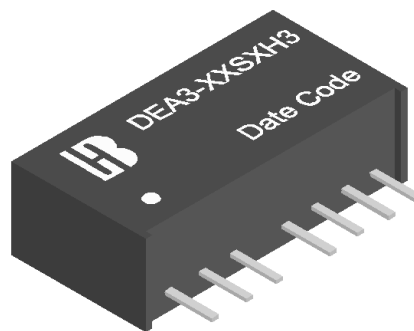


## Features

- 8 pin SIP package
- Wide 2 : 1 Input Voltage Range (4.5-9V,9-18V,18-36V,36-75V)
- Input / Output Isolation Voltage: 3kVDC
- Output Short Circuit Protection: Continuous & Auto Recovery
- Remote On/Off Control
- Lead Free Design, RoHS Compliant
- Operating temperature: -40°C to +85°C
- Meet Safety Standard / Approval: IEC / EN60950-1



## Applications

These converters are well suitable for battery operated equipment, measurement equipment, telecom, wireless network, Industry control system, everywhere where isolated, tightly regulated voltages and compact size are required.

## Technical Specification

All specifications are typical at nominal input, full load and 25°C unless otherwise stated.

Model Number	Input Voltage Range(V)	Output Voltage (V)	Output Current (mA)		Input Current (mA) Typ.		Eff. (%) <sup>(2)</sup> Typ	Capacitive Load, max. <sup>(3)</sup> (uF)
			Full Load		No Load	Full Load		
DEA3-05S0H3	4.5-9 Nominal: 5	3.3	750	45	688	72	1220	
DEA3-05S1H3		5	600		800	75	1000	
DEA3-05SAH3		9	330		782	76	820	
DEA3-05S2H3		12	250		769	78	680	
DEA3-05S3H3		15	200		769	78	470	
DEA3-05S5H3		24	125		759	79	330	
DEA3-05D1H3		±5	±300		789	76	±560	
DEA3-05DAH3		±9	±167		781	77	±470	
DEA3-05D2H3		±12	±125		780	77	±330	
DEA3-05D3H3		±15	±100		780	77	±220	
DEA3-05D5H3		±24	±63		775	78	±150	
DEA3-12S0H3		9-18 Nominal: 12	3.3		750	15	279	74
DEA3-12S1H3	5		600	316	79		1000	
DEA3-12SAH3	9		330	306	81		820	
DEA3-12S2H3	12		250	298	84		680	
DEA3-12S3H3	15		200	298	84		470	
DEA3-12S5H3	24		125	305	82		330	
DEA3-12D1H3	±5		±300	316	79		±560	
DEA3-12DAH3	±9		±167	305	82		±470	
DEA3-12D2H3	±12		±125	298	84		±330	
DEA3-12D3H3	±15		±100	298	84		±220	
DEA3-12D5H3	±24		±63	307	82		±150	

# DEA3H3 Series 3 Watt

Isolated DC-DC Converters Regulated



Model Number	Input Voltage Range(V)	Output Voltage (V)	Output Current (mA)	Input Current (mA) Typ.		Eff. <sup>(2)</sup> (%)Typ	Capacitive Load, max. <sup>(3)</sup> (uF)
			Full Load	No Load	Full Load		
DEA3-24S0H3	18-36 Nominal: 24	3.3	750	7	136	76	1220
DEA3-24S1H3		5	600		154	81	1000
DEA3-24SAH3		9	330		151	82	820
DEA3-24S2H3		12	250		147	85	680
DEA3-24S3H3		15	200		147	85	470
DEA3-24S5H3		24	125		151	83	330
DEA3-24D1H3		±5	±300		158	79	±560
DEA3-24DAH3		±9	±167		153	82	±470
DEA3-24D2H3		±12	±125		147	85	±330
DEA3-24D3H3		±15	±100		147	85	±220
DEA3-24D5H3		±24	±63		152	83	±150
DEA3-48S0H3		36-75 Nominal: 48	3.3		750	5	71
DEA3-48S1H3	5		600	79	79		1000
DEA3-48SAH3	9		330	75	82		820
DEA3-48S2H3	12		250	74	84		680
DEA3-48S3H3	15		200	74	84		470
DEA3-48S5H3	24		125	75	83		330
DEA3-48D1H3	±5		±300	79	79		±560
DEA3-48DAH3	±9		±167	76	82		±470
DEA3-48D2H3	±12		±125	75	84		±330
DEA3-48D3H3	±15		±100	75	84		±220
CEA3-48D5H3	±24		±63	76	83		±150

## Input Specifications

Input voltage	5V nominal input 12V nominal input 24V nominal input 48V nominal input	4.5-9V 9-18V 18-36V 36-75V
Input filter		Capacitor
Remote ON/OFF	Converter: ON Converter: OFF	Open or high impedance GND or Low impedance

## Environmental Specifications

Operating ambient temperature	-40°C to +85°C
Maximum case temperature	+95°C
Storage temperature range	-55°C to +125°C
Relative humidity	95% RH max.

