

# 1.0 WATT MINI-SIP DC/DC CONVERTERS

## FEATURES

- ① 1.0 Watt
- ② Up To 80% Efficiency
- ③ Momentary Short Circuit Protection
- ④ Minature SIP Package

## INPUT SPECIFICATIONS

- Voltage ..... Per Table Vdc
- Input Voltage Range .....  $\pm 10\%$
- Input Filter ..... Cap

## GENERAL SPECIFICATIONS

- Efficiency ..... 75% Typ.
- Switching Frequency ..... 100KHz Typ.
- Isolation Voltage ..... 1000Vdc min.
- Operating Temperature ..... -25 to +80°C

## OUTPUT SPECIFICATIONS

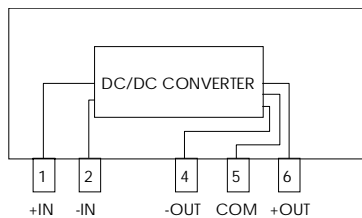
- Voltage ..... Per Table
- Voltage Accuracy .....  $\pm 5\%$
- Ripple & Noise 20MHz BW ..... 1% p-p
- Load Regulation .....  $\pm 10\%$

## ELECTRICAL SPECIFICATIONS AT 25°C

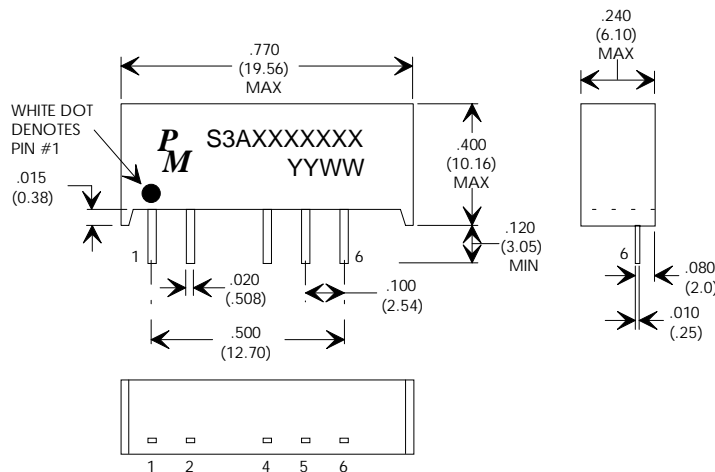
| PART NUMBER | INPUT VOLTAGE (Vdc) | OUTPUT VOLTAGE (Vdc) | OUTPUT CURRENT (mA max.) |
|-------------|---------------------|----------------------|--------------------------|
| S3AS050520  | 5                   | 5                    | 200                      |
| S3AD050510  | 5                   | + 5                  | +100                     |
| S3AS051208  | 5                   | 12                   | 84                       |
| S3AD051204  | 5                   | + 12                 | + 42                     |
| S3AS051507  | 5                   | 15                   | 66                       |
| S3AD051503  | 5                   | + 15                 | + 33                     |
| S3AS120520  | 12                  | 5                    | 200                      |
| S3AD120510  | 12                  | + 5                  | +100                     |
| S3AS121208  | 12                  | 12                   | 84                       |
| S3AD121204  | 12                  | + 12                 | + 42                     |

| PART NUMBER | INPUT VOLTAGE (Vdc) | OUTPUT VOLTAGE (Vdc) | OUTPUT CURRENT (mA max.) |
|-------------|---------------------|----------------------|--------------------------|
| S3AS121507  | 12                  | 15                   | 66                       |
| S3AD121503  | 12                  | + 15                 | + 33                     |
| S3AS151507  | 15                  | 15                   | 66                       |
| S3AD151503  | 15                  | + 15                 | + 33                     |
| S3AS240520  | 24                  | 5                    | 200                      |
| S3AD240510  | 24                  | + 5                  | +100                     |
| S3AS241208  | 24                  | 12                   | 84                       |
| S3AD241204  | 24                  | + 12                 | + 42                     |
| S3AS241507  | 24                  | 15                   | 66                       |
| S3AD241503  | 24                  | + 15                 | + 33                     |

