

Features

- Wide Input 4:1
- DIP Package/PCB Series
- Working Temperature: -40°C~+85°C
- Isolation 1500VDC 0.5mA 1Minute
- Internal SMD Design
- Metal shell
- Cooling Nature
- Good shielding and anti-interference performance, electromagnetic compatibility, lightning protection, output overcurrent, short circuit protection, overheating protection, self recovery and other functions

Product Picture

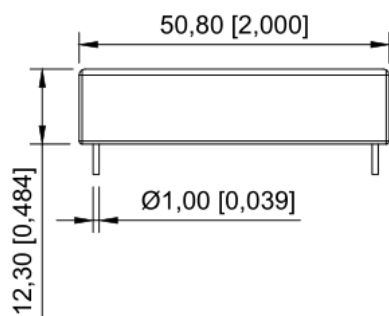


EMC-EN55032
EN55035
LVD-EN62368

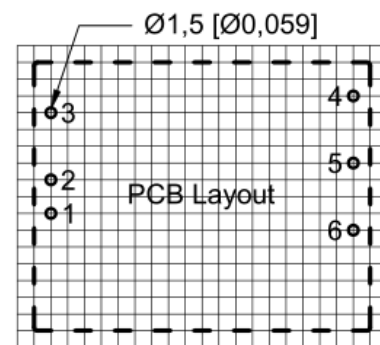
Dimensions

Dimensions of UD_S_E2-20 Series

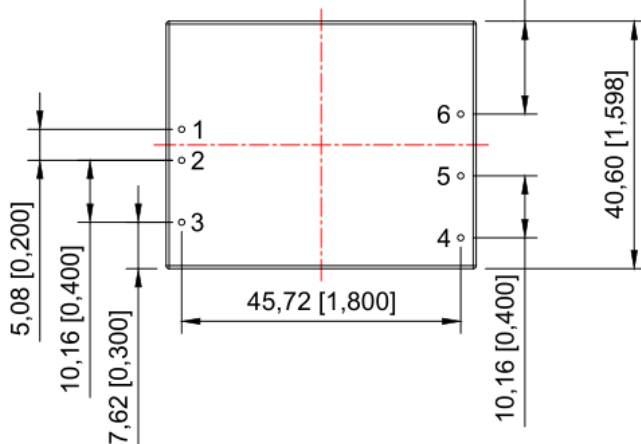
Front View



Top View



Note: The grid distance is 2.54*2.54mm

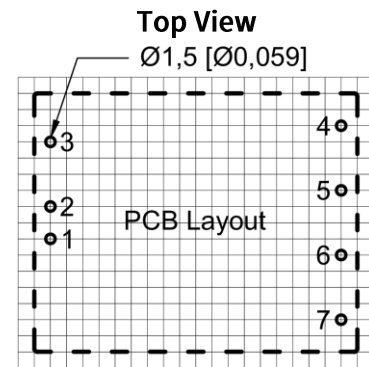
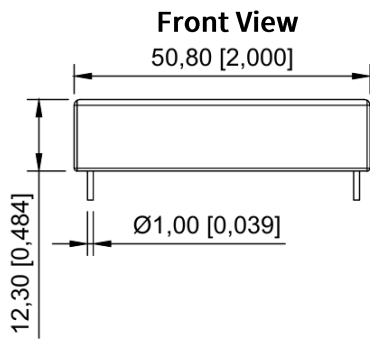


Bottom View

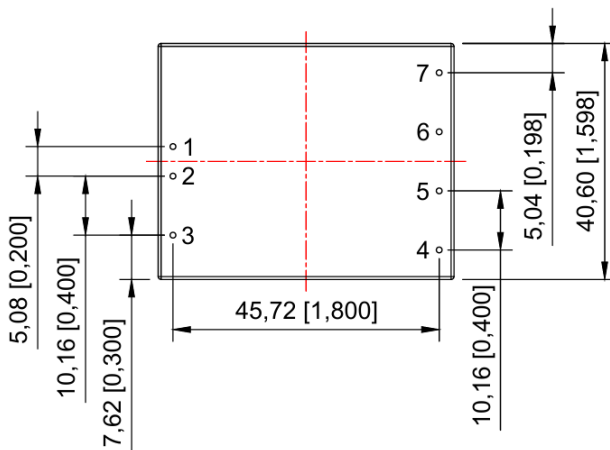
Note: Unit: mm[inch]
Pin Section Tolerance : $\pm 0.1[\pm 0.004]$
General Tolerance: $\pm 0.25[\pm 0.01]$
The device layout is for reference only.

