

RT3 series

1.0 Watt isolated & regulated
single output SMD

- SMD package style 10P (6)
- Industry standard pinout, small footprint
- No heat sink, no external component required
- 1kV DC isolation
- -40°C~85°C temperature range
- Continuous short circuit protection
- Internal SMD construction

OUTPUT SPECIFICATIONS

Output power	(min. 0.1W) > max. 1W
Line regulation (For Vin Change of $\pm 5\%$)	$\pm 0.25\%$
Load regulation	max.
10% to 100% load	$\pm 1\%$
Output voltage accuracy (100% full load)	$\pm 3\%$
Temperature drift (100% full load)	$\pm 0.03\%/^{\circ}\text{C}$
Ripple (20 MHz Bandwidth)	typ. 10mVp-p max. 20mVp-p
Noise (20 MHz Bandwidth)	typ. 50mVp-p max. 100mVp-p
Switching frequency typ. (Full load, nominal input)	100kHz

* Test ripple & noise by „parallel cable“ method. See detailed operation instructions at testing of Power Converter Section, application notes.

ISOLATION SPECIFICATIONS

Isolation voltage (Tested for 1 min. and 1mA max.)	min. 1kVDC
Isolation resistance (Test at 500 VDC)	min. 1000M Ω

COMMON SPECIFICATIONS

Storage humidity	max. 95%
Operating temperature	-40~85°C
Storage temperature	-55~125°C
Temp. rise at full load	typ. 15°C max. 25°C
Lead temperature (1.5mm from case for 10 sec.)	260°C
Cooling	Free air convection
Case material	Plastic (UL94-V0)
Short circuit protection*	continuous
MTBF	min. 3500 k Hours
Weight	1.7 g

APPLICATIONS

The RT3 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:

- Where the voltage of the input power supply is fixed (voltage variation $\leq \pm 10\%$);
- Where isolation is necessary between input and output (isolation voltage $\leq 1000\text{VDC}$);
- Where the regulation of the output voltage and the output ripple noise are not demanding.

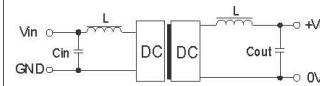
All specifications typical at $T_a = 25^{\circ}\text{C}$, humidity <75% nominal input voltage and rated output load unless otherwise specified. See below recommended circuits for more details.

Subject to change without notice.

APPLICATION NOTES

Recommended testing circuit

If you want to decrease the input/output ripple further, an „LC“ filtering network may be connected to the input and output ends of the DC/DC converter.



It should also be noted that the inductance and the frequency of the „LC“ filtering network should be staggered with the DC/DC frequency to avoid mutual interference. However the capacitance of the output filter capacitor must be proper. If the capacitance is too big a startup problem might arise. For every channel of output, provided the safe and reliable operation is ensured, the greatest capacitance of its filter capacitor see table

EXTERNAL CAPACITOR TABLE

Vin (VDC)	Cin (uF)	Vout (VDC)	Cout (uF)
5	4.7	5	4.7
12	2.2	12	1
-	-	15	1

It's not recommended to connect any external capacitor in the application field with less than 0.5 watts output.

Requirement on output load

To ensure this module can operate efficiently and reliably the minimum output load during operation is not less than 10% of the full load. This product should never be operated under no load! If the actual output power is very small please connect a resistor with proper resistance at the output end in parallel to increase the load.

Overload protection

Under normal operating conditions the output circuit of these products have no protection against over-current. The simplest method is to connect a self-recovery fuse in series at the input end or add a circuit breaker to the circuit.

When the environment temperature is higher than 71°C the product output power should be less than 60% of the rated power. No parallel connection or plug and play!

The information and specifications contained in this data sheet are believed to be correct at time of publication. However, we accept no responsibility for consequences arising from printing errors or inaccuracies.

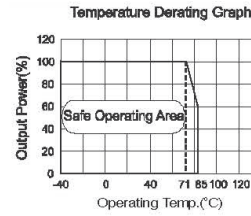
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NUMBER STRUCTURE

RT3	-	XX	XX	R	10	D	1	(F)
Name/Package		Input	Output	Type	Power	Code	Isolation	
RT3=SMD 10P (6)		05=5V 12=12V	05=5V 12=12V 15=15V	S=Single regulated	10=1.00W	internal	1=1.0 kVDC	
Add suffix „F“ for Full Pin version								

TYPICAL CHARACTERISTICS

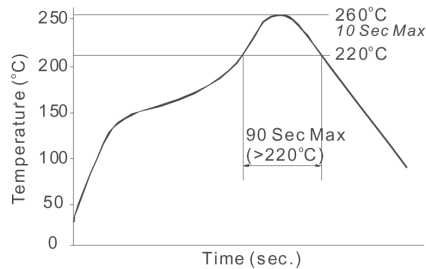


MODEL SELECTION GUIDE

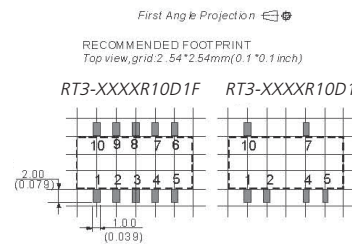
Model Number	Input Nominal	Input Range	Output VDC	Output current Max./Min.	Efficiency (% , typ.)	Isolation
RT3-0505R10D1(F)	5 VDC	4.75 ~ 5.25 VDC	5	150 / 15	68	1kVDC
RT3-0512R10D1(F)	5 VDC	4.75 ~ 5.25 VDC	12	83 / 9	69	1kVDC
RT3-0515R10D1(F)	5 VDC	4.75 ~ 5.25 VDC	15	67 / 7	69	1kVDC
RT3-1205R10D1(F)	12 VDC	11.4 ~ 12.6 VDC	5	150 / 15	68	1kVDC
RT3-1212R10D1(F)	12 VDC	11.4 ~ 12.6 VDC	12	83 / 9	69	1kVDC
RT3-1215R10D1(F)	12 VDC	11.4 ~ 12.6 VDC	15	67 / 7	70	1kVDC

Note: The RT3_R10D1 series have no 3, 6, 8, 9 pin. For example RT3-0505R10D1.

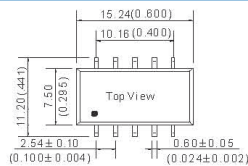
REFLOW SOLDERING PROFILE



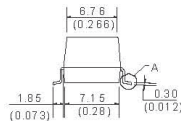
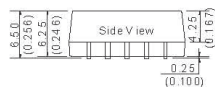
RECOMMENDED FOOTPRINT



OUTLINE DIMENSIONS



All dimensions in millimeters (inches).
Pin section: 0.60 * 0.25 (0.024 * 0.010)
Pin tolerances: ± 0.10 (± 0.004)
General tolerances: ± 0.15 (± 0.006)



FOOTPRINT DETAILS

Pin Number	Function (T)	Function (XT)
1	GND	GND
2	Vin	Vin
4	0V	0V
7	+Vo	+Vo
5, 10	NC	NC
others	NC	No Pin

NC: No Connection

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