

S7 - 10W Series

10W 2:1 Regulated Single & Dual output

Features

- Wide 2:1 Input Range
- Full SMD Technology
- 1500 VDC Isolation
- Continuous Short Circuit Protection
- Efficiency up to 86%
- -40 ~ 85°C Operation Temperature Range
- EMI Complies With EN55022 Class A



The S7 series is a family of cost effective 10W single & dual output DC-DC converters. These converters are made with nickle-coated brass case in a 2"x1" with high performance features such as 1500 VDC input/output isolation voltage, continuous short circuit protection with automatic restart and tight line / load regulation. Devices are encapsulated by using flame retardant resin. Input voltages of 12, 24 and 48 with output voltage of 3.3, 5, 7.2, 9, 12, 15, 18, 24, ±3.3, ±5, ±7.2, ±9, ±12, ±15, ±18, ±24 Vdc. High performance features include high efficiency operation up to 86% and output voltage accuracy of ±1% maximum.

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

OUTPUT SPECIFICATIONS	
Voltage accuracy	±1%
Line regulation	±0.5%
Load regulation(0% to 100% Load)	(Single Output) ±0.5% (Dual Output) ±1.0%
Ripple & noise(20 MHz bandwidth)(1)	100mV pk-pk
Over-current protection	140% of max. Iout
Short circuit protection	Indefinite(Automatic Recovery)
Temperature coefficient	±0.02%/°C
Capacitor load(2)	See table
Transient Recovery Time(3)	250us, typ
Transient Response Deviation(3)	±3%, max

INPUT SPECIFICATIONS	
Voltage Range	See table
Start up Time(Nominal Vin and constant resistive load)	20mS, typ
Max. Input Current	See table
No-Load Input Current	See table
Input Filter	Pi Type
Input Reflected Ripple Current(4)	35mA pk-pk

GENERAL SPECIFICATIONS	
Efficiency	See table
I/O Isolation Voltage(3 sec)	Input/Output 1500Vdc Case/Input & Output 1000Vdc
I/O Isolation Capacitance	500 pF Typ.
I/O Isolation Resistance	1000M Ohm
Switching Frequency	Typical 200kHz
Humidity	95% rel H
Reliability Calculated MTBF(MIL-HDBK-217 F)	>1.121 Mhrs
Safety Standard : (designed to meet)	IEC 60950-1

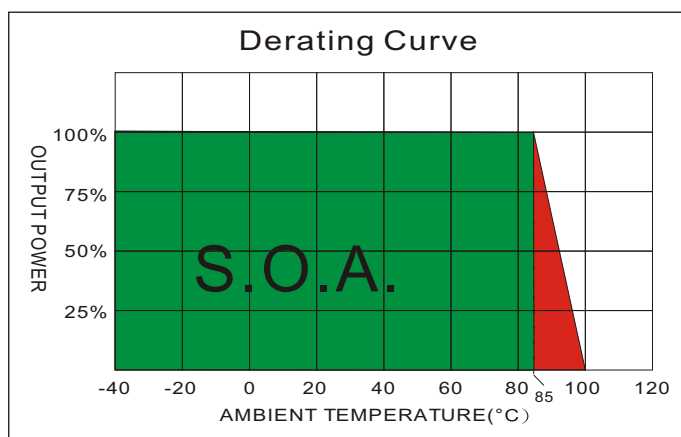
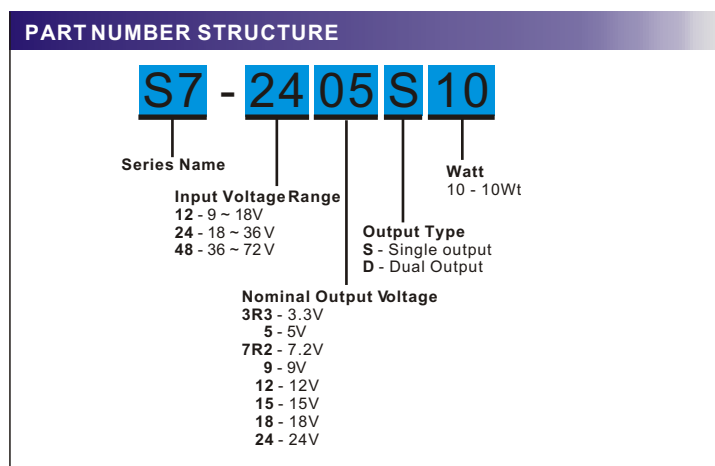
EMC SPECIFICATIONS		
Radiated Emissions	EN55022	CLASS A
	FCC 47 CFR Part 15 Subpart A	CLASS A
ESD	IEC 61000-4-2	Perf. Criteria B
RS	IEC 61000-4-3	Perf. Criteria A

