RSVR-78H

- 3 Pin SIL
- wide Input Range (9-72Vdc)
- Step -down switching
- Full SMD Technology
- Continuous Short Circuit Protection
- Pin-out compatible with LM78XX three terminals positive Regulator
- Efficiency up to 95%
- -40°C to +85°C Operating Temperature Range

RoHS

OUTPUT SPECIFICATION	
Voltage accuracy:	±3%
Line regulation:	±1.0%
LOAD REGULATION:	±1.0% max. (from 10-100% load)
Short Circuit Protection :	Indefinite (Automatic Recovery)
Ripple noise (20Mhz bandwidth):	75mV pk-pk
Temperature coefficient:	±0.02%/°C
Capacitor load:	See table

INPUT SPECIFICATIONS	
Voltage Range:	See table
Start up Time:	/
Max. Input Current:	See table
No-Load/Full-Load Input Current:	See table
Input Filter:	Capacitors
Input Reflected Ripple Current :	35mA pk-pk typ.

GENERAL SPECIFICATIONS	
Efficiency:	See table
Switching Frequency:	120-800kHz typ.
Humidity:	95% rel H
Reliability Calculated MTBF :	>4.5MHrs
(MIL-HDBK-217 f)	

ENVIRONMENTAL SPECIFICATION	
Operating Temperature range:	-40°C ~+85°C (see Derating Curve)
Maximum Case Temperature:	100°C
Storage Temperature :	-40°C ~+125°C
Cooling :	Nature Convection

PHYSICAL SPECIFICATIONS:	
Case Material:	Non-conductive Black Plastic
	(UL94V-0 rated)
PIN Material:	C5191R-H Solder-coated
Weight Case- Sip:	2.0g
Potting Material:	Epoxy (UL94V-0 rated)
Weight Case-DIP:	/
Dimmension SIP:	0.46 x 0.29 x 0.40“
Dimmension DIP:	/

ABSOLUTE MAXIMUM RATINGS (6)	
Input Surge Voltage (100ms):	20Vdc max.
Soldering Temperature:	260°C max.

EMC SPECIFICATIONS (5)	
Radiated-/Conducted Emissions:	EN55022 Class B see EMI Filter
ESD:	IEC 61000-4-2 Perf.Criteria A
RS:	IEC 61000-4-3 Perf.Criteria A
EFT:	IEC 61000-4-4 Perf.Criteria A
SURGE:	IEC 61000-4-5 Perf.Criteria A
CS:	IEC 61000-4-6 Perf.Criteria A
PFMF	IEC 61000-4-8 Perf.Criteria A

All specifications typical at Ta = 25°C, nominal volatge and full load unless otherwise specified.

1) Ripple/Noise measured with 20MHz bandwidth. Load condition:10%~100%, output noise arise when load is under 10%.
2) Tested by minimal Vin and constand resistive load.
3) Measured Input reflected ripple current with a simulated source inductance of 12uH.
4) The switching frequency is different according to output voltage models.
5) Input filter components (C1, C2, L) are used to help meet EMI & EMS requirement for the module.
These components should be mounted as close as possible to the module; and all leads should be minimized to decrease radiated noise.
6) Do not operate the unit(s) exceeding the absolute maximum rating, over rating causes damage to the units.
7) Operation under no-load conditions will not damage these devices, however they may not meet all listed specifications.

