Features

Unregulated Converters

- 6V Output For GaN Driver Applications
- Pot-Core Transformer With Separated Windings
- High 5.2kVDC Isolation In Compact Size
- Low Isolation Capacitance (10pF max.)
- UL And EN Certified

RECOM
DC/DC Converter

RP-xx06S

1 Watt SIP7 for GaN Application

3 YEAR warranty

Description

High slew rate GaN transistor drivers require an isolated 6V supply with high isolation voltage and low isolation capacitance.
The RP-xx06S series have been specially designed to fulfill this demanding requirement with 5200VDC isolation and <10pF isolation capacitance. The internal transformer uses a pot-core to physically separate the input and output windings, yet the converter still fits into an industry standard SIP7 case. Input voltage options of 5, 12, 15 or 24V are available and the RP-xx06S series is safety certified to the latest UL/IEC60950 standard.

Selection Guide

Part Number	nom. Input Voltage [VDC]	Output Voltage [VDC]	Output Current [mA]	Efficiency typ.(1) [%]	max. Capacitive Load(2) [µF]
RP-0506S	5	6	167	81	1000
RP-1206S	12	6	167	77	1000
RP-1506S	15	6	167	83	1000
RP-2406S	24	6	167	82	1000

Notes:

Note1: Efficiency is tested at nominal input and full load at +25°C ambient
Note2: Max. Cap. Load is tested at nominal input and full resistive load

Model Numbering

RP- 06S

- Input Voltage
- Output Voltage
- Single

Ordering Examples
RP-0506S = 5V Input, 6V Output, Single Output
RP-1506S = 15V Input, 6V Output, Single Output

UL60950-1 Certified
IEC/EN60950-1 Certified
IEC/EN60601-1 Certified

Specifications (measured @ ta= 25°C, nom. Vin, full load unless otherwise specified)

BASIC CHARACTERISTICS					
Parameter	**Condition**		**Min.**	**Typ.**	**Max.**
Internal Input Filter					capacitors
Input Voltage Range	nom. Vin =	5VDC 12VDC 15VDC 24VDC	4.5VDC 10.8VDC 13.5VDC 21.6VDC	5VDC 12VDC 15VDC 24VDC	5.5VDC 13.2VDC 16.5VDC 26.4VDC
Input Current	nom. Vin =	5VDC 12VDC 15VDC 24VDC		270mA 120mA 86mA 57mA	
Quiescent Current	nom. Vin =	5VDC 12VDC 15VDC 24VDC		20mA 10mA 8mA 7mA	

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Specifications (measured @ ta= 25°C, nom. Vin, full load unless otherwise specified)

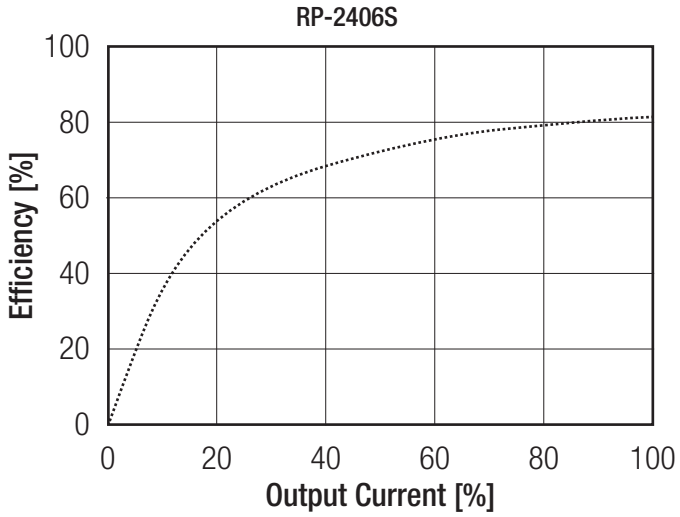
BASIC CHARACTERISTICS

Parameter	Condition	Min.	Typ.	Max.
Minimum Load		0%		
Start-up time				250ms
Internal Operating Frequency		50kHz	75kHz	120kHz
Output Ripple and Noise[3]	20MHz BW		50mVp-p	100mVp-p

