DBZ_XTP2 Series

0.25W, FIXED INPUT, ISOLATED & UNREGULATED SINGLE OUTPUT

PART NUMBER SYSTEM

DBZ-0505-XTP2

- Rated Power
- Package Style
- Output Voltage
- Input Voltage
- Product Series

FEATURES

- 1500VDC isolation
- Efficiency up to 80%
- Operating temperature range: -40℃~+105℃
- Ultra-Low ripple & noise:10&20 mVp-p
- Miniature SMD package
- Internal SMD construction
- Industry standard pinout
- continuous short circuit protection

APPLICATIONS

The DBZ_XTP2 Series are designed for application where isolated output is required from a distributed power system.

These products apply to where:

1. Input voltage variation ≤ ±10%;
2. 1.5KVDC input and output isolation;
3. Low ripple noise is not required.

Such as:digital circuits, low frequency analog circuits, and IGBT power device driving circuits.

SELECTION GUIDE

Model	Input Voltage(VDC) Nominal (Range)	Output Voltage (VDC)	Output Current (mA) Max.	Output Current (mA) Min.	Input Current (mA)(Typ.) @Max. Load	Input Current (mA)(Typ.) @No Load	Reflected Ripple Current (mA,Typ.)	Max. Capacitive Load(μF)	Efficiency (%, Typ.) @Max. Load	Approval
DBZ-0505-XTP2	5(4.5-5.5)	5	50	5	70	15	20	220	80	
DBZ-1205-XTP2	12(10.8-13.2)	5	50	5	40	10	5		80	
DBZ-1212-XTP2		12	21	2	40				80	

INPUT SPECIFICATIONS

Item	Test Conditions	Min.	Typ.	Max.	Unit
Input Surge Voltage (1 Sec. Max.)	5VDC Input	-0.7	--	9	VDC
	12VDC Input	-0.7	--	18	
Input Filter		Capacitance Filter			

OUTPUT SPECIFICATIONS

Item	Test Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy			See tolerance envelope curve			
Line Regulation	For Vin change of±1%		--	--	±1.2	%
Load Regulation	10% to 100% load	5V output	--	12	15	
		12V output	--	7	10	
Temperature Drift	100% load		--	--	±0.03	%/°C
Ripple & Noise*	20MHz Bandwidth		--	10&20	--	mVp-p
Short Circuit Protection			Continuous, automatic recovery			

Note:* Ripple and noise tested with “parallel cable” method. See detailed operation instructions at *DC-DC application notes*.

COMMON SPECIFICATIONS

Item	Test Conditions	Min.	Typ.	Max.	Unit
Isolation Voltage	Input-Output, tested for 1 minute and leakage current less than 1 mA	1500	--	--	VDC
Isolation Resistance	Input-Output, test at 500VDC	1000	--	--	MΩ
Isolation Capacitance	Input-Output,100KHz/0.1V	--	20	--	pF
Switching Frequency	100%load,nominal input	--		300	KHz
MTBF	MIL-HDBK-217F@25℃	3500	--	--	K hours
Case Material		Epoxy Resin (UL94-V0)			
Weight		--	1.5	--	g

ENVIRONMENTAL SPECIFICATIONS

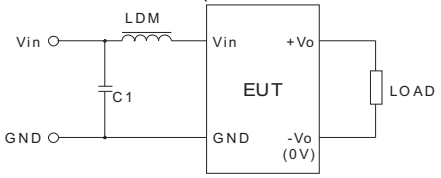
Item	Test Conditions	Min.	Typ.	Max.	Unit
Storage Humidity	Non condensing	--	--	95	%
Operating Temperature	Power derating (above100℃)	-40	--	105	℃
Storage Temperature Coefficient		-55	--	125	
Temp. rise at full load	Ta=25°C	--	15	--	
Soldering Temperature	1.5mm from case for 10 seconds	--	--	300	
Cooling		Free air convection			

EMC SPECIFICATIONS

EMI	CE	CISPR22/EN55022 CLASS B（Typical Recommended Circuit to Figure1）
	RE	CISPR22/EN55022 CLASS B（Typical Recommended Circuit to Figure1）
EMS	ESD	IEC/EN61000-4-2 Contact ±8KV perf. Criteria B

EMI RECOMMENDED CIRCUIT

EMI Typical Recommended Circuit(CLASS B）:



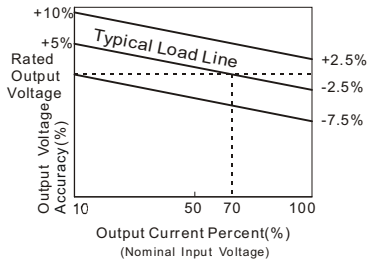
(Figure1)

Recommended external circuit parameters:

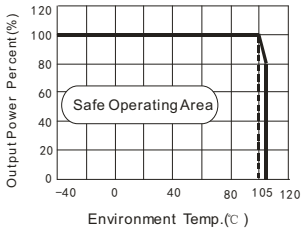
Vin(V)		5	12
EMI	C1	4.7μF /50V	
	LDM	6.8μH	

