Single Output 200 to 250W Medical & ITE Power Supplies

https://product.tdk.com/en/power/cus-m
www.emea.lambda.tdk.com/cus200m

Medical Industrial Test COMM Broadcast

With efficiencies up to 94%, the medical and ITE certified CUS200M is rated at 200W with convection cooling and up to 250W with airflow. The CUS200M is ideal for applications where audible noise cannot be tolerated, including hospital, dental, broadcast and professional audio equipment. A 5V 0.6A standby output, DC Good signal and remote on/off are provided as standard.

Features	Benefits
• 200W Convection Cooled	• Quiet Operation
• Up to 250W with Forced Air	• Can Utilize System Airflow
• Medical Certifications (2 x MOPP)	• Suitable for B and BF Rated Equipment
• Class B Conducted and Radiated EMI	• Easier System EMC Compliance
• 5V Standby Voltage, DC Good Signal and Remote On/Off	• Provides Flexibility in the System
• Compact 3 x 5 x 1.5" size	• Industry Standard Size For Alternative Power Requirements
• Enclosure Options	• Versatile Application

Model Selector

Model	Nominal Output Voltage (V)	Output Adjustment (V)	Maximum Current Convection (A)	Maximum Current Forced Air (A)	Maximum Power Convection (W)	Maximum Power Forced Air (W)
CUS200M-12	12	11.7 - 12.6	16.7	16.7	200.4	200.4
CUS200M-18	18	17.6 - 18.9	11.2	14	201.6	252.0
CUS200M-24	24	23.5 - 25.2	8.4	10.5	201.6	252.0
CUS200M-36	36	35.2 - 37.8	5.5	7	198.0	252.0
CUS200M-48	48	47 - 50.4	4.2	5.3	201.6	254.4

Options

Suffix	Description
Blank	Open frame
/A	Chassis and cover
/L	L bracket chassis

Specifications

Model		CUS200M
Input		
Input Voltage range	Vac	85 - 265[1]
Input Frequency	Hz	47 - 63
Input Current (115 / 230Vac)	A	200W output: 2.2 / 1.1; 250W output: 3.0 / 1.5
Inrush Current (typ) (Cold Start)	A	35A at 115Vac, 70A at 230Vac
Leakage Current	uA	<300 at 265Vac, 60Hz
Power Factor (115/230VAC)	-	0.99 / 0.95
Harmonic Compliance	-	Meets EN61000-3-2 Class A
No Load Power Consumption	W	<0.5 at 230Vac (Remote on/off activated and no load on 5Vsb)
Hold Up Time (typ) at 115 / 230VAC Input	ms	16 at 200W output, 12 at 250W
Efficiency at 115 / 230VAC input 200W	%	12V: 92 / 93, 18 to 48V: 92 / 94
Conducted & Radiated EMI	-	EN55011-B, EN55022-B, FCC Class B
Immunity	-	IEC61000-4-2, IEC60601-1-2 Ed4. See immunity table
Insulation Class	-	Construction suitable for Class I installation
Safety Certifications and Markings	-	IEC/UL/ES/CSA/EN60601-1, IEC/UL/CSA/EN62368-1, 60950-1, CE Mark and UKCA Mark

