

M



REACH

Output Specifications					
Parameter	Conditions	Min.	Typ.	Max.	Units
Rated Power	TA=-40°C to 85°C	0.1		1.0	W
Voltage Set Point	See tolerance envelope				
Line regulation	High VIN to low VIN		1.0	1.2	%%
Load regulation ¹	10% load to rated load, 0303& 0503		10	14	%
	10% load to rated load, 0505& 1205		12.8	15	%
	10% load to rated load, 0506		9.2	10	%
	10% load to rated load, 0509 & 1209		8.3	9.0	%
	10% load to rated load, 0512& 1212		6.8	7.5	%
Ripple & Noise	10% load to rated load, 0515& 1215		6.3	7.0	%
	BW=DC to 20MHz, 3.3V output types, 0305 & 0505		40	60	mV p-p
	BW=DC to 20MHz, 3.3V output types, 0505 & 1205		62	85	mV p-p
	BW=DC to 20MHz, 0506		103	170	mV p-p
	BW=DC to 20MHz, 0509 & 1209		49	75	mV p-p
	BW=DC to 20MHz, 0512& 1212		39	65	mV p-p
	BW=DC to 20MHz, 0515& 1215		38	76	mV p-p

Note:1、 12V input types have typically 3% less load regulation change.

Temperature Characteristics					
Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	All output types	-40		85	°C
Storage		-55		125	°C
Case temperature rise above ambient	0305, 0309, 0315		25		°C
	0303, 0312, 0503, 0505, 0509, 0512C, 0515		30		°C
	0505, 1205		43		°C
	1209, 1212, 1215		40		°C
Cooling	Free air convection				

Technical notes

ISOLATION VOLTAGE

'Hi Pot Test'、'Flash Tested'、'Withstand Voltage'、'Proof 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 B-XT 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 B-XT series, both input and output should not 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 ec

Application Notes

Minimum load

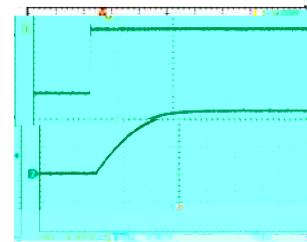
The minimum load to meet datasheet specification is 10% of the full rated load across the specified input voltage range. Lower than 10% minimum loading will result in an increase in output voltage, which may rise to typically double the specified output voltage if the output load falls to less than 5%.

Capacitive loading and start up

Typical start up times for this series, with a typical input voltage rise time of 2.2 μ s and output capacitance of 10 μ F, are shown in the table below. The product series will start into a capacitance of 47 μ F with an increased start time, however, the maximum recommended output capacitance is 10 μ F.

	Start-up time		Start-up time
	μ s		μ s
B0303XT	437	B0506XT	7200
B0305XT	1359	B0509XT	3146
B0309XT	3435	B0512XT	4960
B0312XT	6590	B0515XT	7740
B0315XT	7625	B1205XT	895
B0503XT	533	B1209XT	2150
B0505XT	1368	B1212XT	3640
B0505NXT	721	B1215XT	7180

Typical Start-Up Wave Form



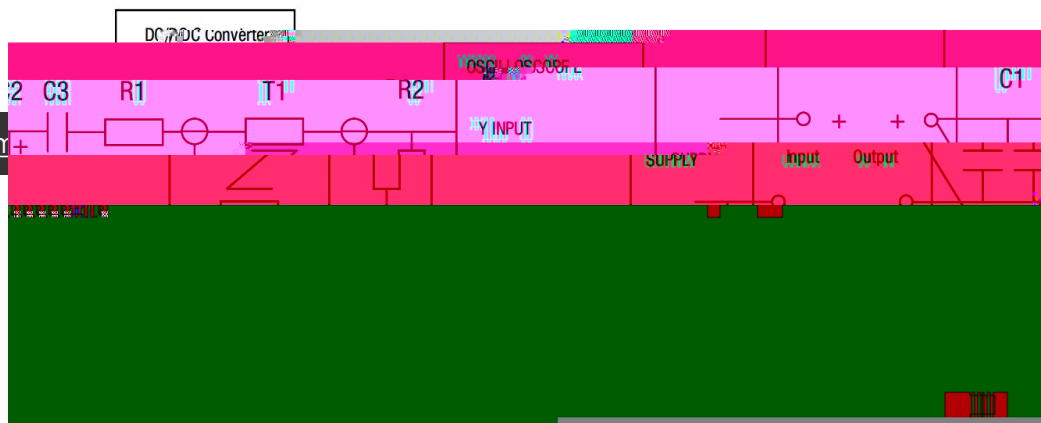
Ripple & Noise Characterization Method

Ripple and noise measurements are performed with the following test configuration.

