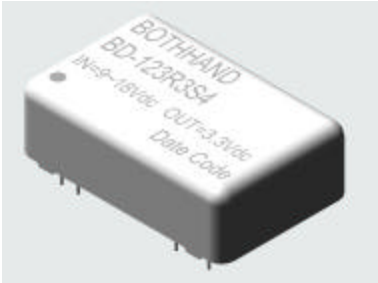
1. Features :

- ■ Wide 2:1 Input Range
- ■ Low Ripple and Noise
- ■ Input / Output Isolation 1.5K Vdc or 3.5K Vdc
- ■ 100 % Burn-In
- ■ Input p - Filter
- ■ Custom Design Available



2. Absolute maximum ratings:

(Exceeding these values may damage the module. These are not continuous operating ratings)

Parameter	Condition	Min.	Typ.	Max.	Unit
Input **Absolute** Voltage Range	12V Input Model	-0.7	12	22.5	Vdc
	24V Input Model	-0.7	24	45	
	48V Input Model	-0.7	48	90	
Output Short circuit duration	Nominal Input Range	Indefinite & Auto-Restart			
Reverse Polarity Input current Limit	---	---	---	1	A
Operating temperature	Output Full Load	-25	---	+71	Deg
Storage temperature		-55	---	+125	

3. Nominal Input / Output Electrical Specifications :

(Specifications typical at Ta = +25℃, nominal input voltage, rated output current unless otherwise noted)

Parameter	Condition	Min.	Typ.	Max.	Unit
Input Voltage Range	12V Input Model	9	12	18	Vdc
	24V Input Model	18	24	36	
	48V Input Model	36	48	72	
Line Regulation	Output full Load	---	---	± 0.5	%
Load Regulation	Single Output Model	---	---	± 0.5	
	Dual Output Model			± 2	
Output Voltage Accuracy	Nominal Input	---	---	± 1.0	
Output Voltage Balance	Dual Output at same Load	---	---	± 1.0	
Switching Frequency	Nominal Input	---	250	---	KHz
Temperature Coefficient		---	± 0.01	± 0.02	% / °
Isolation Voltage	Standard Series	1500	---	---	Vdc
	High Isolation Series	3500	---	---	
Isolation Resistance	500 Vdc	1000	---	---	M?
Isolation Capacitance	1 KHz / 250 mV rms	---	350	---	pF

4. Single Output Selection Guide :

(Specifications typical at Ta = +25℃, Nominal input voltage, Rated output current unless otherwise noted)

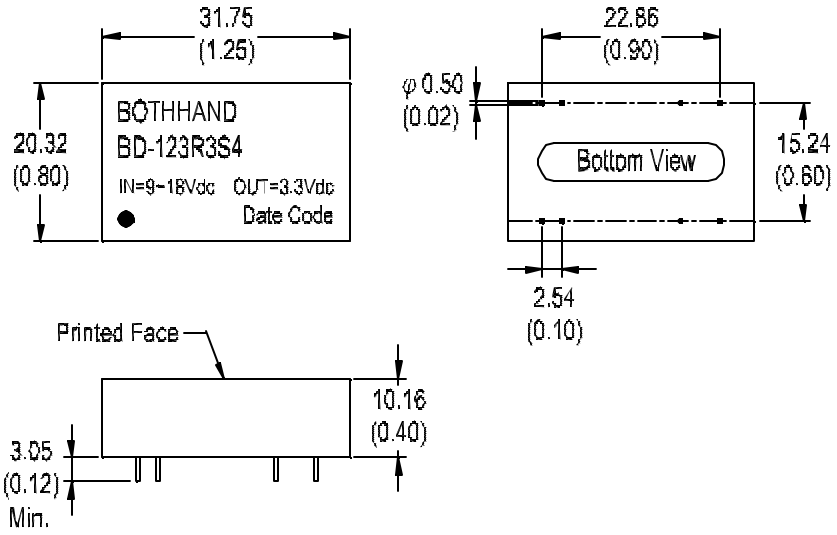
Bothhand Model No.	Input Voltage (Vdc)	Output Voltage (Vdc)	Output Current (mA) Max	Input Current @ No Load (mA) Typ.	Input Current @ Max. Load (mA) Typ.	Output Ripple (mV) Max.	Load Regulation (%) Max.	Efficiency (%) Typ.
4 W Single output Series								
BD-123R3S4	9 ~ 18	3.3	1000	19	357	75	± 0.5	77
BD-1205S4		5.0	800	20	422	75	± 0.5	79
BD-1212S4		12.0	333	22	416	75	± 0.5	80
BD-2405S4	18 ~ 36	5.0	800	10	211	75	± 0.5	79
BD-2412S4		12.0	333	13	208	75	± 0.5	80
BD-2415S4		15.0	267	15	201	75	± 0.5	83
BD-4805S4	36 ~ 72	5.0	800	6	105	75	± 0.5	79
5 W Single output Series								
BD-1205S5	9 ~ 18	5.0	1000	19	527	75	± 0.5	79
BD-1215S5		15.0	333	20	502	75	± 0.5	83
BD-2405S5	18 ~ 36	5.0	1000	10	264	75	± 0.5	79
BD-2412S5		12.0	417	13	254	75	± 0.5	82
BD-2415S5		15.0	333	15	254	75	± 0.5	82
BD-4805S5	36 ~ 72	5.0	1000	6	132	75	± 0.5	79
BD-4812S5		12.0	417	8	129	75	± 0.5	81
6 W Single output Series								
BD-1205S6	9 ~ 18	5.0	1200	19	633	75	± 0.5	79
BD-1212S6		12.0	500	20	625	75	± 0.5	80
BD-2405S6	18 ~ 36	5.0	1200	10	316	75	± 0.5	79
BD-2412S6		12.0	500	13	313	75	± 0.5	80
BD-4805S6	36 ~ 72	5.0	1200	6	158	75	± 0.5	79
BD-4812S6		12.0	500	8	154	75	± 0.5	81
BD-xxxxSx								

