FEATURES：

- Wide input range
- Continuous short-circuit protection,self recover
- I/O isolation voltage 1.5KV
- Working temperature：-40℃～+85℃
- No additional components required
- Stable performance and high reliability (MTBF≥1000K hours)
- Industry standard pin-out
- Metal case
- DIP package

Selection Guide

Part No.	INPUT		OUTPUT				CapacitiveLoad(μF)
	Norminal (Vdc)	Range (Vdc)	Voltage (V1dc)	Current Min(mA)	Current Min(mA)	Full Load Efficiency (%)/Typ.	
VRA1203ZP-15WR3	12	9-18	±3.3	0	±2273	83	
VRA1205ZP-15WR3			±5	0	±1500	87	
VRA1209ZP-15WR3			±9	0	±833	87	
VRA1212ZP-15WR3			±12	0	±625	86	
VRA1215ZP-15WR3			±15	0	±500	87	
VRA1224ZP-15WR3			±24	0	±313	87	
VRB1203ZP-15WR3			3.3	0	4545	87	
VRB1205ZP-15WR3			5	0	3000	88	
VRB1209ZP-15WR3			9	0	1667	83	
VRB1212ZP-15WR3			12	0	1250	87	
VRB1215ZP-15WR3			15	0	1000	87	
VRB1224ZP-15WR3			24	0	625	85	
VRA2403ZP-15WR3	24	18-36	±3.3	0	±2273	87	
VRA2405ZP-15WR3			±5	0	±1500	86	
VRA2409ZP-15WR3			±9	0	±833	87	
VRA2412ZP-15WR3			±12	0	±625	87	
VRA2415ZP-15WR3			±15	0	±500	87	
VRA2424ZP-15WR3			±24	0	±313	87	
VRB2403ZP-15WR3			3.3	0	4545	87	
VRB2405ZP-15WR3			5	0	3000	87	
VRB2409ZP-15WR3			9	0	1667	87	
VRB2412ZP-15WR3			12	0	1250	87	
VRB2415ZP-15WR3			15	0	1000	87	
VRB2424ZP-15WR3			24	0	625	88	
VRA4803ZP-15WR3	48	36-72	±3.3	0	±2273	87	
VRA4805ZP-15WR3			±5	0	±1500	86	
VRA4809ZP-15WR3			±9	0	±833	87	

VRA4812ZP-15WR3			±12	0	±625	87	
VRA4815ZP-15WR3			±15	0	±500	87	
VRA4824ZP-15WR3			±24	0	±313	87	
VRB4803ZP-15WR3			3.3	0	4545	87	
VRB4805ZP-15WR3			5	0	3000	87	
VRB4809ZP-15WR3			9	0	1667	87	
VRB4812ZP-15WR3			12	0	1250	87	
VRB4815ZP-15WR3			15	0	1000	87	
VRB4824ZP-15WR3			24	0	625	88	

customized accepted,pls contact sales for details

Input Specifications

	Input Voltage Range（Vdc）	Nom(Vdc)	Max（Vdc）
Input Voltage	9-18	12	18
	18-36	24	36
	36-72	48	72
Hot Plug	Unavailable		

Output Specifications

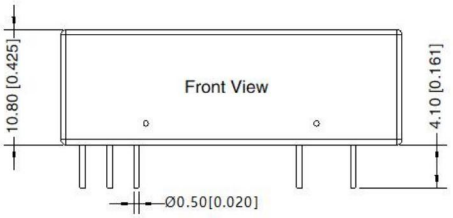
Item	Typ	Max	Test Conditions
Voltage Accuracy	±1%	±3%	0-100% load
Line Regulation	±0.2%	±0.5%	Input voltage variation from low to high at full load
Load Regulation	±0.5%	±1%	5%-100% load
Ripple&Noise	100mVp-p	-	20MHz bandwidth, 5%-100% load
Over-voltage Protection			
Over-current Protection			
Short-circuit Protection			Continuous, self-recovery

