ECCO Electronics Technology Co.,ltd

1W series DC/DC converter

Typical Performance

- ⊙Fixed Input, isolation, Unregulated Output,1W
- ⊙Isolation voltage: 1000VDC
- ⊙DIP package
- ⊙Efficiency :up to 80%
- ⊙Working temperature -40℃~+85℃
- ⊙MTBF≥35x10^{5}Hrs
- ⊙Industry standard pinout
- ⊙Isolation capacitance:90PF
- ⊙No external component required
- ⊙In line with RoHS codes
- ⊙Line regulation (for Vin change of ±1%): ±1.2%(max)
- ⊙Load regulation (10%-100% load) 15%
- ⊙Ripple and noise (20MHz Band width) <75mVp-p



QR 1	XX	S	XX	S/S3
①②	③	④	⑤	⑥

① Series name
②Output watt
③Normal input voltage
④Single output
⑤Output voltage
⑥I/O isolation(S:1KV,no S:1.5KV,S3:3KV)

- ⊙Temperature drift(100% full load):±0.03%/℃(max)
- ⊙Switching Frequency(Full load,nominal input):100Khz(typ)
- ⊙Storage Temperature:-55℃~+125℃
- ⊙Isolation Resistance:1000MΩ/1min
- ⊙Isolation capacitance:60Pf(typ)
- ⊙Cooling:Free aire converction

Product Program

Part #	Input voltage range	Nominal output voltage / output current						Efficiency (%, typ)
		VO1			VO2			
		Voltage (VDC)	Min (mA)	Max (mA)	Voltage (VDC)	Min (mA)	Max (mA)	
QR1-03S3V3	3V(3~3.6V)	3.3	30.3	303				72
QR1-03S05		5	20	200				74
QR1-05S05	5V(4.5~5,.5V)	5	20	200				70
QR1-05S09		9	11	111				78
QR1-05S12		12	8.3	83				78
QR1-05S15		15	6.8mA	68mA				80

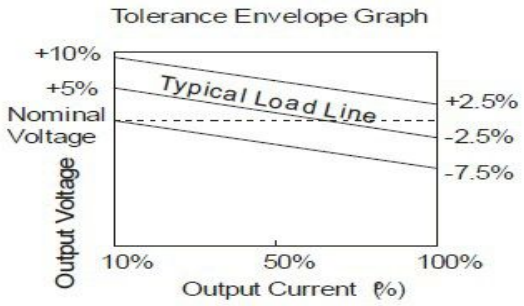
QR1-05S24		24	4.2mA	42mA				81
QR1-05D05		±5	+10mA	+100mA	-5V	-10mA	-100mA	72
QR1-05D09		±9	+5.5mA	+55mA	-9V	-5.5mA	-55mA	78
QR1-05D12		±12	+4mA	+40mA	-12V	-4mA	-40mA	79
QR1-05D15		±15	+3.3mA	+33mA	-15V	-3.3mA	-33mA	80
QR1-12S3V3	12V(10.8~13.2V)	3.3	30	303				73
QR1-12S05		5	20	200				71
QR1-12S09		9	11	111				76
QR1-12S12		12	8.3	83				78
QR1-12S15		15	6.8mA	68mA				79
QR1-12D05		±5	+10mA	+100mA	-5V	-10mA	-100mA	78
QR1-12D09		±9	+5.5mA	+55mA	-9V	-5.5mA	-55mA	78
QR1-12D12		±12	+4mA	+40mA	-12V	-4mA	-40mA	79
QR1-12D15		±15	+3.3mA	+33mA	-15V	-3.3mA	-33mA	78
QR1-15S05	15V(13.5~16.5V)	5	20	200				79
QR1-15D05		±5	+10mA	+100mA	-5V	-10mA	-100mA	78
QR1-24S05	24V(21.6~26.4V)	5	5	20	200			79
QR1-24S09		9	9	11	111			78
QR1-24S12		12	12	8.3	83			79
QR1-24S15		15	15	6.8mA	68mA			78
QR1-24S24		24	24	4.2mA	42mA			79
QR1-24D05		±5	+10mA	+100mA	-5V	-10mA	-100mA	78
QR1-24D09		±9	+5.5mA	+55mA	-9V	-5.5mA	-55mA	79
QR1-24D12		±12	+4mA	+40mA	-12V	-4mA	-40mA	78
QR1-24D15		±15	+3.3mA	+33mA	-15V	-3.3mA	-33mA	79

□ Shows the nominal value of input voltage,due to space limitations ,the above list is only for some products,If other than a list of products, please contact the Company's sales department.