Immunity

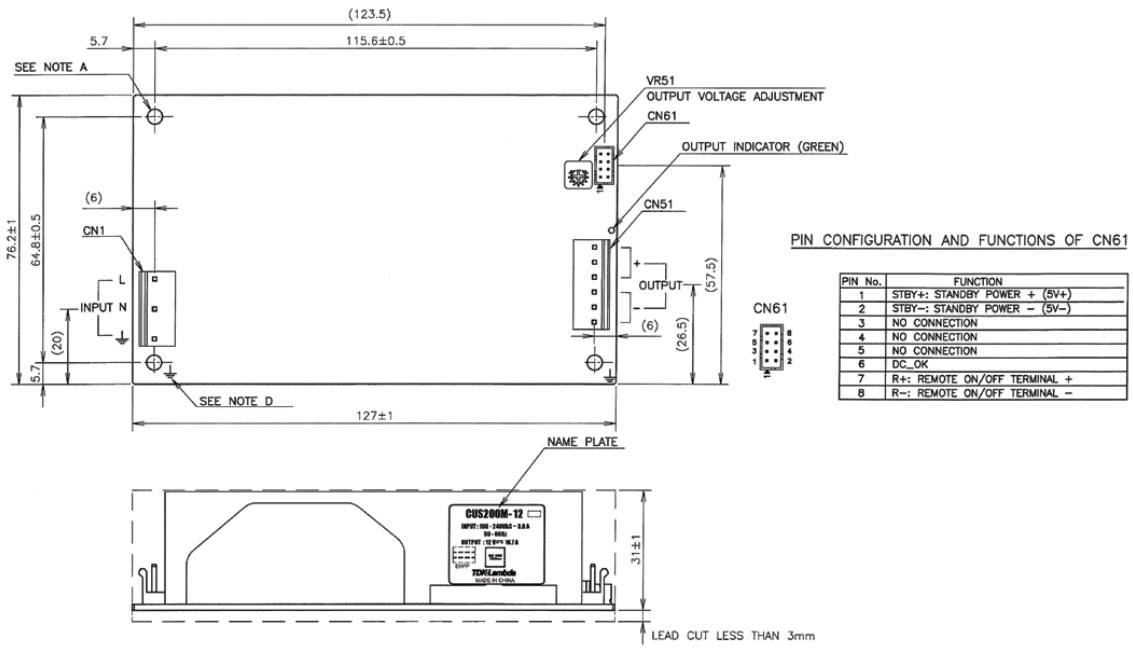
Test	Standard	Test Level	Criteria	Notes (the power stated below is total power (main power + Vsb output))
ESD	EN61000-4-2	2 & 3	A	Level 3 air discharge only
Radiated Susceptibility	EN61000-4-3	3	A	
Electrical Fast Transient Burst	EN61000-4-4	3	A	
Surge	EN61000-4-5	3 & 4	A	Level 4 common mode only
Conducted Susceptibility	EN61000-4-6	3	A	-
Magnetic fields	EN61000-4-8	4	A	-
Voltage Dips	EN61000-4-11	Class 3	B B	100 - 120VAC 200 - 240VAC
Short Interruptions	EN61000-4-11	Class 3	B	-
Voltage Dips	EN60601-1-2:2015	Class 2	A B	100 - 120VAC or >160W 200 - 240VAC and <160W
Short Interruptions	EN60601-1-2:2015	Class 2	B	-
SEMI F47 Line Dip	SEMI F47	-	-	At input voltages > 200VAC

Specifications

Model		CUS200M
Output		
Line Regulation	%	0.5% of nominal output
Load Regulation	%	1% of nominal output
Ripple & Noise	mV / %	180mV or 1%, which ever is the greater
Temperature Coefficient	%/°C	<0.02%/°C
Minimum Load	-	No minimum load required
Overcurrent Protection	A	12V: >17.2A, 18V: > 14.7A, 24V: > 11A, 36V: > 7.4A, 48V: > 5.5A
Overvoltage Protection(2)	V	12V: 13.2 - 16.2V, 18V: 19.8 - 24.3V, 24V: 26.4 - 32.4V, 36V: 39.6 - 48.6V, 48V: 52.8 - 64.8V
Remote Sense	-	No
Remote On/Off	-	Apply voltage to isolated terminals to shut unit down
Standby Voltage	-	5V 0.6A (convection), 1A (forced air)
Indicators	-	None
Parallel Operation	-	Not possible
Environmental		
Operating Temperature	°C	-20 to +70. Derate linearly to 50% load from +50 to +70(3)
Storage Temperature	°C	-40° to +85°C
Humidity (non condensing)	%RH	10 - 95%RH (Operating & Storage)
Cooling	-	Convection or Forced Air Cooled (1.5m/s across terminals)
Altitude	m	5,000m operating
Withstand Voltage (For 1 minute)	VAC	Input to Ground 2,000 (1xMOPP), Input to Output 4,000 (2xMOPPs), Output to Ground 1,500 (1xMOPP) Suitable for B and BF rated medical equipment
Isolation Resistance	MΩ	>100MΩ at 25°C, 70%RH & 500VDC
Vibration (Non Operating)	-	10 - 55Hz: 19.6m/s^2 constant sweep 1 min X, Y, Z for 1 hour
Shock	-	< 196.1 m/s^2, (20G)
Other		
Weight (Typ)	g	Open frame: 350g, L bracket: 420g, Cover: 470g
Size (LxWxH)	mm	Open frame: 127 x 76.2 x 34
Size (LxWxH)	Inches	Open frame: 5 x 3 x 1.34
Connectors (JST)	-	Input (CN1): B3P5-VH(LF)(SN) (Mates with VHR-5N housing). Output (CN-51): B6P-VH(LF)(SN) (Mates with VHR-6N)
MTBF - RCR-9102B	Hours	126,383 (Telcordia calculations yield significantly higher numbers. Contact factory)
Warranty	yrs	3 years

