Single Output 350W/420W Medical & ITE Power Supplies

https://product.tdk.com/en/power/cus-m
http://www.emea.lambda.tdk.com/cus350m

Medical Industrial Test COMM Broadcast

With efficiencies up to 94%, the medical and ITE certified CUS350M is rated at 350W with convection cooling and up to 420W with airflow. The CUS350M is ideal for applications where audible noise cannot be tolerated, including hospital, dental, broadcast and professional audio equipment. A 5V 0.5A standby output, Power Good signal, 12V 0.3A fan supply and remote on/off are provided as standard on the /F suffix models.

Features	Benefits
• 350W Convection Cooled	• Quiet Operation
• Up to 420W with Forced Air	• Can Utilize System Airflow
• Medical Certifications (2 x MOPP)	• Suitable for B and BF Rated Equipment
• Class B Conducted EMI	• Easier System EMC Compliance
• 5V Standby Voltage, DC Good Signal, 12V Fan Supply and Remote On/Off	• Provides Flexibility in the System
• Compact 7.5 x 3.4 x 1.6" Size	• Space Saving in End Equipment

Model Selector

Model	Voltage (V)	Adjustment Range (V)	Max Current (A) Convection	Max Power (W) Convection	Max Current (A) Forced Air	Max Power (W) Forced Air	Ripple Noise (mV)	Efficiency (typ)% 115/230Vac
CUS350M-12/F	12	11.4 - 12.6	29.0	348.0	34.5	414.0	120	91 / 93
CUS350M-18/F	18	17.1 - 18.9	19.4	349.2	23	414	180	91 / 94
CUS350M-24/F	24	22.8 - 25.2	14.7	352.8	17.5	420	240	91 / 94
CUS350M-36/F	36	34.2 - 37.8	9.7	349.2	11.5	414	240	91 / 94
CUS350M-48/F	48	45.6 - 50.4	7.3	350.4	8.7	417.6	480	91 / 94

CUS350M-	12	/	F

Output voltage 12, 18, 24, 36, 48

/F	Fan supply and Power Good signal (preferred model)
Blank	No Fan supply and Power Good signal

Specifications

Model		CUS350M
Input		
Input Voltage Range (Operating)	Vac	85 - 265
Nominal Input Voltage Range	Vac	100 - 240 (Note: Safety certified for 90-264Vac)
Input Frequency	Hz	47 - 63 (Note: Safety certified for 50-60Hz only)
DC Input Voltage range	Vdc	120 - 370 (Note: Safety certified for AC input only)
Input Current (115/230Vac)	A	350W; 4/2, 420W; 4.5/2.3
Inrush Current at 230Vac (typ)	A	40 (Cold Start)
Leakage Current	mA	<0.3
Power Factor (115/230Vac)	-	0.99 / 0.95
Harmonic Compliance	-	Designed to meet IEC61000-3-2
Hold Up Time (typ) at 110/220Vac Input	ms	20 (350W output)
Efficiency	-	See model selector table
Conducted & Radiated EMI	-	EN55011/EN55032-B, FCC Class B, (radiated Class A) 350W output
Immunity	-	EN61000-4 and EN60601-1-2:2015 (Ed4). See immunity table
Insulation Class	-	Class I
Safety Certifications and Markings	-	IEC/UL/CSA/EN62368-1, IEC/EN60601-1, ANSI/AAMI ES60601-1, 60950-1, CE Mark and UKCA Mark