Notes :

1. Standard output Voltage is 3.3V, 5V, 9V, 12V, 15V, BD-xxxxSx is for Customer Design.
2. Load regulation is for output current change from 0 % to 100 % Max. Load.
3. Suffix "H" for 3.5K Vdc Isolation. (BD-xxxxSxH)
4. Suffix "M" for Metal case, "P" for Plastic case

4.1. 1.5K Vdc Isolation Mechanical: (Single O/P)

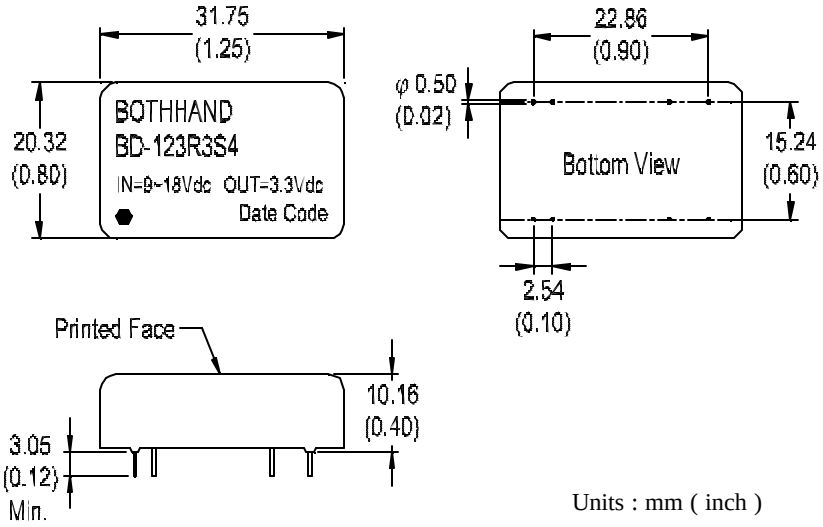
(1). Plastic Case:



Pin	1.5 K Vdc - Single		Pin
1	---	---	24
2	-Vin	+Vin	23
3			22
4	---	---	21
5			20
6			19
7			18
8			17
9	NC	Vo (-)	16
10	---	---	15
11	NC	Vo (+)	14
12	---	---	13

Note:" --- " means Omitted

(2). Nickel Coated Metal Case:



Units : mm (inch)

Tolerance : .xx ± 0.25

(± 0.01)

4. Dual Output Selection Guide :

(Specifications typical at Ta = +25℃, Nominal input voltage, Rated output current unless otherwise noted)