Notes:

Note3: Measurements are made with a 0.1µF MLCC across output (low ESR)

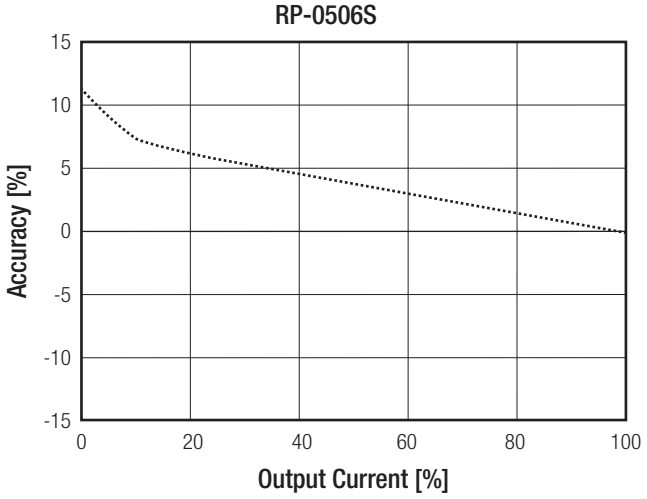
Efficiency vs. Load



REGULATIONS

Parameter	Condition		Value
Output Accuracy			±5.0% max.
Line Regulation	low line to high line, full load		±1.2% typ.
Load Regulation	10% to 100% load	5VDC	±8.0% typ. / ±15.0% max.
		12VDC	±7.0% typ. / ±15.0% max.
		15VDC	±4.0% typ. / ±15.0% max.
		24VDC	±3.0% typ. / ±15.0% max.

Accuracy vs. Load



Specifications (measured @ ta= 25°C, nom. Vin, full load unless otherwise specified)

PROTECTIONS

Parameter	Type		Value
Isolation Voltage[4]	I/P to O/P	tested for 1 second rated for 1 minute	5.2kVDC 2kVAC / 60Hz
Isolation Resistance			15GΩ min.
Isolation Capacitance			10pF max.
Leakage Current			0.35µA
Insulation Grade	according to IEC/EN60950-1 electric strength test		Basic

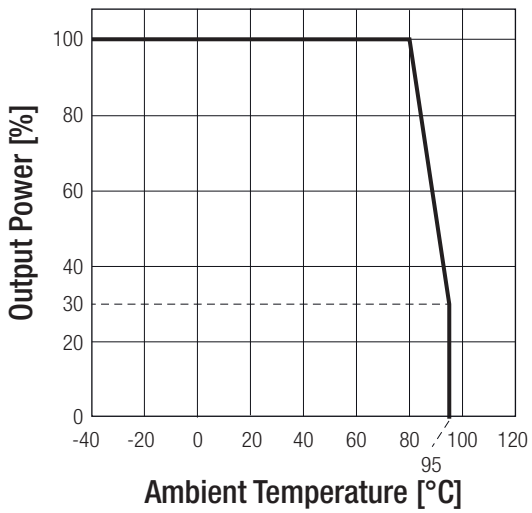
Notes:

Note4: For repeat Hi-Pot testing, reduce the ime and/or the test voltage

ENVIRONMENTAL

Parameter	Condition		Value
Operating Temperature Range	without derating @ natrual convection (0.1m/s, see graph)		-40°C to +80°C
Maximum Case Temperature			+105°C
Temperature Coefficient			±0.03%/°C
Thermal Impedance	0.1m/s, horizontal		53°C/W
Operating Altitude	according to EN/IEC60601-1 report		3000m
Operating Humidity	non-condensing		95% RH max.
Pollution Degree			PD2
MTBF	according to MIL-HDBK-217F, G.B.	+25°C +80°C	10100 x 10^3 hours 6900 x 10^3 hours