## SCHEMATIC DIAGRAM



## PHYSICAL DIMENSIONS .... DIMENSIONS IN INCHES (mm)



| PIN NUMBER | DUAL OUTPUT | SINGLE OUTPUT |
|------------|-------------|---------------|
| 1          | Vcc         | Vcc           |
| 2          | GND         | GND           |
| 3          | OMITTED     | OMITTED       |
| 4          | -Vout       | N.C.          |
| 5          | 0 Vout      | -Vout         |
| 6          | +Vout       | +Vout         |

Specifications subject to change without notice.



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# 1 WATT HI-ISOLATION MINI-SIP DC/DC CONVERTERS

## FEATURES

- ❶ 1.0 Watt
- ❷ Up To 80% Efficiency
- ❸ Momentary Short Circuit Protection
- ❹ Minature SIP Package

## GENERAL SPECIFICATIONS

- Efficiency ..... 70% Typ.
- Switching Frequency ..... 90KHz Typ.
- Isolation Voltage ..... 3000Vdc min.
- Operating Temperature ..... -25 to +85°C

## INPUT SPECIFICATIONS

- Voltage ..... Per Table Vdc
- Input Voltage Range ..... ±10%
- Input Filter ..... Cap

## OUTPUT SPECIFICATIONS

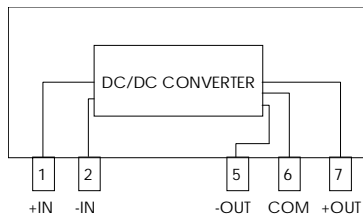
- Voltage ..... Per Table
- Voltage Accuracy ..... ±5%
- Ripple & Noise 20MHz BW ..... 1% p-p
- Load Regulation ..... ±10%

## ELECTRICAL SPECIFICATIONS AT 25°C

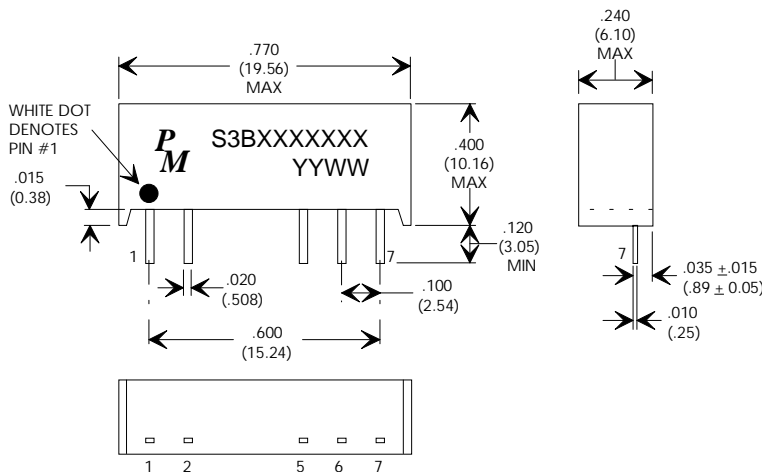
| PART NUMBER | INPUT VOLTAGE (Vdc) | OUTPUT VOLTAGE (Vdc) | OUTPUT CURRENT (mA max.) |
|-------------|---------------------|----------------------|--------------------------|
| S3BS050520  | 5                   | 5                    | 200                      |
| S3BD050510  | 5                   | + 5                  | 100                      |
| S3BS051208  | 5                   | 12                   | 84                       |
| S3BD051204  | 5                   | + 12                 | + 42                     |
| S3BS051507  | 5                   | 15                   | 66                       |
| S3BD051503  | 5                   | + 15                 | + 33                     |
| S3BS120520  | 12                  | 5                    | 200                      |
| S3BD120510  | 12                  | + 5                  | + 100                    |
| S3BS121208  | 12                  | 12                   | 84                       |