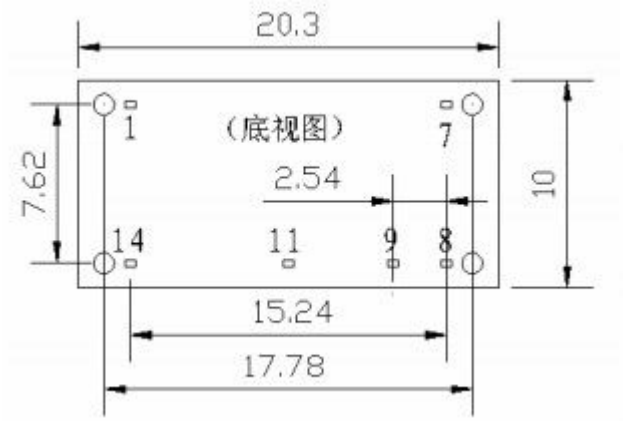
Mechanical Data

Packing Code	L x W x H ： mm	Packing No.
A	20.3*10*7	

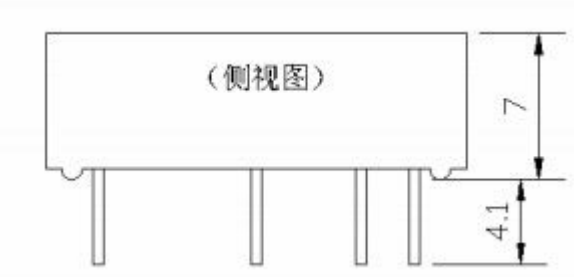
Typical Temperature Curve



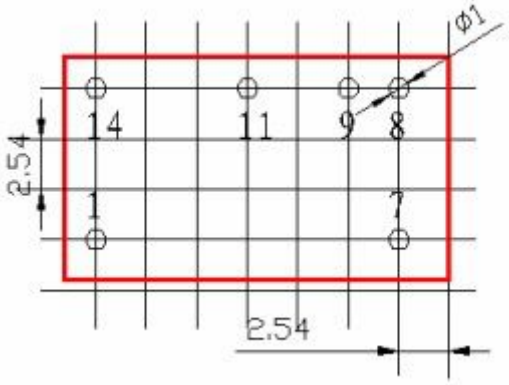
Mechanical Dimension



BOTTON VIEW



LATERAL VIEW



Recommended PCB Layout

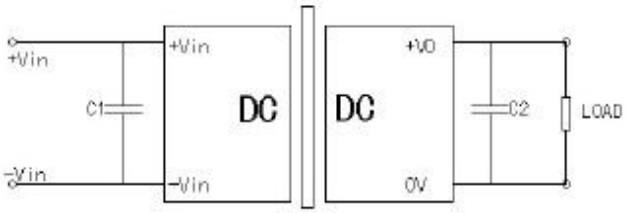
UNIT:mm

A Package

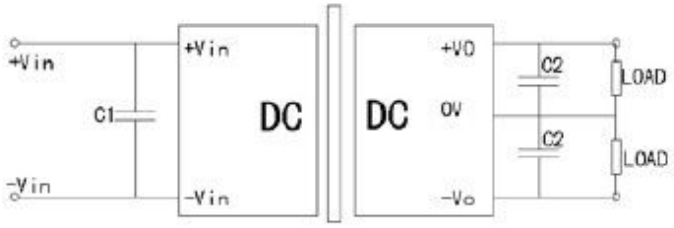
Pin Assignment

PIN	1	7	8	9	11	14				
S	GND	NC	0V	+Vo	NO pin	Vin				
D	GND	NC	0V	+Vo	-Vo	Vin				

Recommend Circuit



Single O/P



Dual O/P

C1、C2 select

INPUT VOLTAGE	C1	DUAL O/P	C2	SINGLE O/P	C2
3.3VDC	4.7uF	±5VDC	4.7uF	3.3VDC	10uF
5VDC	4.7uF	±9VDC	2.2uF	5VDC	10uF
12VDC	2.2uF	±12VDC	1uF	9VDC	4.7uF
15VDC	2.2uF	±15VDC	0.47uF	12VDC	2.2uF
24VDC	1uF	±24VDC	0.47uF	15/24VDC	1uF

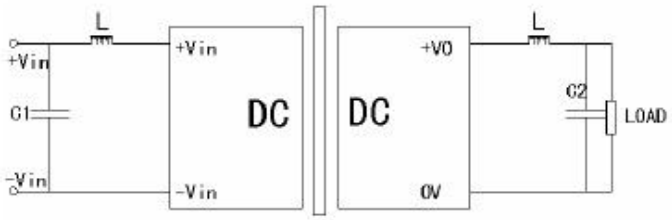
Application Note

(1)Pls don't use under no load: when the load power is less than 10% of the rated power ,we advise to connect the resistance following the output or the selection the smaller rated power module,for the resistance,the value is 5~10% of the rated power,resistance=U_2/（10%×1W）

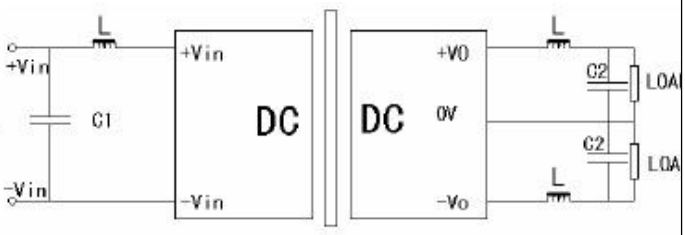
(2)Pls don't connect the excessive capacitor in external circut :output connects C2's value can't be too big,, otherwise easily lead to module startup flow or poor starting,

According to the external table to select the capacitance

(3)For the ripple&noise with higher requirements ,we advise to connect the LC filter, the frequency of LC filter is far smaller than the DC / DC module switching frequency, prevent mutual interference, resulting in increased the ripple damage the power module,pls see below



Single O/P



Dual O/P

*Note：The power modules such as the definition of the pin does not match with the hand book,please refer to the actual item.