30 WATT
SINGLE AND DUAL OUTPUT

Ultra Wide Input Voltage (4:1)

FEATURES

- Single and Dual Output: 1.5, 2.5, 3.3, 5.0, 5.1, 12, 15, +/-5, +/-12, +/-15Vdc Out.
- UL 60950-1, EN-60950-1, IEC 60950-1
- -40°C to +85°C Operating Temperature Range (with derating)
- Low Profile Package (1" X 2.0" X 0.4")
- Input/Output Isolation (1600Vdc Min.)
- High Efficiency to 91% @ FL
- Six-sided continuous metal shielding
- Epoxy Encapsulated
- RoHS Compliant

LWB30 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		L-C type
Input surge voltage	24Vinput	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	30mS, typ.
	constant resistive load Remote ONIOFF	30mS typ.
Start-up voltage	24V input 9VDC	48V input 18VDC
Shutdown Voltage	24V input 8VDC	48V input 16VDC
Remote ON/OFF (Note 6)		
(Positive logic)	(Standard) DC-DC ON	Open or 3V<Vr<12V
	DC-DC OFF	Short or OV<Vr<l.2v
(Negative logic)	(Option) DC-DC ON	Short or OV<Vr<l.2V
	DC-DC OFF	Open or3V<Vr<12V
Input current of remote control	pin Nominal Vin	-0.5mA to +0.5mA
Remote off state input current	Nominal Vin	3mA

OUTPUT SPECIFICATIONS

Output power		30 Watts, max.
Voltage accuracy	Full load and nominal Vin	±l%
Minimum load		See Table
Voltage adjustability		±10%
Line regulation	LL to HL at Full Load	±0.5%
	Single	±0.5%
Load regulation	No Load to Full Load Dual	±l%
Cross regulation	(Dual) Asymmetrical load 25%/100% FL	±5%
Ripple and noise	20MHz bandwidth	See table
	(Measured with a 0.1/IF/50V MLCC)	
Temperature coefficient		±0.02%/ °C, max
Transient response recovery time	25% load step change	250µS
	1.5Voutput 3.9	VDC
Over voltage protection	1.8Voutput	3.9VDC
Zener diode clamp	2.5Voutput	3.9VDC
	3.3Voutput	3.9VDC
	5Voutput	6.2VDC
	12Voutput	15VDC
	15Voutput	18VDC
Over load protection	% of FL at nominal input	150% max
Short circuit protection		Hiccup, automatic recovery

GENERAL SPECIFICATIONS

Efficiency		See table
	Input to Output	1600VDC, min
Isolation voltage	Input (Output) to Case	1600VDC ,min
Isolation resistance		10^9 ohms, min
Isolation capacitance		1000pF, max.
Switching frequency		300KHz. typ.
Approvals and standards		IEC60950-1, UL60950-1 EN60950-1
Case material		Nickel-coated copper
Base material		FR4 PCB
Potting material		epoxy (UL94-YO)
Dimensions	2.00 x 1.00 x 0.40 Inch	(50.8 x 25.4 x 10.2mm)
Weight		30.5g (1.07 oz.)
BELI,CORE-TR-NWT-000332		$3.163x10^6$ hrs.
MTBF (Note I) MIL-HDBK-217F		$4.347x10^5$ hrs.

ENVIRONMENTAL SPECIFICATIONS

Operating ambient temperature		-40°C to +85°C (with derating)
Over temperature protection		115°C, typ.
Maximum case temperature		100°C
Storage temperature range		-55°C to + 105°C
Thermal impedance (Note 7)	Nature convection	10°C/Watt
	Nature convection with heat -sink	8.24°C/Watt
Thermal shock M1L-STD-810F Vibration		MIL-STD-810F
Relative humidity		5% to 95% RH

