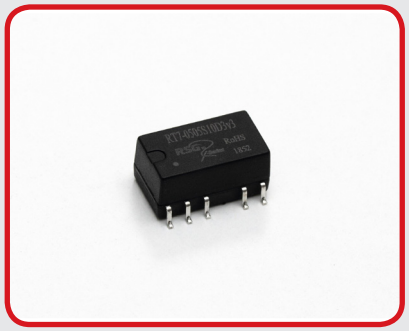
RT7-S/D10v3

1.0W Unregulated Single & Dual Output DC/DC Converter



Picture similar

CE
RoHS

- 12 Pin (10) SMD Package
- ±10% Input Range
- 3000VDC Isolation
- EMI Complies with EN55032 Class B
- Efficiency up to 85%
- High Operating Temperature Range -40°C ~ +105°C
- Continuous Short Circuit Protection (self-recovery)
- Low Ripple and Noise
- Non Conductive Black Plastic Case
- No-load input current as low as 5mA

Output Specifications	
Voltage Accuracy	See tolerance envelope curve
Maximum Output Current	See table
Line Regulation	±1.2 ~ 1.5% max.(per ±1% Vin Change)
Load Regulation	from 10% to 100% Load: 10% to 20% max. –
Cross Regulation (Dual Output)	–
Short Circuit Protection	Continuous, self-recovery
Ripple & Noise (20 MHz bandwidth)	75-100mV pk-pk max.
Temperature Coefficient	±0.02%/°C

Input Specifications	
Voltage Range	See table
Start-up Time	–
No-Load/Full-Load Input Current	See table
Input Filter	C/L (see filter details on following pages)
Input Reflected Ripple Current	15mA Typ.
Surge Voltage (100 ms) †)	
5V Models	9VDC max.

General Specifications	
I/O Isolation Voltage (60 sec)	3000VDC
Out1/Out2 Isolation Voltage (Dual Separate)	–
I/O Isolation Capacitance	20pF typ.
I/O Isolation Resistance	1000M Ohm, min
Switching Frequency	270kHz
Humidity	95% rel H
Reliability Calculated MTBF	>3.5MHrs (MIL-HDBK-217 f)
Safety Standard(s)	–

Environmental Specifications	
Operating Temperature range	-40°C ~ +105°C (see Derating Curve)
Maximum Case Temperature	–
Storage Temperature	-55°C ~ +125°C
Cooling	Natural Convection
Soldering Profile and Peak Temperature	Pb-free Reflow: 245°C, 10s, max. / 217°C <60s (IPC/JEDEC J-STD-020D.1, MSL 1)

Physical Specifications	
Case Material	Non-conductive Black Plastic (UL94V-0 rated)
Pin Material SIP Case	–
Pin Material DIP Case	–
Potting Material	Epoxy resin (UL94V-V0)
Weight SIP Case	–
Weight DIP Case	1.3g typ.
Dimensions SIP Case	–
Dimensions DIP Case	0.60" x 0.45" x 0.29"

EMC Specifications	
Radiated / Conducted Emissions	EN55032 Class B see EMI Filter
ESD	IEC 61000-4-2 Perf.Criteria B
Rad. RF	–
EFT	–
Surge	–
Cond. RF	–
PFMF	–
VD/SI/VV	–

†) These are stress ratings; exposure of devices to any of these conditions may adversely affect long-term reliability.
All specifications typical at T_A = 25 °C, nominal input voltage and full load, unless otherwise specified.
The information and specification contained in this data sheet are believed to be correct at time of publication. However RSG accepts no responsibility for consequences arising from printing errors or inaccuracies. Specifications are subject to change without notice.

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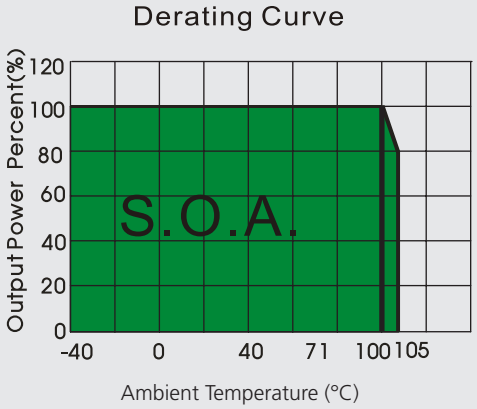
we energize electronics!

