

## Typical Features

- ◆ Wide input voltage range (4:1), output power 10W
- ◆ Efficiency up to 88% (Typ.)
- ◆ With Remote Control ON/OFF function
- ◆ Continuous short circuit protection, self-recovery
- ◆ Power On/Off No overshoot
- ◆ Isolation voltage 1500VDC
- ◆ Operating temperature from -40℃ to +85℃
- ◆ Plastic case flame class UL94-V0



## Application Filed

***This series products can be widely used in the fields of instrument, communication, pure digital circuit, general low frequency analog circuit, relay drive circuit, data exchange circuit, etc.***

## Typical Product List

Certificate	Part No.	Input voltage Range (VDC)		Output Voltage /Current (Vo/Io)		Input current (mA) Typ. @nominal voltage		Max. Capacitive Load	Ripple & Noise (mVp-p)	Efficiency (%) @Full load /Nominal voltage	
		Nom.	Range	Vo (VDC)	Io(mA) Max/Min	Full Load	No Load	(uF)	Max	Min	Typ.
-	DD10-18S3V3E3C2	24	9-36	3.3	2400/0	392	33	1200	100	84	86
	DD10-18S05E3C2		9-36	5	2000/0	479	33	1000	100	85	87
	*DD10-18S12E3C2		9-36	12	833/0	479	10	470	100	85	87
	*DD10-18S15E3C2		9-36	15	667/0	479	10	330	100	85	87
	*DD10-18S24E3C2		9-36	24	416/0	483	10	100	100	86	88
	*DD10-36S3V3E3C2	48	18-75	3.3	2400/0	194	33	1200	100	84	86
	*DD10-36S05E3C2		18-75	5	2000/0	245	33	1000	100	85	87
	*DD10-36S12E3C2		18-75	12	833/0	245	10	470	100	85	87
	*DD10-36S15E3C2		18-75	15	667/0	245	10	330	100	85	87
	*DD10-36S24E3C2		18-75	24	416/0	241	10	100	100	86	88

Note 1 - \* marked part has been developed in process.

Note 2 - The maximum capacitive load is the capacitance allowed to be used when the power supply starts at full load. The converter may not start if the capacitor exceeds this value.

Note 3 - In the part numbers C indicates the part with remote Control function, N indicates without Control.

Note 4 - Please contact Aipu sales for other output voltages requirement in this series but not listed in this table.

## Input Specifications

Item	Test Conditions	Min.	Typ.	Max.	Unit
Start-up Voltage	9-36V input	/	/	9	VDC
	18-75V input	/	/	18	

Under-voltage Protection	9-36V input	/	7	/	VDC
	18-75V input	/	13	/	
Standby power consumption	0.25W (Typ.)				
Input Filter	Pi filter				
Remote control (Ctrl)	Turn-on the converter – Ctrl No connection or connect to high level (3.3V-12VDC)				
	Shut-off the converter – Ctrl connected to -Vin or low level (0-1.2VDC)				
	Current value to shut off the converter - 2mA (TYP)				

### Output Specifications

Output Voltage Accuracy	Full input voltage range, full load	Positive output	$\leq \pm 2.0\%$
Voltage Regulation	Full input voltage range, rated load	Positive output	$\leq \pm 0.5\%$
Load Regulation	10% ~ 100% load	Positive output	$\leq \pm 1\%$
Ripple & Noise	Nominal input voltage, rated load		$\leq 100\text{mVp-p}$ (20MHz)
Temperature Drift Coefficient	Full load		$\pm 0.03\%/^{\circ}\text{C}$
Dynamic Response	25% of rated load step	$\Delta V_o/\Delta t$	$\pm 5.0\%/0.5\text{ms}$ (Typ.)
Short Circuit Protection	Continuous, Self-recovery		
Over-load Protection	120%-220% $I_o$		
Over-voltage Protection	110%-160% $V_o$		
Turn-on Delay	10ms (Typ.)		
Start-up overshoot	$\leq 10\%V_o$		

Note: The ripple and noise are tested by the twisted pair method according to the Test Instruction in the datasheet.