Notes:
See website for detailed specifications, test methods and installation manual
See installation manual for terminal pin and hand tool information
(1) Derate linearly to 80% load from 115 to 85VAC input. See derating curves below
(2) Cycle AC input to reset
(3) Models with cover (/A option) have additional derating. See derating curves below

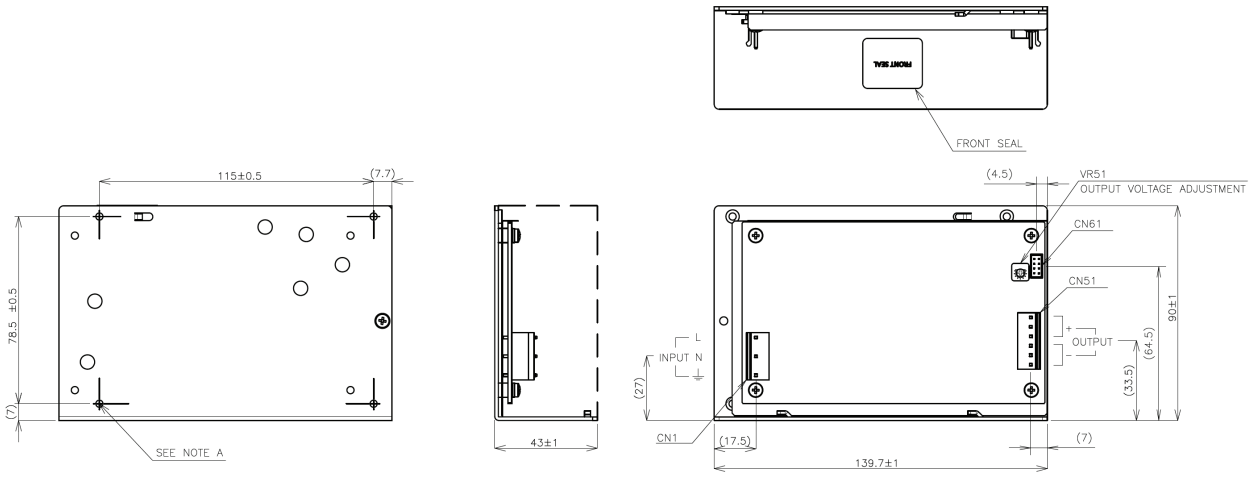
Outline Drawing CUS200M Series



PIN CONFIGURATION AND FUNCTIONS OF CN61

PIN No.	FUNCTION
1	STBY+: STANDBY POWER + (5V+)
2	STBY−: STANDBY POWER − (5V−)
3	NO CONNECTION
4	NO CONNECTION
5	NO CONNECTION
6	DC_OK
7	R+: REMOTE ON/OFF TERMINAL +
8	R−: REMOTE ON/OFF TERMINAL −