| PART NUMBER | INPUT VOLTAGE (Vdc) | OUTPUT VOLTAGE (Vdc) | OUTPUT CURRENT (mA max.) |
|-------------|---------------------|----------------------|--------------------------|
| S3BD121204  | 12                  | + 12                 | + 42                     |
| S3BS121507  | 12                  | 15                   | 66                       |
| S3BD121503  | 12                  | + 15                 | + 33                     |
| S3BS240520  | 24                  | 5                    | 200                      |
| S3BD240510  | 24                  | + 5                  | + 100                    |
| S3BS241208  | 24                  | 12                   | 84                       |
| S3BD241204  | 24                  | + 12                 | + 42                     |
| S3BS241507  | 24                  | 15                   | 66                       |
| S3BD241503  | 24                  | + 15                 | + 33                     |

## SCHEMATIC DIAGRAM



## PHYSICAL DIMENSIONS .... DIMENSIONS IN INCHES (mm)



| PIN NUMBER | DUAL OUTPUT | SINGLE OUTPUT |
|------------|-------------|---------------|
| 1          | Vcc         | Vcc           |
| 2          | GND         | GND           |
| 3          | OMITTED     | OMITTED       |
| 4          | OMITTED     | OMITTED       |
| 5          | -Vout       | -Vout         |
| 6          | COMMON      | N.C.          |
| 7          | +Vout       | +Vout         |

Specifications subject to change without notice.



# 1.0 WATT MINI-DIP DC/DC CONVERTERS

## FEATURES

- ❶ 1.0 Watt
- ❷ Up To 80% Efficiency
- ❸ Momentary Short Circuit Protection
- ❹ Minature DIP Package

## GENERAL SPECIFICATIONS

- Efficiency ..... 75% Typ.
- Switching Frequency ..... 100KHz Typ.
- Isolation Voltage ..... 500Vdc min.
- Operating Temperature ..... -25 to +80°C

## INPUT SPECIFICATIONS

- Voltage ..... Per Table Vdc
- Input Voltage Range ..... ±10%
- Input Filter ..... Cap

## OUTPUT SPECIFICATIONS

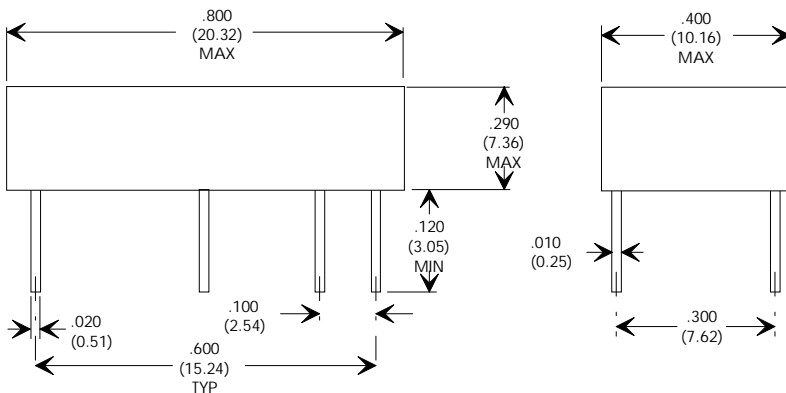
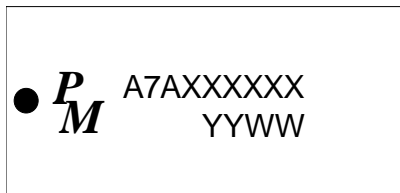
- Voltage ..... Per Table
- Voltage Accuracy ..... ±5%
- Ripple & Noise 20MHz BW ..... 1% p-p
- Load Regulation ..... ±10%