Pin Mode	
Pin	Single (S)
1	Vin
2	GND
3	CNT
4	TRM
5	0V
6	+XXVDC

Dimensions of UD_D_E2-20 Series



Note: The grid distance is 2.54*2.54mm

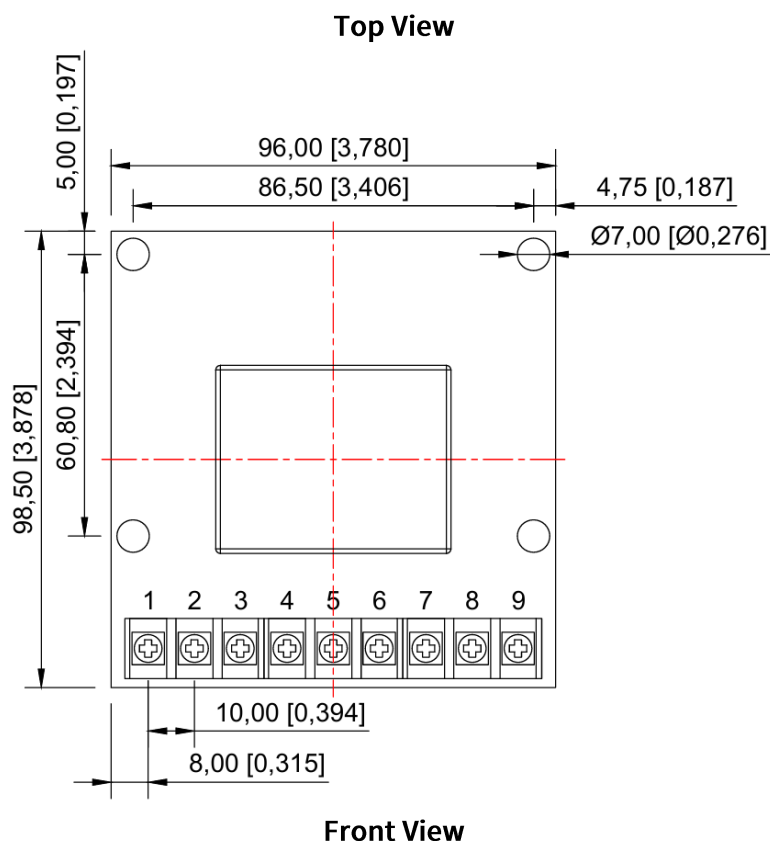


Bottom View

Note: Unit: mm[inch]
Pin Section Tolerance : $\pm 0.1[\pm 0.004]$
General Tolerance: $\pm 0.25[\pm 0.01]$
The device layout is for reference only.

Pin Mode	
Pin	Dual (D)
1	Vin
2	GND
3	CNT
4	TRM
5	-XXVDC
6	COM
7	+XXVDC

UD_S(D)_ZBE2-20 Series



Pin Mode		
Pin	Single (S)	Dual (D)
1	NC	NC
2	NC	NC
3	CNT	CNT
4	GND	GND
5	Vin	Vin
6	0V	-XXVDC
7	TRM	TRM
8	+XXVDC	COM
9	NC	+XXVDC

Note:
 Unit: mm[inch]
 Pin Section Tolerance : $\pm 0.1[\pm 0.004]$
 General Tolerance: $\pm 0.25[\pm 0.01]$
 The device layout is for reference only.

Applications

Railway communications, display screens, monitoring equipment, petrochemicals, industrial control, long-distance DC power supply systems, switching systems and other communication equipment, etc.

Selection Guide

Model	Vin (VDC)	Vout (V $\pm 2\%$)	Current (mA)	Efficiency (%)	Isolation (VDC)
UD_S05(ZB)E2-20	24(9-36) 48(18-75) 110(40-160)	5	4000	≥ 83	1500
UD_S12(ZB)E2-20		12	1667	≥ 83	1500
UD_S15(ZB)E2-20		15	1333	≥ 83	1500
UD_S24(ZB)E2-20		24	833	≥ 84	1500
UD_D05(ZB)E2-20		± 5	± 2000	≥ 83	1500
UD_D12(ZB)E2-20		± 12	± 834	≥ 83	1500
UD_D15(ZB)E2-20		± 15	± 667	≥ 83	1500

Note: Our company customizes module power supplies with any input or output for customers. If you have other output voltage requirements, please contact our company. Unless otherwise specified, the input =Vi. The characteristics of the module power supply should comply with the provisions of Table 1 and be applicable to the full temperature range (-40°C \leq Tc \leq 85°C).

