0.75T8A_1.5RP series

0.75W - Single Output DC-DC Converter - Fixed Input - Isolated & Regulated

DC-DC Converter 0.75 Watt

- Small footprint
- Compact SMD package
- High efficiency up to 74%
- 1500VDC isolation
- Temperature range: -40°C ~ +85°C
- Industry standard pinout
- Low temperature rise
- Internal SMD construction
- Meets UL62368, EN62368 standards
- RoHS compliance
- Short circuit protection (SCP)

UL-62368-1 (E347551)

The 0.75T8A_1.5RP series is 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 ≤ ±10%)
2) Where isolation is necessary between input and output (isolation voltage ≤1500VDC)
3) Where the regulation of the output voltage and the output ripple noise are not demanding

Such as: digit circuit condition; normal low-frequency artificial circuit condition; relay drive circuit condition, etc.

Common specifications

Short circuit protection:	Continuous, automatic recovery
Temperature rise at full load:	25°C TYP (Ta= 25°C) 3.3VDC output: 30°C
Cooling:	Free air convection
Operation temperature range:	-40°C~+85°C
Storage temperature range:	-55°C ~+125°C
Lead temperature	300°C MAX, 1.5mm from case for 10 sec
Reflow soldering temperature:	Peak temp.≤245°C, maximum duration time ≤60s at 217°C.
Moisture Sensitivity Level (MSL)	IPC/JEDEC J-STD-020D.1, Level 2
Storage humidity range:	< 95%
Package material:	Epoxy Resin [UL94-V0]
MTBF (MIL-HDBK-217F@25°C):	>3,500,000 hours
Dimensions:	13.20*11.40*7.25mm
Weight:	1.4g

Input specifications

Item	Test condition	Min	Typ	Max	Units
Input current (full load / no load)	5VDC input • 3.3/5VDC output • 9/12VDC output • 15VDC output		 221/5 208/12 202/18	 234/10 221/20 215/30	 mA mA mA
Reflected ripple current*			15		mA
Input filter	Filter capacitor				
Hot plug	Unavailable				

* Reflected ripple current testing method please see DC-DC Converter Application Notes for specific operation.

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
Isolation capacitance	Input/Output 100KHz/1V		20		pF

Output specifications

Item	Test condition	Min	Typ	Max	Units
Output voltage accuracy				±3	%
Line regulation	For Vin change of 1%			±0.25	%
Load regulation	10% to 100% load • 3.3V output • other output		 3 2		 % %
Temperature drift	100% full load			±0.03	%/°C
Ripple & Noise*	20MHz Bandwidth		30	75	mVp-p
Switching frequency	Full load, nominal input		270		KHz

* Ripple and noise tested with "parallel cable" method. See detailed operation instructions at DC-DC Application Notes.

EMC specifications

EMI	CE	CISPR22/EN55032 CLASS B (External Circuit Refer to EMC recommended circuit)
EMI	RE	CISPR22/EN55032 CLASS B (External Circuit Refer to EMC recommended circuit)
EMS	ESD	IEC/EN61000-4-2 Contact ±6KV perf. Criteria B

Example:
0.75T8A_0505S1.5RP
0.75 = 0.75Watt; T8 = SMT8; A = Pinning; 5Vin; 5Vout; S = Single output; 1.5 = 1.5kVDC; R= Regulated output; P = Short circuit protection

Note:
1. Operation under minimum load will not damage the converter; However, they may not meet all specification listed.
2. Max. Capacitive Load tested at input voltage range and full load.
3. All specifications measured at Ta = 25°C, humidity <75%, nominal input voltage and rated output load unless otherwise specified.
4. In this datasheet, all the test methods of indications are based on our corporate standards.

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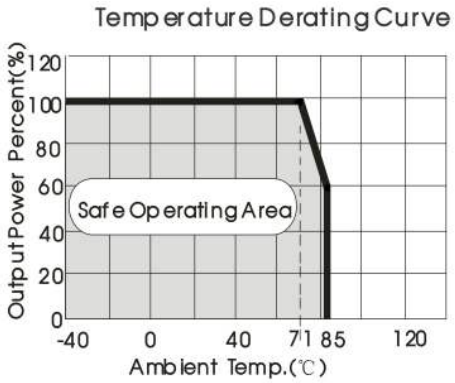
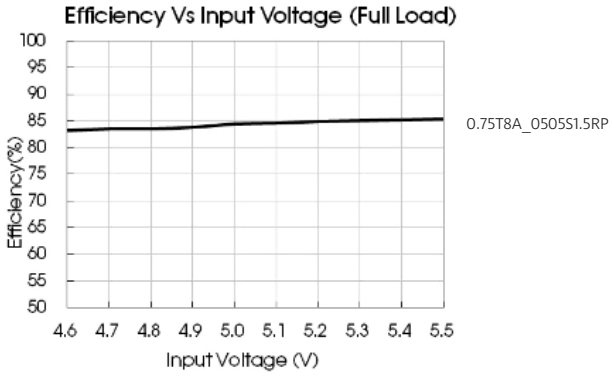
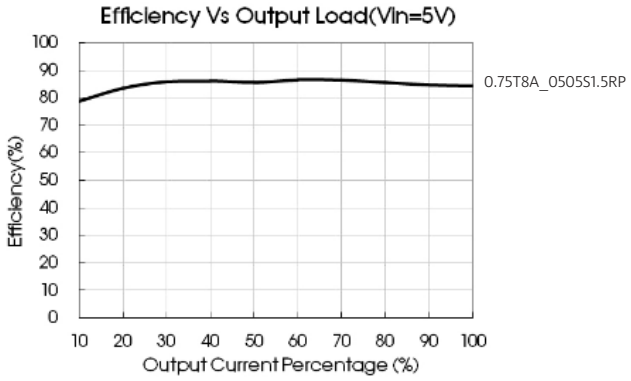
Part Number	Input Voltage [V]	Output Voltage [VDC]	Output Current [mA]	Capacitive load [µF, Max.]	Efficiency [%, max]	Certification
0.75T8A_0503S1.5RP	5	3.3	200	2400	68	UL/CE
0.75T8A_0505S1.5RP	5	5	150	2400	72	UL/CE
0.75T8A_0509S1.5RP	5	9	83	1000	72	UL/CE
0.75T8A_0512S1.5RP	5	12	62	560	73	UL/CE
0.75T8A_0515S1.5RP	5	15	50	560	74	UL/CE