## ELECTRICAL SPECIFICATIONS AT 25°C

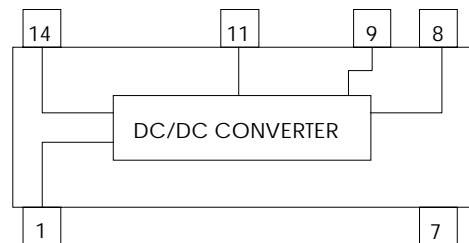
| PART NUMBER | INPUT VOLTAGE (Vdc) | OUTPUT VOLTAGE (Vdc) | OUTPUT CURRENT (mA max.) |
|-------------|---------------------|----------------------|--------------------------|
| A7AS050520  | 5                   | 5                    | 200                      |
| A7AD050510  | 5                   | + 5                  | 100                      |
| A7AS051208  | 5                   | 12                   | 84                       |
| A7AD051204  | 5                   | + 12                 | + 42                     |
| A7AS051507  | 5                   | 15                   | 66                       |
| A7AD051503  | 5                   | + 15                 | + 33                     |
| A7AS120520  | 12                  | 5                    | 200                      |
| A7AD120510  | 12                  | + 5                  | 100                      |
| A7AS121208  | 12                  | 12                   | 84                       |

| PART NUMBER | INPUT VOLTAGE (Vdc) | OUTPUT VOLTAGE (Vdc) | OUTPUT CURRENT (mA max.) |
|-------------|---------------------|----------------------|--------------------------|
| A7AD121204  | 12                  | + 12                 | + 42                     |
| A7AS121507  | 12                  | 15                   | 66                       |
| A7AD121503  | 12                  | + 15                 | + 33                     |
| A7AS240520  | 24                  | 5                    | 200                      |
| A7AD240510  | 24                  | + 5                  | 100                      |
| A7AS241208  | 24                  | 12                   | 84                       |
| A7AD241204  | 24                  | + 12                 | + 42                     |
| A7AS241507  | 24                  | 15                   | 66                       |
| A7AD241503  | 24                  | + 15                 | + 33                     |

## PHYSICAL DIMENSIONS .... DIMENSIONS IN INCHES (mm)



## SCHEMATIC DIAGRAM



| PIN NUMBER | FUNCTION |
|------------|----------|
| 1          | GND      |
| 7          | N/C      |
| 8          | 0 Vout   |
| 9          | +Vout    |
| 11         | -Vout    |
| 14         | Vcc      |

Specifications subject to change without notice.



# 2 WATT MINI-DIP DC/DC CONVERTERS

## FEATURES

- ❶ 2 Watt
- ❷ Up To 80% Efficiency
- ❸ Momentary Short Circuit Protection
- ❹ Minature DIP Package

## GENERAL SPECIFICATIONS

- Efficiency ..... 75% Typ.
- Switching Frequency ..... 100KHz Typ.
- Isolation Voltage ..... 500Vdc min.
- Operating Temperature ..... -25 to +80°C

## INPUT SPECIFICATIONS

- Voltage ..... Per Table Vdc
- Input Voltage Range .....  $\pm 10\%$
- Input Filter ..... Cap

## OUTPUT SPECIFICATIONS

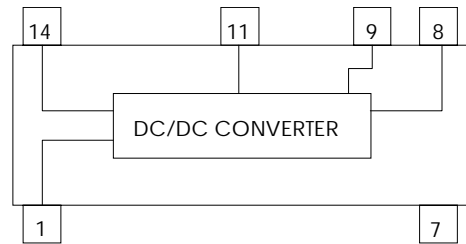
- Voltage ..... Per Table
- Voltage Accuracy .....  $\pm 5\%$
- Ripple & Noise 20MHz BW ..... 150mV p-p
- Load Regulation .....  $\pm 10\%$