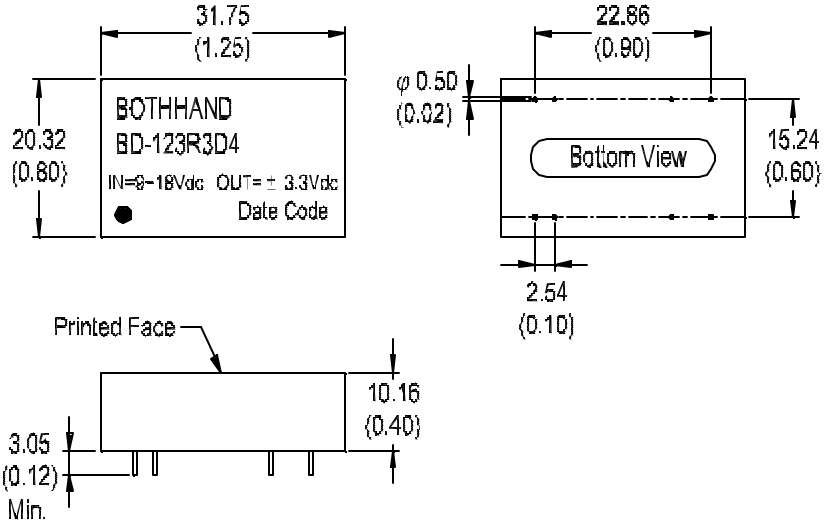
Bothhand Model No.	Input Voltage (Vdc)	Output Voltage (Vdc)	Output Current (mA) Max	Input Current @ No Load (mA) Typ.	Input Current @ Max. Load (mA) Typ.	Output Ripple (mV) Max.	Load Regulation (%) Max.	Efficiency (%) Typ.
4 W Dual output Series								
BD-123R3D4	9 ~ 18	± 3.3	± 500	20	367	75	± 2	75
BD-1205D4		± 5.0	± 400	22	439	75	± 2	76
BD-2405D4	18 ~ 36	± 5.0	± 400	13	219	75	± 2	76
BD-2412D4		± 12.0	± 167	15	209	75	± 2	80
BD-2415D4		± 15.0	± 133	17	208	75	± 2	80
BD-4805D4	36 ~ 72	± 5.0	± 400	10	108	75	± 2	77
BD-4815D4		± 15.0	± 133	12	104	75	± 2	80
5 W Dual output Series								
BD-1205D5	9 ~ 18	± 5.0	± 500	22	556	75	± 2	75
BD-1212D5		± 12.0	± 208	25	527	75	± 2	79
BD-2405D5	18 ~ 36	± 5.0	± 500	13	271	75	± 2	77
BD-4805D5	36 ~ 72	± 5.0	± 500	10	135	75	± 2	77
BD-4812D5		± 12.0	± 208	13	130	75	± 2	80
6 W Dual output Series								
BD-1205D6	9 ~ 18	± 5.0	± 600	22	658	75	± 2	76
BD-1212D6		± 12.0	± 250	25	633	75	± 2	79
BD-2405D6	18 ~ 36	± 5.0	± 600	13	321	75	± 2	78
BD-2412D6		± 12.0	± 250	15	156	75	± 2	80
BD-4805D6	36 ~ 72	± 5.0	± 600	10	162	75	± 2	77
BD-4812D6		± 12.0	± 250	13	156	75	± 2	80
BD-4815D6		± 15.0	± 200	14	156	75	± 2	80
BD-xxxxDx								

Notes :

1. BD-xxxxDx is for Customer Design.
2. Load regulation is for output current change from 0 % to 100 % Max. Load.
3. Suffix "H" for 3.5K Vdc Isolation. (BD-xxxxDxH)
4. Suffix "M" for Metal case, "P" for Plastic case

4.1 1.5K Vdc Isolation Mechanical: (Dual O/P)

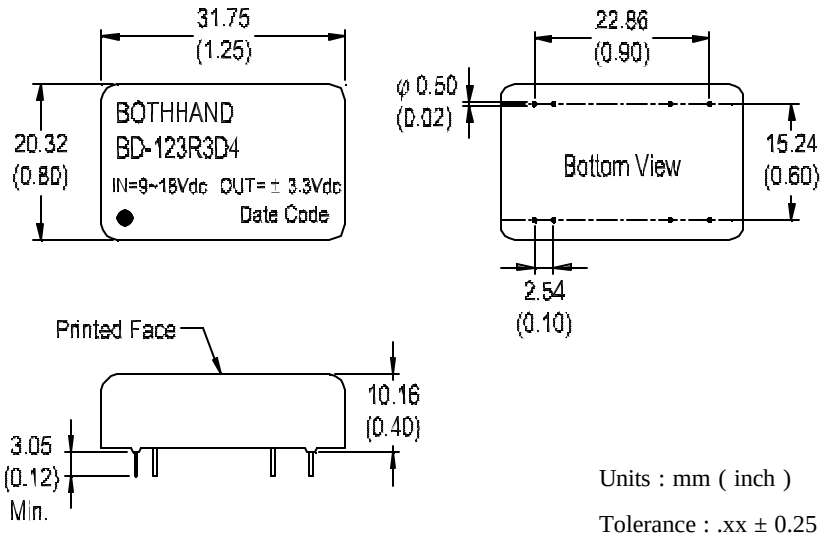
(1). Plastic Case:



Pin	1.5K Vdc - Dual		Pin
1	---	---	24
2	-Vin	+Vin	23
3			22
4	---	---	21
5			20
6			19
7			18
8			17
9	Common	Common	16
10	---	---	15
11	Vo (-)	Vo (+)	14
12	---	---	13

Note:" --- " means Omitted

(2). Nickel Coated Metal Case:



Units : mm (inch)

Tolerance : .xx ± 0.25

(± 0.01)