



8 WATT SINGLE & DUAL OUTPUT

Regulated, 24 Pin
DIP Package

Isolated, 4:1 Input

DC/DC Converters

FEATURES

4:1 Ultra Wide Input
Voltage Range

Up to 88% Typical
Efficiency

Standard Package
1.25" X 0.80" X 0.40"

-40°C to +81°C
Operating Temperature
No Derating

1600 Vdc Min.
Input/Output Isolation

5-Sided EMI Shield

UL 60950-1, EN60950-1,
IEC 60950-1

Compliant to RoHS
Eu Directive

TWB8 Series

Specifications

All specifications are typical at nominal input, full load and 25°C, unless otherwise noted.

INPUT SPECIFICATIONS

Input voltage range	24V nominal input	9-36VDC
	48V nominal input	18-75VDC
Input filter		Pi type
Input surge voltage	24V input	50VDC 100mS max
	48V input	100VDC
Input reflected ripple current	Nominal Vin and full load	20mA p-p
Start up time	Nominal Vin and Power up	450mS, typ.
	constant resistive load	
Start-up voltage	24V input	9VDC
	48V input	18VDC
Shutdown Voltage	24V input	8VDC
	48V input	16VDC

OUTPUT SPECIFICATIONS

Output power		8 Watts, max
Voltage accuracy	Full load and nominal Vin	±1%
Minimum load		0%
Line regulation	LL to HL at Full Load	±0.2%
	Single (DIP)	±0.5%
Load regulation	No Load to Full Load Single (SMD)	±1%
	Dual (SMD, DIP)	±1%
Cross regulation (Dual)	Asymmetrical load 25%/100% FL	±5%
Ripple and noise	20MHz bandwidth	50mVDC
Temperature coefficient	±0.02%/°C, max	
Transient response recovery time	25% load step change	250µS
	3.3Voutput	3.9VDC
	5.0Voutput	6.2VDC
Over voltage protection	12Voutput	15VDC
(only single)	15V output	18V DC
Over load protection	% of FL at nominal input	150% typ.
Short circuit protection		Continuous, automatic recovery

Remote ON/OFF (Note 6)

DC-DC ON	Open or 3.0V<Vr<12V
DC-DC OFF	Short or 0V<Vr<1.2V
Input current of Remote control pin	Nominal Vin
Remote off state input current	Nominal Vin
	2.5mA

GENERAL SPECIFICATIONS

Efficiency		See table
Isolation voltage	Input to Output	1600VDC, min
	Input (Output) to Case DIP	1600VDC, min
	SMD	1000VDC, min
Isolation resistance		10 ⁹ ohms, min
Isolation capacitance		1500pF, max.
Switching frequency		300KHz, typ.
Approvals and standard		IEC60950-1, UL60950-1 EN60950-1
Case material		Nickel-coated copper
Base material		Non-conductive black plastic
Potting material		Epoxy (UL-94-V0)
Dimensions		1.25 x 0.80 x 0.40 inch (31.8 x 20.3 x 10.2mm)
Weight		18g (0.620z)
MTBF (Note 1)	BELLCORE-TR-NWT-000332	2.350 x 10 ⁸ hrs.
	MIL-HDBK-217F	1.078 x 10 ⁸ hrs.

ENVIRONMENTAL SPECIFICATIONS

Operating ambient temperature	V _o :5V, 12V, 15V	-40°C to +81°C (without derating)
	+/-12V, ±15V	+81°C to +105°C (with derating)
	V _o :3.3V ±5V	-40°C to +74°C (without derating)
		+74°C TO +105°C (with derating)
Maximum case temperature		+105°C
Storage temperature range		-55°C to +125°C
Thermal impedance	Nature convection	20°C/Watt
Thermal shock		MIL-STD-810F
Vibration		MIL-STD-810F
Relative humidity		5% to 95%RH

