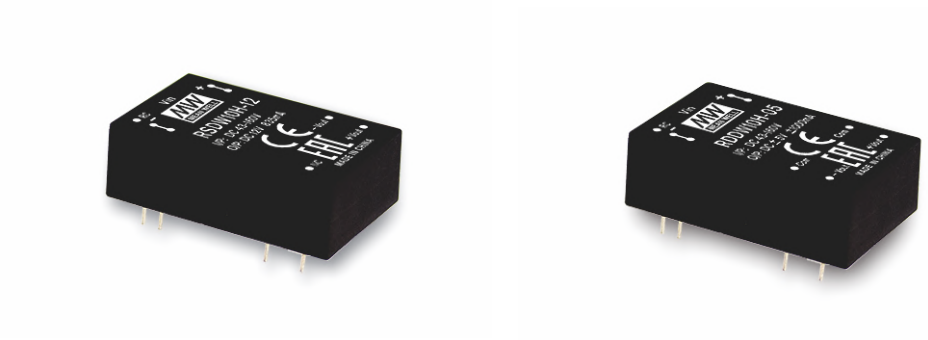
10W DIP Package Reliable Railway DC-DC Converter RSDW10 & RDDW10 series



Features

- Compliance with EN50155 railway standard
- DIP 24 package with standard pinout
- 4:1 wide input range
- Wide operating temperature range -40 ~ +85℃
- No minimum load required
- Full encapsulated
- Protections: Short circuit (Continuous) / Overload / Over voltage / Input under voltage
- 3KVDC I/O isolation
- Remote ON/OFF control
- 3 years warranty

Applications

- Bus, tram, metro or railway system
- Telecom/datacom system
- Wireless network
- Industrial control facility
- Instrument
- Analyzer
- Highly vibrating, heavily dusty, exteremely low or high temperature harsh environment

Description

RSDW10 and RDDW10 series are 10W module type DC-DC reliable railway converter with DIP24 package. It features international standard pins, a high efficiency up to 88%, wide working temperature range -40~+85℃, 3KVDC I/P-O/P isolation voltage, compliance with EN50155 railway standard, continuous-mode short circuit protection, etc. The models account for 43~160V 4:1 wide input range, and various output voltage, 3.3V/5V/12V/15V for single output and ±5V/±12V/±15V for dual outputs, which are suitable for railway, trams, buses and also can be used in the harsh environment with high vibration, high dust, extremely low or high temperature, etc.

Model Encoding

RSDW10H-12

- 12 — Output voltage (3.3/5/12/15Vdc，±5/±12/±15Vdc)
- H — Input voltage (H: 43~160Vdc)
- 10 — Rated wattage
- RSDW — Series name { S:Single output / D:Dual output

