

BSTSA28S12

DC/DC Converter

Data Sheet v.1.0

I. Product Features

BSTSA28S12 DC/DC converter is an isolated output DC/DC converter. This product has a single output, stable parameters, and good consistency. It has a fully sealed metal casing, making it robust and highly reliable.

II. Product Performance Indicators

Table 1

CHARACTERISTIC	SYMBOL	CONDITION (UNLESS OTHERWISE SPECIFIED) -55°C ≤ T _c ≤ 125°C V _I = 28V ± 0.5V, C _L = 0.1μF)	GROUP A GROUPING	LIMIT VALUE		UNIT
				MINIMUM	MAXIMUM	
Output voltage	V _O	I _O = 500mA	1	11.88	12.12	V
			2, 3	11.82	12.18	
Output current	I _O	V _I = 15V ~ 50V	1,2,3	-	500	mA
Output ripple voltage (Peak-to-peak value)	V _{RIP}	BW ≤ 20MHz, I _O = 500mA	1,2,3	-	60	mV
Voltage regulation	S _V	V _I = 15V → 50V, I _O = 500mA	1,2,3	-	20	mV
Current regulation	S _I	I _O = 0mA → 500mA	1,2,3	-	50	mV
Input current	I _I	No load, prohibit the connection of the terminal to the input ground terminal.	1,2,3	-	6	mA
		No load, no open circuit allowed	1,2,3	-	60	
Input ripple current (Peak-to-peak value)	I _{RIP}	BW ≤ 20MHz, I _O = 500mA	1,2,3	-	50	mA
Efficiency	η	I _O = 500mA	1,2,3	71	-	%
Insulation resistance	R _I	DC between the input/output terminals or between any of the leads (except for the 8-terminal terminal) and the casing. T _A = 25°C	1	100	-	MΩ
Short-circuit power consumption	P _D	Output short circuit	1,2,3	-	3	W
capacitive load ^a	C _L	Full load, T _A = 25°C	4	-	500	μF
Switching frequency	f _e	I _O = 500mA	4,5,6	350	500	kHz

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				MINIMUM	MAXIMUM	
Output voltage change (peak value) during load transients ^{bc}	V _{LOR}	50% load → Full load or Full load → 50% load	4,5,6	-700	700	mV
Recovery time of output voltage during load transients ^{bcd}	t _{LOR}	50% load → Full load or Full load → 50% load	4,5,6	-	400	μs
Output voltage change (peak value) during input voltage transients ^{be}	V _{VOR}	Input voltage V _I : 16V → 40V, I _O = 500mA	4,5,6	-1200	1200	mV
Output voltage recovery time during input voltage transient ^{bde}	t _{VOR}	Input voltage V _I : 16V → 40V, I _O = 500mA	4,5,6	-	600	μs
Start-up voltage	V _{on}	I _O = 500mA	1,2,3	12	14.8	V
Turn-off voltage ^b	V _{off}	I _O = 500mA	1,2,3	11	14.5	V
Start-up overshoot (peak value)	V _{TO}	Input voltage V _I : 0V → 28V, I _O = 500mA	4,5,6	-	50	mV
Startup delay ^f	t _{TR}	Input voltage V _I : 0V → 28V, I _O = 500mA	4,5,6	-	20	ms

a. Capacitive load can be any value from 0 to the maximum limit, without affecting DC parameters;
b. This parameter is guaranteed by design and is only tested during the initial quality conformity inspection and design or process changes.
c. The jump time of the load should be greater than 10μs;
The recovery time refers to the time from the start of the jump until the output voltage returns to within ±1% of the corresponding stable value;
The jump time of the input voltage should be greater than 10μs;
The start-up delay time can be calculated either from the power supply transition or from when the grounded prohibition terminal is disconnected.

III. Shape and Dimensions

The outer casing shape should conform to the specifications in Figure 1.

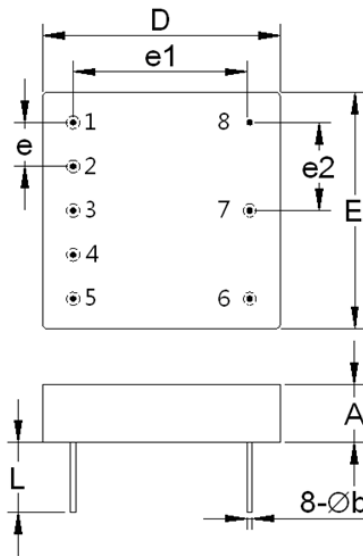


Figure 1. External dimensions

Table 2

The unit is millimeters.

RULER INCH TALISMAN NUMBER	NUMERICAL VALUES		
	MINIMUM	NOMINAL	MAXIMUM
A	-	-	6.86
ϕb	0.54	-	0.74
D	-	-	27.31
E	-	-	27.31
e	-	5.08	-
e ₁	-	20.32	-
e ₂	-	10.16	-
L	4.91	-	5.51

Notes:
 1. Unspecified tolerances shall be in accordance with GB/T Execution at level m in 1804-2000;
 2. The interchangeability of e, e₁, and e₂ dimensions is guaranteed by the housing manufacturing process and is not subject to assessment requirements in this specification.

IV. Functional Description of Lead-Out Pins

The arrangement of the leads should conform to the specifications in Figure 2.

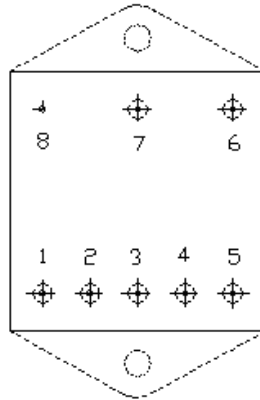


Figure 2. Arrangement of lead-out ends (top view)

Table 3

Lead-out serial number	symbol	Function	Lead-out serial number	symbol	Function
1	V_o	Positive output	5	INH	Inhibit
2	GND_o	Output common	6	IN	Positive input
3	NC	Empty end	7	GND_i	Input common
4	NC	Empty end	8	GND_c	Case

V. Test Schematic Diagram

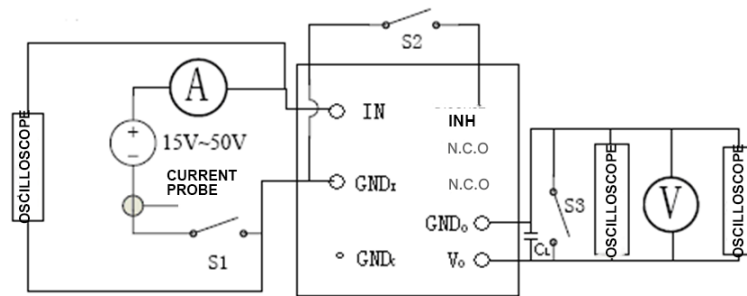


Figure 3

The DC power supply provides an input voltage of 15V to 50V. An ammeter measures its input voltage I_i , and a voltmeter measures its output voltage V_o . An electronic load provides a 0.5A output current load. An oscilloscope measures the output ripple voltage. To avoid interference, the ripple voltage should be measured using a proximity method whenever possible.

VI. Application

Power the corresponding modules in the system.

VII. Precautions

The following are precautions for hybrid circuits.

- Prevent the circuit from being bumped;
- Protect the glass insulators of the pins, and prevent bending or bumping the pins.