Typical characteristics



Typical characteristics





Typical application circuit

If it is required to further reduce input and output ripple, a filter capacitor can be connected to the input and output terminals, see Fig.1.
Moreover, choosing suitable filter capacitor is very important , start-up problems may be caused by too large capacitance. To ensure the modules running well, the recommended capacitive load values as shown in Table 1.

Vin (VDC)	Cin (µF)	Vout (VDC)	Cout (µF)
5	4.7	3.3/5	10
5	4.7	9/12	2.2
5	4.7	15	1

Table 1

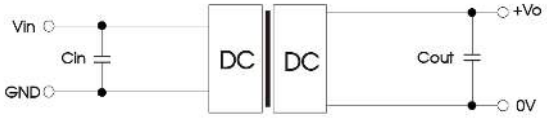
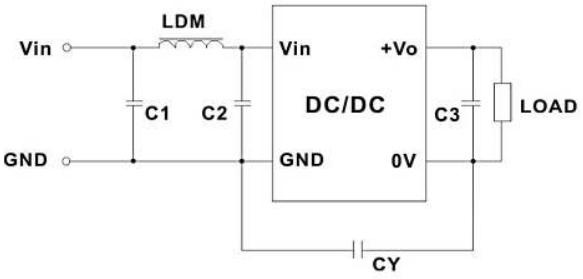


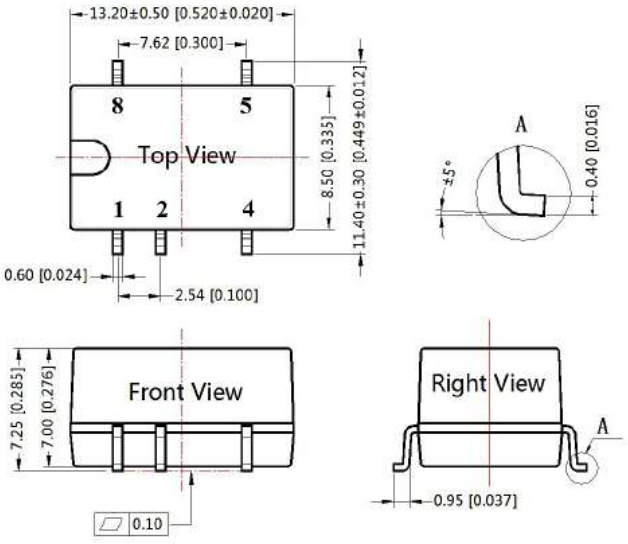
Figure 1

EMC typical recommended circuit



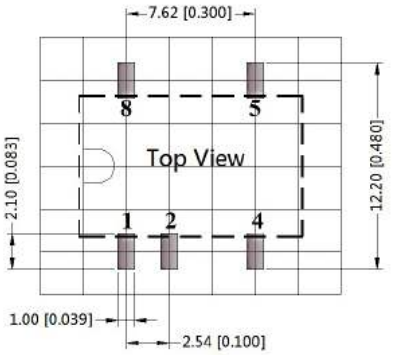
Input voltage 5VDC	Output voltage (VDC)		3.3/5/9	12/15
	EMI	C1/C2	4.7μF/25V	
	EMI	CY	-	1nF/2KVDC HEC C1206X102K202T JOHANSON 202R18W102KV4E
	EMI	C3	Refer to the Cout in table 1	
	EMI	LDM	6.8μH	

Mechanical dimensions



Note:
Unit: mm[inch]
Pin section tolerances: ±0.10[±0.004]
General tolerances: ±0.25[±0.010]

THIRD ANGLE PROJECTION



Note: Grid 2.54*2.54mm

Pin-Out	
Pin	Function
1	GND
2	Vin
4	0V
5	+Vo
8	NC

NC: Pin to be isolated from circuitry