Immunity

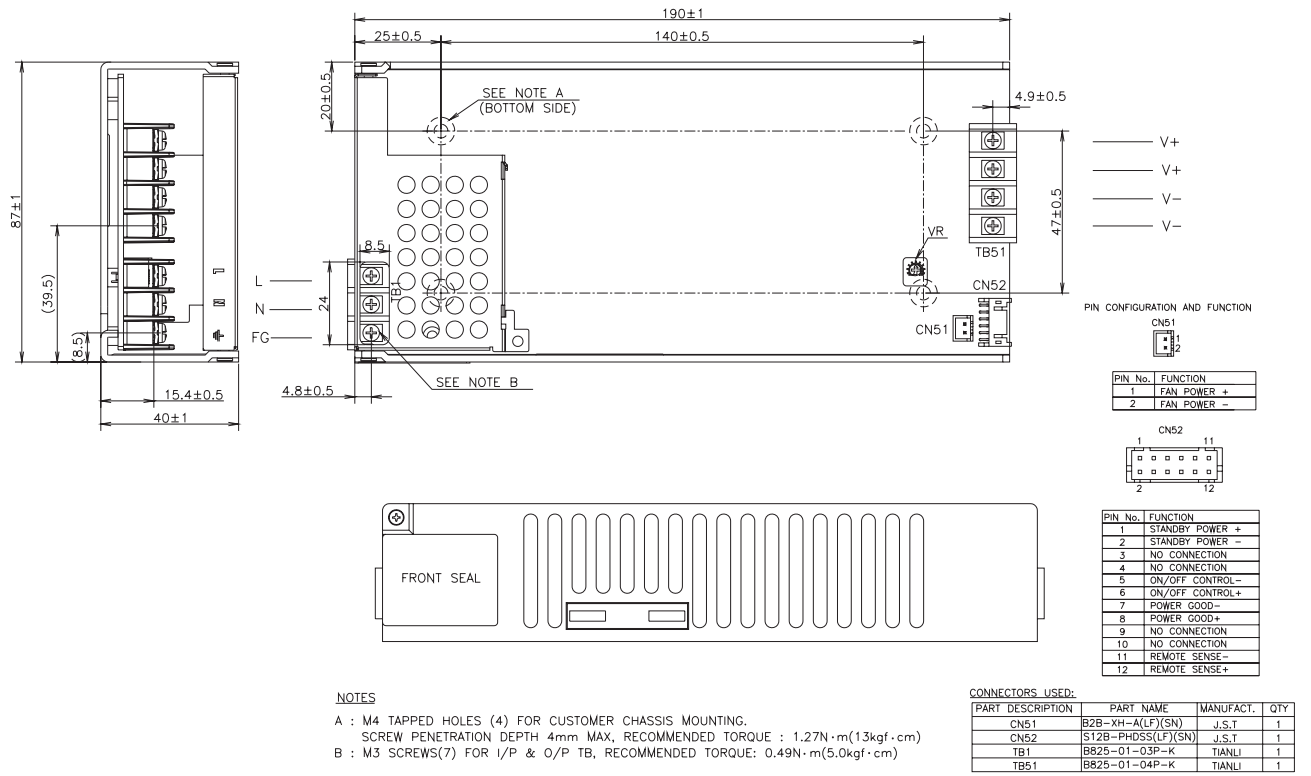
Test	Standard	Test Level	Criteria	Notes
ESD	EN61000-4-2	Air ±15kV and contact ±8kV	A	See IEC61000 immunity test report on website
Radiated Susceptibility	EN61000-4-3	80M -1GHz: 10V/m 1.4 - 2.0GHz: 3V/m 2.0 - 2.7GHz: 1V/m	A	
Electrical Fast Transient Burst	EN61000-4-4	±4kV	A	
Surge	EN61000-4-5	Normal ±2kV Common ±4kV	A	
Conducted Susceptibility	EN61000-4-6	10Vrms	A	
Magnetic Fields	EN61000-4-8	30A/m	A	
Voltage Dips	EN61000-4-11	30% 500ms 60% 10ms 100% 20ms 100% 5000ms	B B B B	

