FEATURES

- Ultra-wide DIN rail mount DC-DC
  - 10….36Vdc
  - 19…75Vdc
- Input reverse polarity protection
- Compact size: 31.5mm wide
- Efficiency up to 91%
- I/O isolation test voltage 1.5k VDC
- Operating temperature range
  - 40℃ to +105℃
- Input under-voltage protection, output short circuit, over-current, over–voltage protection.
- EMI performance meets. CISPR32 / EN55032
- IEC62368, UL62368, EN62368 Approved

RS PRO DIN Rail mount wide Input DC-DC

RS Stock No:

2211824,2211826,2211828,2211830,2211832

,2211834,2211837,2211839

RS Professionally Approved Products bring to you professional quality parts across all product categories. Our product range has been tested by engineers and provides a comparable quality to the leading brands without paying a premium price.

Embedded Switch Mode Power Supplies (SMPS)

Product Description

DIN rail mount DC-DC converters feature an ultra-wide 4:1 input voltage with efficiencies of up to 91%, 1500VDC input to output isolation, an operating ambient temperature range of -40℃ to +105℃, input undervoltage protection, output overvoltage, overcurrent, short circuit protection, CISPR32/EN55032 CLASS A EMI compliant without external components, which makes them widely used in industrial control, instrumentation and communications applications

General Specifications

Model	DC-DC 15W Industrial DIN rail mount power supply
Mounting Type	DIN rail mount
MTBF	MIL-HDBK-217F@25°C > 1,000,000 hrs
Applications	Industrial control systems, instrumentation and equipment

RS Stock#	Input Voltage	Output Voltage	Output Current	Wattage	Max. Capacitive Load(µF)	Efficiency (Typ)
2211824	10 to 36Vdc	5V	3A	15W	4700	90%
2211826	10 to 36Vdc	12V	1.25A	15W	1000	90%
2211828	10 to 36Vdc	15V	1A	15W	820	91%
2211830	10 to 36Vdc	24V	0.625A	15W	270	91%
2211832	19 to 75Vdc	5V	3A	15W	4700	90%
2211834	19 to 75Vdc	12V	1.25A	15W	1000	91%
2211837	19 to 75Vdc	15V	1A	15W	820	91%
2211839	19 to 75Vdc	24V	0.625A	15W	270	91%

Input Specifications

Input Specification						
Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Current (full load / no-load)	24VDC nominal input series, nominal input voltage	5V output	-	694/30	710/50	mA
		12V output	-	694/6	710/15	
		15V output	-	687/6	703/15	
		24V output	-	687/10	703/20	
	48VDC nominal input series, nominal input	5V output	-	348/15	356/30	
		12V output	-	344/3	352/11	
		15V output	-	344/3	352/11	
		24V output	-	344/4	352/11	
Reflected Ripple Current	Nominal input voltage		-	30	-	
Surge Voltage (1sec. max.)	24VDC nominal input series		-0.7	-	50	VDC
	48VDC nominal input series		-0.7	-	100	
Start-up Voltage	24VDC nominal input series		-	-	10	
	48VDC nominal input series		-	-	19	
Input under-voltage protection	24VDC nominal input series		5.5	6.5	-	
	48VDC nominal input series		12	15.5	-	
Start-up Time	Nominal input voltage & constant resistance load		-	10	-	ms
Input Filter			Pi filter			
Hot Plug			Unavailable			
Ctrl*	Module on		Ctrl pin open or pulled high (TTL 3.5-12VDC)			
	Module off		Ctrl pin pulled low to GND (0-1.2VDC)			
	Input current when off		-	2	7	mA
Note: *The Ctrl pin voltage is referenced to input GND						

Output Specifications

Output Specification						
Item	Operating Conditions		Min	Typ.	Max	Unit
Voltage Accuracy	0%-100% load		-	±1	±3	%
Linear Regulation	Input voltage variation from low to high at full load		-	±0.2	±0.5	
Load Regulation	5%-100% load		-	±0.5	±1	
Transient Recovery Time	25% load step change, nominal input voltage		-	300	500	µs
Transient Response Deviation		5V output	-	±3	±7	%
Transient Response Deviation		Others	-	±3	±5	
Temperature Coefficient	Full load		-	-	±0.03	%/℃
Ripple & Noise *	20MHz bandwidth, 100% load		-	50	100	mV p-p
Trim	Input voltage range		90	-	110	%Vo
Over-voltage Protection			110	-	160	
Over-current Protection			110	150	190	%Io
Short circuit Protection			Continuous, self-recovery			
Note: *Ripple & Noise at < 5% load is 5%Vo max. The ”parallel cable” method is used for Ripple and Noise test, please refer to DC-DC Converter Application Notes for specific information.						