PHYSICAL SPECIFICATIONS	
Case Material	Nickel-coated Brass
Pin Material	Ø1.0mm Brass Solder-coated
Potting Material	Epoxy (UL94V-0 rated)
Weight	30.0g
Dimensions	2.00"x1.00"x0.40"

ENVIRONMENT SPECIFICATIONS	
Operating Temperature	-40°C~85°C(See Derating Curve)
Maximum Case Temperature	100°C
Storage Temperature	-40°C~125°C
Cooling	Nature Convection

ABSOLUTE MAXIMUM RATINGS(5)	
These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.	
Input Voltage(100mS)	
12 Modes	-0.7~25 Vdc
24 Modes	-0.7~50 Vdc
48 Modes	-0.7~100 Vdc
Soldering Temperature (1.5mm from case 10sec.)	260°C

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MODEL SELECTION GUIDE

MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current		OUTPUT Voltage (Vdc)	OUTPUT Current		EFFICIENCY @FL(%)	Capacitor Load(µF)
		No Load (mA)	Full Load (mA)		Min Load (mA)	Full Load (mA)		
S7-123R3 S10	9-18	30	705	3.3	0	2000	78	2200
S7-1205 S10	9-18	30	1016	5	0	2000	82	2200
S7-127R2 S10	9-18	30	1004	7.2	0	1388	83	1000
S7-1209 S10	9-18	30	1004	9	0	1111	83	1000
S7-1212 S10	9-18	30	992	12	0	833	84	680
S7-1215 S10	9-18	30	992	15	0	666	84	470
S7-1218 S10	9-18	30	980	18	0	555	85	470
S7-1224 S10	9-18	30	980	24	0	416	85	330
S7-123R3D10	9-18	30	1068	±3.3	0	±1000	78	±1000
S7-1205D10	9-18	30	1016	±5	0	±1000	82	±1000
S7-127R2D10	9-18	30	1004	±7.2	0	±694	83	±680
S7-1209D10	9-18	30	992	±9	0	±555	84	±470
S7-1212D10	9-18	30	992	±12	0	±416	84	±470
S7-1215D10	9-18	30	980	±15	0	±333	85	±330
S7-1218D10	9-18	30	980	±18	0	±277	85	±220
S7-1224D10	9-18	30	980	±24	0	±208	85	±220
S7-243R3 S10	18-36	25	352	3.3	0	2000	78	2200
S7-2405 S10	18-36	25	508	5	0	2000	82	2200
S7-247R2 S10	18-36	25	502	7.2	0	1388	83	1000
S7-2409 S10	18-36	25	496	9	0	1111	84	1000
S7-2412 S10	18-36	25	496	12	0	833	84	680
S7-2415 S10	18-36	25	490	15	0	666	85	470
S7-2418 S10	18-36	25	490	18	0	555	85	470
S7-2424 S10	18-36	25	484	24	0	416	86	330
S7-243R3D10	18-36	25	352	±3.3	0	±1000	78	±1000
S7-2405D10	18-36	25	508	±5	0	±1000	82	±1000
S7-247R2D10	18-36	25	502	±7.2	0	±694	83	±680
S7-2409D10	18-36	25	502	±9	0	±555	83	±470
S7-2412D10	18-36	25	496	±12	0	±416	84	±470
S7-2415D10	18-36	25	496	±15	0	±333	84	±330
S7-2418D10	18-36	25	490	±18	0	±277	85	±220
S7-2424D10	18-36	25	490	±24	0	±208	85	±220

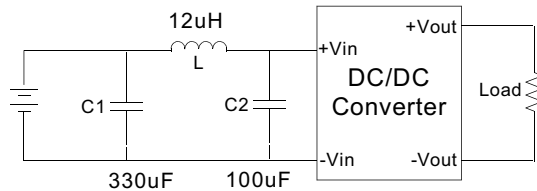
The models listed above is just for standard type. If you need the special specification product, please contact our service member by telephone presented in shortform cover or e-mail to : info@schmid-m.com

