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DDR-60 series

DC-DC Converter

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DDR-60 series

60W DIN Rail Type DC-DC Converter

User's Manual
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UL62368-1 AS/NZS62368-1 TPTC004 IEC62368-1

Household Industrial Security Network Telecom

Feature

- Width only 52.5mm (3SU)
- 4:1 ultra wide input range
- -40~+85℃ wide working temperature
- No minimum load required
- DC output adjustable (±10%)
- Cooling by free air convection
- Can be installed on DIN rail TS-35/7.5 or 15
- Protections: Short circuit / Overload / Over voltage / Input reverse polarity / Input under voltage protection
- 4KVdc I/O isolation(Reinforced isolation)
- 3 years warranty

Applications

- Industrial control system
- Semi-conductor fabrication equipment
- Factory automation
- Electro-mechanical
- Wireless network
- Telecom or datacom system

GTIN CODE

MW Search: https://www.meanwell.com/serviceGTIN.aspx

Description

DDR-60 series is a 60W DIN Rail type DC-DC converter with main features including DIN rail-type easy installation, ultra slim width (52.5mm), 4:1 ultra wide input voltage, -40~+85℃ wide operating temperature, 4KVdc I/O isolation, adjustable output voltage (± 10%) and full protective functions...etc.

This series has two input options: 9~36V /18~75V and various output options: 5V / 12V / 15V / 24V and can be used for industrial control, security control, communication system and other fields. Suitable applications are DC buck/boost regulator, increasing system insulation level and voltage drop compensation along cable...etc.

Model Encoding

DDR - 60 G - 24

- 24 — Output voltage(5/12/15/24Vdc)
- G — Input voltage (G:9~36Vdc, L:18~75Vdc)
- 60 — Rated wattage
- DDR — Series name

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60W DIN Rail Type DC-DC Converter — DDR-60 series

SPECIFICATION

MODEL		DDR-60G-5	DDR-60G-12	DDR-60G-15	DDR-60G-24	DDR-60L-5	DDR-60L-12	DDR-60L-15	DDR-60L-24
OUTPUT	DC VOLTAGE	5V	12V	15V	24V	5V	12V	15V	24V
	RATED CURRENT	10.8A	5A	4A	2.5A	12A	5A	4A	2.5A
	CURRENT RANGE	0 ~ 10.8A	0 ~ 5A	0 ~ 4A	0 ~ 2.5A	0 ~ 12A	0 ~ 5A	0 ~ 4A	0 ~ 2.5A
	RATED POWER	54W	60W	60W	60W	60W	60W	60W	60W
	RIPPLE & NOISE (max.) Note.2	60mVp-p	75mVp-p	75mVp-p	100mVp-p	60mVp-p	75mVp-p	75mVp-p	100mVp-p
	VOLTAGE ADJ. RANGE	4.5 ~ 5.5V	9 ~ 13.2V	13.5 ~ 16.5V	21.6 ~ 28V	4.5 ~ 5.5V	9 ~ 13.2V	13.5 ~ 16.5V	21.6 ~ 28V
	VOLTAGE TOLERANCE Note.3	±2.0%	±2.0%	±2.0%	±2.0%	±2.0%	±2.0%	±2.0%	±2.0%
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION	±1.5%	±0.5%	±0.5%	±0.5%	±1.5%	±0.5%	±0.5%	±0.5%
	SETUP, RISE TIME	120ms, 85ms at full load							
	HOLD UP TIME (Typ.)	G-type: 5ms@24Vdc input				L-type: 10ms@48Vdc input			
	EXTERNAL CAPACITANCE LOAD (Max.)	6800 μF	4700 μF	3300 μF	2200 μF	6800 μF	4700 μF	3300 μF	2200 μF
INPUT	VOLTAGE RANGE Note.4	9 ~ 36Vdc				18 ~ 75Vdc			
	EFFICIENCY (Typ.)	87.5%	91%	91%	91%	87.5%	91%	92%	92%
	DC CURRENT (Typ.)	3A /24Vdc				1.5A /48Vdc			
	INRUSH CURRENT (Typ.)	20A /24Vdc				20A /48Vdc			
PROTECTION	OVERLOAD	105 ~ 135% rated output power							
		Protection type : Constant current limiting, recovers automatically after fault condition is removed							
	OVER VOLTAGE	5.75 ~ 7V	13.8 ~ 16.2V	17.25 ~ 20.25V	28.8 ~ 34V	5.75 ~ 7V	13.8 ~ 16.2V	17.25 ~ 20.25V	28.8 ~ 34V
		Protection type : Shut down o/p voltage, re-power on to recover							
	REVERSE POLARITY	By internal MOSFET, no damage, recovers automatically after fault condition removed							
	UNDER VOLTAGE LOCKOUT	24Vin (G-type):Power ON≥9V , OFF≤8.5V							
		48Vin (L-type):Power ON≥18V , OFF≤17V							
ENVIRONMENT	WORKING TEMP.	-40 ~ +85℃ (Refer to "Derating Curve")							
	WORKING HUMIDITY	5 ~ 95% RH non-condensing							
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 5 ~ 95% RH non-condensing							
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~60℃)							
	VIBRATION	Component:10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6							
	OPERATING ALTITUDE	5000 meters							
SAFETY & EMC (Note 5)	SAFETY STANDARDS	IEC 62368-1, UL 62368-1, AS/NZS 62368-1, EAC TP TC 004 approved							
	WITHSTAND VOLTAGE	I/P-O/P:4KVdc							
	ISOLATION RESISTANCE	I/P-O/P>100M Ohms / 500Vdc / 25℃/ 70% RH							
	EMC EMISSION	**Parameter**		**Standard**		**Test Level / Note**			
		Conducted		BS EN/EN55032		Class A			
		Radiated		BS EN/EN55032		Class A for 1m I/O cable , Class B for 30cm I/O cable			
		Voltage Flicker		BS EN/EN61000-3-3		-----			
	EMC IMMUNITY	BS EN/EN55035 , BS EN/EN61000-6-2(BS EN/EN50082-2)							
		Parameter		**Standard**		**Test Level / Note**			
		ESD		BS EN/EN61000-4-2		Level 3, 8KV air ; Level 3, 6KV contact; criteria A			
		Radiated		BS EN/EN61000-4-3		Level 3, 10V/m ; criteria A			
		EFT / Burst		BS EN/EN61000-4-4		Level 3, 2KV ; criteria A			
		Surge		BS EN/EN61000-4-5		Level 3, 1KV/Line-Line ; criteria A			
		Conducted		BS EN/EN61000-4-6		Level 3, 10V ; criteria A			
		Magnetic Field		BS EN/EN61000-4-8		Level 4, 30A/m ; criteria A			
OTHERS	MTBF	3261.6K hrs min. Telcordia SR-332 (Bellcore) ; 611.1K hrs min. MIL-HDBK-217F (25℃)							
	DIMENSION	52.5*90*54.5mm (W*H*D)							
	PACKING	216g; 60pcs/14Kg/0.97CUFT							