C1	1 μ F X7R multilayer ceramic capacitor, voltage rating to be a minimum of 3 times the output voltage of the DC/DC converter
C2	10 μ F tantalum capacitor, voltage rating to be a minimum of 1.5 times the output voltage of the DC/DC converter with an ESR of less than 100m Ω at 100 kHz
C3	100nF multilayer ceramic capacitor, general purpose
R1	450 Ω resistor, carbon film, \pm 1% tolerance
R2	50 Ω BNC termination
T1	3T of the coax cable through a ferrite toroid
RLOAD	Resistive load to the maximum power rating of the DC/DC converter. Connections should be made via twisted wires

Measured values are multiplied by 10 to obtain the specified values.

Differential Mode Noise Test Schematic



Application Notes

Output Ripple Reduction

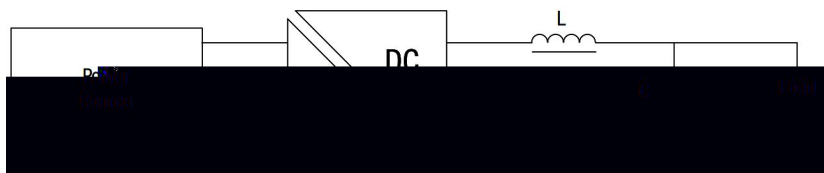
By using the values of inductance and capacitance stated, the output ripple at the rated load is lowered to 5mV p-p max.

Component selection

Capacitor: It is required that the ESR (Equivalent Series Resistance) should be as low as possible, ceramic types are recommended.

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

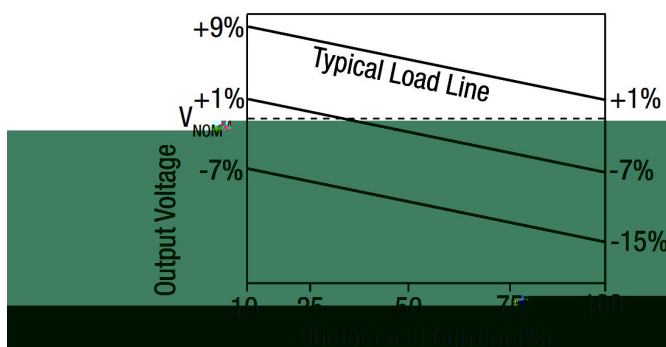
Inductor: The rated current of the inductor should not be less than that of the output of the DC/DC converter. At the rated current, the DC resistance of the inductor should be such that the voltage drop across the inductor is <2% of the rated voltage of the DC/DC converter. The SRF (Self Resonant Frequency) should be >20MHz.



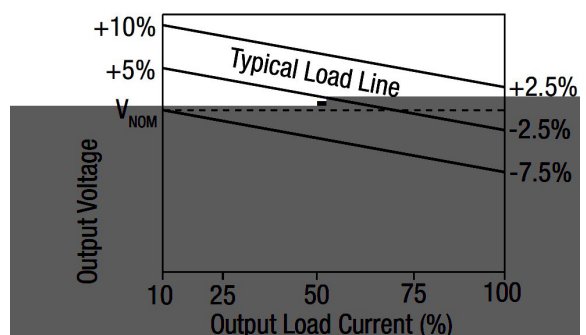
	Inductor			Capacitor
	L, μ H	SMD	Through Hole	
B0303XT	10	82103C	11R103C	4.7
B0305XT	47	82473C	11R103C	4.7
B0309XT	22	82223C	11R223C	2.2
B0312XT	10	82103C	11R103C	1
B0315XT	47	82473C	11R473C	1
B0503XT	10	82103C	11R103C	4.7
B0505XT	47	82473C	11R473C	4.7
B0505NXT	47	82473C	11R473C	4.7
B0506XT	10	82103C	11R103C	4.7
B0509XT	22	82223C	11R223C	2.2
B0512XT	47	82473C	11R473C	1
B0515XT	47	82473C	11R473C	1
B1205XT	47	82473C	11R473C	4.7
B1209XT	22	82223C	11R223C	2.2
B1212XT	47	82473C	11R473C	1
B1215XT	47	82473C	11R473C	1

Tolerance Envelopes

Tolerance Envelope - 3.3V output types.