Derating Graph
(@ Chamber and natural convection 0.1m/s)



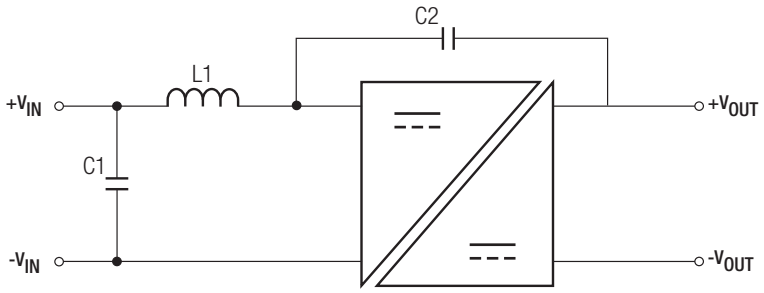
Specifications (measured @ ta= 25°C, nom. Vin, full load unless otherwise specified)

SAFETY AND CERTIFICATIONS

Certificate Type (Safety)	Report / File Number	Standard
Information Technology Equipment, General Requirements for Safety	SPCLVD1602031	IEC60950-1, 2nd Edition, 2005 + Am2, 2013 EN60950-1, 2006 + Am2, 2013
Information Technology Equipment, General Requirements for Safety	E358085-A6-UL	UL60950-1, 1st Edition, 2007 CAN/CSA C22.2 No. 60950-1, 1st Edition, 2006
Medical Electric Equipment, General Requirements for Safety and Essential Performance	SPCMDD1205098-4	IEC60601-1, 2005 + CORR 2, 2007 EN60601-1, 2006
Risk Management	RM120598	ISO14971:2007
RoHs 2+		RoHS 10/10, 2011/65/EU + AM-2015/863

EMC Compliance	Condition	Standard / Criterion
Information techwnology equipment - Radio disturbance characteristics - Limits and methods of measurement	without external filter	EN55022, Class A or B

EMI Filtering according to EN55022 Class A & B



Component List Class A

C1	C2	L1
22µF	470pF, 6kVDC	N/A

Component List Class B

MODEL	C1	C2	L1
RP-0506S	10µF	470pF, 6kVDC	10µH
RP-1206S RP-1506S	4.7µF		22µH
RP-2406S	2.2µF		47µH

DIMENSION and PHYSICAL CHARACTERISTICS

Parameter	Type	Value
Material	Case Potting	black plastic, (UL94V-0) Epoxy, (UL94V-0)
Package Dimension (LxWxH)		19.65 x 7.05 x 10.2mm
Package Weight		2.6g