Specifications

Model		CUS350M
Output		
Output Voltage Adjustment	V	See model selector table
Switching Frequency	kHz	PFHC; 90 - 110, LLC; 50 - 180, Aux; 100
Line Regulation	%	0.5
Load Regulation	%	1
External Load Capacitance	uF	12V; 12,000, 18; 9,000, 24; 2,700, 48V; 270
Ripple & Noise	-	See model selector table
Temperature Coefficient	%/°C	0.02
Minimum Load	-	No minimum load required
Overcurrent Protection	%	12V: >38, 18V: > 26, 24V: > 20, 36V: >13, 48V: > 10
Overvoltage Protection(2)	-	12V: 13.8-16.2, 18V: 20.7-24.3, 24V: 27.6-32.4, 36V: 41.4-48.6, 48V: 55.2-64.8
Remote Sense	-	Yes
Remote On/Off	-	Apply voltage to isolated terminals to shut unit down
Power Good	-	Isolated transistor, On = Good. Gives >5ms warning of AC power loss
Standby Voltage	-	5V 0.5A
Fan Supply	-	12V 0.3A
Parallel Operation	-	-
Environmental		
Operating Temperature	°C	-20 to + 70 (See derating curves)
Humidity (non condensing)	%RH	10 - 95 (Operating and storage)
Storage Temperature	°C	-40 to + 85
Cooling	-	Convection or forced air (1.5m/s across terminals)
Altitude	m	62368-1: 5000, 60601-1: 4000 (operating)
Withstand Voltage (For 1 minute)	Vac	Input to Ground: 2,000, (1xMOPP), Input to Output: 4,000 (2xMOPP), Output to Ground: 1,500 (1xMOPP)
Isolation Resistance	MΩ	>100 at 25°C, 70%RH Output - Ground 500Vdc
Vibration (Non operating)	-	10-55Hz (Sweep for 1min.) 19.6m/s^2 Constant X,Y,Z 1 hour each
Shock (Non operating)	-	Less than 196m/s^2, 11ms, ±X, ±Y, ±Z 3 times each
Other		
Weight (Typ)	g	850
Size (WxLxH)	mm	190 x 87 x 40
Size (WxLxH)	Inches	7.5 x 3.4 x 1.6
Connectors	-	Input and output: screw terminal block. Signals: JST connector
MTBF (JEITA RCR-9102B)(3)	Hours	108,909
Warranty	yrs	3

Notes
See website for detailed specifications, test methods and installation manual
(1) Derate linearly to 80% load from 115 to 85Vac input (convection); derate linearly to 90% load from 95 to 85Vac (forced air cooling)
(2) Cycle AC to reset
(3) Parts count method, Ground Fixed. Note the JEITA RCR-9102B calculation method produces figures significantly lower than Telcordia

Outline Drawing



PIN CONFIGURATION AND FUNCTION

CN51

PIN No.	FUNCTION
1	FAN POWER +
2	FAN POWER −

CN52

PIN No.	FUNCTION
1	STANDBY POWER +
2	STANDBY POWER −
3	NO CONNECTION
4	NO CONNECTION
5	ON/OFF CONTROL−
6	ON/OFF CONTROL+
7	POWER GOOD−
8	POWER GOOD+
9	NO CONNECTION
10	NO CONNECTION
11	REMOTE SENSE−
12	REMOTE SENSE+

