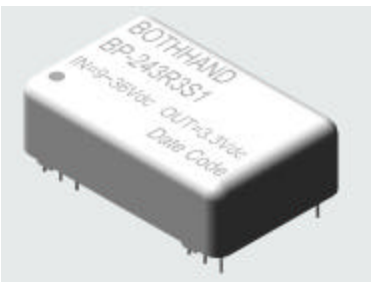


1. Features :

■ Wide 4:1 Input Range	
■ Low Ripple and Noise	
■ Input / Output Isolation 1.5K Vdc or 3.5K Vdc	
■ 100 % Burn-In	
■ Input π - 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	24V Input Model	-0.7	24	45	Vdc
	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°C, nominal input voltage, rated output current unless otherwise noted)

Parameter	Condition	Min.	Typ.	Max.	Unit
Input Voltage Range	24V Input Model	9	24	36	Vdc
	48V Input Model	18	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 Ω
Isolation Capacitance	1 KHz / 250 mV rms	---	350	---	pF

4. Single Output Selection Guide

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

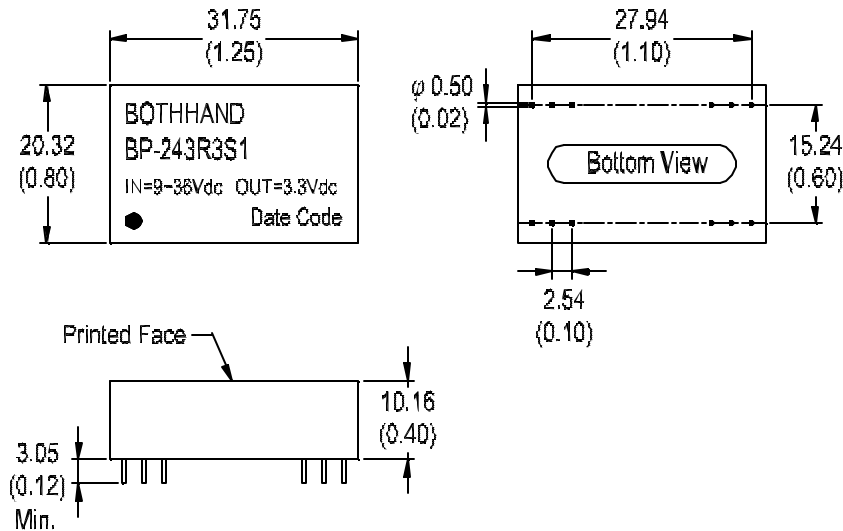
Bothhand Model No.	Input Voltage (Vdc)	Output Voltage (Vdc)	Output Current (mA) Max	Input Current @ No Load (mA) Typ.	Input Current @ Max. Load (mA) Typ.	Output Ripple (mV) Max.	Load Regulation (%) Max.	Efficiency (%) Typ.
1.5 W Single output Series								
BP-243R3S1	9 ~ 36	3.3	400	6	76	75	± 0.5	72
BP-2405S1		5.0	300	6	86	75	± 0.5	73
BP-2412S1		12.0	125	6	84	75	± 0.5	74
BP-4805S1	18 ~ 72	5.0	125	5	18	75	± 0.5	71
BP-4812S1		12.0	125	5	43	75	± 0.5	73
BP-4815S1		15.0	100	5	42	75	± 0.5	74
BP-4818S1		18.0	84	5	43	75	± 0.5	74
2.0 W Single output Series								
BP-2405S2	9 ~ 36	5.0	400	5.5	113	75	± 0.5	74
BP-2415S2		15.0	134	5.5	107	75	± 0.5	78
BP-4805S2	18 ~ 72	5.0	400	5.8	58	75	± 0.5	72
BP-4812S2		12.0	167	5.8	56	75	± 0.5	75
BP-4815S2		15.0	134	5.8	57	75	± 0.5	74
3.0 W Single output Series								
BP-2405S3	9 ~ 36	5.0	600	25	162	75	± 0.5	77
BP-2412S3		12.0	250	27	156	75	± 0.5	80
BP-4805S3	18 ~ 72	5.0	600	18	82	75	± 0.5	76
BP-4812S3		12.0	250	19	80	75	± 0.5	78
BP-4815S3		15.0	200	20	78	75	± 0.5	80
BP-xxxxSx								

