



20 WATT SINGLE OUTPUT

1" x 2" x 0.40" Package

Isolated, Wide Input (4:1)

DC/DC Converters

FEATURES

- 20 Watts Output Power
- 1.5V, 1.8V, 2.5V, 3.3V, 5V, 12V, 15Vdc Output
- UL & CE Approved
- -40°C to +85°C Operating Temp. Range (with derating)
- Low Profile Package (1.0" x 2.0" x 0.4")
- Input/Output Isolation (1500Vdc min.)
- High Efficiency to 89% @ FL
- Short Circuit & Over-Voltage Protection
- 6-Sided Continuous Metal Shielding
- Epoxy Encapsulated

LWB20 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	20mAp-p
Start up time	Nominal Vin and Power up	20mS typ.
	constant resistive load	Remote ON/OFF 20mS, typ.
Start-up voltage	.24V input	9VDC
	48V input	18VDC
Shutdown Voltage	.24V input	7.5VDC
	48V input	15VDC
Remote ON/OFF (Note 6)		
(Positive logic) (Standard)	DC-DC ON	Open or 3V<Vr<12V
	DC-DC OFF	Short or 0V<Vr<1.2V
(Negative logic) (Option)	DC-DC ON	Short or 0V<Vr<1.2V
	DC-DC OFF	Open or 3V<Vr<12V
Input current of remote control pin	Nominal Vin	-0.5mA - +0.5mA
Remote off state input current	Nominal Vin	2.5mA

OUTPUT SPECIFICATIONS

Output power		20 Watts, max.
Voltage accuracy	Full load and nominal Vin	±1%
Minimum load		0%
Voltage adjustability	Single output	±10%
Line regulation	LL to HL at Full Load Single	±0.2%
	Dual	±0.5%
Load regulation	No Load to Full Load Single	±0.5%
	Dual	±1%
Cross regulation (Dual)	Asymmetrical load 25%/100% FL	±5%
Ripple and noise	20MHz bandwidth	See table
	(Measured with a 0.1µF/50V MLCC)	
Temperature coefficient		±0.02%/°C, max
Transient response recovery time	25% load step change	250µS
	3.3V output	3.9VDC
Over voltage protection	5V output	6.2VDC
Zener diode clamp	12V output	15VDC
	15V output	18VDC
Over load protection	% of FL at nominal input	150% typ.
Short circuit protection		Hiccup, automatic recovery

GENERAL SPECIFICATIONS

Efficiency		See table
	Input to Output	1600VDC, min
Isolation voltage	Input (Output) to Case	1600VDC, min
Case grounding	Connect case to -Vin	with decoupling y Cap
Isolation resistance		10 to the nine ohms, min
Isolation capacitance		1500pF, max.
Switching frequency		400KHz. typ.
Approvals and standard		IEC60950-1, UL60950-1 EN60950-1
Case material		Nickel-coated copper
Base material		FR4 PCB
Potting material		Epoxy (UL94-VO)
Dimensions	2.00x1.00x0.40Inch	(50.8x25.4x10.2mm)
Weight		27g (0.95oz)
	BELLCORE-TR-NWT-000332	1.620x 10 ⁶ hrs.
MTBF (Note 1)	MIL-HDBK-217F	6.590x10 ⁵ hrs.

ENVIRONMENTAL SPECIFICATIONS

Operating ambient temperature		-40°C to +66°C (without derating)
		+66°C TO +105°C (with derating)
Maximum case temperature		+105°C
Storage temperature range		-55°C to + 125°C
Thermal impedance (Note 7)	Nature convection	12°C/Watt
	Nature convection with heat -sink	10°C/Watt
Thermal shock		MIL-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	EN61000-4-3	10V/m Perf. Criteria A
Fast transient (Note 9)	EN61000-4-4	±2KV Perf. Criteria B
Surge (Note 9)	EN61000-4-5	±1KV Perf. Criteria A
Conducted immunity	EN61000-4-6	10 Vr.m.s Perf. Criteria A

Selection Guide

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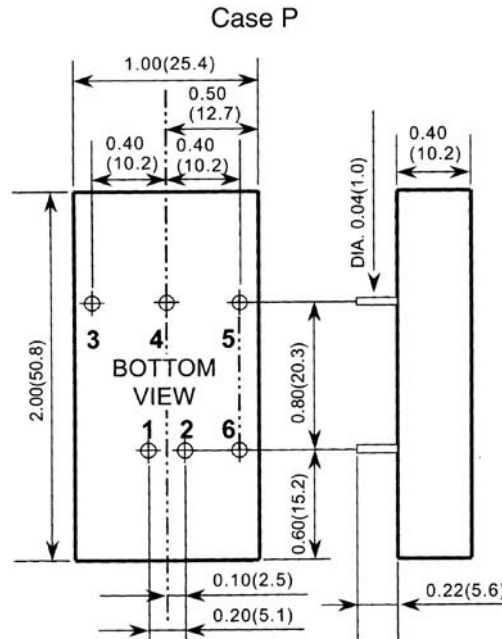
Model Number	Input Range (VDC)	Output Voltage (VDC)	Output Current		Output Ripple & Noise (mVp-p)	Input Current		Efficiency(4) %	Capacitor(5) Load Max
			Min. Load (mA)	Full Load (mA)		No Load (3) (mA)	Full Load (2) (mA)		
LWB20-24S33	9 – 36	3.3	0	5500	60	50	934	85	18000µF
LWB20-24S5	9 – 36	5	0	4000	75	65	992	88	9600µF
LWB20-24S12	9 – 36	12	0	1670	75	22	1018	86	1650µF
LWB20-24S15	9 – 36	15	0	1330	75	22	1014	86	1050µF
LWB20-48S33	18 – 75	3.3	0	5500	60	35	467	85	18000µF
LWB20-48S5	18 – 75	5	0	4000	75	35	496	88	9600µF
LWB20-48S12	18 – 75	12	0	1670	75	15	503	87	1650µF
LWB20-48S15	18 – 75	15	0	1330	75	15	501	87	1050µF
LWB20-24-5	9 – 36	±5	0	±2000	100	55	992	88	±4800µF
LWB20-24-12	9 – 36	±12	0	±833	100	30	1004	87	±825µF
LWB20-24-15	9 – 36	±15	0	±667	100	30	1005	87	±525µF
LWB20-48-5	18 – 75	±5	0	±2000	100	35	490	89	±4800µF
LWB20-48-12	18 – 75	±12	0	±833	100	17	496	88	±825µF
LWB20-48-15	18 – 75	±15	0	±667	100	17	496	88	±525µF

NOTES:

- Bellcore TR-NWT-00032, Case: 50% Stress, Temperature at 40°C.
MIL-HDBK-217F Notice 2 @ Ta = 25°C, Full load (Ground, Benign, controlled environment).
- Maximum value at normal input voltage and full load.
- Typical value at nominal input voltage and no load.
- Typical value at nominal input voltage and full load.
- Test by minimum Vin and constant resistive load.
- The ON/OFF control pin voltage is referenced to-Vin.
- Heat sink is optional and P/N: 7G-0020C-F
- The LWB20 series can meet EN55022 Class A with external L-C filter before the input pins to the converter.
Recommend: 24 Vin : NA.
48 Vin : 1µF/100V 1210 MLCC.
- An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5.
The filter capacitor suggest: Nippon chemi-con KY series, 220µ F/100V, ESR48mΩ

Mechanical Specifications

PIN CONNECTION	
PIN	SINGLE
1	+Vin
2	-Vin
3	+Vout
4	TRIM
5	-Vout
6	CTRL + LOGIC



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