Number structure RT7 Series

RT7	–	05	15	_	S	10	D	3	(v3)
Name / package		**V-input nom.**	**V-output**	**Regulation**	**Output type**	**Power**	**Int. Code**	**Isolation**	
RT7 = SMT-12		05 = 5 V	03 = 3.3 V 05 = 5 V … 24 = 24 V	_ = unreg.	S = Single D = Dual	10 = 1.00 W	Logistics Code	3 = 3.0 kV DC	



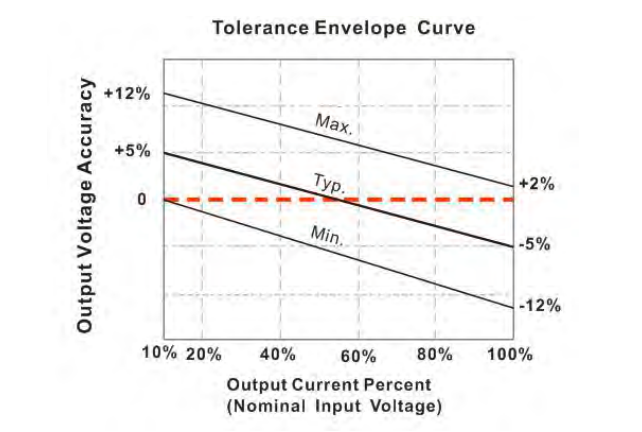
Model Selection Guide

Model Number	Input Voltage (VDC)	Output		Efficiency	
	Nominal (Range)	Output Voltage (VDC)	Output Current (mA) (Max./Min.)	@ Full Load (%, Min./Typ.)	Max. Capacitive Load (µF)
RT7-0503S10D3v3	5 (4.5-5.5)	3.3	303/30	70/74	2400
RT7-0505S10D3v3		5	200/20	78/82	2400
RT7-0509S10D3v3		9	111/12	79/83	1000
RT7-0512S10D3v3		12	84/9	79/83	560
RT7-0515S10D3v3		15	67/7	79/83	560
RT7-0524S10D3v3		24	42/4	81/85	220
RT7-0503D10D3v3		±3.3	±151/±15	70/74	1200
RT7-0505D10D3v3		±5	±100/±10	78/82	1200
RT7-0509D10D3v3		±9	±56/±6	79/83	470
RT7-0512D10D3v3		±12	±42/±5	79/83	220
RT7-0515D10D3v3		±15	±34/±4	79/83	220
RT7-0524D10D3v3		±24	±21/±2	81/85	100

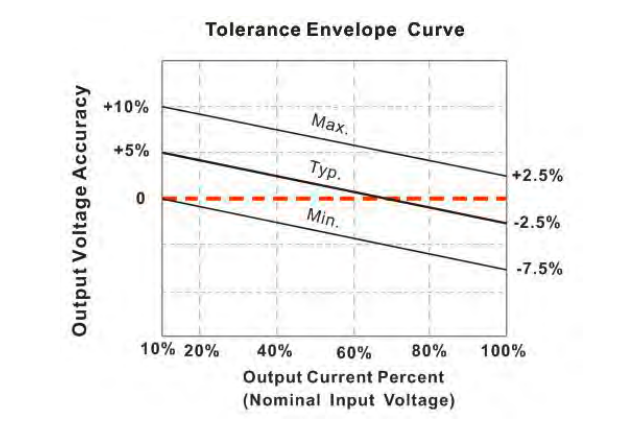
The models listed above are standard types. If you need special specifications or have questions regarding packing or need application support, please contact our specialists:
sales@rsg-electronic.de or +49 69-984047-0

