



## 2T16WE\_1.5RP Series

2W - Single/Dual Output DC-DC Converter - Wide Input - Isolated & Regulated

### DC-DC Converter

2 Watt

- ⊕ Wide (2:1) input range
- ⊕ Operating temperature: -40°C ~ +85°C
- ⊕ 1500VDC isolation
- ⊕ No heat sink required
- ⊕ Internal SMD construction
- ⊕ MTBF>1,000,000 hours
- ⊕ Short circuit protection SCP (automatic recovery)
- ⊕ Industry standard pinout
- ⊕ RoHS Compliance
- ⊕ EMI meets to EN55022 Class A

The 2T16WE\_1.5RP Series is specially designed for applications where a wide range input voltage 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 wide range (voltage range  $\leq 2:1$ );
- 2) Where isolation is necessary between input and output (Isolation Voltage  $\leq 1500\text{VDC}$ );
- 3) Where the regulation of the output voltage and the output ripple noise are demanded.



Common specifications	
Short circuit protection:	Continuous, automatic recovery
Short circuit input power:	1500mW
Temperature rise at full load:	15°C TYP
Cooling:	Free air convection
Operation temperature range:	-40°C – +85°C
Storage temperature range:	-40°C – +125°C
Maximum case temperature:	-40°C – +100°C
Lead temperature:	300°C MAX, 1.5mm from case for 10 sec.
Storage humidity range:	< 95%
Case material:	DAP
MTBF (MIL-HDBK-217F @25°C):	>1,000,000 hours
Dimensions (WxLxH):	24.1x14.35x10.25mm
Weight:	3.9g

Output specifications						
Item	Test condition	Min	Typ	Max	Units	
Voltage tolerance	100% full load			±2	%	
Line regulation	Regulated		±0.1	±0.5	%	
Load regulation	Regulated		±0.3	±0.8	%	
Temperature drift	Refer to recommended circuit			±0.02	%/°C	
Ripple & Noise*	20MHz Bandwidth			50	mVp-p	
Transient response setting time	Vin=Typ., 25% load step change		350		µS	
Switching frequency	100% load, nominal input voltage		100		KHz	

\* Test ripple and noise by "parallel cable" method.

Input specifications						
Item	Test condition	Min	Typ	Max	Units	
Voltage tolerance	Vo, Io nom			2:1		
Input voltage	• 5V	4.5	5	5.5	VDC	
	• 12V	9	12	18	VDC	
	• 24V	18	24	36	VDC	
	• 48V	36	48	75	VDC	
Input filter	Capacitor					

#### Example:

2T16WE\_1205S1.5RP  
 2= 2Watt; T16= SMT16; W= Wide Input; E= Economy; 12Vin; 5Vout; S= Single Output; 1.5= 1.5kVDC; R= Regulated Output; P= Short Circuit Protection

#### Note:

1. All specifications are measured at nominal input voltage, constant resistive load between Min. and Max. Output current, and probe bandwidth should be under 20MHz, Ta = +25°C.
2. When Load is lower than Min. output current or under no-load, it will not damage the devices; however, it may not meets all specifications.
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.

Isolation specifications						
Item	Test condition	Min	Typ	Max	Units	
Isolation voltage	Tested for 1 minute and 1mA max	1500			VDC	
Isolation resistance	Test at 500VDC	1000			MΩ	

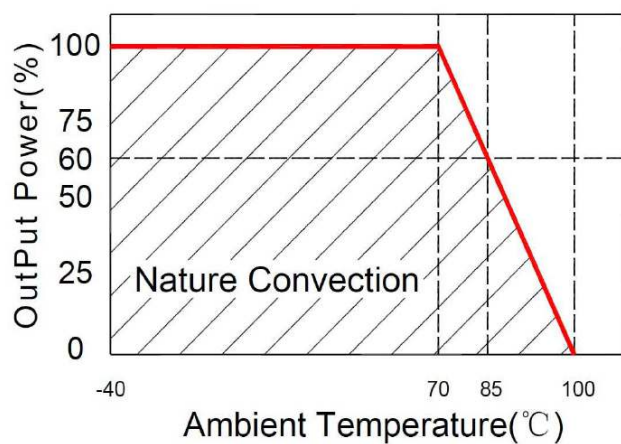
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Part Number	Input Voltage [VDC]		Output Voltage [VDC]	Output Current [mA, max]	Efficiency [%, Typ.]
	Nominal	Range			
2T16WE_0503S1.5RP	5	4.5-9	3.3	500	70
2T16WE_0505S1.5RP	5	4.5-9	5	400	73
2T16WE_0512S1.5RP	5	4.5-9	12	167	75
2T16WE_0515S1.5RP	5	4.5-9	15	134	73
2T16WE_1203S1.5RP	12	9-18	3.3	500	73
2T16WE_1205S1.5RP	12	9-18	5	400	77
2T16WE_1212S1.5RP	12	9-18	12	167	80
2T16WE_1215S1.5RP	12	9-18	15	134	80
2T16WE_2403S1.5RP	24	18-36	3.3	500	73
2T16WE_2405S1.5RP	24	18-36	5	400	80
2T16WE_2412S1.5RP	24	18-36	12	167	84
2T16WE_2415S1.5RP	24	18-36	15	134	85
2T16WE_4803S1.5RP	48	36-75	3.3	500	71
2T16WE_4805S1.5RP	48	36-75	5	400	76
2T16WE_4812S1.5RP	48	36-75	12	167	81
2T16WE_4815S1.5RP	48	36-75	15	134	81
2T16WE_0505D1.5RP	5	4.5-9	±5	±200	70
2T16WE_0512D1.5RP	5	4.5-9	±12	±83	72
2T16WE_0515D1.5RP	5	4.5-9	±15	±67	73
2T16WE_1205D1.5RP	12	9-18	±5	±200	73
2T16WE_1212D1.5RP	12	9-18	±12	±83	80
2T16WE_1215D1.5RP	12	9-18	±15	±67	78
2T16WE_2405D1.5RP	24	18-36	±5	±200	76
2T16WE_2412D1.5RP	24	18-36	±12	±83	80
2T16WE_2415D1.5RP	24	18-36	±15	±67	82
2T16WE_4805D1.5RP	48	36-75	±5	±200	76
2T16WE_4812D1.5RP	48	36-75	±12	±83	79
2T16WE_4815D1.5RP	48	36-75	±15	±67	80