Notes

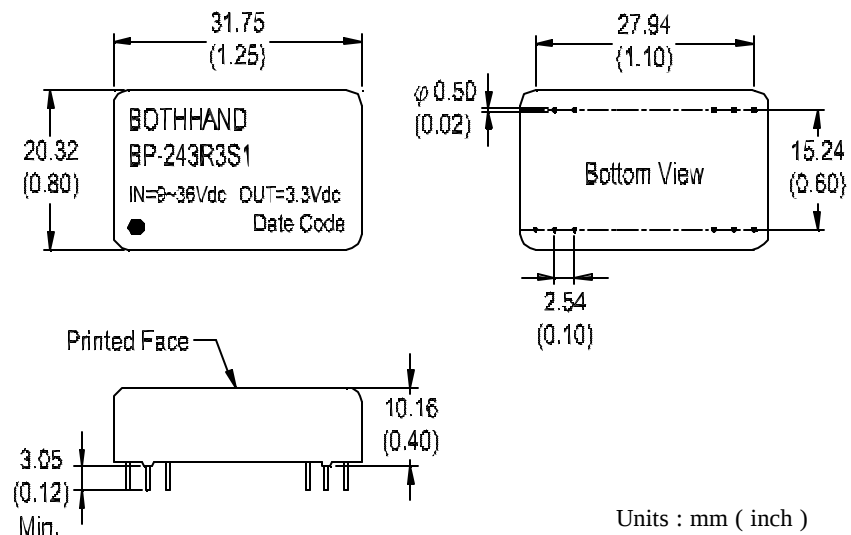
- Standard output Voltage is 3.3V, 5V, 9V, 12V, 15V, BP-xxxxSx is for Customer Design.
- Load regulation is for output current change from 0 % to 100 % Max. Load.
- Suffix “H” for 3.5K Vdc Isolation. (BP-xxxxSxH)
- Suffix “M” for Metal case, “P” for Plastic case.

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

(1). Plastic Case



(2). Nickel Coated Metal Case



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

Note" — " means Omitted

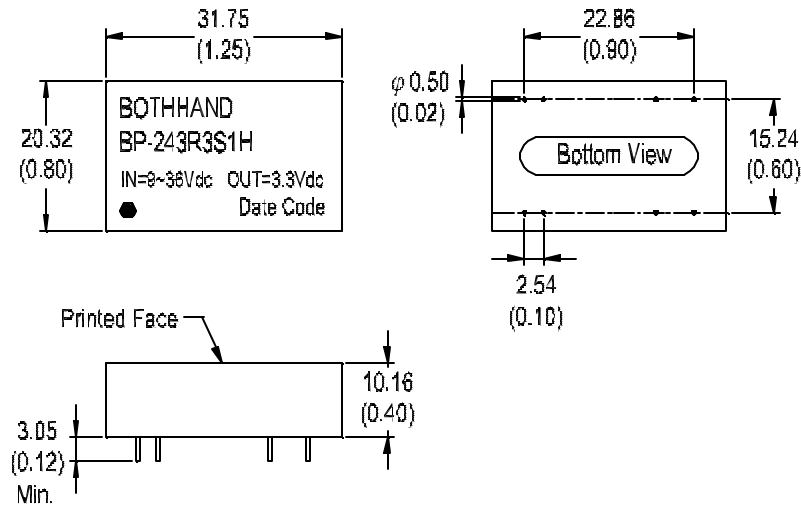
Units : mm (inch)

Tolerance : .xx ± 0.25

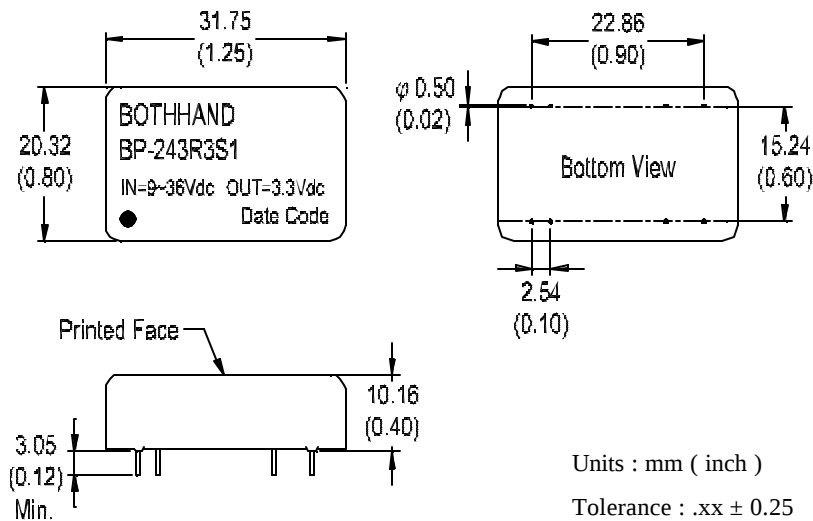
(± 0.01)

