

**SELECTION GUIDE**

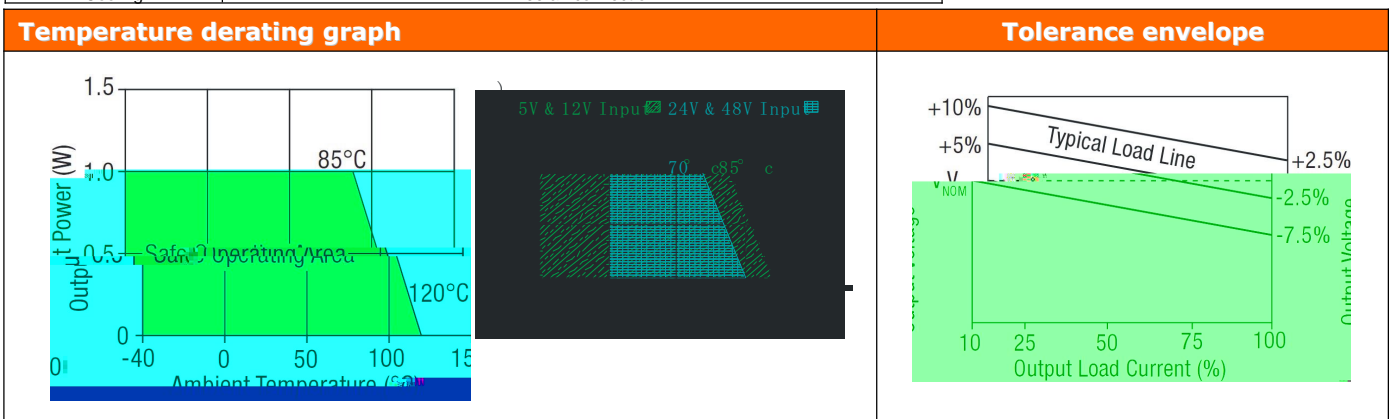
Order code	Input		Output		Efficiency (% Typ.)	Isolation Capacitance pF	MTTF <sup>1</sup> KHrs
	Voltage(VDC)	Current (mA)	Voltage (VDC)	Current (mA)			
	Nominal	MAX					
A0505XS	5	289	±5	±100	69	28	3103
A0509XS	5	267	±9	±55	75	32	2257
A0512XS	5	260	±12	±42	77	34	1579
A0515XS	5	256	±15	±33	78	36	1065
A1205XS	12	120	±5	±100	69	33	2193
A1209XS	12	113	±9	±55	74	46	1734
A1212XS	12	111	±12	±42	75	55	1303
A1215XS	12	110	±15	±33	76	54	932

Output Specifications					
Parameter	Conditions	Min.	Typ.	Max.	Units
Rated Power	TA= -40°C to 120°C			1.0	W
Rated Power(A24、A48)	TA=0°C to 70°C			1.0	W
Voltage Set Point Accuracy	See tolerance envelope				
Line regulation	High VIN to low VIN		1.0	1.2	%%
Line regulation(A24、A48)	High VIN to low VIN			1.2	%%
Load regulation(A24、A48)	10% load to rated load, 5V output types			15	%
	10% load to rated load, all other output types			10	%
Load regulation(5Vinput、12Vinput)	10% load to rated load, 5V output types		10	12.5	%
	10% load to rated load, 9V output types		9	10	%
	10% load to rated load, 12V output types		6.5	7.5	%
	10% load to rated load, 15V output types		6	7.0	%
Load regulation(15V input)	10% load to rated load, 5V output types		5.5	10	%
	10% load to rated load, 12V output types		2.6	3.0	%
	10% load to rated load, 15V output types		2.3	3.0	%
Ripple & Noise(A24、A48)	BW=DC to 20MHz, all input types			150	mV p-p
Ripple & Noise	BW=DC to 20MHz, 5V output types		10	20	mV p-p
	BW=DC to 20MHz, 9V output types		7	15	mV p-p
	BW=DC to 20MHz, 12V output types		7.5	15	mV p-p
	BW=DC to 20MHz, 15V output types		8	15	mV p-p

Isolation Characteristics					
Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation voltage	Flash tested for 1 second	1000			VDC
Resistance	Viso= 1000VDC		10		G
Resistance(A24、A48)	Viso= 500VDC	10			G