Outline Drawing CUS200M /L



PIN CONFIGURATION AND FUNCTIONS OF CN61

CN61

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6	DC_OK
7	R+: REMOTE ON/OFF TERMINAL +
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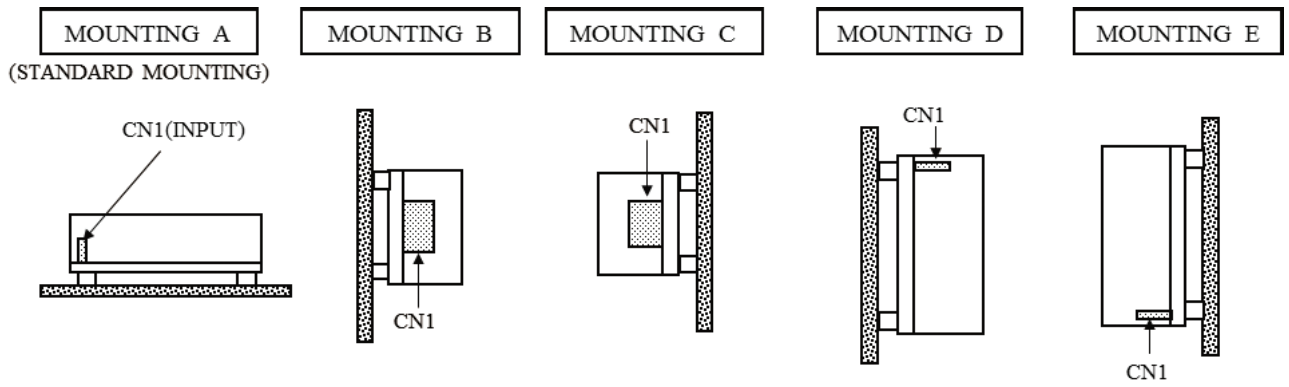
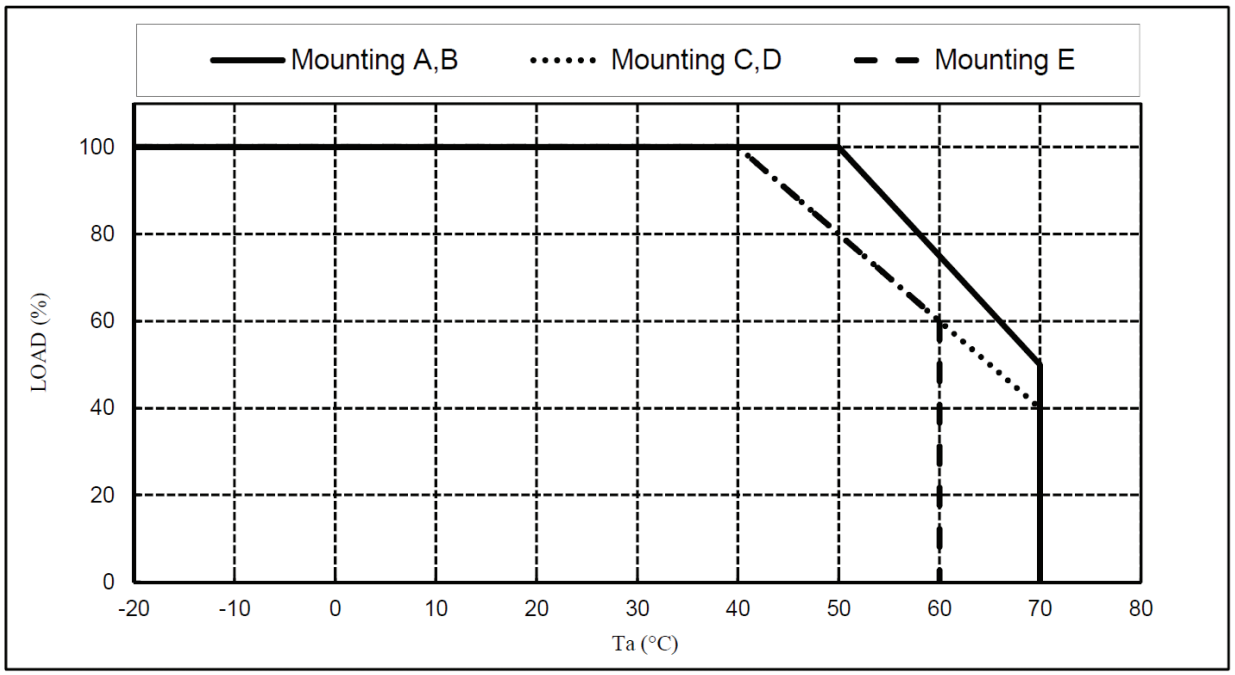
Output Derating according to the Mounting Direction