Derating

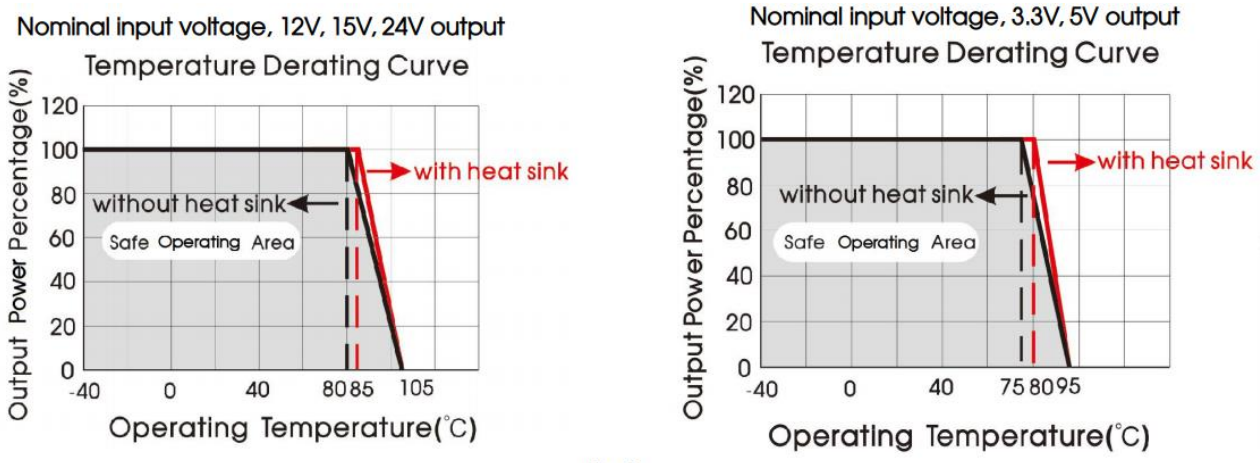
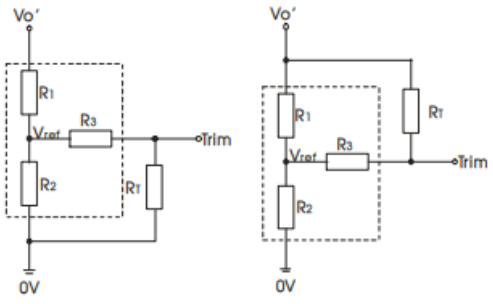


Fig. 1

Trim Function

Trim Function for Output Voltage Adjustment (open if unused)



TRIM resistor connection (dashed line shows internal resistor network)

Calculating Trim resistor values:

up: $R_T = \frac{aR_2}{R_2-a} - R_3$ $\quad a = \frac{Vref}{Vo'-Vref} \cdot R_1$

down: $R_T = \frac{aR_1}{R_1-a} - R_3$ $\quad a = \frac{Vo'-Vref}{Vref} \cdot R_2$

R_T is Trim resistance
a is a self-defined parameter, with no real meaning.

Vout(V)	R1(KΩ)	R2(KΩ)	R3(KΩ)	Vref(V)
3.3	4.801	2.87	15	1.24
5	2.894	2.87	10	2.5
12	11.000	2.87	17.4	2.5
15	14.494	2.87	17.4	2.5
24	24.872	2.87	20	2.5

General Specifications

Item	Operating Conditions		Min	Typ	Max.	Unit
Isolation	Input-output Electric Strength Test for 1 minute with a leakage current of 1mA max.		1500	-	-	VDC
	Input/output-case Electric Strength Test for 1 minute with a leakage current of 1mA max.		1000	-	-	
Insulation Resistance	Input-output resistance at 500VDC		1000	-	-	MΩ
Isolation Capacitance	Input-output capacitance at 100KHz/0.1V			2000		pF
Operating Temperature		3.3, 5V output	-40	-	+95	℃
		Others	-40	-	+105	
Storage Temperature			-55	-	+125	
Storage Humidity	Non-condensing		5	-	95	%RH
MTBF	MIL-HDBK-217F@25℃		1000			K hours

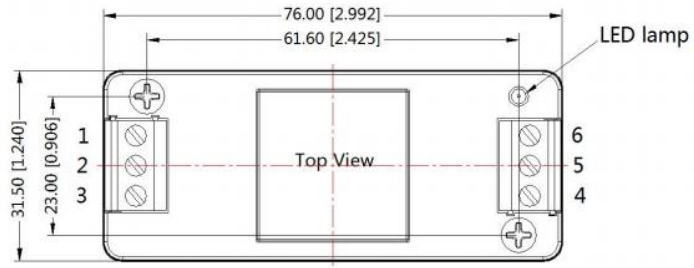
EMC Specifications

Emissions	CE	CISPR32/EN55032 CLASS A	
	RE	CISPR32/EN55032 CLASS A	
Immunity	ESD	IEC/EN61000-4-2 Contact ±6KV	Perf. Criteria B
	RS	IEC/EN61000-4-3 10V/m	Perf. Criteria A
	CS	IEC/EN61000-4-6 3 Vr.m.s	Perf. Criteria A

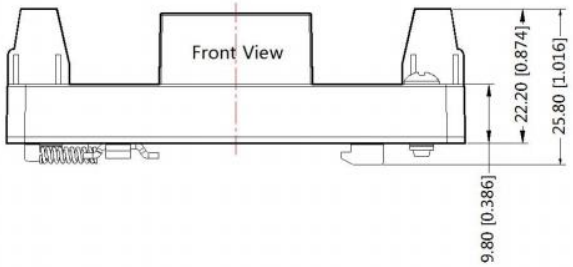
Mechanical Specifications

Case material	DC-DC converter Aluminium alloy
Dimensions	76.00 × 31.50 × 25.80 mm
Weight	58g (Typ.)
Cooling Method	Free air convection

Dimensions and recommended layout



Pin-Out						
Pin	1	2	3	4	5	6
Function	Ctrl	GND	Vin	+Vo	Trim	0V



Note:
Unit: mm[inch]
Wire range: 24-12 AWG
Tightening torque: Max 0.4 N·m
Mounting rail: TS35
General tolerances: ±1.00[±0.039]

Approvals

Safety Certification	IEC62368, UL62368, EN62368

1. If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet.
2. The maximum capacitive load offered were tested at input voltage range and full load.
3. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity