µF max. 26 Vout model: 200 µF max. General Specifications -40°C to +85°C -40°C to +85°C -40°C to +100°C Temperature ranges - Operating - Storage -40°C to +85°C -40°C to +100°C Output power derating - Temperature 3.3, 5 & 9 Vout models: other output models: 0 ther output models: 0 ther output models: 0 ther output models: 2.25 %/K above +75°C 4.0 %/V below 90 VAC Humidity (non condensing) - Temperature 3.3, 5 & 9 Vout models: 0 ther output models: 2.25 %/K above +75°C 4.0 %/V below 90 VAC Humidity (non condensing) - Low input voltage 5 - 95 % rel. H. Altitude during operation 5000 m max. Switching frequency (at 230 VAC) 30 - 60 kHz (pulse width modulation) Isolation voltage - Input / Output (60 s) - Input / Floating (60 s) - Output / Floating (60 s) 1500 VAC (1 × MOPP insulation) <		12, 15, 24 & 36 Vout models:			
Current limitation at 140% lout typ. Short circuit protection continuous (automatic recovery), hiccup Capacitive load 3.3 Vout model: 5 Vout model: 12'000 µF max. 9 Vout model: 12'000 µF max. 12'000 µF max. 13'0 µF max. 24'Vout model: 130 µF max. General Specifications 235 µF max. 36 Vout model: 130 µF max. Temperature ranges - Operating - Storage -40°C to +85°C -40°C to +100°C Output power derating - Temperature - Storage -40°C to +85°C -40°C to +100°C Output power derating - Temperature - Low input voltage 3.3, 5 & 9 Vout models: other output models: 0 + Output models: 2.5 %/K above +60°C 3.6 %/K above +75°C - Low input voltage Humidity (non condensing) 5 - 95 % rel. H. 5000 m max. Switching frequency (at 230 VAC) 30 - 60 kHz (pulse width modulation) Isolation voltage - Input / Output (60 s) - Input / Floating (60 s) 4000 VAC (1 × MOPP insulation) 1500 VAC (1 × MOPP insulation)	Transient response				
Short circuit protection continuous (automatic recovery), hiccup Capacitive load 3.3 Vout model: 5 Vout model: 9 Vout model: 10'000 μF max. 12 Vout model: 2'085 μF max. 12 Vout model: 2'085 μF max. 12 Vout model: 2'085 μF max. 135 Ou μF max. 24 Vout model: 235 μF max. 36 Vout model: 20 μF max. 37 Vout model: 20 μF max. 36 Vout model: 20 μF max. 30 %/K above +75°C 4.0 %/V below 90 VAC 4.0	Overvoltage protection			125 – 140% of nominal Vout	
Capacitive load 3.3 Vout model: 5 Vout model: 9 Vout model: 12'000 µF max. 10'000 µF max. 9 Vout model: 12'000 µF max. 3'720 µF max. 12 Vout model: 12'000 µF max. 3'720 µF max. 12 Vout model: 12'000 µF max. 12'000 µF max. 12 Vout model: 12'000 µF max. 12'000 µF max. 15 Vout model: 15'0 µF max. 12'00 µF max. 24 Vout model: 235 µF max. 235 µF max. 36 Vout model: 130 µF max. 235 µF max. 48 Vout model: 130 µF max. 225 %/K above +60°C Output power derating - Storage -40°C to +85°C -40°C to +100°C Output power derating - Temperature 3.3, 5 & 9 Vout models: other output models: other output models: 2.25 %/K above +60°C 3.6 %/K above +75°C + Low input voltage 4.0 %/V below 90 VAC Humidity (non condensing) 5 - 95 % rel. H. Altitude during operation 5000 m max. Switching frequency (at 230 VAC) 30 - 60 kHz (pulse width modulation) Isolation voltage - Input / Output (60 s) - Input / Floating (60 s) - Output / Floating (60 s) 4000 VAC (2 × MOPP insulation) 1500 VAC (1 × MOPP insulation)	Current limitation			at 140% lout typ.	
5 Vout model:12'000 µF max. 3'720 µF max. 12 Vout model:3'720 µF max. 3'720 µF max. 12 Vout model:12 Vout model:1'350 µF max. 1350 µF max. 24 Vout model:1'350 µF max. 235 µF max. 130 µF max. 130 µF max. 130 µF max. 130 µF max. 130 µF max. 130 µF max. 24 Vout model:General Specification:Temperature ranges- Operating - Storage-40°C to +85°C -40°C to +100°COutput power derating - Duput voltage- Temperature - Storage3.3, 5 & 9 Vout model: - 40°C to +100°COutput power derating - Low input voltage- Temperature - Low input voltage3.3, 5 & 9 Vout model: - 4.0 %/Y below 90 VACHumidity (non condensing)- Temperature - Low input voltage3.3, 5 & 9 Vout model: - Low input voltage2.25 %/K above +75°C - 4.0 %/Y below 90 VACHumidity (non condensing)- Temperature - Low input voltage3.3, 5 & 9 Vout model: - Low input voltage3.3, 5 & 9 Vout model: - 100 °CSwitching frequency (at 230 VAC)- 100 input / Output (60 s) - Input / Floating (60 s)- 4000 VAC (2 × MOPP insulation) - 1500 VAC (1 × MOPP insulation) - 1500 VAC (1 × MOPP insulation)Isolation voltage- Input / Floating (60 s) - Output / Floating (60 s) - Output / Floating (60 s)4000 VAC (2 × MOPP insulation) - 1500 VAC (1 × MOPP insulation)	Short circuit protection			continuous (automatic recovery), hiccup	