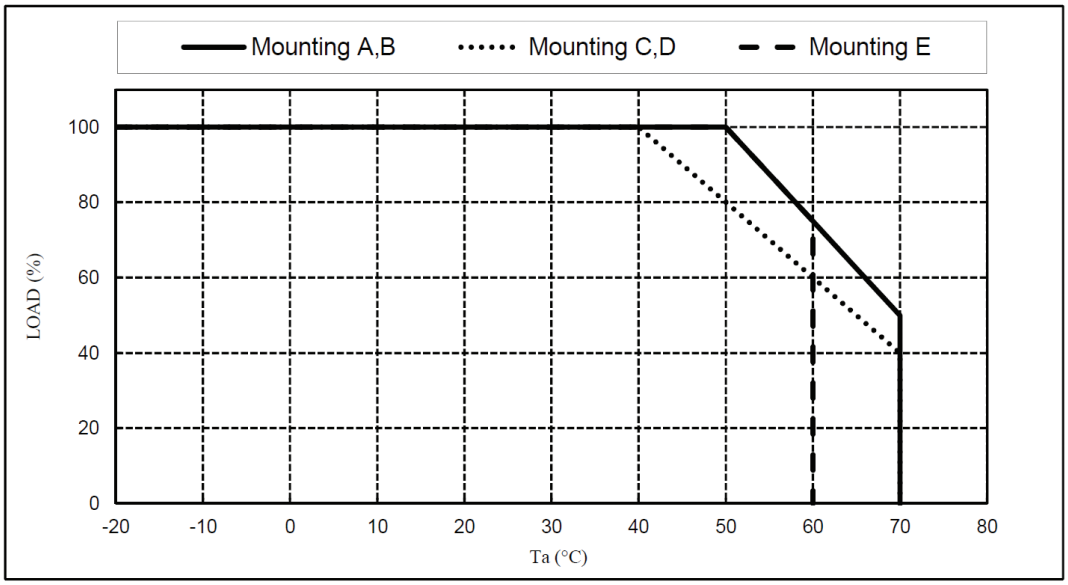
Output Derating CUS200M-12

Ta (°C)	MOUNTING A,B	MOUNTING C,D	MOUNTING E
	LOAD (%)	LOAD (%)	LOAD (%)
-20 - +40	100	100	100
50	100	80	80
60	75	60	60
65	63	50	-
70	50	40	-