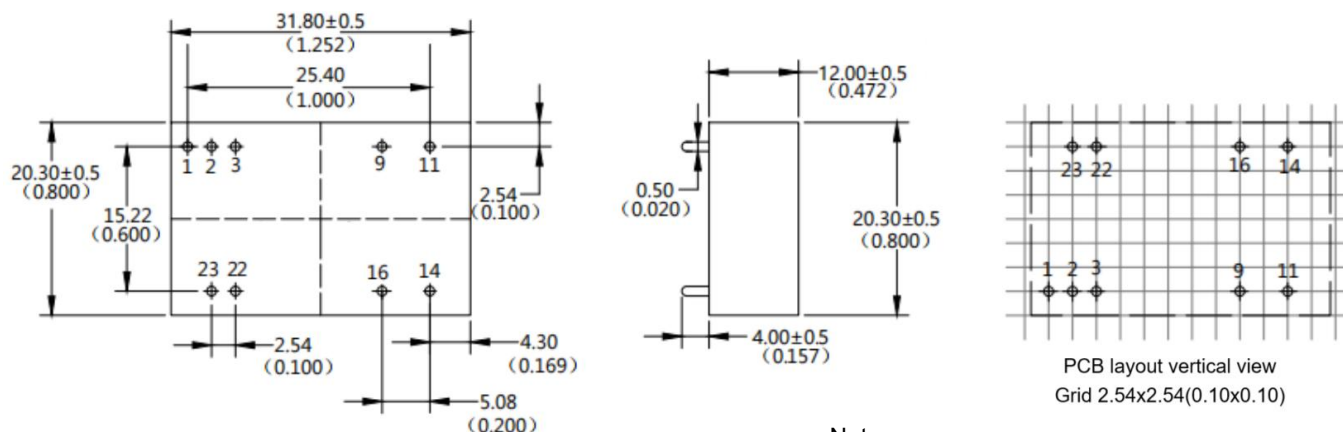
### General Specifications

Switching Frequency	(Typ.)	330KHz
Operating Temperature	Refer to the temperature derating graph	$-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
Storage Temperature	/	$-55^{\circ}\text{C} \sim +125^{\circ}\text{C}$
Case Temperature Max	Within the temperature derating graph	$+105^{\circ}\text{C}$
Relative Humidity	No condensing	5%~95%
Case Material	/	Aluminum
Pin soldering temperature	1.5mm from the case, 10 seconds	$300^{\circ}\text{C}$ Max.
Isolation Voltage	Input to Output	1500VDC (Leakage current $\leq 0.5\text{mA}$ / 1min)
Insulation Resistance	I/P-O/P @ 500VDC	$\geq 1000\text{M}\Omega$
Insulation Capacitance	I/P-O/P, 100kHz/0.1V	2000pF (Typ.)
MTBF	MIL-HDBK-217F@25°C	$2 \times 10^5$ Hrs
Unit Weight	/	12g (Typ.)

## EMC Performance

Total Items	Sub Items	Test Standard	Performance/Class
EMC	EMI	CE	CISPR32/EN55032
		RE	CISPR32/EN55032
	EMS	RS	IEC/EN61000-4-3
		CS	IEC/EN61000-4-6
		ESD	IEC/EN61000-4-2
		Surge	IEC/EN61000-4-5
		EFT	IEC/EN61000-4-4
		Voltage Dips & Interruptions	IEC/EN61000-4-11

## Mechanical Dimensions



Note:  
Unit: mm (inch)  
Pin diameter tolerance:  $\pm 0.10$  ( $\pm 0.004$ )  
General tolerance:  $\pm 0.50$  ( $\pm 0.020$ )

Package Code	Dimensions L x W x H	
E3	31.80 × 20.30 × 12.00 mm	1.252 × 0.800 × 0.472 inch

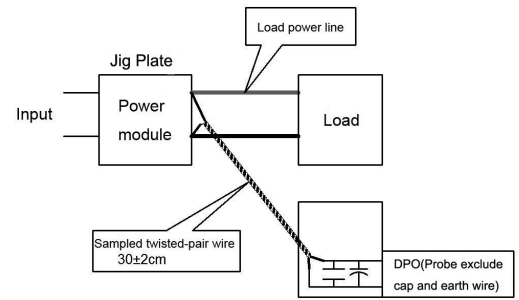
## Pin-out Function Description

Pin No.	1	2	3	9	11	14	16	22	23
DD10-XXSXXE3C2	Ctrl	-Vin	-Vin	NP	NC	+Vo	GND	+Vin	+Vin
	Remote Control	Input GND	Input GND	No Pin	No Connection	Output V+	Output GND	Input V+	Input V+
DD10-XXSXXE3N2	NP	-Vin	-Vin	NP	NC	+Vo	GND	+Vin	+Vin
	No Pin	Input GND	Input GND	No Pin	No Connection	Output V+	Output GND	Input V+	Input V+

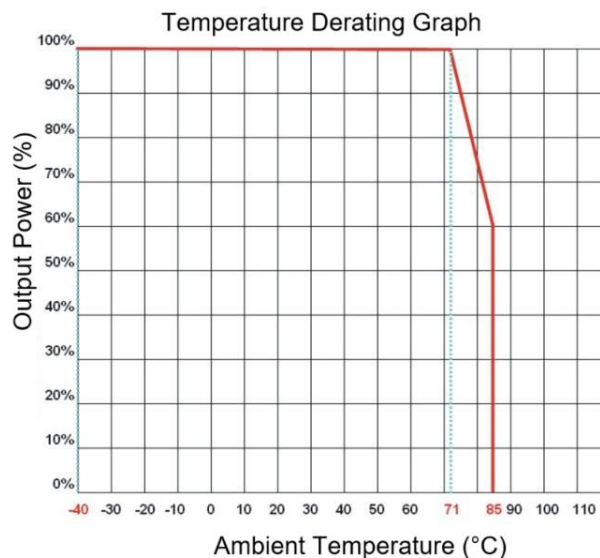
## Ripple & Noise Test Instructions (Twisted Pair Method, 20MHz Bandwidth)

1) The Ripple & noise test needs 12# twisted pair cables, an oscilloscope which bandwidth should be set to 20MHz, 0.1uF polypropylene capacitor and 10uF high-frequency low-resistance electrolytic capacitor are connected in parallel with the probes (100M bandwidth). The oscilloscope should be set at the Sample Mode.