Electrical Characteristics

Characteristics	Symbol	Condition $V_i, -40^{\circ}\text{C} \leq T_c \leq 85^{\circ}\text{C}$ (Unless Otherwise Specified)	Min	Max	Unit
Output Voltage	V_o	Full Load	$V_o-2\%$	$V_o+2\%$	V
Output Current	I_{omax}	—	—	$P(\text{Power})/U(\text{Output Voltage})$	A
Output Ripple Voltage	V_{p-p}	Full Load, V_i , BW=20MHz, Normal Temperature	—	240	mV
Output Noise Voltage	V_{p-p}	Full Load, V_i , BW=20MHz, Normal Temperature	—	480	mV
Voltage Regulation	S_v	V_{imin}, V_i, V_{imax} , Full Load	—	± 2	%
Load Regulation	S_i	$V_i, I_o=(10\% \sim 100\%), 5V, \pm 5V$	—	± 3	%
		$V_i, I_o=(10\% \sim 100\%), \text{Other outputs}$		± 2	
Efficiency	η	V_i , Full Load, Normal Temperature	82	—	%
Insulation Resistance	RI	Input/Output, Test Voltage: 500VDC	1000	—	MΩ

General Characteristics

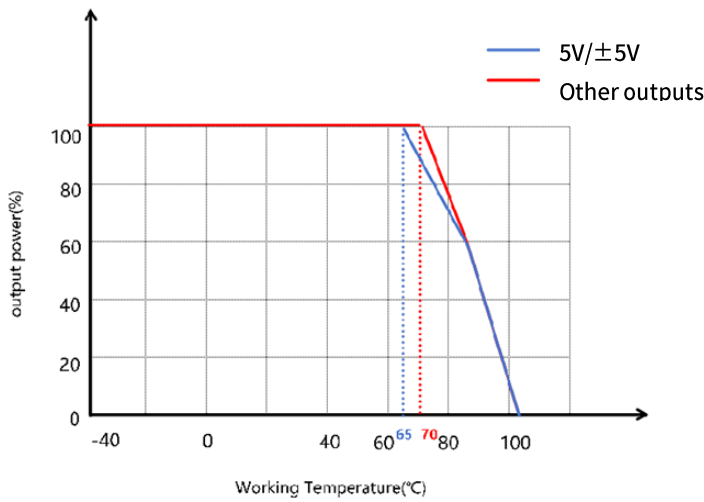
EMC Specifications	Magnetic Field Sensitivity Test	GB6833.2-87
	Electrostatic Discharge Sensitivity Test	GB6833.3-87
	Radiation Sensitivity Test	GB6833.5-87
	Conductivity Sensitivity Test	GB6833.6-87
Temperature Excursion	$\leq 0.02\%/^{\circ}\text{C}$	
Storage Temperature	$-40^{\circ}\text{C} \sim 125^{\circ}\text{C}$	
Switching Frequency	200KHz~400KHz	
Humidity	10%-90%RH	
MTBF	$> 300000\text{H}$	

Mechanical Specifications

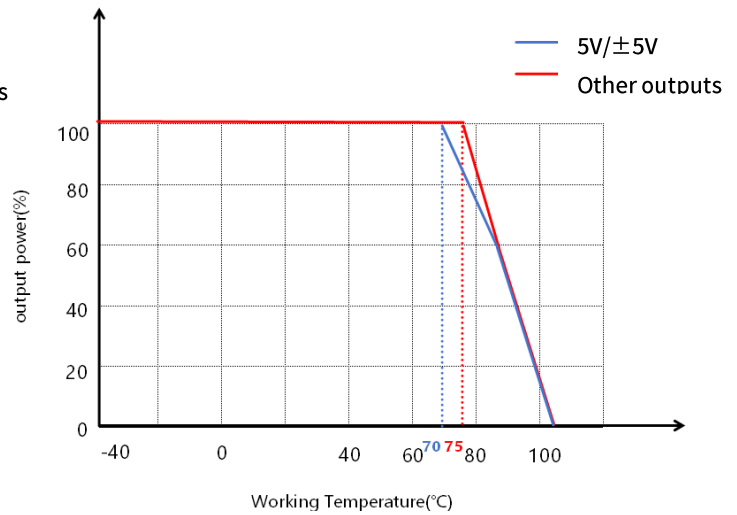
Size	50.80 x 40.60 x 12.30 mm, ZB: 96.00 x 98.50 mm
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Product Characteristic Curves

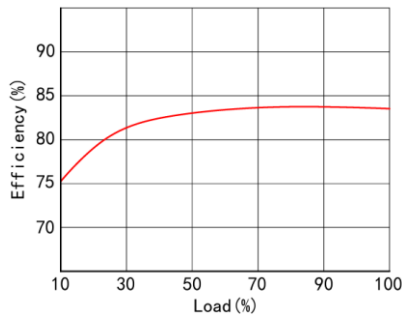
Temperature derating curve (without radiator)