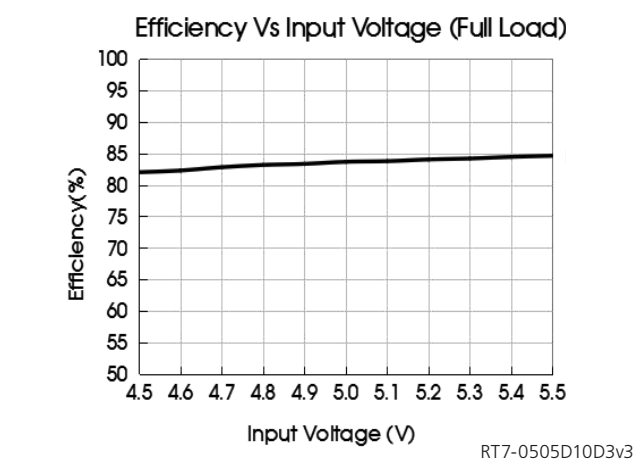
Product Characteristic Curve

3.3VDC Output

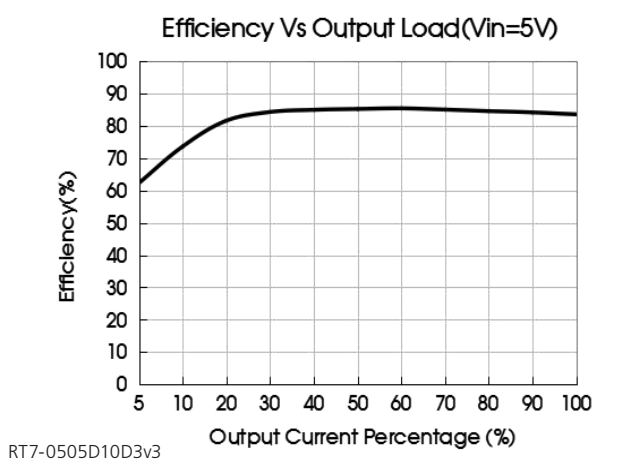


Other Output





RT7-0505D10D3v3



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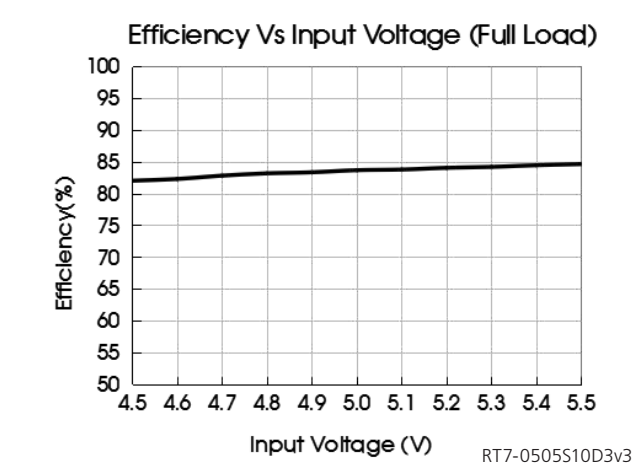

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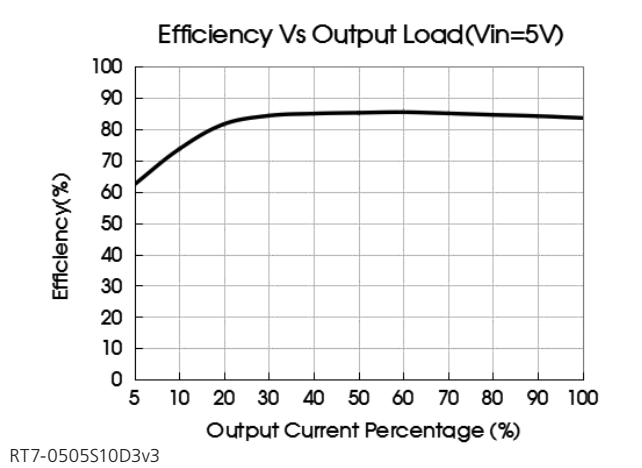


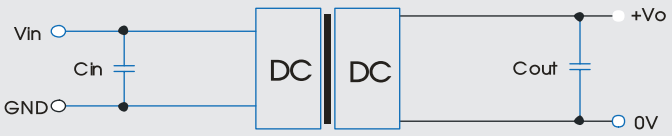
RT7-0505S10D3v3

Design Reference

Typical application circuit

If it is required to further reduce input and output ripple, a filter capacitor may be connected to the input and output terminals, see Fig.

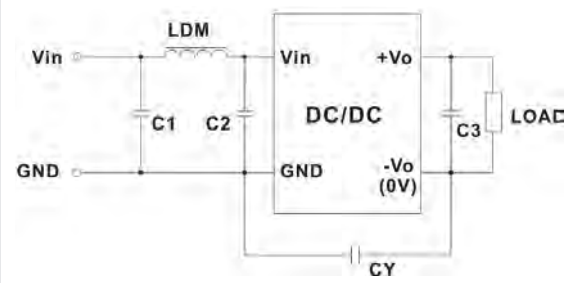
Moreover, choosing a suitable filter capacitor is very important, start-up problems may be caused if the capacitance is too large. Under the condition of safe and reliable operation, the recommended capacitive load values are shown in table.



