GAPTEC

15SW_1.5RP series

1W - Single Output DC-DC Converter - Isolated & Regulated

DC-DC Converter **1 Watt**

- 2:1 input voltage range
- Up to 81% efficiency
- Input under voltage
- Output over voltage,
- Short circuit protection (SCP)
- Overcurrent protection
- Operating temperature range: -40°C to +85°C
- Meets CISPR32/EN55032 CLASS A

Introducing our new 15SW_1.5RP series, a compact and robust DC-DC converter designed for reliable performance in demanding applications. With a 2:1 input voltage range, it adapts easily to fluctuating supply conditions while maintaining stable output behavior. The converter delivers efficiency levels of up to 81%, supporting energy-conscious designs without sacrificing performance. Built-in protection features include input undervoltage protection, output overvoltage protection, short-circuit protection (SCP) and overcurrent protection, ensuring safe operation even under fault conditions. The unit performs confidently across a wide operating temperature range from -40°C to +85°C, making it suitable for harsh or thermally challenging environments. Compliant with CISPR32/EN55032 Class A EMI standards, this series integrates smoothly into systems requiring controlled electromagnetic emissions.

Datasheet under revision.

Please check back later

or contact our sales team.

Thank you.

Common specifications

Short circuit protection	Input voltage range, sustainable, self-recovering	
Switching frequency	350 kHz (100% load, [illegible] (PWM Mode)	
Operation temperature	-40°C ~ +85°C (with derating)	
Storage temperature	-55°C ~ +125°C	
Pin welding can withstand the highest temperature	+300°C (solder joint distance from housing: 1.5mm, 10 seconds)	
Case temperature rise	25°C (Ta = 25°C, nominal [illegible]	
Storage humidity	5~95% RH (no condensation)	
MTBF (MIL-HDBK-217F@25°C)	1,000,000 hours	
Input filter	Pi Filter	
Hot plug	Not supported	
Vibration	10-55Hz, 10G, 30 Minutes along [illegible]	
Housing material	Black plastic	
Dimensions	12 x 11.7 x 9.45 mm	
Weight	3.3g	
Cooling method	Natural air cooling	

Output specifications

Item	Test condition	Min	Typ	Max	Units
Voltage accuracy			±1	±3	%
Line voltage regulation (Full load, input voltage from low to high)	Positive output		±0.2	±0.5	%
	Negative output		±0.5	±1	
Load regulation (from 0% to 100% load)	Positive output		±0.5	1	%
	Negative output		±0.5	±1.5	
Transient recovery time	25% load step change		300	500	µs
Transient response deviation	25% load step change		±5%	±5.5	%
			±2.2[3]	±3	
Temperature drift coefficient	Full load			±0.03	%/°C
Ripple & noise[2]	20MHz bandwidth		50	100	mVp-p
Overvoltage protection	Input voltage range	110		160	%Vo
Overcurrent protection	Input voltage range	110	150	200	%Io

Note: 1. When tested under operating conditions ranging from 0% to 100% load, the load regulation specification is ±5%.
2. Ripple & noise specifications are tested within the nominal input voltage range of [illegible]. The ripple and noise measurement method employs the parallel line [illegible] (refer to Figure 5).

Input specifications

Item	Test condition	Min	Typ	Max	Units
Input current (Full load/ no load)	5V input		263/26	286/28	mA
	12V input		111/12	119/18	
	24V input		56/5	60/12	
	48V input		28/4	32/8	
Reflected ripple current			80		mA
Input surge voltage (1 sec. max.)	5V input	-0.7		10	VDC
	12V input	-0.7		25	
	24V input	-0.7		40	
	48V input	-0.7		80	
Startup voltage	5V input			4.3	VDC
	12V input			9	
	24V input			18	
	48V input			36	
Undervoltage shutdown	5V input	4	4.3		VDC
	12V input	5	8		
	24V input	15	17		
	48V input	31	35		
Startup time	Nominal input and constant resistance load		10	30	ms

Isolation specifications

Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Input-output, test duration 1 minute, leakage current < 1mA	1500			VDC
Isolation resistance	Input-output, Isolation Voltage 500VDC	1000			MΩ
Isolation capacitance	Input-output, 100kHz/0.1V		20		pF

Example:
15SW_24-05S1.5RP
1 = 1Watt; 5S = 5IP5; W = Wide Input; 24 = 24Vin; 05 = 5Vout; S = Single Output; 1.5 = 1500VDC Isolation; R = Regulated Output; P = Short circuit protection

1. Recommended load imbalance for dual-output modules: ≤±5%. If exceeding ±5%, product performance cannot be guaranteed to meet all specifications in this manual. Contact our technical staff for specific scenarios.
2. Maximum capacitive loads tested under full load conditions within input voltage range.
3. Unless otherwise specified, all data in this document was measured at Ta = 25°C, humidity <75%, nominal input voltage, and rated output load.
4. All testing methods for specifications herein comply with our internal standards.
5. The above performance metrics apply exclusively to models listed in this manual. Non-standard models may exhibit certain metrics exceeding these requirements. For specific details, please contact our technical personnel directly.
6. Product specifications are subject to change without prior notice.