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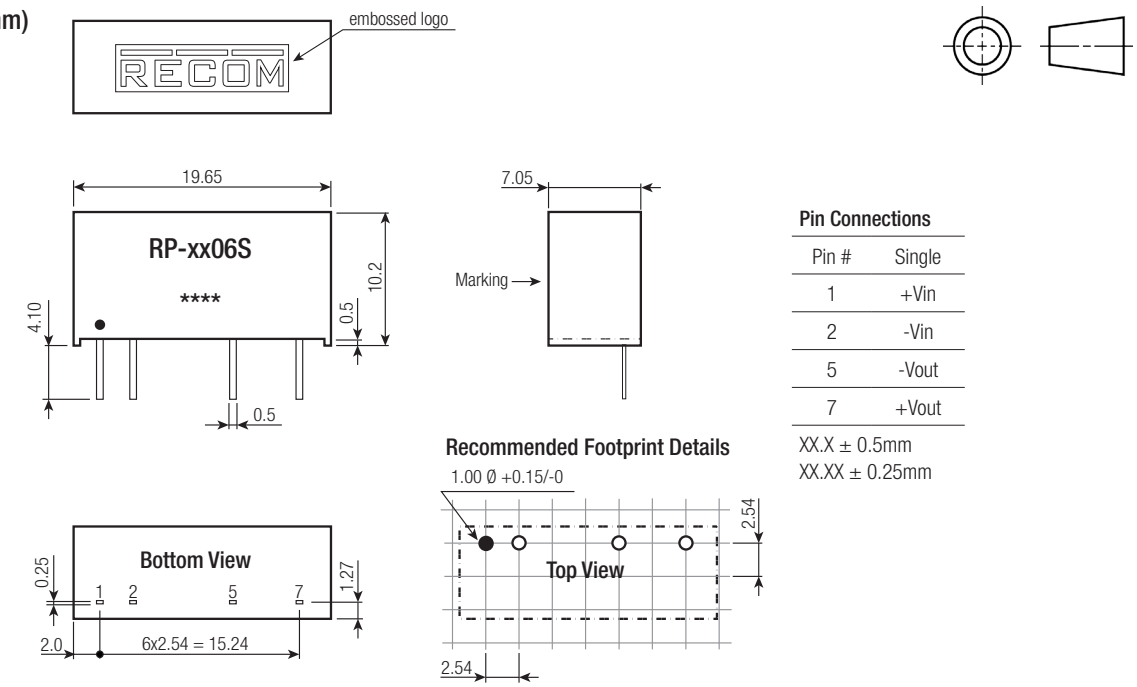
Specifications (measured @ ta= 25°C, nom. Vin, full load unless otherwise specified)

Dimension Drawing (mm)

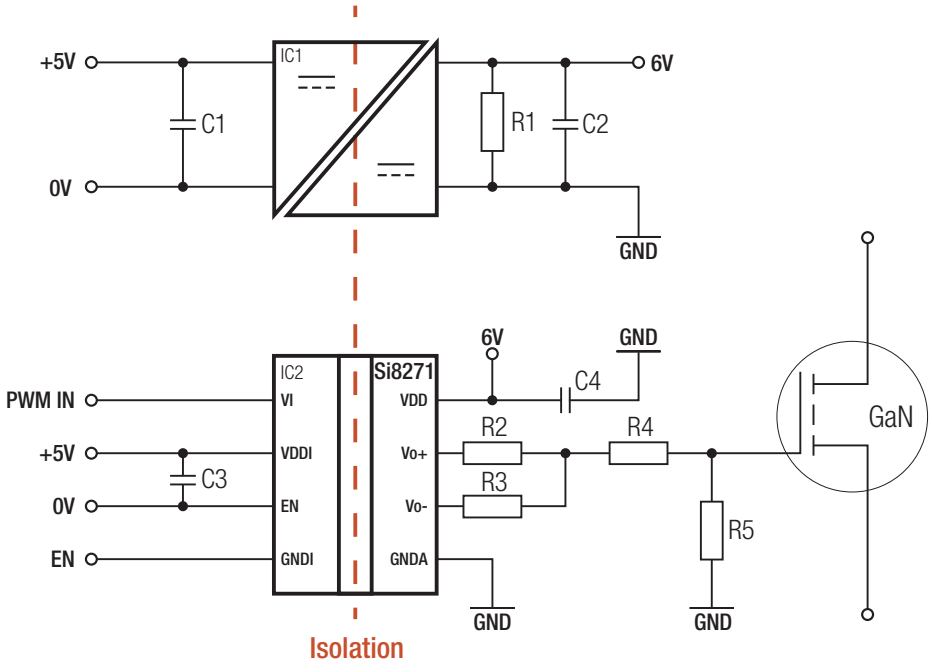


Pin Connections

Pin #	Single
1	+Vin
2	-Vin
5	-Vout
7	+Vout

XX.X ± 0.5mm
XX.XX ± 0.25mm

INSTALLATION and APPLICATION



PACKAGING INFORMATION

Packaging Dimension (LxWxH)	tube	520.0 x 16.0 x 9.mm
Packaging Quantity	tube	25pcs
Storage Temperature Range		-55°C to +125°C
Storage Humidity		95% RH max.