NOTE

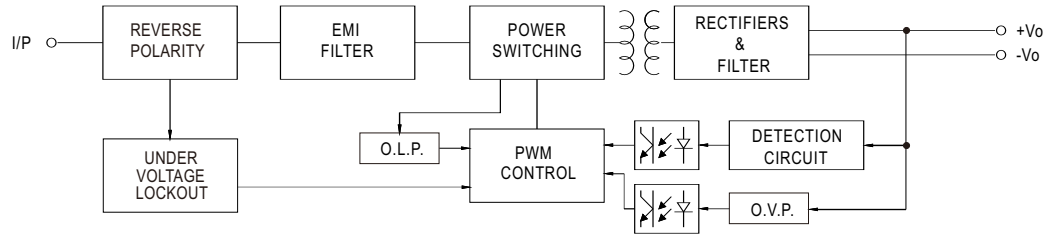
1. All parameters NOT specially mentioned are measured at normal input (G:24Vdc, L:48Vdc), rated load and 25℃ of ambient temperature.
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 μF & 47 μF parallel capacitor.
3. Tolerance : includes set up tolerance, line regulation and load regulation.
4. Derating may be needed under low input voltage. Please check the derating curve for more details.
5. The power supply is considered as an independent unit, but the final equipment still need to re-confirm that the whole system complies with the EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on https://www.meanwell.com//Upload/PDF/EMI_statement_en.pdf)
6. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitude higher than 2000m(6500ft).

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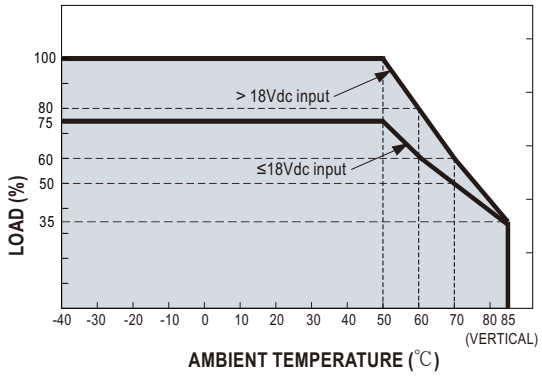
Block Diagram