General Characteristics					
Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency	5V input types		110		kHz
	12V input types		140		kHz
	15V input types		90		kHz
Switching frequency(A24、A48)	All input types		100		kHz

Temperature Characteristics					
Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	A05、A12、A15	-40		85	°C
Specification	A24、A48	0		70	°C
Storage	A05、A12、A15	-50		130	°C
Storage	A24、A48	-55		150	°C
Case temperature rise	0505,1205		33		°C
	0509,0512,0515,1209,1212,1215		28		°C
	1505		26		°C
ambient	1512,1515		17		°C
Cooling	Free air convection				



## Technical notes

### ISOLATION VOLTAGE

"Hi Pot Test", "Flash Tested", "Withstand Voltage", "Dielectric Withstand Voltage" & " Isolation Test Voltage" are all terms that relate to the same thing, a test voltage.

Applied for a specified time, across a component designed to provide electrical isolation, to verify the integrity of that isolation.

Professional Power Module A series of DC/DC converters are all 100% production tested at their stated isolation voltage. This is 1KVDC for 1 second.

A question commonly asked is, "What is the continuous voltage that can be applied across the part in normal operation?"

For a part holding no specific agency approvals, such as the A series, both input and output should normally be maintained within SELV limits i.e. less than 42.4V peak, or 60VDC. The isolation test voltage represents a measure of immunity to transient voltages and the part should never be used as an element of a safety isolation system. The part could be expected to function correctly with several hundred volts offset applied continuously across the isolation barrier, but then the circuitry on both sides of the barrier must be regarded as operating at an unsafe voltage and further isolation/insulation systems must form a barrier between these circuits and any user-accessible circuitry according to safety standard requirements.

### REPEATED HIGH-VOLTAGE ISOLATION TESTING

It is well known that repeated high-voltage isolation testing of a barrier component can actually degrade isolation capability, to a lesser or greater degree depending on materials, construction and environment. The A series has toroidal isolation transformers, with no additional insulation between primary and secondary windings of enameled wire. While parts can be expected to withstand several times the stated test voltage, the isolation capability does depend on the wire insulation. Any material, including this enamel (typically polyurethane) is susceptible to eventual chemical degradation when subject to very high applied voltages thus implying that the number of tests should be strictly limited. We therefore strongly advise against repeated high voltage isolation testing, but if it is absolutely required, that the voltage be reduced by 20% from specified test voltage.

This consideration equally applies to agency recognized parts for better than functional isolation where the wire enamel insulation is always supplemented by a further insulation system of physical spacing or barriers.

## Technical notes

### Output ripple reduction

By using the values of inductance and capacitance stated, the output ripple at the rated load is lowered to 5mV p-p max.

Capacitor: Ceramic chip capacitors are recommended. It is required that the ESR (Equivalent Series Resistance) should be as low as possible. X7R types are recommended.

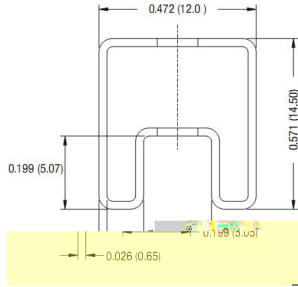
The voltage rating should be at least twice (except for 15V output), the rated output voltage of the DC/DC converter.

Inductor: The rated current of the inductor should not be less than of the output of the DC/DC converter. At the rated current, the DC resistance of the inductor should be such that the voltage drop across the inductor is <2% of the

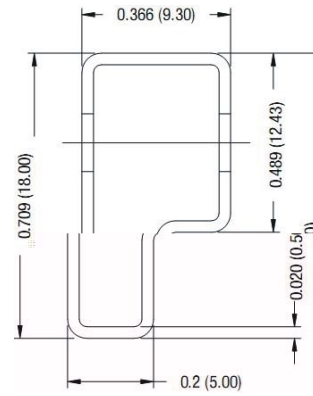
Recommended footprint details

**TUBE OUTLINE DIMENSIONS**

**14 PIN DIP Tube**



**7 PIN SIP Tube**



Unless otherwise stated all dimensions in inches (mm)  $\pm 0.5\text{mm}$ .

Tube length (14 Pin DIP) : 20.47 (520mm  $\pm 2\text{mm}$ ).

Tube length (7 Pin SIP) : 20.47 (520mm  $\pm 2\text{mm}$ ).

Tube Quantity :25