

FEATURES:

- Fixed voltage input, single/dual unregulated output, 1W
- Continuous short-circuit protection, self recover
- I/O isolation voltage 3KV
- Working temperature: $-40^{\circ}\text{C} \sim +105^{\circ}\text{C}$
- No additional components required
- Stable performance and high reliability (MTBF $\geq 3500\text{K}$ hours)
- Industry standard pin-out
- Flame-retardant case to meet UL94-V0 requirements
- DIP package



Selection Guide

Part No.	INPUT		OUTPUT			Full Load Efficiency (%) / Typ	Capacitive Load (μF)
	Normal (Vdc)	Range (Vdc)	Voltage (Vdc)	Min current (mA)	Max current (mA)		
F0303D-1WR3	3.3	2.97-3.63	3.3	31	303	74	2200
F0305D-1WR3			5	20	200	78	2200
F0309D-1WR3			9	12	111	80	1000
F0312D-1WR3			12	9	83	80	560
F0315D-1WR3			15	7	67	80	560
F0324D-1WR3			24	5	42	82	220
E0503D-1WR3	5	4.5-5.5	± 3.3	± 15	± 151	74	1000
E0505D-1WR3			± 5	± 10	± 100	82	1000
E0509D-1WR3			± 9	± 6	± 56	83	470
E0512D-1WR3			± 12	± 5	± 42	83	220
E0515D-1WR3			± 15	± 4	± 33	83	220
E0524D-1WR3			± 24	± 3	± 21	85	100
F0503D-1WR3			3.3	31	303	74	2200
F0505D-1WR3			5	20	200	78	2200
F0509D-1WR3			9	12	111	80	1000
F0512D-1WR3			12	9	83	80	560
F0515D-1WR3			15	7	67	80	560
F0524D-1WR3			24	5	42	82	220
E1203D-1WR3	12	10.8-13.2	± 3.3	± 15	± 151	74	1000
E1205D-1WR3			± 5	± 10	± 100	82	1000
E1209D-1WR3			± 9	± 6	± 56	83	470
E1212D-1WR3			± 12	± 5	± 42	83	220
E1215D-1WR3			± 15	± 4	± 33	83	220
E1224D-1WR3			± 24	± 3	± 21	85	100
F1203D-1WR3			3.3	31	303	74	2200
F1205D-1WR3			5	20	200	78	2200
F1209D-1WR3			9	12	111	80	1000

F1212D-1WR3			12	9	83	80	560
F1215D-1WR3			15	7	67	80	560
F1224D-1WR3			24	5	42	82	220
E1503D-1WR3	15	13.5-16.5	±3.3	±15	±151	74	1000
E1505D-1WR3			±5	±10	±100	82	1000
E1509D-1WR3			±9	±6	±56	83	470
E1512D-1WR3			±12	±5	±42	83	220
E1515D-1WR3			±15	±4	±33	83	220
E1524D-1WR3			±24	±3	±21	85	100
F1505D-1WR3			5	20	200	78	2200
F1509D-1WR3			9	12	111	80	1000
F1512D-1WR3			12	9	83	80	560
F1515D-1WR3			15	7	67	80	560
F1524D-1WR3			24	5	42	82	220
E2403D-1WR3	24	21.6-26.4	±3.3	±15	±151	74	1000
E2405D-1WR3			±5	±10	±100	82	1000
E2409D-1WR3			±9	±6	±56	83	470
E2412D-1WR3			±12	±5	±42	83	220
E2415D-1WR3			±15	±4	±33	83	220
E2424D-1WR3			±24	±3	±21	85	100
F2403D-1WR3			3.3	31	303	74	2200
F2405D-1WR3			5	20	200	78	2200
F2409D-1WR3			9	12	111	80	1000
F2412D-1WR3			12	9	83	80	560
F2415D-1WR3			15	7	67	80	560
F2424D-1WR3			24	5	42	82	220