EMC CHARACTERISTICS

EMI (Note 7)	EN55022	Class A
ESD	EN61000-4-2	Air ±8KV
		Contact ±6KV
Radiated immunity	EN61000-4-3 10V/m	Perf. Criteria B
Fast transient (Note 8)	EN61000-4-4 ±2KV	Perf. Criteria A
Surge (Note 8)	EN61000-4-5 ±1KV	Perf. Criteria A
Conducted immunity	EN61000-4-6 10 Vr.m.s	Perf. Criteria A

Selection Guide

(Continued)

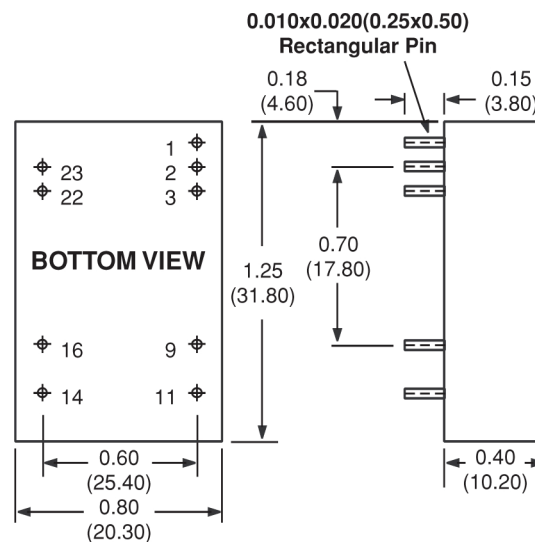
	Input Voltage Nominal (Range) (Vdc)	Output Voltage (Vdc)	Output Current (mA)	Input Current		Efficiency %	Model Number	Capacitor Load Max
				No load (mA)	Full load (mA)			
SINGLE OUTPUT VOLTAGE	12 (9-36)	3.3	2000	40	407	80	TWB8-12S3.3	1330
		5	1500	40	402	82	TWB8-12S5	1330
		12	666	25	407	83	TWB8-12S12	288
		15	533	25	407	83	TWB8-12S15	200
	48 (18-75)	3.3	2000	20	204	81	TWB8-48S3.3	1330
		5	1500	20	201	83	TWB8-48S5	1330
		12	666	13	201	84	TWB8-48S12	288
		15	533	13	198	84	TWB8-48S15	200
DUAL OUTPUT VOLTAGE	12 (9-36)	±5	±800	20	417	83	TWB8-12-5	±900
		±12	±333	25	407	84	TWB8-12-12	±133
		±15	±267	25	407	84	TWB8-12-15	±90
	48 (18-75)	±5	±800	10	208	84	TWB8-12-5	±900
		±12	±333	13	201	85	TWB8-12-12	±133
		±15	±267	13	201	85	TWB8-12-15	±90

NOTES:

1. Bellcore TR-NWT-00032, Case: 1 : 50% Stress, Temperature at 40°C. MIL-STD-217F Notice 2 @ Ta = 25°C, Full load (Ground, Benign, controlled environment).
2. Maximum value at normal input voltage and full load.
3. Typical value at nominal input voltage and no load.
4. Typical value at nominal input voltage and full load.
5. Test by minimum Vin and constant resistive load.
6. The ON/OFF control pin voltage is referenced to-Vin.
7. The TWB8 series can meet EN55022 Class A with parallel an external capacitor to the input pins. Recommend: 24 Vin : C1=1µF/50V 1210 MLCC. 48 Vin : C1=0.47µF/100V 1812 MLCC.
8. An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5. The filter capacitor Polytron Devices suggest: Nippon chemi-con KY series, 220µ F/100V, ESRΩ

Mechanical Specifications

PIN CONNECTION		
PIN	SINGLE	DUAL
1	ON/OFF	ON/OFF
2	-Vin	-Vin
3	-Vin	-Vin
9	N/C	COMMON
11	N/C	-Vout
14	+Vout	+Vout
16	-Vout	COMMON
22	+Vin	+Vin
23	+Vin	+Vin



All Dimensions are in inches (mm)



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