PRELIMINARY

BOTHHAND ENTERPRISE INC.

Isolated DC-DC Converters
BRA20W Series -- 20 Watt

Features

- Wide 4 : 1 Input Voltage Range(9~36V,18~75V)
- High Efficiency up to 90%
- Remote On/Off
- Input / Output Isolation Voltage: 1.5K Vdc
- Extended Operating Temperature Range: -40°C to+85°C
- Output Short Circuit Protection:
  Hiccup, continuous & Auto Recovery
- Over Voltage Protection: Clamp Mode
- Shielded Metal Case with Insulated Baseplate
- Lead Free Design, RoHS Compliant
- 6 pin DIP Package with Industry-Standard Footprint
- Standard 1”X1” Package
- Customer Design Available

RoHS compliant

Description

The BRA20W Series are isolated 20W DC/DC converters. Designed with highly efficiency, allow the operating temperature range of these units to be -40°C to +85°C (with derating) in a 6 pin DIP package with industry-standard footprint. Further features include wide 4 : 1 input voltage range, remote on/off control, trimmable output, short-circuit protection and over voltage protection.

Applications

These converters are well suitable for battery operated equipment, measurement equipment, telecom, wireless network, Industry control system, everywhere where isolated, tightly regulated voltages and compact size are required.

Technical Specification

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

Model Number	Input Voltage Range	Output Voltage (Vdc)	Output Current (mA)		Input Current (mA)		Eff. [2] (%)	Capacitive Load, max. [3] (uF)
			Min. Load [1]	Full. Load	No Load	Full Load		
BRA20-24S0W	9~36V Nominal:24VDC	3.3	0	4500	42	763	85	14700
BRA20-24S1W		5.0	0	4000	67	992	88	10000
BRA20-24S2W		12	0	1670	50	994	88	2200
BRA20-24S3W		15	0	1330	50	990	88	1000
BRA20-24D2W		±12	0	±833	50	990	88	680
BRA20-24D3W		±15	0	±667	50	992	88	470
BRA20-48S0W	18~75V Nominal:48VDC	3.3	0	4500	20	381	85	14700
BRA20-48S1W		5.0	0	4000	30	496	88	10000
BRA20-48S2W		12	0	1670	32	490	89	2200
BRA20-48S3W		15	0	1330	32	477	91	1000
BRA20-48D2W		±12	0	±835	32	490	89	680
BRA20-48D3W		±15	0	±665	32	490	89	470

Input Specifications		
Input Voltage	24V nominal input	9-36Vdc
	48V nominal input	18-75Vdc
Input filter		Pi Type
Input surge voltage	24V nominal input	50Vdc
(100ms max.)	48V nominal input	100Vdc
Input reflected ripple current	Nominal Vin and full load	60mAp-p max.
Start up time	Nominal Vin and constant resistive load	76ms typ.
Remote ON/OFF	Converter: ON	Open or 3.5V＜Vr＜12V
	Converter: OFF	Short (4) or 0V＜Vr＜0.7V
Sourcing current of remote control pin	Nominal Vin	＜0.2 mA
Idle input current (at Remote OFF state)	Nominal Vin	＜12 mA
Environmental Specifications		
Operating ambient temperature		-40°C to +85°C (with derating)
Maximum case temperature		+105°C max.
Storage temperature range		-55°C to +125°C
Relative humidity		95% RH max.
Temperature coefficient		±0.02% / °C max.
Output Specifications		
Output power		20 Watts max.
Voltage accuracy	Full load and nominal Vin	±1%
Minimum load		See table
Line regulation	LL to HL at full load	±1.0%
Load Regulation	25% load to full load Single	±1.0%
	Balanced load Dual	±0.5%
	Unbalanced load 25% to 100% full load	±5%
Ripple and Noise	20MHz bandwidth	80mVp-p max.
Over voltage protection	3.3Vout models	3.9V
(Zener Diode Clamp)	5.1Vout models	6.2V
	12Vout models	15V
	15Vout models	18V
Capacitive load		See table
Over load protection	% of full load at nominal input	110% min.
Short circuit protection		Hiccup, continuous (Auto Recovery)
Transient response settling time	50% load step change	700μs max.
		(1.4ms for 3.3Vout)
Transient response over shoot	di/dt=0.8A/μs	≤ ±5% of Vo
		(≤ ±6% for 3.3Vout)

