










## 1D14C\_3U series

1W - Single/Dual Output DC-DC Converter - Fixed Input - Isolated & Unregulated

### DC-DC Converter

1 Watt

-  14PIN DIP package
-  High efficiency up to 85%
-  Internal SMD construction
-  Operating temperature: -40°C to +85°C
-  Unregulated output types
-  No external component required
-  Industry standard pinout

The 1D14C\_3U Series are specially designed for applications where a group of polar power supplies are isolated from the input power supply in a distributed power supply system on a circuit board.

These products apply to:

- 1) Where the voltage of the input power supply is fixed (voltage variation  $\leq \pm 10\%$ )
- 2) Where isolation is necessary between input and output (isolation voltage  $\leq 3000\text{VDC}$ )
- 3) Where the regulation of the output voltage and the output ripple noise are not demanding



#### Common specifications

Short circuit protection:	1 second
Operation temperature range:	-40°C – +85°C
Storage humidity range:	< 95% (Non Condensing)
Temperature rise at full load:	25°C TYP
Lead temperature	300°C MAX, 1.5mm from case for 10 sec
MTBF (MIL-HDBK-217F@25°C):	>3,500,000 hours
Case material:	DAP
Cooling:	Free air convection
Weight:	2.3 g
Dimensions:	20.32 x 10.16 x 6.80 mm

#### Input specifications

Item	Test condition	Min	Typ	Max	Units
Input filter	Filter capacitor				
Voltage tolerance	$V_{o,lo}$ Nom			$\pm 10$	%

#### Isolation specifications

Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute and 1mA max	3000			VDC
Isolation resistance	Test at 500VDC	1000			MΩ

#### Output specifications

Item	Test condition	Min	Typ	Max	Units
Voltage accuracy	100% full load			$\pm 5$	%
Line regulation	For $V_{in}$ change of 1%		1.2		%
Load regulation	10% to 100% load				
		• 3.3V output		15	%
		• 5V output		15	%
		• 9V output		10	%
		• 12V output		10	%
		• 15V output		10	%
• 24V output		10	%		
Ripple & Noise*	20MHz Bandwidth			100	mVp-p
Switching frequency	Full load, nominal input		100		KHz
Transient response setting time	50% load step change		350		μs

#### Example:

**1D14C\_0505D3U**

**1 = 1Watt; D14 = DIP14; C = Pinning; 5Vin; 5Vout; D = Dual Output; 3 = 3kVDC; U = Unregulated Output**

Note:

1. Operation under minimum load will not damage the converter. However, they may not meet all specification listed, and that will reduce the life of product.
2. All specifications measured at  $T_a = 25^\circ\text{C}$ , humidity <75%, nominal input voltage and rated output load unless otherwise specified.
3. In this datasheet, all the test methods of indications are based on corporate standards.
4. Only typical models listed, other models may be different, please contact our technical person for more details.

## Product Selection Guide

Part Number	Input Voltage [VDC]	Output Voltage [VDC]	Output Current [mA]	Efficiency [% , typ]	Package style
1D14C_0303S3U	3.3	3.3	303	70	1
1D14C_0305S3U	3.3	5	200	70	1
1D14C_0309S3U	3.3	9	112	75	1
1D14C_0312S3U	3.3	12	84	78	1
1D14C_0315S3U	3.3	15	67	80	1
1D14C_0324S3U	3.3	24	42	82	1
1D14C_0303D3U	3.3	$\pm 3.3$	$\pm 150$	70	1
1D14C_0305D3U	3.3	$\pm 5$	$\pm 100$	70	1
1D14C_0309D3U	3.3	$\pm 9$	$\pm 56$	75	1
1D14C_0312D3U	3.3	$\pm 12$	$\pm 42$	78	1
1D14C_0315D3U	3.3	$\pm 15$	$\pm 34$	80	1
1D14C_0324D3U	3.3	$\pm 24$	$\pm 21$	82	1