24 Vout model: 520 μF max. 36 Vout model: 235 μF max. 235 μF max. 48 Vout model: 130 μF max. General Specifications -40°C to +85°C - Storage -40°C to +85°C -40°C to +100°C Output power derating - Temperature 3.3, 5 & 9 Vout models: other output models: 2.25 %/K above +60°C 3.6 %/K above +75°C - Low input voltage Humidity (non condensing) 5 - 95 % rel. H. Altitude during operation 5000 m max. Switching frequency (at 230 VAC) 30 - 60 kHz (pulse width modulation) Isolation voltage - Input / Output (60 s) - Input / Floating (60 s) - Output / Floating (60 s) 4000 VAC (2 × MOPP insulation) 1500 VAC (1 × MOPP insulation)	Capacitive load		5 Vout model: 9 Vout model: 12 Vout model:	12'000 μF max. 3'720 μF max. 2'085 μF max.	
36 Vout model: 48 Vout model: 130 μF max. 235 μF max. 130 μF max. General Specifications - Temperature ranges - - Storage -40°C to +85°C -40°C to +100°C Output power derating - - Temperature 3.3, 5 & 9 Vout models: other output models: 2.25 %/K above +60°C 3.6 %/K above +75°C 4.0 %/V below 90 VAC Humidity (non condensing) - 5 - 95 % rel. H. Altitude during operation 5000 m max. Switching frequency (at 230 VAC) 30 - 60 kHz (pulse width modulation) Isolation voltage - - - 1500 VAC (1 × MOPP insulation) 1500 VAC (1 × MOPP insulation)				•	
48 Vout model: 130 µF max. General Specifications Temperature ranges - Operating -40°C to +85°C - Storage -40°C to +100°C Output power derating - Temperature 3.3, 5 & 9 Vout models: other output models 2.25 %/K above +60°C 3.6 %/K above +75°C - Low input voltage Humidity (non condensing) 5 - 95 % rel. H. Altitude during operation 5000 m max. Switching frequency (at 230 VAC) 30 - 60 kHz (pulse width modulation) Isolation voltage - Input / Output (60 s) 4000 VAC (2 × MOPP insulation) - Input / Floating (60 s) 1500 VAC (1 × MOPP insulation) - Output / Floating (60 s) 1500 VAC (1 × MOPP insulation)				•	
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Temperature ranges- Operating - Storage-40°C to +85°C -40°C to +100°COutput power derating- Temperature3.3, 5 & 9 Vout models: other output models: other output models: - Low input voltage2.25 %/K above +60°C 3.6 %/K above +75°C 4.0 %/V below 90 VACHumidity (non condensing)- Low input voltage5 - 95 % rel. H.Altitude during operation5000 m max.Switching frequency (at 230 VAC)30 - 60 kHz (pulse width modulation)Isolation voltage- Input / Output (60 s) - Input / Floating (60 s)4000 VAC (2 × MOPP insulation) 1500 VAC (1 × MOPP insulation)	General Specificati	ons			
other output models: 3.6 %/K above +75°C - Low input voltage 4.0 %/V below 90 VAC Humidity (non condensing) 5 - 95 % rel. H. Altitude during operation 5000 m max. Switching frequency (at 230 VAC) 30 - 60 kHz (pulse width modulation) Isolation voltage - Input / Output (60 s) 4000 VAC (2 × MOPP insulation) - Input / Floating (60 s) 1500 VAC (1 × MOPP insulation) - Output / Floating (60 s) 1500 VAC (1 × MOPP insulation)	-	– Operating			
Humidity (non condensing) 5 – 95 % rel. H. Altitude during operation 5000 m max. Switching frequency (at 230 VAC) 30 – 60 kHz (pulse width modulation) Isolation voltage – Input / Output (60 s) 4000 VAC (2 × MOPP insulation) - Input / Floating (60 s) – 1500 VAC (1 × MOPP insulation) - Output / Floating (60 s) 1500 VAC (1 × MOPP insulation)	Output power derating			3.6 %/K above +75°C	
Altitude during operation 5000 m max. Switching frequency (at 230 VAC) 30 – 60 kHz (pulse width modulation) Isolation voltage – Input / Output (60 s) – Input / Floating (60 s) 1500 VAC (2 × MOPP insulation) – Output / Floating (60 s) 1500 VAC (1 × MOPP insulation) – Output / Floating (60 s) 1500 VAC (1 × MOPP insulation)		– Low input voitage			
Switching frequency (at 230 VAC) 30 – 60 kHz (pulse width modulation) Isolation voltage – Input / Output (60 s) 4000 VAC (2 × MOPP insulation) – Input / Floating (60 s) 1500 VAC (1 × MOPP insulation) – Output / Floating (60 s) 1500 VAC (1 × MOPP insulation)					
Isolation voltage - Input / Output (60 s) 4000 VAC (2 × MOPP insulation) - Input / Floating (60 s) 1500 VAC (1 × MOPP insulation) - Output / Floating (60 s) 1500 VAC (1 × MOPP insulation)					
- Input / Floating (60 s)1500 VAC (1 × MOPP insulation)- Output / Floating (60 s)1500 VAC (1 × MOPP insulation)					
Leakage current (at 264 VAC / 60Hz) 100 µA max.	isolation voltage	– Input / Floating (60 s)		1500 VAC (1 × MOPP insulation)	
	Leakage current (at 264 VA	.C / 60Hz)		100 µA max.	