customized accepted ,pls contact sales for details

Input Specifications

Input Filter	Capacitive Filter	
Ctrl	NONE	
	NONE	
Hot Plug	Unavailable	

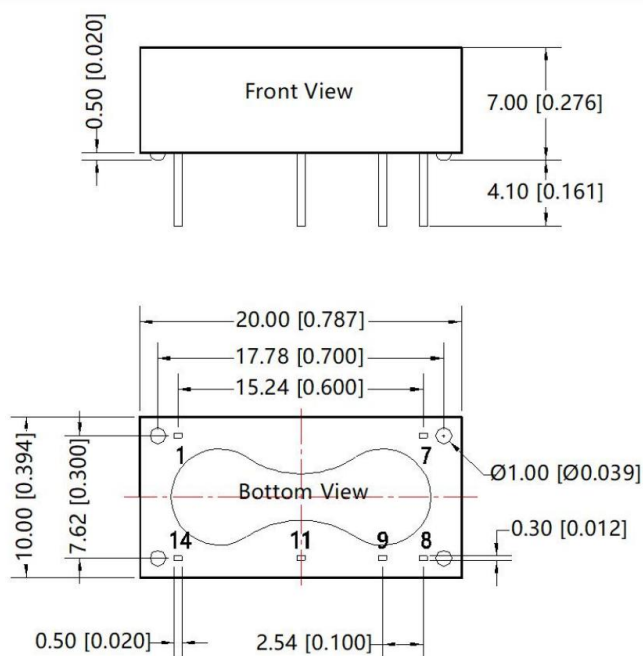
Output Specifications

Item		Min	Typ	Max	Test Conditions
Voltage Accuracy					
Line Regulation		-	-	±1.2%	Input voltage ±1%
Load Regulation	3.3V,±3.3Vout	-	-	15%	10% to 100% full load
	5V,±5Vout	-	-	10%	
	9V,±9Vout	-	-	8%	
	12V,±12Vout	-	-	6%	
	15V,±15Vout	-	-	6%	
	24V,±24Vout	-	-	5%	

Ripple&Noise	-	50mVp-p	75mVp-p	20MHz Bandwidth, full load
Gernal Specifications				
Switching Frequency	250KHz(Typ)			100% full load, nominal input voltage
Short-Circuit Protection	Continuous, self-recovery			
Case Temperature Rise	25℃ (Typ)			
Temperature Coefficient	0.02%/℃			100% full load
Pin Soldering Resistance Temperature	300℃			Soldering spot is 1.5mm away from case for 10 seconds
Isolation (Input-Output)	3KVDC			Input-output electric strength test for 1 minute with a leakage current
Insulation Resistance (Input-Output)	1000MΩ			Input-output resistance 500Vdc
Operating Temperature	-40~+105℃			
Storage Temperature	-55~+125℃			
Storage Humidity	<95%RH			Non-condensing
Cooling Method	Free air convection			
Case Material	Black plastic; flame-retardant and heat-resistant (UL94 V-0)			
Weight	2g (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

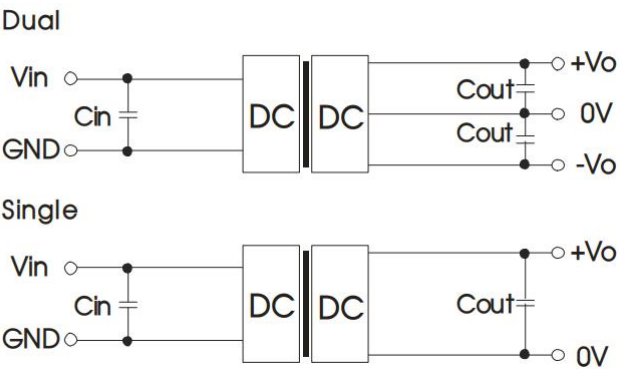


Note:
Unit: mm[inch]
Pin section tolerances: $\pm 0.10[\pm 0.004]$
General tolerances: $\pm 0.25[\pm 0.010]$

Pin-out

Pin	Single	Dual	
1	-Vin	-Vin	
7	NC	NC	
8	0V	+Vo2	
9	+Vo	-Vo2	
10	-	+Vo1	
11	-	-Vo1	
14	+Vin	+Vin	

Recommended Circuit



Recommended input and output capacitor values						
Vin		Cin	Single Vout	Cout	Dual Vout	Cout
3.3V	3.3VDC	10uF/16VDC	3.3/5VDC	10uF/16V	±3.3/±5VDC	10uF/16V
	-	-	9/12VDC	2.2uF/25V	±9/±12VDC	2.2uF/25V
	-	-	15/24VDC	1uF/50V	±15/±24VDC	1uF/50V
	5VDC	4.7uF/16VDC	3.3/5VDC	10uF/16V	±3.3/±5VDC	4.7uF/16V
	12VDC	2.2uF/25VDC	7.2/9VDC	2.2uF/16V	±9VDC	1uF/16V
	15VDC	2.2uF/25VDC	12VDC	2.2uF/25VDC	±12VDC	1uF/25V
	24VDC	1uF/50V	15VDC	1uF/25VDC	±15VDC	0.47uF/25V
	-	-	24VDC	1uF/50V	±24VDC	0.47uF/50V

Note

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.