fosc : 130KHz

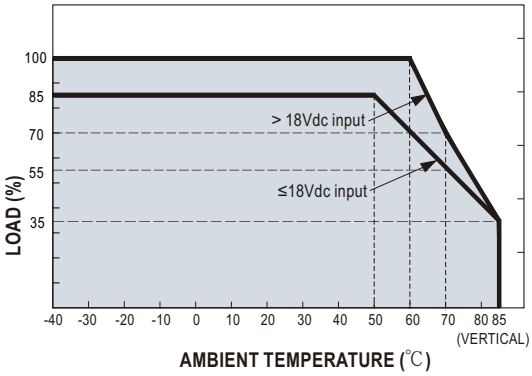


Derating Curve

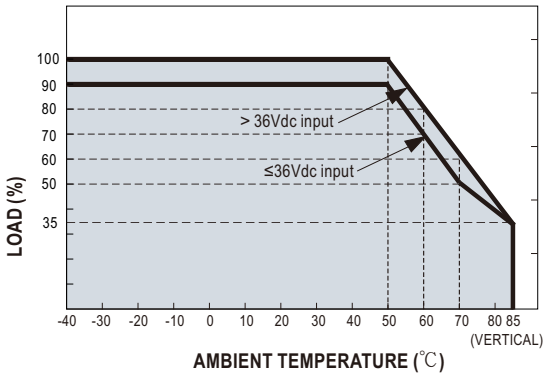
DDR-60G-5



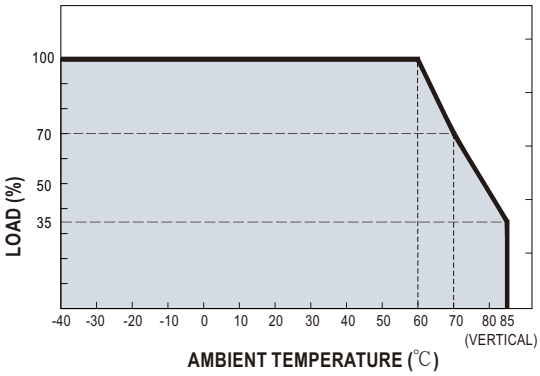
DDR-60G-12/15/24



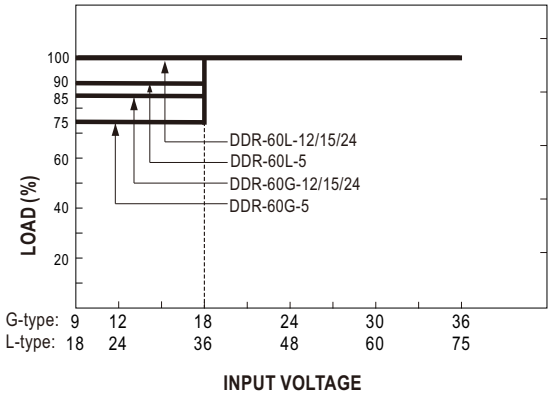
DDR-60L-5



DDR-60L-12/15/24



Output derating VS input voltage

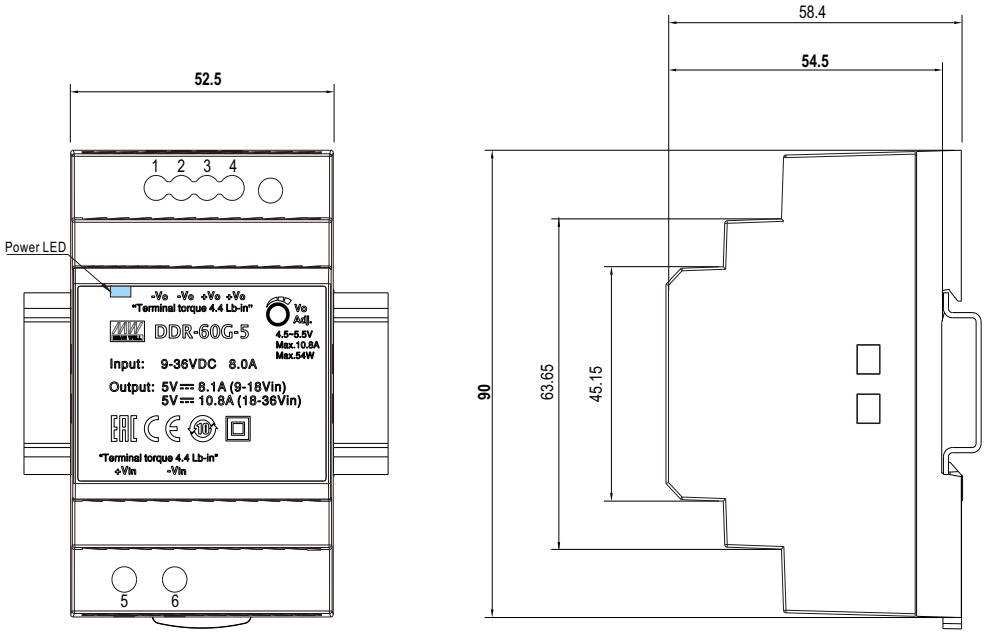


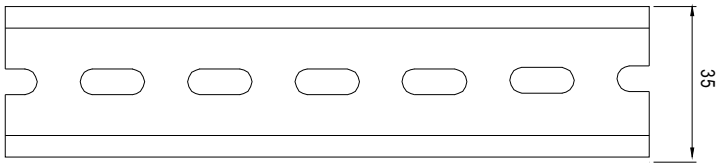
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■ Mechanical Specification

(Unit: mm , tolerance ± 1mm)

Case No. DDR-60





ADMISSIBLE DIN-RAIL:TS35/7.5 OR TS35/15

Pin No.	Assignment
1,2	DC output -Vo
3,4	DC output +Vo
5	DC input +Vin
6	DC input -Vin

■ Installation Manual

Please refer to : http://www.meanwell.com/manual.html