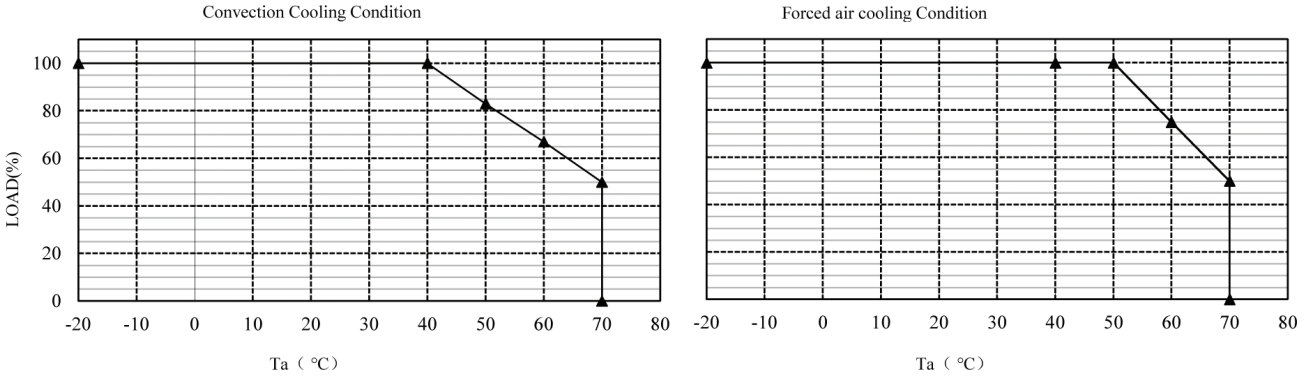
NOTES

A : M4 TAPPED HOLES (4) FOR CUSTOMER CHASSIS MOUNTING.
SCREW PENETRATION DEPTH 4mm MAX, RECOMMENDED TORQUE : 1.27N·m(13kgf·cm)
B : M3 SCREWS(7) FOR I/P & O/P TB, RECOMMENDED TORQUE: 0.49N·m(5.0kgf·cm)

CONNECTORS USED:

PART DESCRIPTION	PART NAME	MANUFACT.	QTY
CN51	B2B-XH-A(LF)(SN)	J.S.T	1
CN52	S12B-PHDSS(LF)(SN)	J.S.T	1
TB1	B825-01-03P-K	TIANLI	1
TB51	B825-01-04P-K	TIANLI	1

Derating Curve



TDK-Lambda France SAS
Tel: +33 1 60 12 71 65
tlf.fr-powersolutions@tdk.com
www.emea.lambda.tdk.com/fr

Italy Sales Office
Tel: +39 02 61 29 38 63
tlf.it-powersolutions@tdk.com
www.emea.lambda.tdk.com/it

Netherlands
tlf.nl-powersolutions@tdk.com
www.emea.lambda.tdk.com/nl

TDK-Lambda Germany GmbH
Tel: +49 7841 666 0
tlg.powersolutions@tdk.com
www.emea.lambda.tdk.com/de

Austria Sales Office
Tel: +43 2256 655 84
tlg.at-powersolutions@tdk.com
www.emea.lambda.tdk.com/at

Switzerland Sales Office
Tel: +41 44 850 53 53
tlg.ch-powersolutions@tdk.com
www.emea.lambda.tdk.com/ch

Nordic Sales Office
Tel: +45 8853 8086
tlg.dk-powersolutions@tdk.com
www.emea.lambda.tdk.com/dk

TDK-Lambda UK Ltd.
Tel: +44 (0) 12 71 85 66 66
tlu.powersolutions@tdk.com
www.emea.lambda.tdk.com/uk

TDK-Lambda Ltd.
Tel: +9 723 902 4333
tli.powersolutions@tdk.com
www.emea.lambda.tdk.com/il-en

TDK-Lambda Americas
Tel: +1 800-LAMBDA-4 or 1-800-526-2324
tla.powersolutions@tdk.com
www.us.lambda.tdk.com

TDK Electronics do Brasil Ltda
Tel: +55 11 3289-9599
sales.br@tdk-electronics.tdk.com
www.tdk-electronics.tdk.com/en

TDK-Lambda Corporation
Tel: +81-3-6778-1113
www.jp.lambda.tdk.com

TDK-Lambda (China) Electronics Co. Ltd.
Tel: +86 21 6485-0777
tlc.powersolutions@tdk.com
www.lambda.tdk.com.cn

TDK-Lambda Singapore Pte Ltd.
Tel: +65 6251 7211
tls.marketing@tdk.com
www.sg.lambda.tdk.com

TDK India Private Limited, Power Supply Division
Tel: +91 80 4039-0660
mathew.philip@tdk.com
www.sg.lambda.tdk.com

For Additional Information, please visit
https://product.tdk.com/en/power/