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MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current		OUTPUT Voltage (Vdc)	OUTPUT Current		EFFICIENCY @FL (%)	Capacitor Load (uF)
		No Load (mA)	Full Load (mA)		Min Load (mA)	Full Load (mA)		
S7-483R3 S10	36-72	20	176	3.3	0	2000	78	2200
S7-4805 S10	36-72	20	251	5	0	2000	83	2200
S7-487R2 S10	36-72	20	251	7.2	0	1388	83	1000
S7-4809 S10	36-72	20	248	9	0	1111	84	1000
S7-4812 S10	36-72	20	248	12	0	833	84	680
S7-4815 S10	36-72	20	248	15	0	666	84	470
S7-4818 S10	36-72	20	245	18	0	555	85	470
S7-4824 S10	36-72	20	245	24	0	416	86	330
S7483R3D10	36-72	20	176	±3.3	0	±1000	78	±1000
S74805D10	36-72	20	254	±5	0	±1000	82	±1000
S7487R2D10	36-72	20	248	±7.2	0	±694	84	±680
S74809D10	36-72	20	248	±9	0	±555	84	±470
S74812D10	36-72	20	245	±12	0	±416	85	±470
S74815D10	36-72	20	245	±15	0	±333	85	±330
S74818D10	36-72	20	242	±18	0	±277	86	±220
S74824D10	36-72	20	242	±24	0	±208	86	±220

NOTE

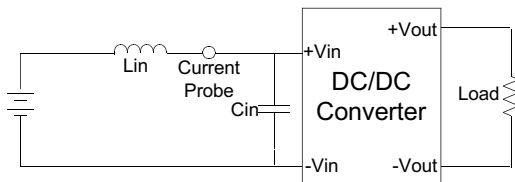
1. Ripple/Noise measured with 20MHz bandwidth.
2. Tested by minimal V_{in} and constant resistive load.
3. Tested by normal V_{in} and 25% load step change (75%-50%-25% of I_o).
4. Measured Input reflected ripple current with a simulated source inductance of 12uH.
5. Exceeding the absolute ratings of the unit could cause damage. It is not allowed for continuous operating.
6. Operation under no-load conditions will not damage these devices, however they may not meet all listed specifications.
7. Suggest adding input external filter (C1, C2, L) to meet conducted emissions (EN55022 Class A)



TEST CONFIGURATIONS

Input Reflected Ripple Current Test Step

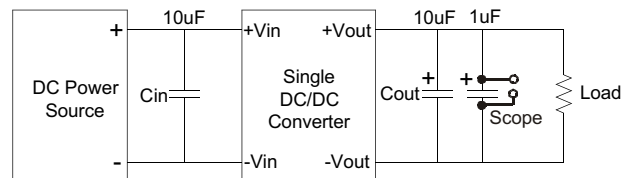
Input reflected ripple current is measured through a source inductor L_{in} (12uH) and a source capacitor C_{in} (47uF, ESR<1.0Ω at 100KHz) at nominal input and full load.



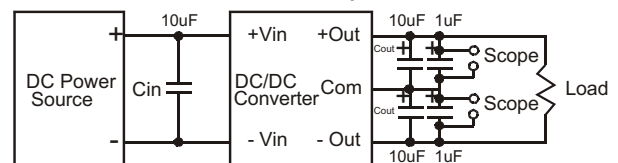
Output Ripple & Noise Measurement Test

To reduce ripple and noise, it is recommended to use a 1uF ceramic disk capacitor and a 10uF electrolytic capacitor to at the output.