## Typical characteristics

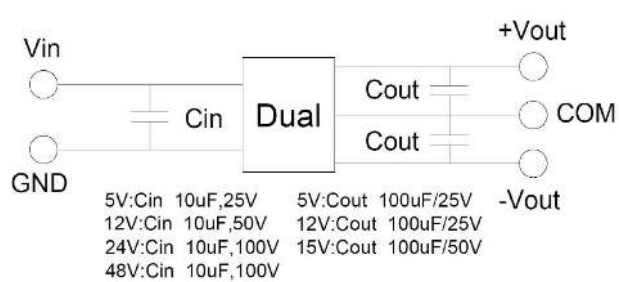
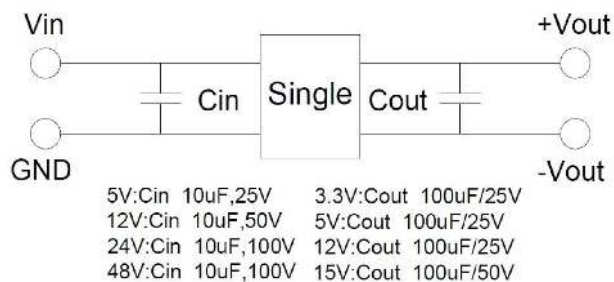
Derating curve



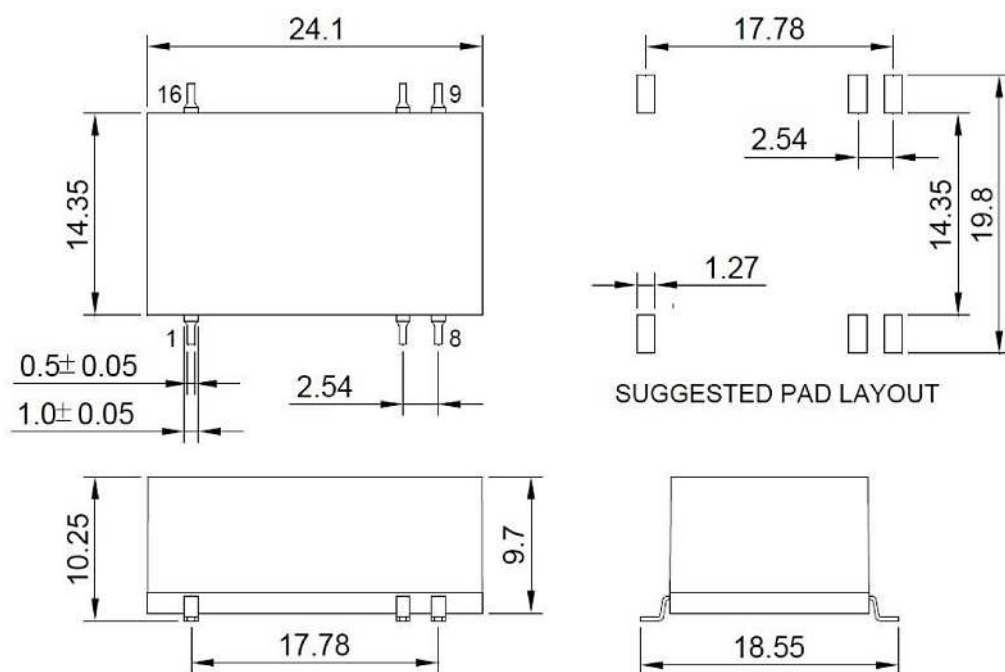
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### Recommended test circuit



### Mechanical dimensions



**Note:**

Unit: mm[inch]

General tolerances: ± 0.25mm[ ± 0.010inch]

Pin	1	7	8	9	10	16
Single	-Vin	NC	NC	+Vout	-Vout	+Vin
Dual	-Vin	NC	Com	+Vout	-Vout	+Vin