MODEL SELECTION TABLE

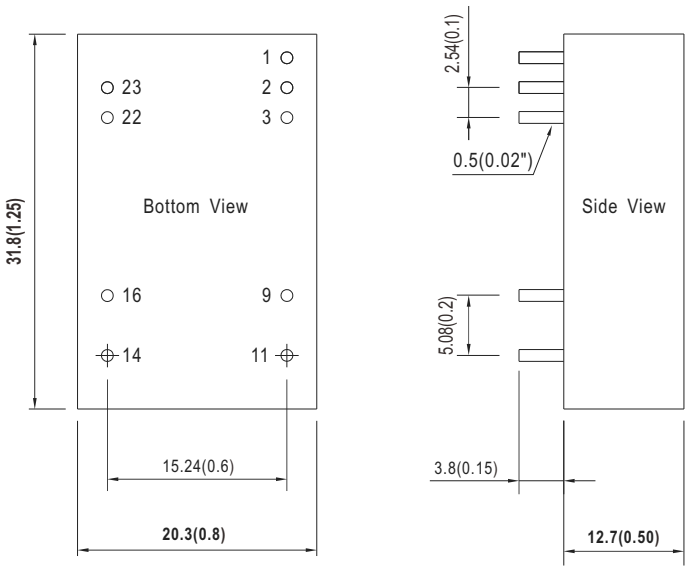
ORDER NO.	INPUT			OUTPUT		EFFICIENCY (Typ.)	CAPACITOR LOAD (MAX.)
	INPUT VOLTAGE (RANGE)	INPUT CURRENT		OUTPUT VOLTAGE	OUTPUT CURRENT		
		NO LOAD	FULL LOAD				
RSDW10H-03	Normal 110V (43 ~ 160V)	6mA	89mA	3.3V	2500mA	85%	2500μF
RSDW10H-05		6mA	105mA	5V	2000mA	87%	2000μF
RSDW10H-12		6mA	104mA	12V	835mA	87%	835μF
RSDW10H-15		6mA	103mA	15V	666mA	88%	666μF
RDDW10H-05		6mA	107mA	±5V	±0 ~1000mA	85%	1000μF
RDDW10H-12		6mA	105mA	±12V	±0 ~416mA	87%	416μF
RDDW10H-15		6mA	104mA	±15V	±0 ~333mA	88%	333μF

* For each output

SPECIFICATION				
INPUT	VOLTAGE RANGE	43~160Vdc		
	SURGE VOLTAGE (100ms max.)	200Vdc		
	FILTER	Pi type		
	PROTECTION (Typ.)	Fuse recommended. 0.5A Fast acting type		
	INTERNAL POWER DISSIPATION	500mW		
OUTPUT	VOLTAGE ACCURACY	±1%		
	RATED POWER	10W		
	RIPPLE & NOISE Note.2	50mVp-p		
	LINE REGULATION Note.3	±0.2%		
	LOAD REGULATION Note.4	Single output models: ±0.5%, Dual output models:±1%		
	SWITCHING FREQUENCY (Typ.)	240KHz		
PROTECTION	SHORT CIRCUIT	Protection type : Continuous, automatic recovery		
	OVERLOAD	120 ~ 180% rated output power		
		Protection type : Recovers automatically after fault condition is removed		
	OVER VOLTAGE	Protection type : Clamp by diode		
	UNDER VOLTAGE LOCKOUT	Start-up voltage	40Vdc	
		Shutdown voltage	38Vdc	
FUNCTION	REMOTE CONTROL	Power ON: R.C. ~ -Vin >3.5~160Vdc or open circuit ; Power OFF: R.C. ~ -Vin <1.2Vdc or short		
ENVIRONMENT	COOLING	Free-air convection		
	WORKING TEMP.	-40 ~ +85℃ (Refer to "Derating Curve")		
	CASE TEMPERATURE	+100℃ max.		
	WORKING HUMIDITY	20% ~ 90% RH non-condensing		
	STORAGE TEMP., HUMIDITY	-55 ~ +125℃, 10 ~ 95% RH non-condensing		
	TEMP. COEFFICIENT	0.03% / ℃ (0 ~ 71℃)		
	SOLDERING TEMPERATURE	1.5mm from case of 1 ~ 3sec./260℃ max.		
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes; Mounting: compliance to EN61373(Category 1- Class B)		
SAFETY & EMC (Note.5)	SAFETY STANDARDS	EAC TP TC 004 approved		
	WITHSTAND VOLTAGE	I/P-O/P:3KVDC		
	ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25℃/ 70% RH		
	ISOLATION CAPACITANCE (Typ.)	1000pF		
	EMC EMISSION	**Parameter**	**Standard**	**Test Level / Note**
		Conducted	BS EN/EN55032	Class A with external components
		Radiated	BS EN/EN55032	N/A
	EMC IMMUNITY	**Parameter**	**Standard**	**Test Level / Note**
		ESD	BS EN/EN61000-4-2	Level 2, ±8KV air, ±4KV contact
		Radiated Susceptibility	BS EN/EN61000-4-3	Level 2, 3V/m
		EFT/Burest	BS EN/EN61000-4-4	Level 1, 0.5KV
		Surge	BS EN/EN61000-4-5	Level 1, 0.5KV Line-Line
		Conducted	BS EN/EN61000-4-6	Level 2, 3V(e.m.f.)
	RAILWAY STANDARD	EN50155 including EN61373 for shock & vibration, EN50121-3-2 for EMC		
OTHERS	MTBF	1200Khrs MIL-HDBK-217F(25℃)		
	DIMENSION (L*W*H)	31.8*20.3*12.7mm (1.25*0.8*0.5 inch)		
	CASE MATERIAL	Non-Conductive black plastic		
	PACKING	16g		
NOTE	1.All parameters are specified at normal input(110Vdc), rated load, 25℃ 70% RH ambient. 2.Ripple & noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1μf & 47μf capacitor. 3.Line regulation is measured from low line to high line at rated load. 4.Load regulation is measured from 10% to 100% rated load. 5.The final equipment must be re-confirm that it still meet EMC directives. For guidance on how to perform these EMC tests, please refer to “EMI testing of component power supplies.”(as available on http://www.meanwell.com) ※ Product Liability Disclaimer ： For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx			