4.2. 3.5K Vdc Isolation Mechanical(Single O/P)

(1). Plastic Case



(2). Nickel Coated Metal Case



Pin	3.5K Vdc - Single		Pin
1	---	---	24
2	-Vin	+Vin	23
3			22
4	---	---	21
5			20
6			19
7			18
8	NC	Vo (-)	17
9			16
10	---	---	15
11	NC	Vo (+)	14
12	---	---	13

Note" --- " means Omitted

Units : mm (inch)
Tolerance : .xx ± 0.25
(± 0.01)

5. Dual Output Selection Guide

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

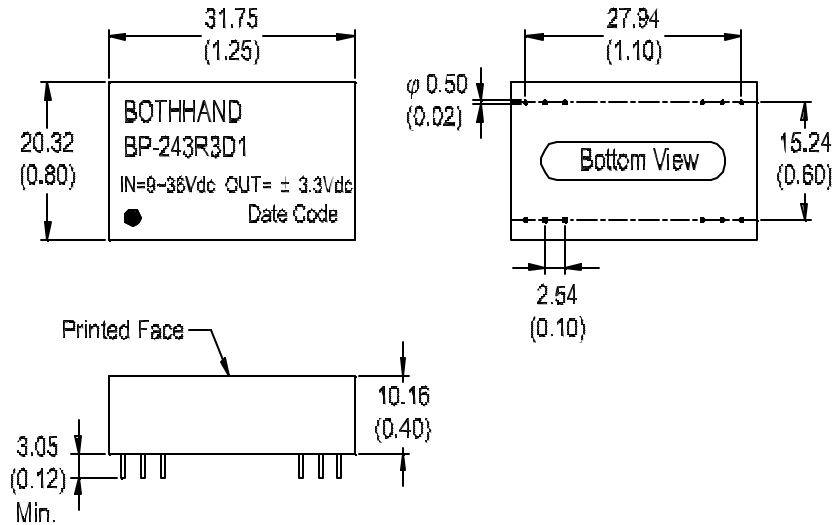
Bothhand Model No.	Input Voltage (Vdc)	Output Voltage (Vdc)	Output Current (mA) Max	Input Current @ No Load (mA) Typ.	Input Current @ Max. Load (mA) Typ.	Output Ripple (mV) Max.	Load Regulation (%) Max.	Efficiency (%) Typ.
1.5 W Dual output Series								
BP-243R3D1	9 ~ 36	± 3.3	± 200	6.2	76	75	± 2	72
BP-2405D1		± 5.0	± 150	6.2	87	75	± 2	72
BP-4805D1	18 ~ 72	± 5.0	± 150	5.8	43	75	± 2	73
BP-4812D1		± 12.0	± 63	5.8	43	75	± 2	73
BP-4815D1		± 15.0	± 50	5.8	43	75	± 2	73
2.0 W Dual output Series								
BP-2405D2	9 ~ 36	± 5.0	± 200	6.7	116	75	± 2	72
BP-2412D2		± 12.0	± 83	6.7	111	75	± 2	75
BP-4805D2	18 ~ 72	± 5.0	± 200	6.4	56	75	± 2	74
BP-4812D2		± 12.0	± 83	6.4	56	75	± 2	74
BP-4815D2		± 15.0	± 67	6.4	55	75	± 2	76
3.0 W Dual output Series								
BP-2405D3	9 ~ 36	± 5.0	± 300	25	160	75	± 2	78
BP-2412D3		± 12.0	± 125	28	156	75	± 2	80
BP-4805D3	18 ~ 72	± 5.0	± 300	18	79	75	± 2	79
BP-4812D3		± 12.0	± 125	20	78	75	± 2	80
BP-xxxxDx								