EMC CHARACTERISTICS

EMI (Note 8)	EN55022		Class A
ESD	EN61000-4-2 Air	±8KV	
	°Contact =6KV Perf.		Criteria B
Radiated immunity	EN6 I000-4-3	IOV/rn Perf.	Criteria A
Fasttransicnt(Note 9)	EN61000-4-4	±2KV Perf.	Criteria A
Surge (Note 9)	EN61000-4-5	±IKV Perf.	Criteria B
Conducted immunity	EN61000-4-6	10 Vr.m.s Perf.	Criteria A

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Selection Guide *(Continued)*

Model Number	Input Range (VDC)	Output Voltage (VDC)	Output Current Min. Load (mA)	Output Current Full Load (mA)	Output Ripple & Noise (mVp-p)	Input Current No Load (3) (mA)	Input Current Full Load (2) (mA)	Efficiency(4) %	Capacitor(5) Load Max
LWB30-24S1.5	9 – 36	1.5	0	8500	100	70	700	80	20000μF
LWB30-24S2.5	9 – 36	2.5	0	8000	100	70	1054	83	20000μF
LWB30-24S3.3	9 – 36	3.3	0	7500	100	70	1258	86	20000μF
LWB30-24S5	9 – 36	5.0	0	6000	100	105	1488	88	14400μF
LWB30-24S5.1	9 – 36	5.1	0	6000	100	105	1517	88	14400μF
LWB30-24S12	9 – 36	12	0	2500	150	20	1471	89	3000μF
LWB30-24S15	9 – 36	15	0	2000	150	30	1471	89	2000μF
LWB30-48S1.5	18 – 75	1.5	0	8500	100	30	350	80	20000μF
LWB30-48S2.5	18 – 75	2.5	0	8000	100	45	520	84	20000μF
LWB30-48S3.3	18 – 75	3.3	0	7500	100	45	629	86	20000μF
LWB30-48S5	18 – 75	5.0	0	6000	100	65	744	88	14400μF
LWB30-48S5.1	18 – 75	5.1	0	6000	100	65	759	88	14400μF
LWB30-48S12	18 – 75	12	0	2500	150	60	727	90	3000μF
LWB30-48S15	18 – 75	15	0	2000	150	50	718	91	2000μF
LWB30-24-5	9 – 36	±5	0	±3000	100	90	1488	88	±3000μF
LWB30-24-12	9 – 36	±12	0	±1250	150	25	1506	87	±2000μF
LWB30-24-15	9 – 36	±15	0	±1000	150	25	1506	87	±1300μF
LWB30-48-5	18 – 75	±5	0	±3000	100	50	744	88	±3000μF
LWB30-48-12	18 – 75	±12	0	±1250	150	15	744	88	±2000μF
LWB30-48-15	18 – 75	±15	0	±1000	150	15	744	88	±1300μF

NOTES:

1. Bellcore TR-NWT-000332, Case1: 50% Stress, Temperature at 40°C. (Ground, fixed and controlled environment)
   MIL-STD-217F Notice 2 @ Ta = 25°C, Full load (Ground, Benign, controlled environment).
2. Maximum value at normal input voltage.
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 -Input.
7. Heat sink is optional and P/N: 7G-0020C-F
8. The LWB30 series can meet EN55022 Class A with parallel an external capacitor to the input pins.
   Recommend: 24 Vin : 4.7μF/50V X7R 1812 MLCC
   48 Vin : 2.2μF/100V X7R 1812 MLCC.
9. 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: 24Vin Nippon chemi-con KY series, 330μ F/50V, ESR55mΩ
   48Vin Nippon chemi-con KY series, 220μ F/100V, ESR48mΩ

Mechanical Specifications

PIN CONNECTION		
PIN	SINGLE	DUAL
1	+INPUT	+INPUT
2	–INPUT	–INPUT
3	CTRL	CTRL
4	+OUTPUT	+OUTPUT
5	–OUTPUT	–OUTPUT
6	TRIM	–OUTPUT