2) The test diagram is shown on the right. The converter output connects to the electronic load by the jig with cables which size should be defined according to the output current value. The twisted pair (length  $30\text{cm} \pm 2\text{cm}$ ) should be connected in parallel with the load, the location is as close as possible to the output pins or terminals. The test can be started after input power on.



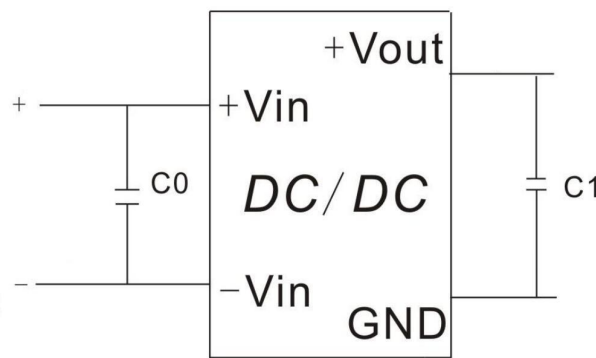
## Product Characteristics Graph



## Recommended Circuits for Application

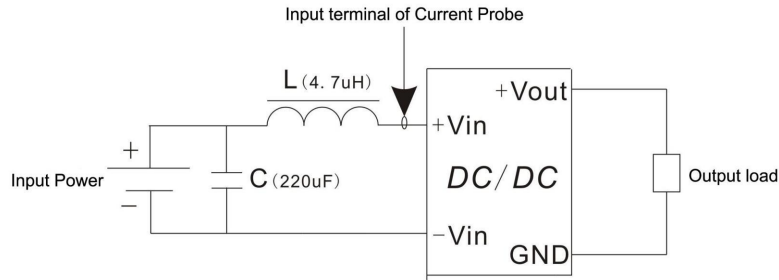
### 1. DC/DC test circuit

Recommendation for the capacitors: C0: 47-100uF; C1: 100uF

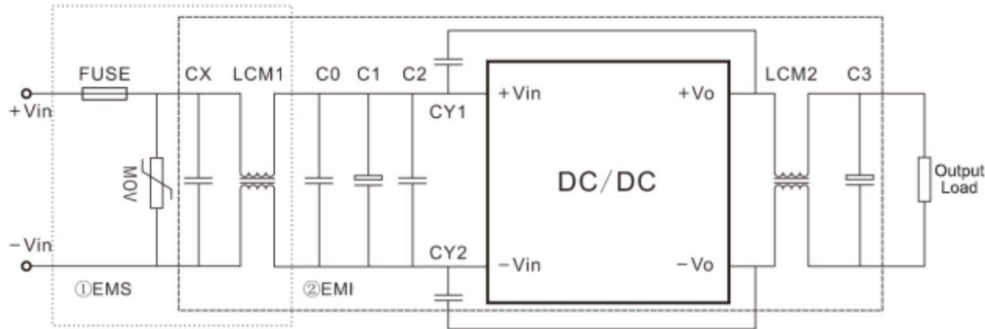


## 2. Input reflecting ripple current test

A low ESR capacitor is recommended for C which withstand voltage should be more than the maximum input voltage.



## 3. Recommended EMC Circuit diagram



Component No.	Recommended values
FUSE	TBD by the customer
MOV	14D470K
CX	470uF/50V
C0, C1, C2, C3	10uF/50V
LCM1	5mH
LCM2	30uH
CY1, CY2	1nF/2000V

## Application Notice

1. The products should be used according to the specifications in this datasheet, otherwise it could be permanently damaged.
2. The product performance in this datasheet cannot be guaranteed if it works at a lower load than the minimum load defined.
3. The product performance in this datasheet cannot be guaranteed if it works at over-load condition.
4. Unless otherwise specified, all values or indicators in this datasheet are tested at Ta=25°C, humidity<75%RH, nominal input voltage and rated load (pure resistance load).
5. All values or indicators in this datasheet had been tested based on Aipupower test specifications.
6. The specifications are specially for the parts listed in this datasheet, any other non-standard model performances could be out of the specifications. Please contact our technician for specific requirements.
7. Aipupower can provide customization service.
8. The product specifications may be modified without prior notice. Please refer to the published data sheet at Aipupower website.

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