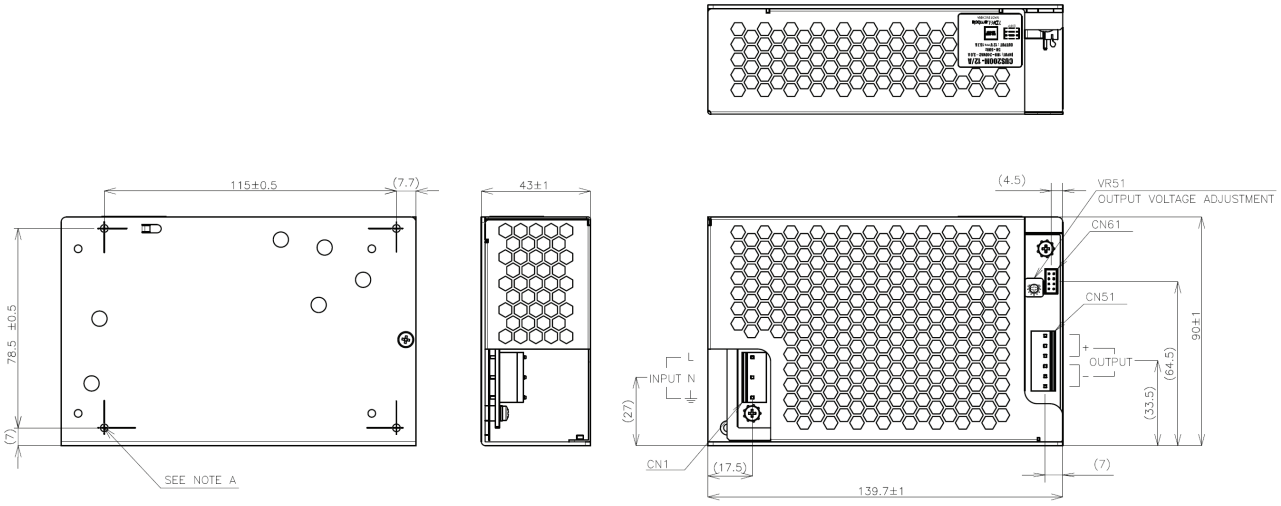


Output Derating CUS200M-18, 24, 36, 48

Ta (°C)	MOUNTING A,B	MOUNTING C,D	MOUNTING E
	LOAD (%)	LOAD (%)	LOAD (%)
-20 - +40	100	100	100
50	100	80	100
60	75	60	75
65	63	50	-
70	50	40	-



Output Drawing CUS200M/A Series

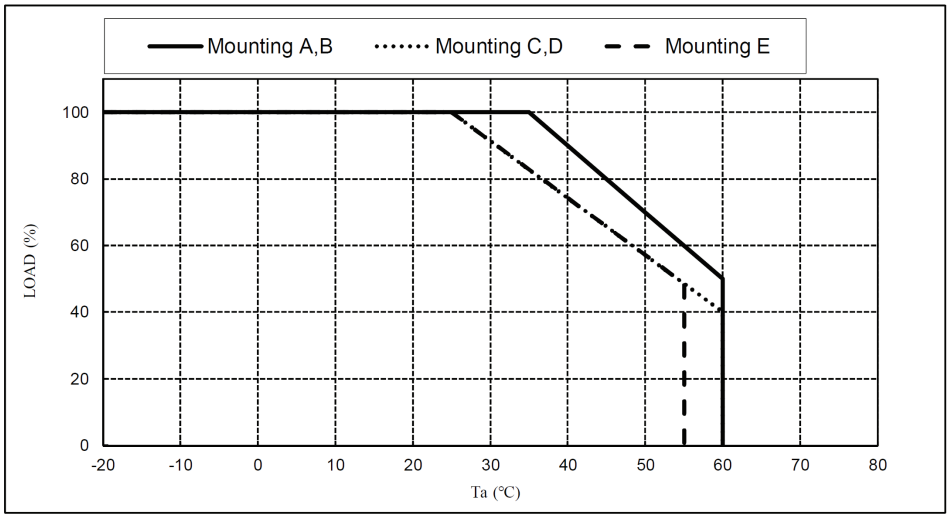


PIN CONFIGURATION AND FUNCTIONS OF CN61

PIN No.	FUNCTION
1	STBY+: STANDBY POWER + (5V+)
2	STBY−: STANDBY POWER − (5V−)
3	NO CONNECTION
4	NO CONNECTION
5	NO CONNECTION
6	DC_OK
7	R+: REMOTE ON/OFF TERMINAL +
8	R−: REMOTE ON/OFF TERMINAL −