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1D14C_0503S3U	5	3.3	303	70	1
1D14C_0505S3U	5	5	200	70	1
1D14C_0509S3U	5	9	112	75	1
1D14C_0512S3U	5	12	84	78	1
1D14C_0515S3U	5	15	67	80	1
1D14C_0524S3U	5	24	42	82	1
1D14C_0503D3U	5	±3.3	±150	70	1
1D14C_0505D3U	5	±5	±100	70	1
1D14C_0509D3U	5	±9	±56	75	1
1D14C_0512D3U	5	±12	±42	78	1
1D14C_0515D3U	5	±15	±34	80	1
1D14C_0524D3U	5	±24	±21	82	1

Part Number	Input Voltage [VDC]	Output Voltage [VDC]	Output Current [mA]	Efficiency [%, typ]	Package style
1D14C_0903S3U	9	3.3	303	70	1
1D14C_0905S3U	9	5	200	70	1
1D14C_0909S3U	9	9	112	75	1
1D14C_0912S3U	9	12	84	78	1
1D14C_0915S3U	9	15	67	80	1
1D14C_0924S3U	9	24	42	82	1
1D14C_0903D3U	9	±3.3	±150	70	1
1D14C_0905D3U	9	±5	±100	70	1
1D14C_0909D3U	9	±9	±56	75	1
1D14C_0912D3U	9	±12	±42	78	1
1D14C_0915D3U	9	±15	±34	80	1
1D14C_0924D3U	9	±24	±21	82	1

Part Number	Input Voltage [VDC]	Output Voltage [VDC]	Output Current [mA]	Efficiency [%, typ]	Package style
1D14C_1203S3U	12	3.3	303	70	1
1D14C_1205S3U	12	5	200	70	1
1D14C_1209S3U	12	9	112	75	1
1D14C_1212S3U	12	12	84	78	1
1D14C_1215S3U	12	15	67	80	1
1D14C_1224S3U	12	24	42	82	1
1D14C_1203D3U	12	±3.3	±150	70	1
1D14C_1205D3U	12	±5	±100	70	1
1D14C_1209D3U	12	±9	±56	75	1
1D14C_1212D3U	12	±12	±42	78	1
1D14C_1215D3U	12	±15	±34	80	1
1D14C_1224D3U	12	±24	±21	82	1

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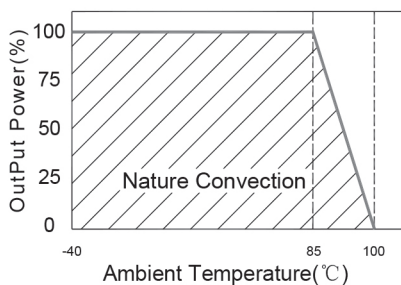
### Product Selection Guide

Part Number	Input Voltage [VDC]	Output Voltage [VDC]	Output Current [mA]	Efficiency [%, typ]	Package style
1D14C_1503S3U	15	3.3	303	70	1
1D14C_1505S3U	15	5	200	70	1
1D14C_1509S3U	15	9	112	75	1
1D14C_1512S3U	15	12	84	78	1
1D14C_1515S3U	15	15	67	80	1
1D14C_1524S3U	15	24	42	82	1
1D14C_1503D3U	15	±3.3	±150	70	1
1D14C_1505D3U	15	±5	±100	70	1
1D14C_1509D3U	15	±9	±56	75	1
1D14C_1512D3U	15	±12	±42	78	1
1D14C_1515D3U	15	±15	±34	80	1
1D14C_1524D3U	15	±24	±21	82	1

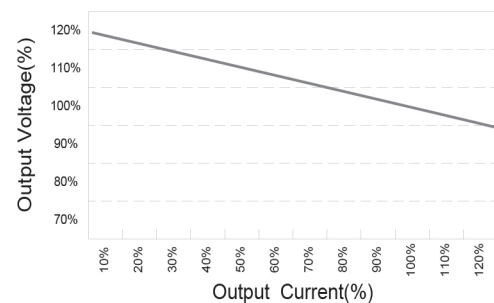
Part Number	Input Voltage [VDC]	Output Voltage [VDC]	Output Current [mA]	Efficiency [%, typ]	Package style
1D14C_2403S3U	24	3.3	303	70	1
1D14C_2405S3U	24	5	200	70	1
1D14C_2409S3U	24	9	112	75	1
1D14C_2412S3U	24	12	84	78	1
1D14C_2415S3U	24	15	67	80	1
1D14C_2424S3U	24	24	42	82	1
1D14C_2403D3U	24	±3.3	±150	70	1
1D14C_2405D3U	24	±5	±100	70	1
1D14C_2409D3U	24	±9	±56	75	1
1D14C_2412D3U	24	±12	±42	78	1
1D14C_2415D3U	24	±15	±34	80	1
1D14C_2424D3U	24	±24	±21	82	1