PRODUCT TYPICAL CURVE

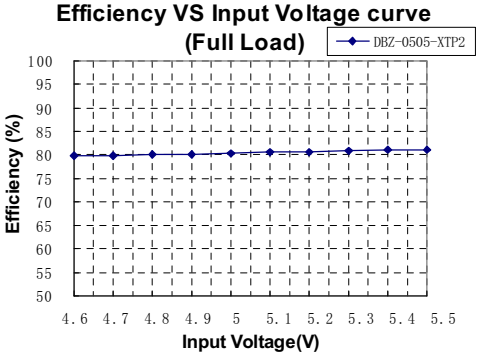
Tolerance Envelope Curve



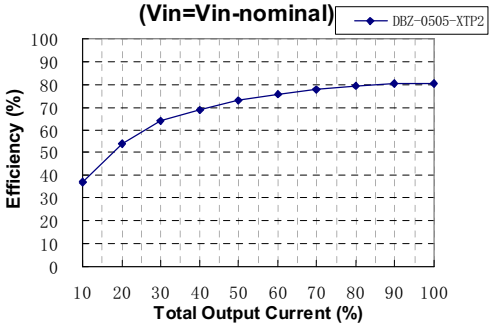
Temperature DeratingGraph



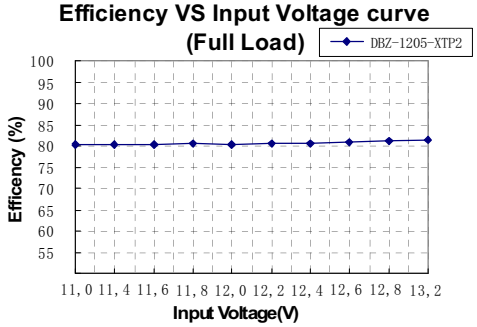
Efficiency VS Input Voltage curve (Full Load)



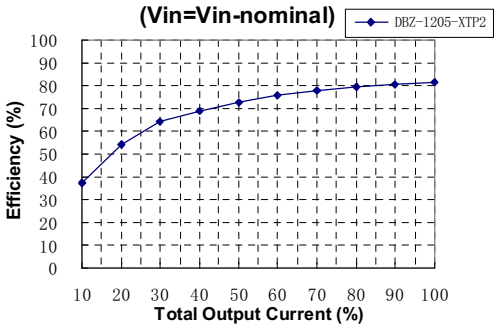
Efficiency VS Output Load curve (Vin=Vin-nominal)



Efficiency VS Input Voltage curve (Full Load)

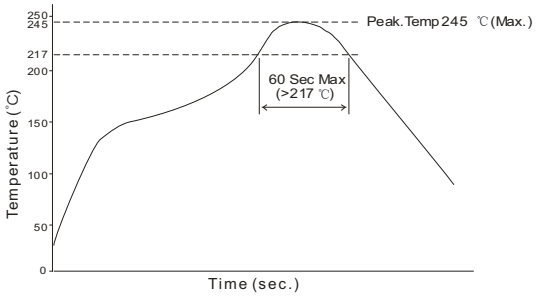


Efficiency VS Output Load curve (Vin=Vin-nominal)



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@zimtec-electronics.de

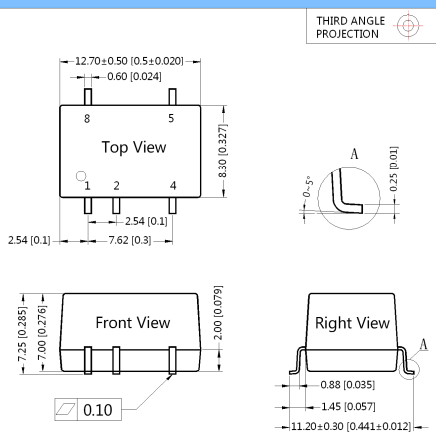
Recommended reflow soldering profile refer to IPC/JEDEC J-STD-020D standard, our products recommend reflow soldering profile as follows:



Note: The curve applies only to the hot air reflow soldering

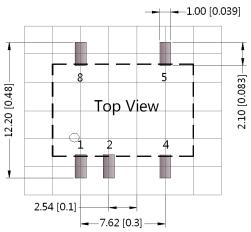
OUTLINE DIMENSIONS, RECOMMENDED FOOTPRINT & PACKAGING

MECHANICAL DIMENSIONS



Note:
Unit: mm[inch]
Pin section tolerances: ± 0.10mm[± 0.004inch]
General tolerances: ± 0.25mm[± 0.010inch]