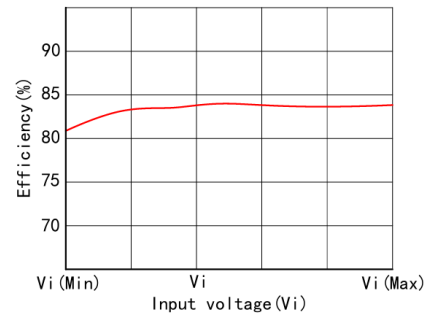
Temperature derating curve (with radiator)



Efficiency/Load graph

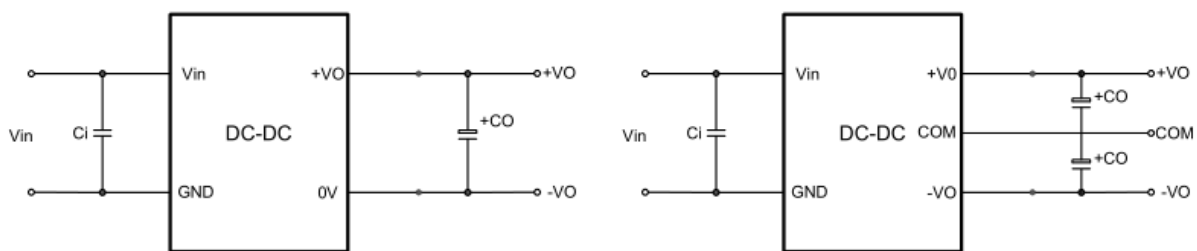


Efficiency/Input voltage graph



Typical Application

Design Reference



Recommendation Test

Filtering: In some circuits sensitive to noise and ripple, filtering capacitors can be externally connected to the input and output terminals of the DC/DC converter to reduce the impact of ripple on the system. However, the value of the filtering capacitor should be appropriate. If the capacitor is too large, it may cause startup problems. For each output, under the condition of ensuring safe and reliable operation, the maximum capacitance value of the filtering capacitor can refer to the external capacitance table. In order to obtain very low ripple, an "LC" filtering network can be connected to the input and output terminals of the DC/DC

converter, so that the filtering effect will be better. At the same time, attention should be paid to the size of the inductance value and the frequency of the "LC" filtering network itself, which should be staggered with the frequency of the DC/DC module power supply to avoid mutual interference. For each output channel, it is advisable to verify the condition of its external capacitor while ensuring safe and reliable operation. For further details, please refer to Table 1.

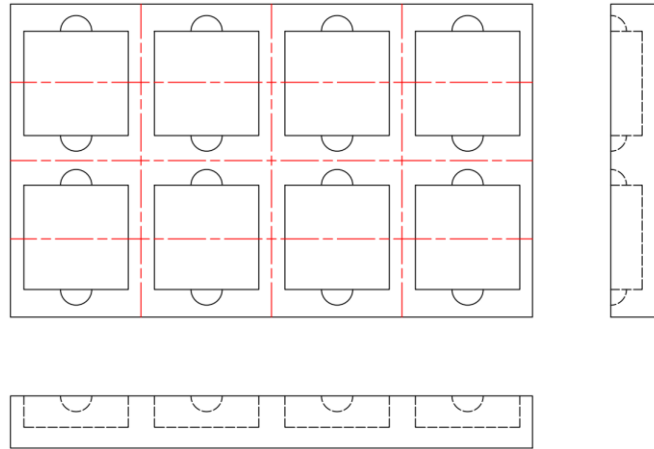
Vin (VDC)	Vout (VDC)	Ci (μF)	Co (μF)
24 (9~36)	5	100μF/50V	47μF/16V
	12/15		22μF/25V
	24		22μF/50V
	±5/±12		22μF/25V
	±15		10μF/50V
48 (18~75)	5	100μF/100V	47μF/16V
	12/15		22μF/25V
	24		22μF/50V
	±5/±12		22μF/25V
	±15		10μF/50V
110 (40~160)	5	47μF/200V	47μF/16V
	12/15		22μF/25V
	24		22μF/50V
	±5/±12		22μF/25V
	±15		10μF/50V

The recommended values for the external filter capacitors are specified in Table 1.

Notice

Package

This series of modules are packed with shockproof and static-proof foam.



Transport

The package is allowed to be transported by any means of transport, which shall avoid direct rain or snow and mechanical damage.

Storage

The module should be stored in a warehouse with an ambient temperature of -40°C to 125°C , a relative humidity of 20% to 95%, and no acidic, alkaline, or other harmful gases in the surrounding environment.

Note: The above are the performance indicators of the product series listed in this manual. Some indicators of non-standard models may exceed the above requirements. If there is any inconsistency between the manual and the product specification document, please refer to the specification document. If you have special requirements, please contact our company directly.