## Output Specifications

Output power			3Watts max.
Output voltage accuracy	Nominal Vin and full load (Main road)		
	3.3Vdc		3.205~3.395V
	5Vdc		4.91~5.09V
	9Vdc		8.81~9.19V
	12Vdc		11.82~12.18V
	15Vdc		14.80~15.20V
Output voltage accuracy	Nominal Vin and full load (Auxiliary road)		
	5Vdc		-4.85~5.15V
	9Vdc		-8.83~9.16V
	12Vdc		-11.70~12.30V
	15Vdc		-14.70~15.30V
	24Vdc		-23.70~24.30V
Minimum load			0A
Line regulation	LL to HL at full load		±0.5%
Load Regulation	5% load to full load	Single	±0.75%
	Balanced load	Dual	±1%
	Unbalanced load 25% to 100% full load		±3%
Ripple and Noise	20MHz bandwidth		150mVp-p max.
Maximum capacitive load			See table
Short circuit protection	automatic recovery		Continuous
Transient response settling time	25% load step change		2ms max.
Transient response over shoot			≤ ±5% of Vo

## General Specifications

Efficiency	Nominal input and full load		See table
Isolation voltage	Input to output		3000VDC (60 second)
Isolation resistance	500VDC		10 <sup>9</sup> Ohms min.
Switching frequency			230kHz typ.
Reliability, calculated MTBF			1 × 10 <sup>6</sup> Hrs

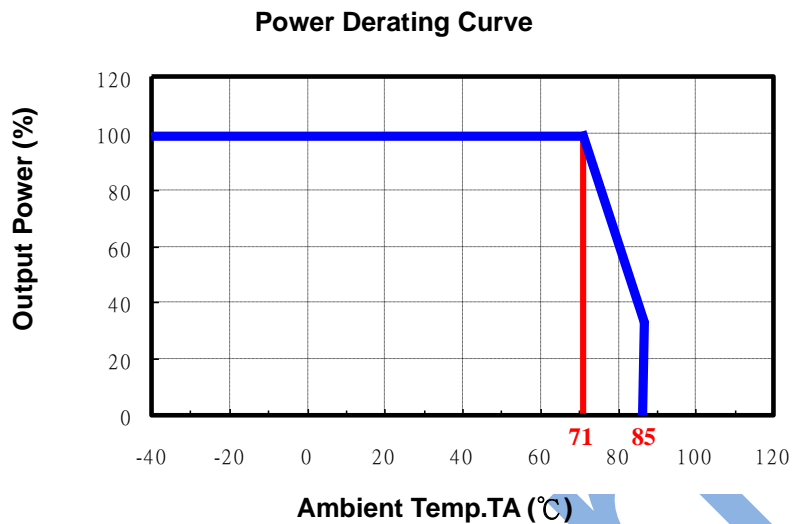
## Physical Specifications

Case material			Plastic (UL94 V-0)
Dimensions			0.858×0.441×0.366 Inch (21.80×11.2×9.3 mm)
Weight			4.5g typ.