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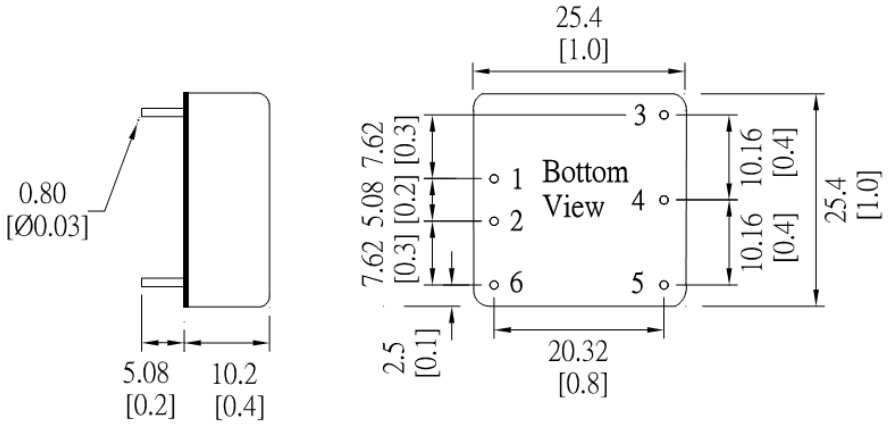
General Specifications		
Efficiency	Nominal input	See table
Isolation voltage	Input to output	1500Vdc
Isolation resistance	500Vdc	10^9 Ohms min.
Isolation capacitance		450pF typ.
Switching frequency		330kHz typ.
Reliability, calculated MTBF		1.35×10^6 Hrs

Physical Specifications	
Case material	Nickel-coated copper
Base material	Non-conductive black plastic
Potting material	Silicon rubber (UL94V-0)
Dimensions	1.0 × 1.0 × 0.4 Inch (25.4 × 25.4 × 10.2 mm)
Weight	15.0g (0.53oz) typ.

Note

1. Io below this value will not damage these converters, however, they may not meet all listed specifications.
2. Typical value, tested at nominal input and full load.
3. For each output.
4. Short to -Vin (Pin 2).

Mechanical Dimensions



Pin Assignment		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	Trim	Common
5	-Vout	-Vout
6	Remote On/Off (optional)	

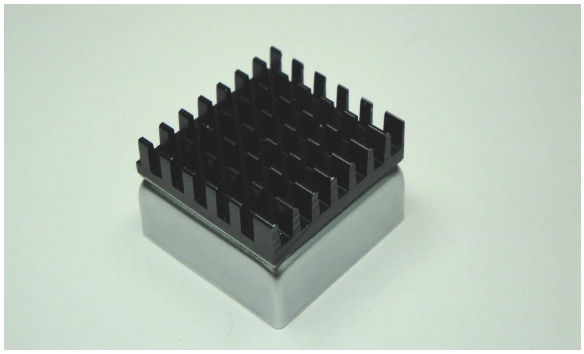
Unit: mm [inch]
Tolerance:±0.5[0.02]

Specifications subject to change without noticed.

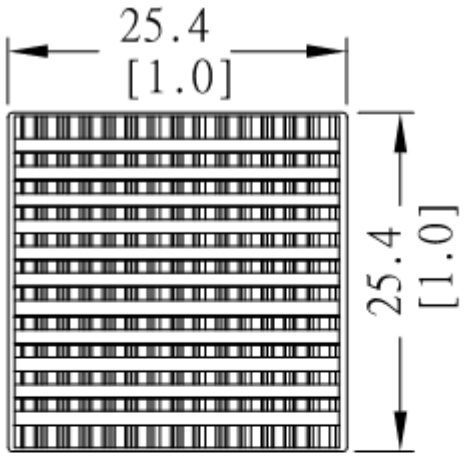
Heat-sink (Option)

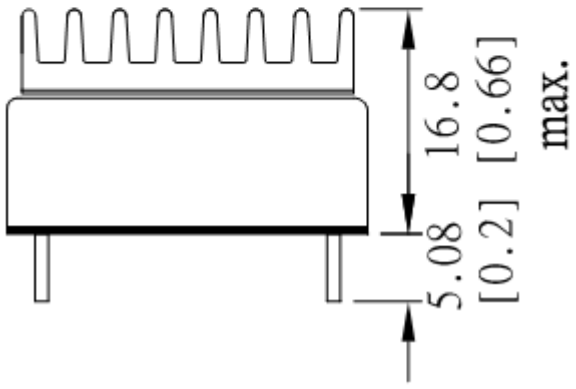
Material: Aluminum

Weight: 4.2g (0.15oz)



Note:
The product label on converter has to be removed before mounting the heat-sink.
For volume orders, converters will be supplied with heat-sink already mounted. Please contact factory for quotation.
Separate heat-sinks are only available for prototypes and small quantity orders.





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