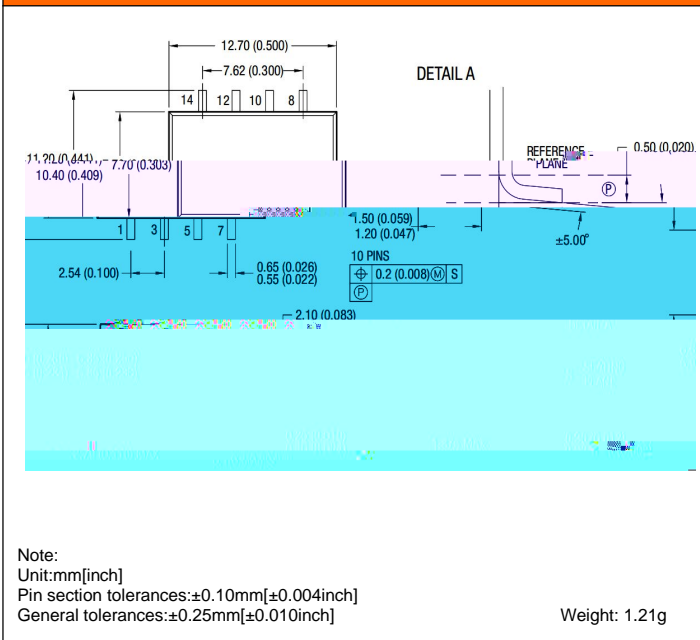
All other types.



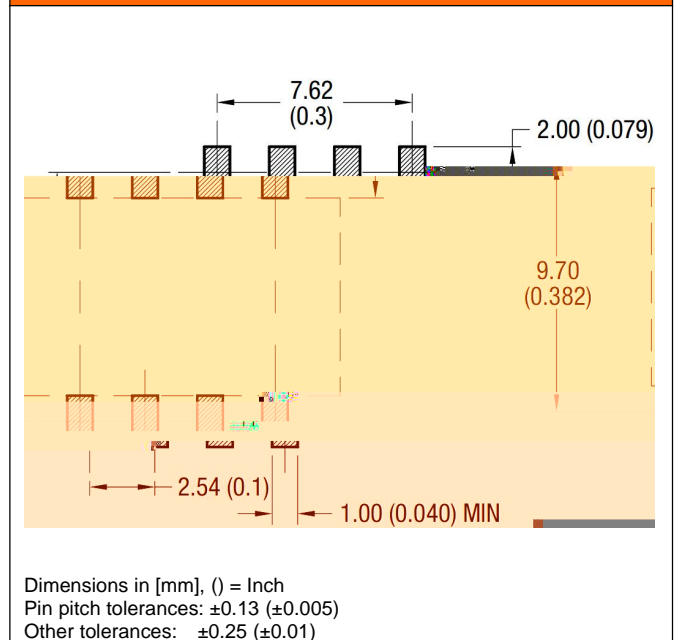
The voltage tolerance envelope shows typical load regulation characteristics for this product series. The tolerance envelope is the maximum output voltage variation due to changes in output loading.