STAND Oktober 2016 Rev 01

PART NUMBER STRUCTURE

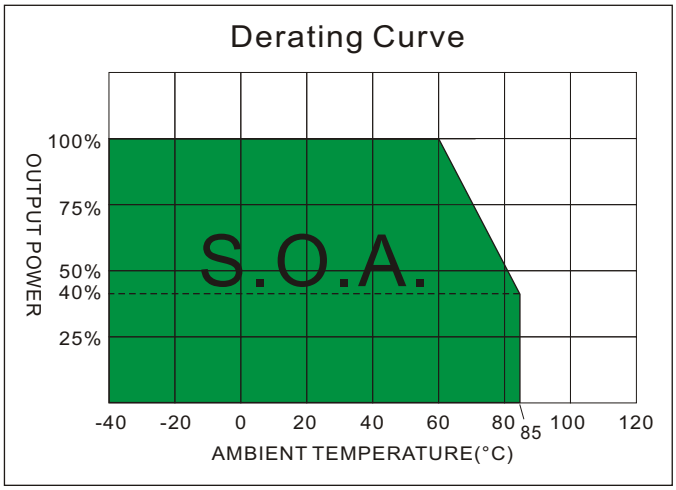
RSVR-78H XXX

Series Name

For 78H Regulator I.C. Pin Out

High voltage input range

Output Voltage
3R3 - 3.3V
05 - 5V
6R5 - 6.5V
7R2 - 7.2V
09 - 9V
12 - 12V
15 - 15V



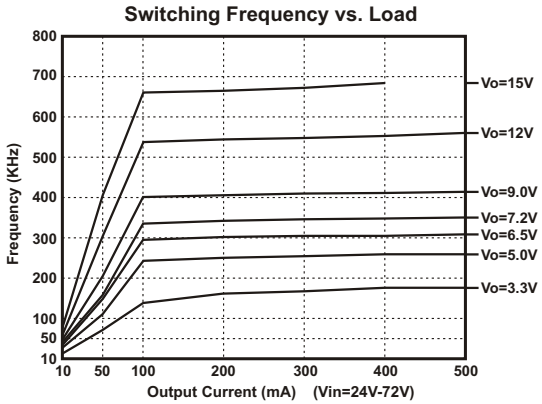
MODEL SELECTION GUIDE

MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current (mA) No-Load (mA, max.)	INPUT Current (mA) Full Load (mA, typ.) @Min. Vin	INPUT Current (mA) Full Load (mA, typ.) @Max. Vin	OUTPUT Voltage (Vdc)	OUTPUT Current (mA)	EFFICIENCY Full Load (%, typ.) @Min. Vin	EFFICIENCY Full Load (%, typ.) @Max. Vin	Capacitor Load @FL (μF, max.)
RSVR-78H3R3	9 - 72	3	224	31	3.3	500	82	75	100
RSVR-78H05	9 - 72	3	316	44	5	500	88	80	100
RSVR-78H6R5	9 - 72	3	397	55	6.5	500	91	83	100
RSVR-78H7R2	14 - 72	3	283	60	7.2	500	91	84	100
RSVR-78H09	14 - 72	3	350	73	9	500	92	86	100
RSVR-78H12	17 - 72	3	376	94	12	500	94	89	100
RSVR-78H15	21 - 72	3	301	94	15	400	95	89	100

TYPICAL OPERATING CONDITIONS

Switching Frequency

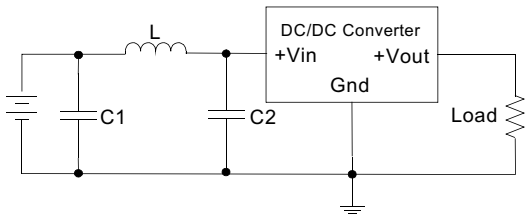
The switching frequency is different according to output voltage models.
Operation under no load will not damage these devices, however they may not meet all specifications.
A minimum load of 10mA is recommended.



EMC COUNTERMEASURES

EMC Countermeasures

Input filter components (C1, C2, L) are used to help meet EMI & EMS requirement for the module. These components should be mounted as close as possible to the module; and all leads should be minimized to decrease radiated noise.

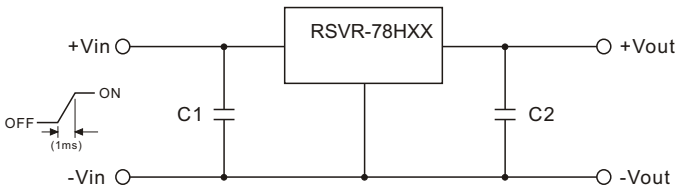


	C1	L	C2
RSVR-78HXX	220μF,100V	12μH	220μF,100V

The models listed above is just for standard type. If you need the special specification product, please e-mail us at: info@rsg-electronic.de