RECOMMENDED FOOTPRINT DETAILS

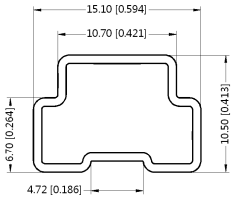


Note : Grid 2.54*2.54mm

PIN CONNECTION	
Pin	Function
1	GND
2	Vin
4	0V
5	+Vo
8	NC

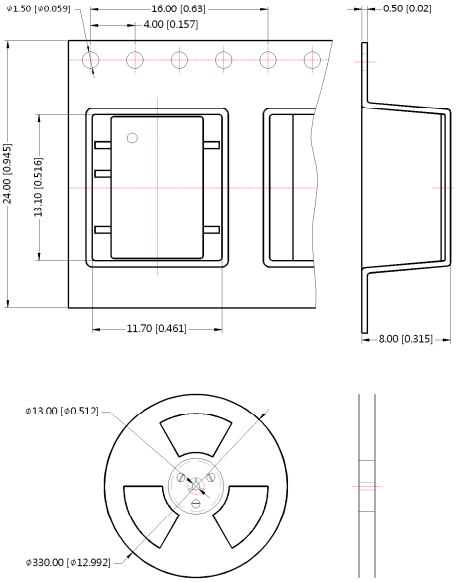
NC:No Connection

TUBE PACKAGING DIMENSIONS



Note:
Unit: mm[inch]
General tolerances:±0.50mm[±0.020inch]
L=530mm[20.866inch] Quantity:40pcs;
L=220mm[8.661inch] Quantity:15pcs;
Inner carton(S):L*W*H=255*170*80mm;
Outer carton(S):L*W*H=375*280*270mm;
Inner carton(L):L*W*H=580*200*100mm;
Outer carton(L): L*W*H=600*215*220mm,2 inner cartons(L);
Outer carton(L): L*W*H=600*215*325mm,3 inner cartons(L).

REEL PACKAGING DIMENSIONS



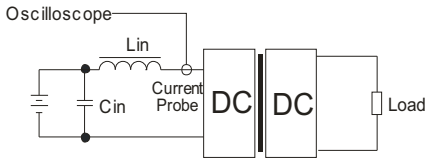
Note:
Unit: mm[inch]
General tolerances:±0.50mm[±0.020inch]
Per reel of packing quantity:500pcs;
Inner carton:L*W*H=365*350*105mm
Quantity:2000pcs;
Outer carton:L*W*H=390*360*245 mm
Quantity:4000pcs.

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@zimtec-electronics.de

TEST CONFIGURATIONS

Input Reflected-Ripple Current Test Setup

Input reflected-ripple current is measured with an inductor Lin and Capacitor Cin to simulate source impedance.



Lin(4.7μH) Cin(220μF, ESR < 1.0Ω at 100 KHz)

DESIGN CONSIDERATIONS

1) Requirement on output load

To ensure this module can operate efficiently and reliably, During operation, the minimum output load ***could not be less than 10% of the full load***. If the actual output power is very small, please connect a resistor with proper resistance at the output end in parallel to increase the load.

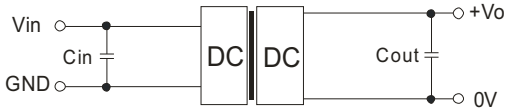
2) Overload Protection

Under normal operating conditions, the output circuit of these products has no protection against overload. The simplest method is to add a circuit breaker to the circuit.

3) Recommended circuit

If you want to further decrease the input/output ripple, an capacitor filtering network may be connected to the input and output ends of the DC/DC converter, see (Figure 2).

It should also be noted that the capacitance of filter capacitor must be proper. If the capacitance is too big, a startup problem might arise. For every channel of output, provided the safe and reliable operation is ensured, the recommended capacitance of its filter capacitor sees (Table 1).



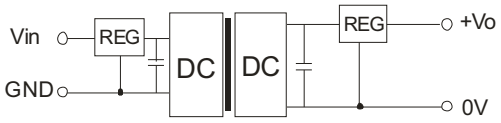
(Figure 2)

EXTERNAL CAPACITOR TABLE (Table 1)

Vin (VDC)	Cin (μF)	Vo (VDC)	Cout (μF)
5	4.7	5	10
12	2.2	12	2.2

4) Output Voltage Regulation and Over-voltage Protection Circuit

The simplest device for output voltage regulation, over-voltage and over-current protection is a linear regulator and an capacitor filtering network with overheat protection that is connected to the input or output end in series (Figure 3), the recommended capacitance of its filter capacitor sees (Table 1), linear regulator based on the actual voltage and current to reasonable selection.



(Figure 3)

5) It is not recommended to increase the output power capability by connecting two or more converters in parallel. The product is not hot-swappable

Note:

1. Operation under minimum load will not damage the converter; However, they may not meet all specifications.
2. Max. Capacitive Load is tested at nominal input voltage and full load.
3. Unless otherwise noted, All specifications are measured at Ta=25°C, humidity<75%, nominal input voltage and rated output load.
4. In this datasheet, all test methods are based on our corporate standards.
5. All characteristics are for listed models, and non-standard models may perform differently.Please contact our technical support for more detail.
6. Please contact our technical support for any specific requirement.
7. Specifications of this product are subject to changes without prior notice.

ZimTec Electronics GmbH
Kirchstraße 5-6, 39606 Osterburg, Germany
E-mail : info@zimtec-electronics.de Web : www.zimtec-electronics.de