Single Output

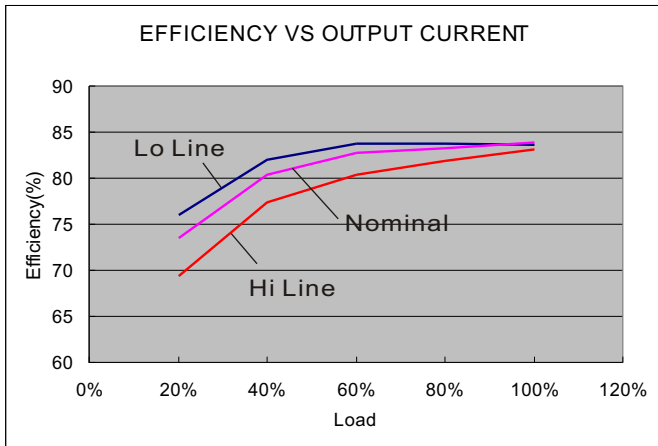


Dual Output

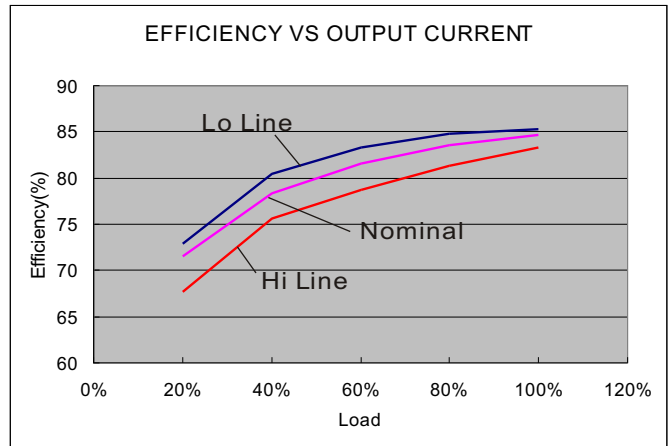


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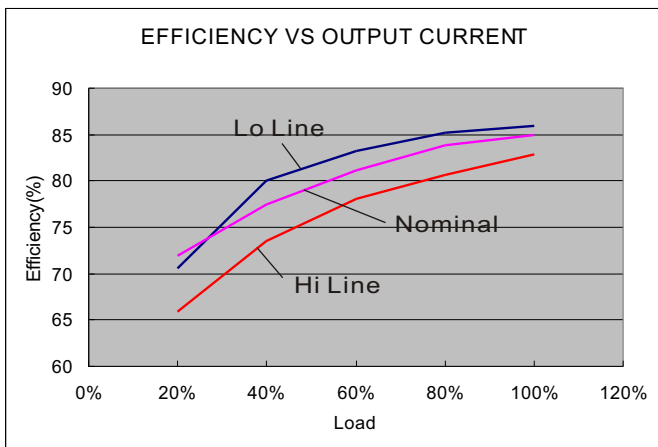
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12 Models

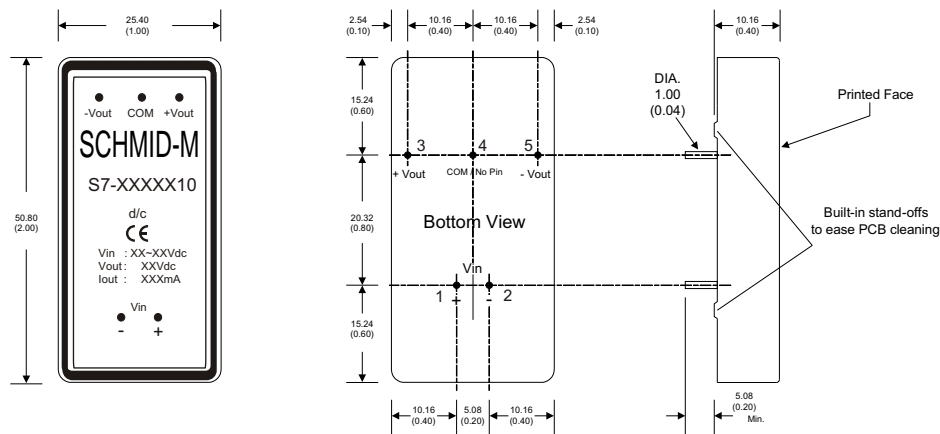


24 Models



48 Models

MECHANICAL SPECIFICATIONS



PIN CONNECTIONS		
PIN NUMBER	SINGLE	DUAL
1	+V Input	+V Input
2	-V Input	-V Input
3	+V Output	+V Output
4	N.P.	Common
5	-V Output	-V Output

Notes : All dimensions are typical in millimeters (inches).

1. Pin diameter: 1.0 ± 0.05 (0.04 ± 0.002)
2. Pin pitch tolerance: ± 0.35 (± 0.014)
3. Case Tolerance: ± 0.5 (± 0.02)