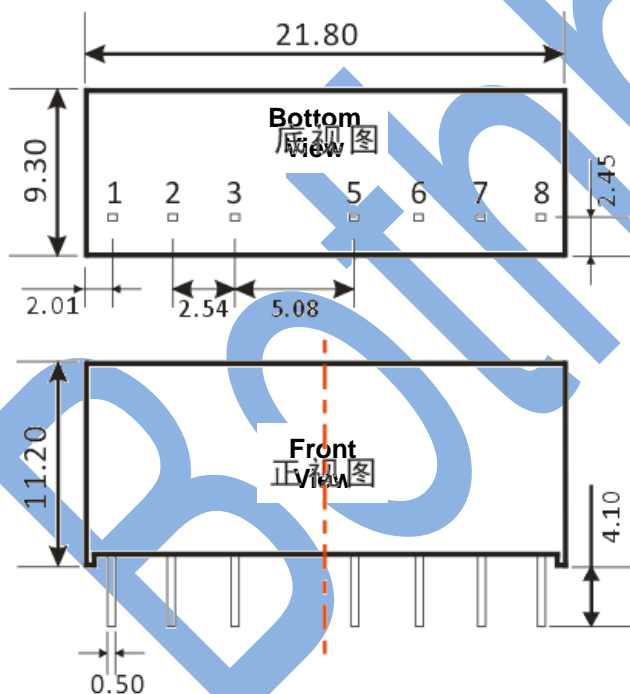
### Note

1. Io below this value will not damage these converters, however, they may not meet all listed specifications.
2. Typical value, tested at nominal input and full load.
3. For each output.
4. Specifications subject to change without notice.

## Power Derating Curve



## Mechanical Dimensions

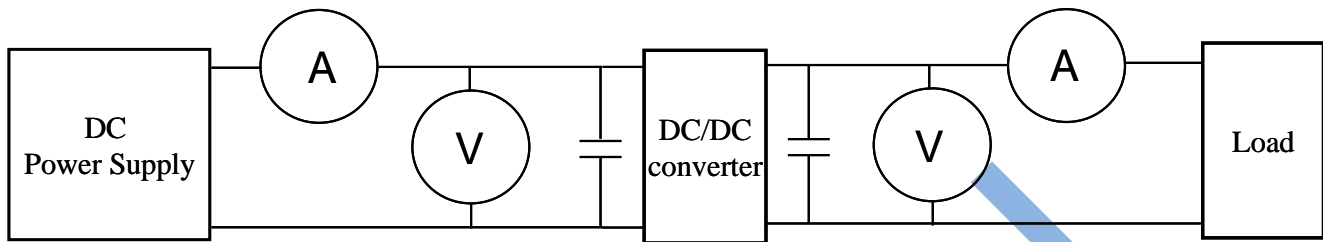


Pin Assignment		
Pin	Single	Dual
1	-Vin	-Vin
2	+Vin	+Vin
3	Ctrl	Ctrl
4	---	---
5	NC	NC
6	+Vo	+Vo
7	-Vo	com
8	Cext	-Vo

Unit: mm (inch)  
 Pin section tolerances:  $\pm 0.1 (\pm 0.004)$   
 General tolerances:  $\pm 0.5 (\pm 0.02)$

## Test Configurations

All specifications are typical at nominal input, full load and 25°C unless otherwise stated.



⊙DC Power Supply: It offers a wide voltage and current range precisely.

⊙Current meter (A): Accuracy → 200μA ~ 200mA 4 ranges  $\pm(0.2\% \text{ rdg} + 2 \text{ digits})$

2000mA ~ 20A 2 ranges  $\pm(0.3\% \text{ rdg} + 2 \text{ digits})$ .

⊙Voltage meter (V): Accuracy →  $\pm(0.03\% \text{ rdg} + 4 \text{ digits})$ .

⊙Load: At full load.

⊙Wires: The resistance of the wires must be small.

1. Input voltage range: Narrow input voltage range ( $\pm 10\%$ )、wide input voltage range (2:1 and 4:1)。

EX: Narrow input voltage range ( $\pm 10\%$ )

5V nominal input → 4.5~5.5V

12V nominal input → 10.8~13.2V

24V nominal input → 21.6~26.4V

Wide input voltage range 2:1

5V nominal input → 4.5~9V

12V nominal input → 9~18V

24V nominal input → 18~36V

48V nominal input → 36~75V

Wide input voltage range 4:1 (W)

24V nominal input → 9~36V

48V nominal input → 18~75V

2. Input power :

$$P_{in} = V_{in} \times I_{in}$$

$V_{in}$  : Input voltage

$I_{in}$  : Input current

3. Output power :

$$P_{out} = V_{out} \times I_{out}$$

$V_{out}$  : Output voltage

$I_{out}$  : Output current

4. Efficiency :

$$\text{Efficiency} = \frac{P_{out}}{P_{in}} \times 100\%$$

$P_{out}$ : Output power

$P_{in}$ : Input power

5. Voltage accuracy:

$$\frac{|V_{out} - V_{out(nominal)}|}{V_{out}} \times 100\%$$

$V_{out}$  : Output voltage

$V_{out(nominal)}$  : Nominal output voltage

6. **Line regulation:** Wide input voltage range and regulated output voltage series.