Recommended capacitive load value table

Vin(VDC)	Cin(μF)	Vo(VDC)	Cout(μF)
5	4.7	3.3/5	10
		9	4.7
		12	2.2
		15	1
		24	0.47

EMC solution-recommended circuit

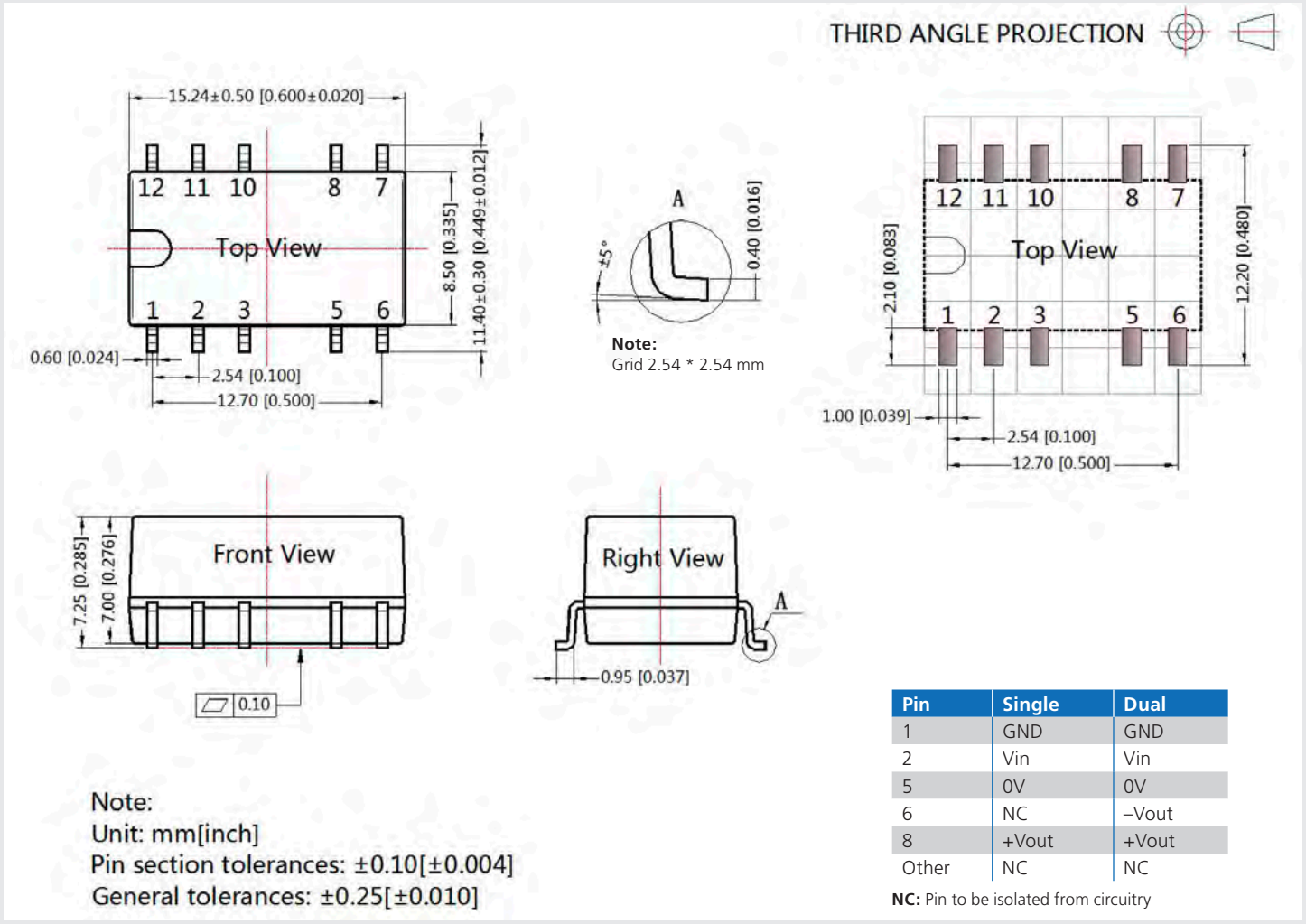


EMC recommended circuit value table

Output Voltage (VDC)		3.3/5/9	12/15/24
EMI	C1/C2	4.7μF/25V	4.7μF/25V
	CY	1nF/4KVDC VISHAY HGZ102MBP TDK CD45-E2GA102M-GKA	
	C3	Refer to Cout in capacitive load value table	
	LDM	6.8μH	6.8μH

Note: In the case of actual use, the requirements for EMI are high, it is subject to CY.

Dimensions and Recommended Layout



Pin	Single	Dual
1	GND	GND
2	Vin	Vin
5	0V	0V
6	NC	–Vout
8	+Vout	+Vout
Other	NC	NC

NC: Pin to be isolated from circuitry

Notes

1. If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
2. The maximum capacitive load offered were tested at input voltage range and full load;
3. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25°C, humidity<75%RH with nominal input voltage and rated output load;

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