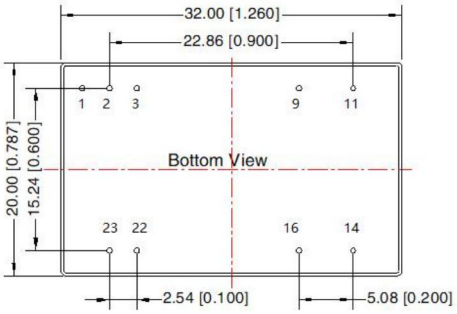
Gerneral Specifications

Switching Frequency	250KHz(Typ)	PWM mode
MTBF	1000 K hours	MIL-HDBK-217F@25℃
Temperature Coefficient	0.03%/℃	100% full load
Isolation（Input-Output）	1.5KVDC	
Insulation Resistance	1000MΩ	Input-output resistance 500Vdc
Operating Temperature	-40～+85℃	
Storage Temperature	-55～+125℃	
Storage Humidity	5-95%RH	Non-condensing
Cooling Method	Free air convection	
Case Material	Aluminum alloy	
Weight	12g（Typ）	

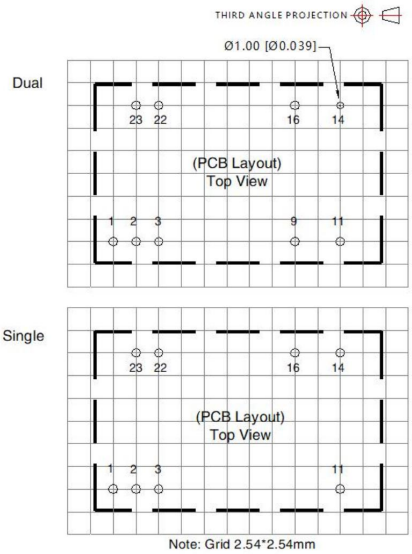
**Unless specified, otherwise all other parameters are tested under the following conditions: nominal input voltage, pure resistive load, 25℃ room temperature environment.

Dimensions and Recommended Layout





Note:
Unit: mm[inch]
Pin diameter tolerances: ± 0.10[± 0.004]
General tolerances: ± 0.50[± 0.020]

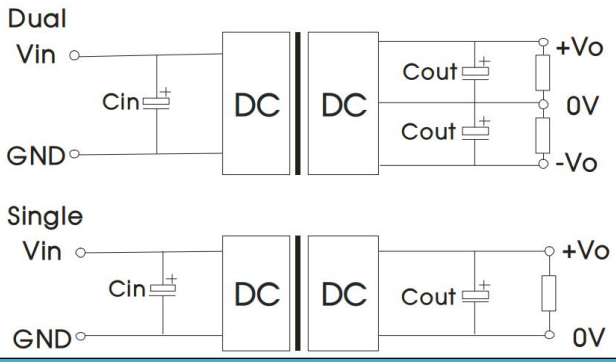


Note: Grid 2.54*2.54mm

Pins

Pin	Single	Dual	
1	CTRL	CTRL	
2.3	GND	GND	
9	No Pin	0V	
11	NC	-Vo	
14	+Vo	+Vo	
16	0V	0V	
22,23	Vin	Vin	

Recommended Circuit



Vin(VDC)	Vout(VDC)	Cin	Cout
24	3/5/±5	100μF/50V	10μF/16V
	12/15/±12/±15		10μF/25V
	24		10μF/50V
48	3/5/±5	10μF - 47μF/100V	10μF/16V
	12/15/±12/±15		10μF/25V
	24		10μF/50V

Noted

1. Input current: Ensure that the output current of the power supply meets the instantaneous starting current of the power module (that is, twice the average input current of the power module).

2. Output load requirements: Avoid no-load use. When the actual power consumption of the load is less than 10% of the rated output power

of the module or no load occurs, connect an external resistance to the output end (the sum of the external resistance and the load power is greater than or equal to 10% of the rated load) or select a module with a smaller rated power.

3. The external capacitance of the output end should not be too large; otherwise, the module may be overcurrent or poorly started. For details, see the external capacitance recommendation table.

4. External LC filter circuit can be connected for occasions with high ripple noise requirements.

*The final interpretation right of the product belongs to ECCO ELECTRONICS.