OUTLINE DIMENSIONS & FOOTPRINT DETAILS

MECHANICAL DIMENSIONS



SOLDER PAD DIMENSION

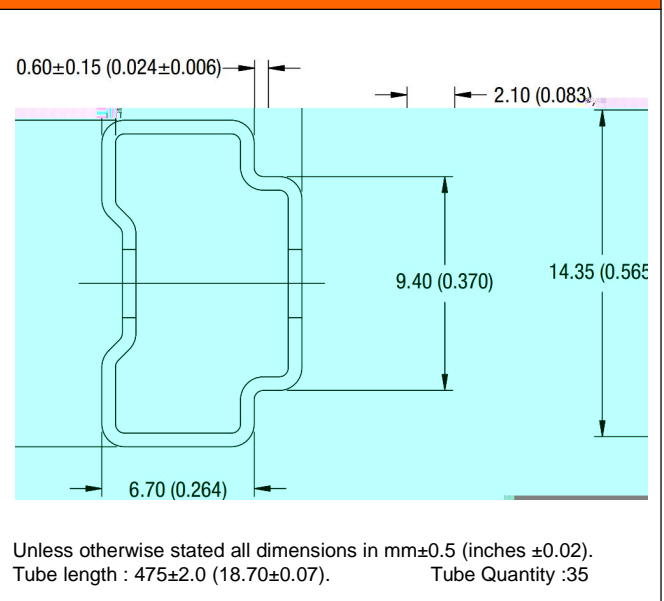


FOOTPRINT DETAILS

Pin	Single
1	-Vin
3	+Vin
5	NA
7	-Vout
8	+Vout
10	NA
12	NA
14	NA

NA - Not available for electrical connection.

TUBE OUTLINE DIMENSIONS



Specifications can be changed any time without notice.

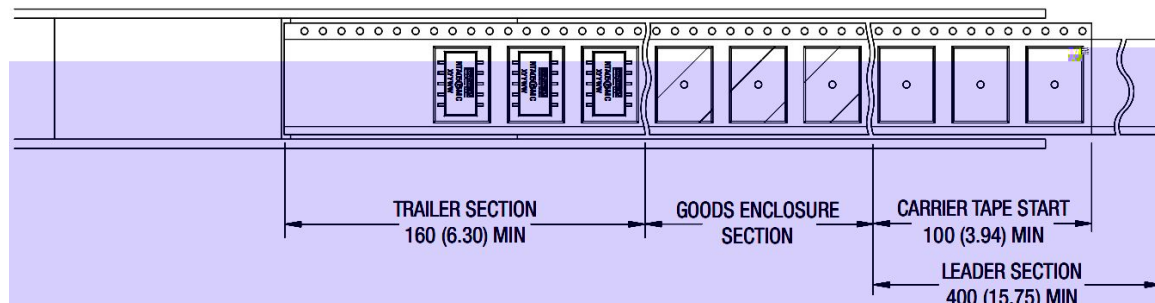
No parallel connection or plug and play.

Note:

1. The load shouldn't be less than 10%, otherwise ripple will increase dramatically.
2. Operation under 10% load will not damage the converter; However, they may not meet all specification listed.
3. All specifications measured at Ta=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
4. In this datasheet, all the test methods of indications are based on corporate standards.
5. Only typical models listed, other models may be different, please contact our technical person for more details.

Tape & Reel Specifications

Reel Packaging Details

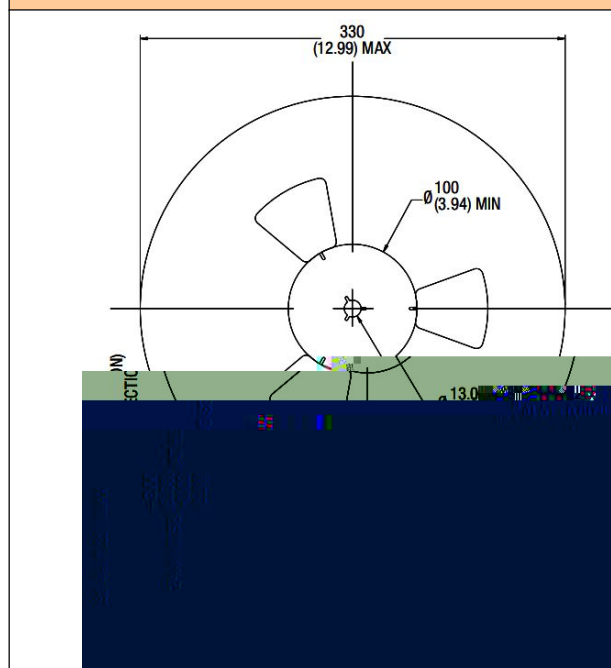


Product Orientation

Pin 1, located nearest to carrier drive sprocket.

Reel Quantity : 500

Reel Outline Dimensions



Tape Outline Dimensions