Notes

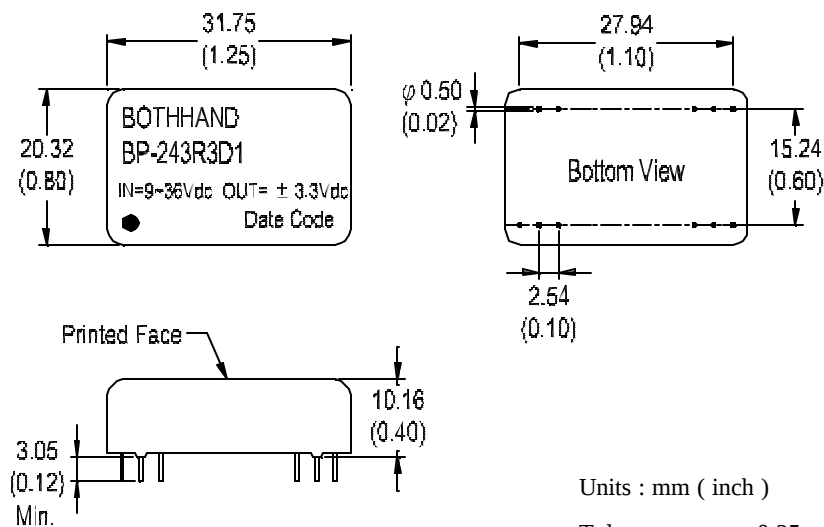
1. BP-xxxxDx is for Customer Design.
2. Load regulation is for Each output current change from 20 % to 100 % Max. Load.
3. Suffix “H” for 3.5K Vdc Isolation. (BP-xxxxDxH)
4. Suffix “M” for Metal case, “P” for Plastic case.

5.1. 1.5K Vdc Isolation Mechanical(Dual O/P)

(1). Plastic Case



(2). Nickel Coated Metal Case



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

Note " --- " means Omit ted

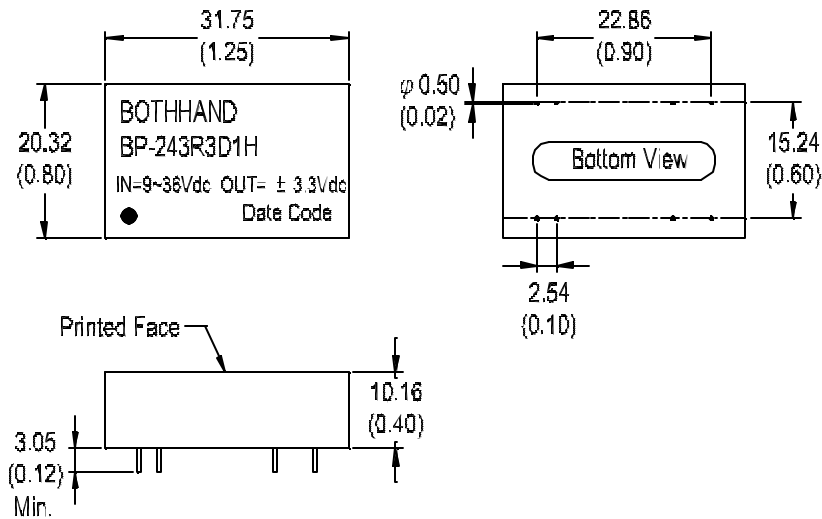
Units : mm (inch)

Tolerance : .xx ± 0.25

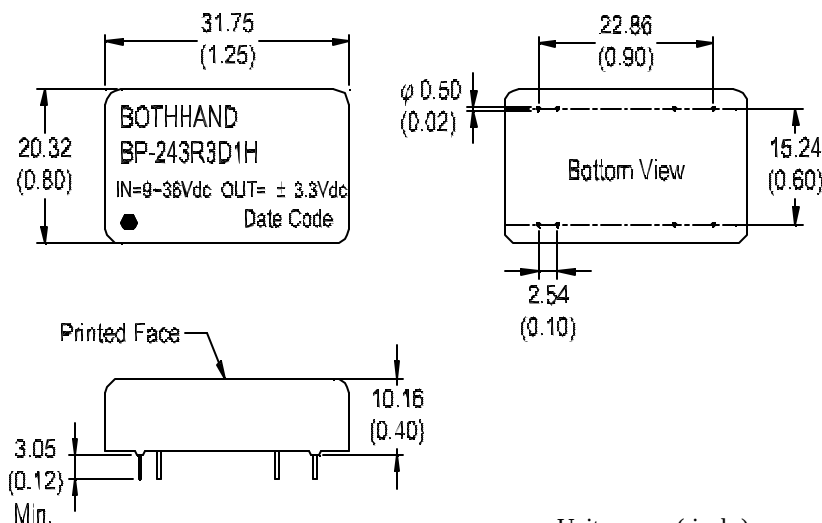
(± 0.01)

5.2. 3.5K Vdc Isolation Mechanical(Dual O/P)

(1). Plastic Case



(2). Nickel Coated Metal Case



Pin	3.5K 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

Units : mm (inch)

Tolerance : .xx ± 0.25

(± 0.01)