$$\frac{|V_{out(LL)} - V_{out(HL)}|}{V_{out(LL)}} \times 100\%$$

LL: Low Line input voltage  
HL: High Line input voltage

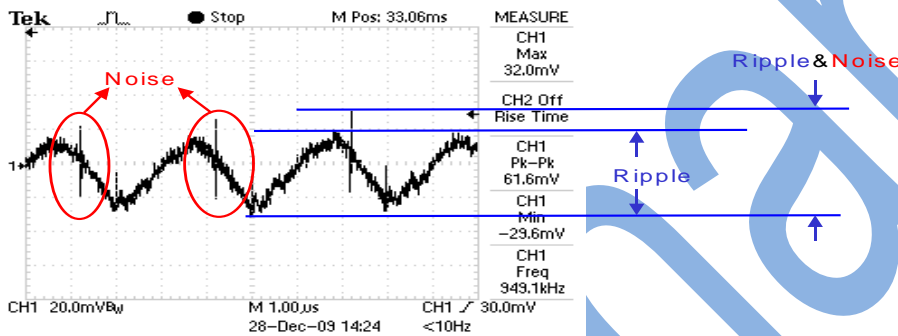
7. **Load regulation :**

$$\frac{|V_{out(FL)} - V_{out(NL)}|}{V_{out(FL)}} \times 100\%$$

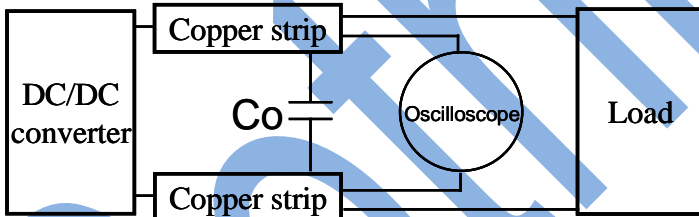
Vout(FL): Output voltage at full load

Vout(NL): Output voltage at 25% full load or 10% full load

8. **Ripple and Noise:** as shown below. The bandwidth is 0-20MHz.

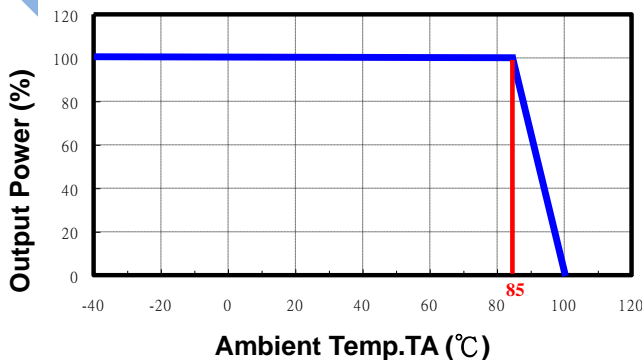


Output Ripple&Noise measurement test circuit: as shown below.

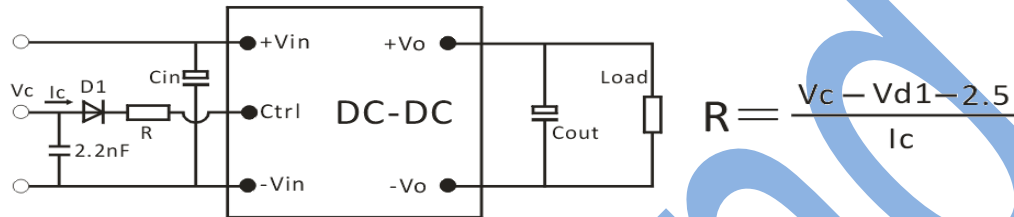


Co: usually 0.47uF.

9. **Temperature derating curve:** The DC-DC converter will operate over a wider temperature range if less power is drawn from the output and the device is already running. The temperature derating curve shows the operating power-temperature range. As shown below.



10. **Switching frequency:** The nominal operating frequency of the DC-DC converters.
11. **Input to output isolation:** The dielectric breakdown strength test between input and output circuits. This is the isolation voltage the device is capable of withstanding for a specified time, usually 1 second or 1 minute.
12. **Remote on/off:** The DEA3H3 series has remote on/off function. As shown below. If the Ctrl pin is open or high impedance, DC-DC converter is turn on. If the Ctrl pin applied current is 5mA~10mA, DC-DC converter is turn off. R is calculated as shown below.



13. **Output Extended capacitor:** The Cext pin is extended output capacitor. As shown below. In order to have a smaller output ripple can add the Cext capacitor. Cext : usually 10uF.