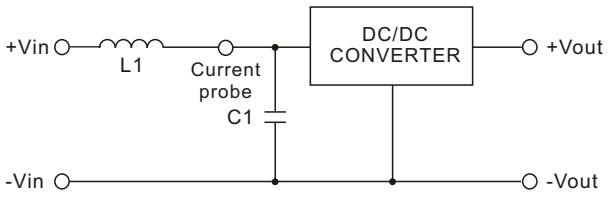
RSVR-78H Series *0.4A - 0.5A Output Current, Non-Isolated DC/DC converter*

STANDARD APPLICATION CIRCUIT



1. If Vin>50V, in order to protect the converter during power-up, add an external capacitor of C1=3.3μF/100V is required.
2. C2=100μF(Optional)

TEST CONFIGURATIONS

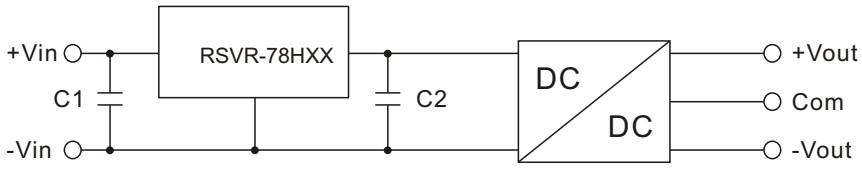


Input reflected ripple current is measured through a source inductor L1(12μH) and a source capacitor C1=47μF at nominal input and full load.

APPLICATION EXAMPLES

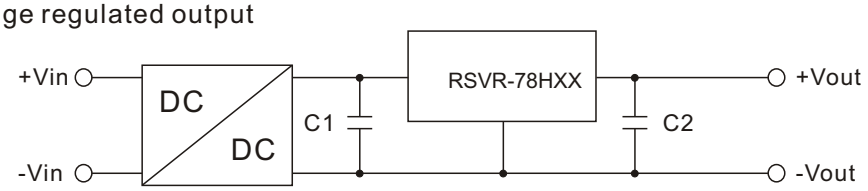
High efficiency, isolated, dual unregulated outputs, one economic way to build up isolated dual output

- Isolated dual outputs
- Wide input range
- C1: Optional
- C2: Required(further decoupling filtering may be necessary between the two converters)

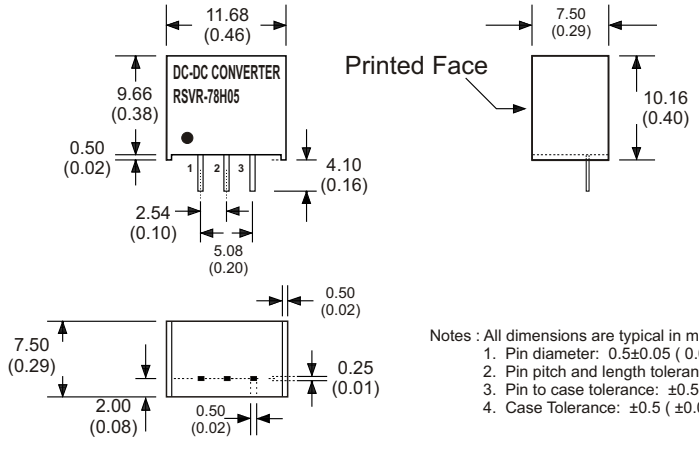


Isolated (up to 6KV), wide input range regulated output

- High isolation voltage
- Improved loading / line regulation
- Wide input voltage range
- Point-of-load Architecture
- C1: Required(further decoupling filtering may be necessary between the two converters)
- C2: Optional



MECHANICAL SPECIFICATIONS



Notes : All dimensions are typical in millimeters (inches).
1. Pin diameter: 0.5±0.05 (0.02±0.002)
2. Pin pitch and length tolerance: ±0.35 (±0.014)
3. Pin to case tolerance: ±0.5 (±0.02)
4. Case Tolerance: ±0.5 (±0.02)

PIN CONNECTIONS	
PIN NUMBER	SINGLE
1	+V Input
2	GND
3	+V Output