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

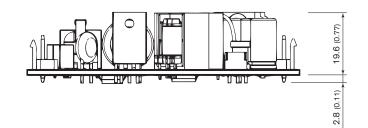
TRACO POWER

General Specifications (continued)

Isolation resistance (at 500 VDC)		100 MOhm min.	
Reliability	– calculated MTBF at +25°C acc. to MIL-HDBK-217F	3'341'000 h	
Weight		60.5 g (2.13 oz)	
EMI emission	- Conducted & Radiated input suppression	EN 55011 limits to IEC 60601-1-2 4th edition EN 55032 class B (internal filter)	
	– Harmonic current emissions – Voltage flicker	IEC / EN 61000-3-2, class A IEC / EN 61000-3-3, (class tba.)	
EMC immunity		EN 55024, EN 60601-1-2 4th edition	
	– ESD (electrostatic discharge)	EN 61000-4-2, air ±15 kV, contact ±8 kV, perf. criteria A	
	- Radiated immunity	EN 61000-4-3, 20 V/m, perf. criteria A	
	– Fast transient – Surae	EN 61000-4-4, ±2 kV, perf. criteria A EN 61000-4-5, ±1 kV perf. criteria A	
	– Conducted immunity	EN 61000-4-6, 20 Vrms, perf. criteria A	
	– Magnetic field immunity	EN 61000-4-8, 30 A/m, perf. criteria A	
	– Voltage dip and interruptions	EN 61000-4-11, 1 cycle perf. cirteria A, 250 cycle perf. criteria B	
Safety standards and certification		UL/IEC/EN 60950-1, UL/IEC/EN 62368-1 UL/IEC/EN 60601-1 3rd edition	
		ANSI/AAMI ES60601-1:2005(R)2012 IEC/EN 60335-1, IEC/EN 61558	
	 Certification documents 	www.tracopower.com/overview/tpp30a-j	
Shock and vibration		Vibration acc. IEC 60068-2-6 Shock acc. IEC 60068-2-27	
Environmental compliance	– Reach – RoHS	www.tracopower.com/info/reach-declaration.pdf RoHS directive 2011/65/EU	
Protection class		class II prepared	
Connection		pin connector	

www.tracopower.com

Outline Dimensions



3.2 (0.13) G 27.9 (1.10) 34.6 (1.36) nput 6 0 G G 3.45 (0.13) V adjust 78.1 (3.08) 3.35 (0.13) 84.8 (3.34)

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Each one of the 4 srew holes can be used as a PE connection for class I applications.

Print thickness: 1.6 mm (0.06 inch)

Pin Connector					
	Input	Output			
Pin	Single	Pin	Dual		
1	Line	1	+Vout		
3	Neutral	2	–Vout		

Input: JST series mates with JST crimp terminal: SVH-21T-P1.1 and terminal housing: VHR-3N

Output: JST series mates with JST crimp terminal: SVH-21T-P1.1 and terminal housing: VHR-2N

Dimension in mm, () = inch Tolerances: x.x ± 0.5 (± 0.02) x.xx ± 0.25 (± 0.01)

Specifications can be changed without notice!