■ Mechanical Specification

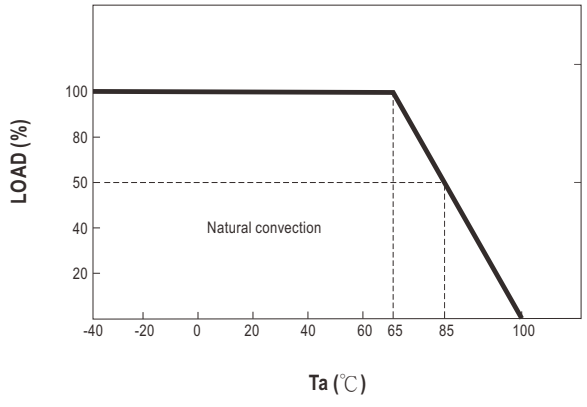
- All dimensions in mm(inch)
- Tolerance:x.x±0.5mm(x.xx±0.02")
  x.xx±0.25mm(x.xxx±0.010")
- Pin size is:0.5±0.05mm (0.02"±0.002")



■ Plug Assignment

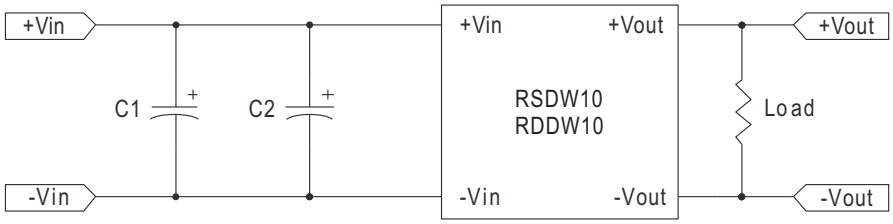
Pin-Out		
Pin No.	RSDW10 (Single output)	RDDW10 (Dual output)
1	Remote ON/OFF	Remote ON/OFF
2,3	-Vin	-Vin
9	N.P.	Common
11	N.C.	-Vout
14	+Vout	+Vout
16	-Vout	Common
22,23	+Vin	+Vin

■ Derating Curve



■ EMC Suggestion Circuit

※Required external components to meet BS EN/EN55032 class A emission are as below:



BS EN/EN55032 Class A		
Model No.	C1	C2
RSDW10H-12	10μF/50V	10μF/50V
RSDW10H-15	10μF/50V	10μF/50V
RDDW10H-05	10μF/50V	10μF/50V
RDDW10H-12	10μF/50V	10μF/50V
RDDW10H-15	10μF/50V	10μF/50V

Note: All of capacitors are ceramic capacitors and 1812 size.

■ Installation Manual

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