### Typical characteristics

Temperature Derating Graph



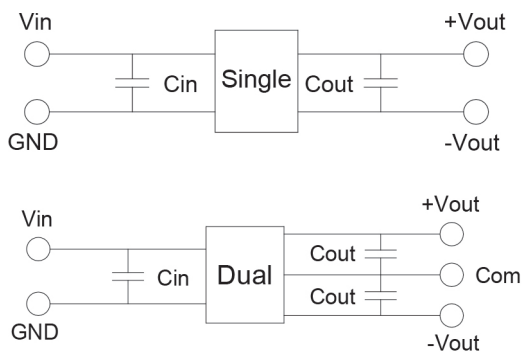
Tolerance Envelope Graph



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### Recommended test circuit



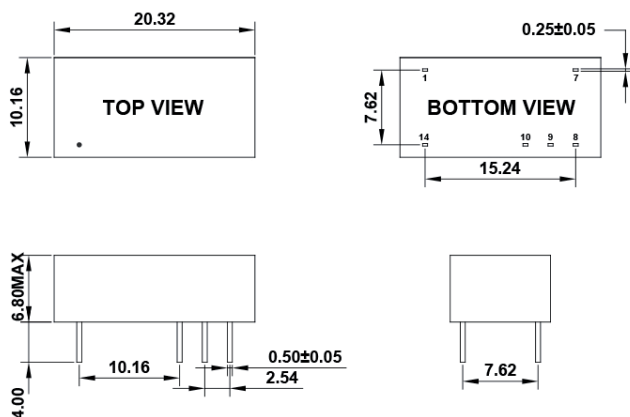
#### Single

Vin (VDC)	Cin ( $\mu$ F)	Vout (VDC)	Cout ( $\mu$ F)
3.3VDC	4.7 $\mu$ F,25V	3.3VDC	22 $\mu$ F,25V
5VDC	4.7 $\mu$ F,25V	5VDC	10 $\mu$ F,25V
9VDC	4.7 $\mu$ F,25V	9VDC	4.7 $\mu$ F,25V
12VDC	2.2 $\mu$ F,25V	12VDC	2.2 $\mu$ F,25V
15VDC	1 $\mu$ F,50V	15VDC	1 $\mu$ F,50V
24VDC	1 $\mu$ F,50V	24VDC	1 $\mu$ F,50V

#### Dual

Vin (VDC)	Cin ( $\mu$ F)	Vout (VDC)	Cout ( $\mu$ F)
3.3VDC	4.7 $\mu$ F,25V	3.3VDC	22 $\mu$ F,25V
5VDC	4.7 $\mu$ F,25V	5VDC	10 $\mu$ F,25V
9VDC	4.7 $\mu$ F,25V	9VDC	4.7 $\mu$ F,25V
12VDC	2.2 $\mu$ F,25V	12VDC	2.2 $\mu$ F,25V
15VDC	1 $\mu$ F,50V	15VDC	1 $\mu$ F,50V
24VDC	1 $\mu$ F,50V	24VDC	1 $\mu$ F,50V

### Mechanical dimensions



Note:

Unit: mm[inch]

Pin section tolerances:  $\pm 0.10\text{mm}$  [  $\pm 0.004\text{inch}$  ]

General tolerances:  $\pm 0.25\text{mm}$  [  $\pm 0.010\text{inch}$  ]

PIN connection	1	7	8	9	10	14
Single	-Vin	NC	+Vout	NO PIN	-Vout	+Vin
Dual	-Vin	NC	+Vout	Com	-Vout	+Vin