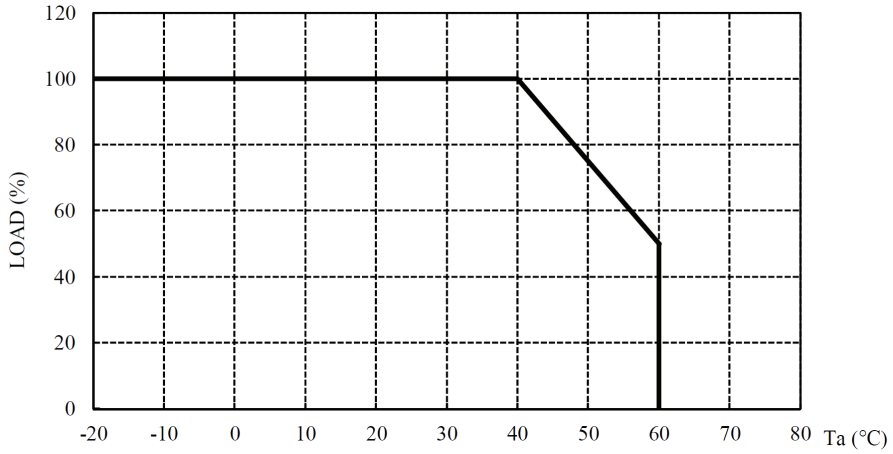
Output Derating CUS200M/A

Ta (°C)	MOUNTING A,B	MOUNTING C,D	MOUNTING E
	LOAD (%)	LOAD (%)	LOAD (%)
-20 - +25	100	100	100
35	100	82	82
45	80	65	65
50	70	57	57
55	60	48	48
60	50	40	-



Output Derating versus Operating Ambient Temp (Ta) CUS200M/A

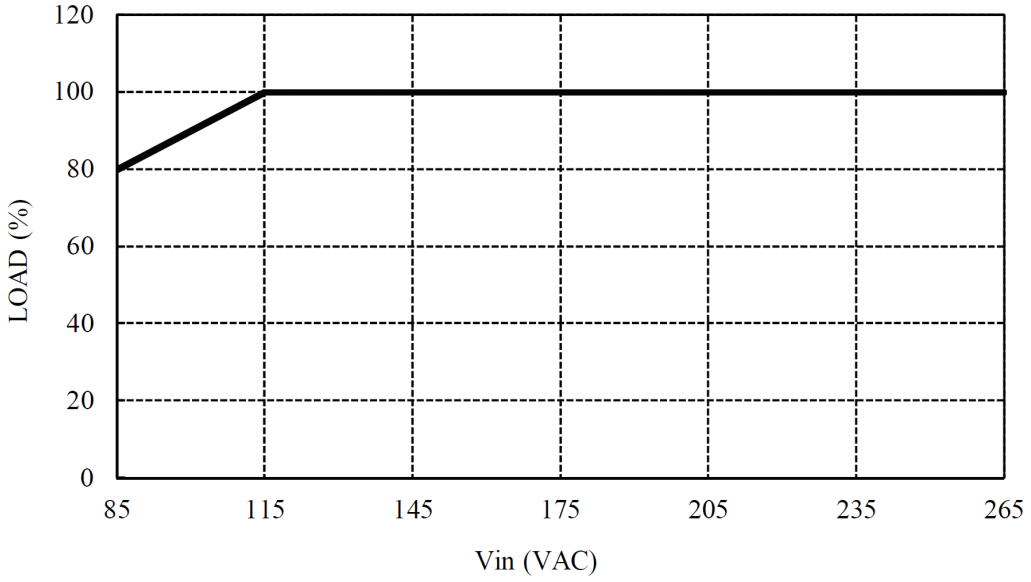
* COOLING: FORCED AIR COOLING
FOR ALL MOUNTINGS AND ALL MODELS



Ta (°C)	LOAD (%)
-20 - +40	100
50	75
60	50

Output Derating versus Input Voltage (all Models)

INPUT VOLTAGE (VAC)	LOAD (%)
85	80
115~265	100



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

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

Netherlands
info@nl.tdk-lambda.com
www.emea.lambda.tdk.com/nl

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

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

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

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

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

TDK-Lambda Ltd.
Tel: +9 723 902 4333
info@tdk-lambda.co.il
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/