## ELECTRICAL SPECIFICATIONS AT 25°C

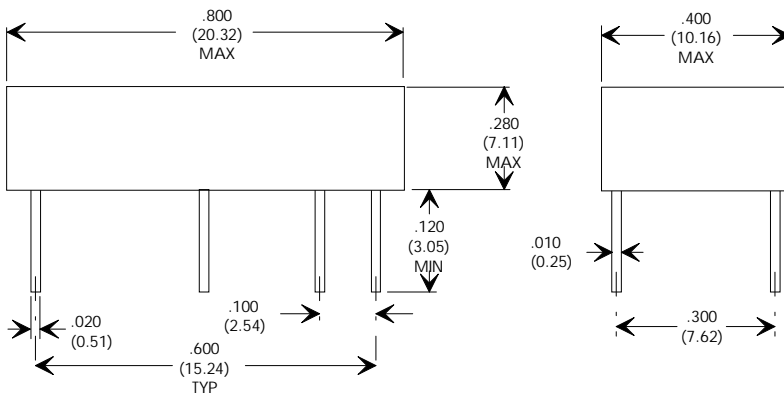
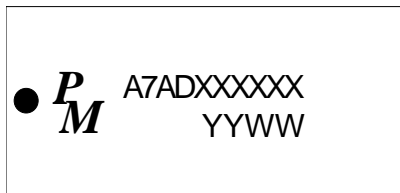
| PART NUMBER               | INPUT VOLTAGE (Vdc) | OUTPUT VOLTAGE (Vdc) | OUTPUT CURRENT (mA max.) |
|---------------------------|---------------------|----------------------|--------------------------|
| A7AD050520                | 5                   | + 5                  | + 200                    |
| A7AD050910                | 5                   | + 9                  | + 111                    |
| A7AS050920 <sup>(1)</sup> | 5                   | 9                    | 200                      |
| A7AD050520                | 5                   | + 5                  | + 200                    |
| A7AD051208                | 5                   | + 12                 | + 85                     |
| A7AD051506                | 5                   | + 15                 | + 65                     |
| A7AD120520                | 12                  | + 5                  | + 200                    |
| A7AD121208                | 12                  | + 12                 | + 85                     |
| A7AD121506                | 12                  | + 15                 | + 65                     |
| A7AD240520                | 24                  | + 5                  | + 200                    |
| A7AD241208                | 24                  | + 12                 | + 85                     |
| A7AD241506                | 24                  | + 15                 | + 65                     |

(1) For Single Output Versions Pin #11 is Not Conncted

## SCHEMATIC DIAGRAM



## PHYSICAL DIMENSIONS .... DIMENSIONS IN INCHES (mm)



| PIN NUMBER | FUNCTION |
|------------|----------|
| 1          | GND      |
| 7          | N/C      |
| 8          | 0 Vout   |
| 9          | +Vout    |
| 11         | -Vout    |
| 14         | Vcc      |

Specifications subject to change without notice.



# 1.5 & 3.0 WATT DC/DC CONVERTERS

## FEATURES

- ❶ 1.5 & 3.0 Watt Single or Dual Output
- ❷ 500Vdc Isolation
- ❸ Momentary Short Circuit Protection
- ❹ 24-Pin DIL Package

## GENERAL SPECIFICATIONS

Efficiency ..... 50 to 70%  
 Switching Frequency ..... 25KHz min.  
 Isolation Voltage ..... 500Vdc min.  
 Operating Temperature ..... -20 to +70°C  
 Storage Temperature ..... -55 to +105°C

## INPUT SPECIFICATIONS

Voltage ..... Per Tables  
 Voltage Range ..... +10%  
 Input Filter ..... Pi Network

## OUTPUT SPECIFICATIONS

Voltage ..... Per Table  
 Voltage Accuracy ..... ±3%  
 Ripple & Noise 20MHz BW ..... .5-1% V p-p  
 Line & Load Regulation ..... + 0.05%  
 Voltage Stability (24HR) ..... + 0.05%

### ELECTRICAL SPECIFICATIONS AT 25°C 1.5 WATT DC/DC CONVERTERS DUAL & SINGLE OUTPUTS REGULATED

| PART NUMBER | INPUT VOLTAGE (Vdc+10%) | OUTPUT VOLTAGE (Vdc) | OUTPUT CURRENT (mA max.) | FULL LOAD INPUT (mA typ.) |
|-------------|-------------------------|----------------------|--------------------------|---------------------------|
| B3AS050530  | 5.0                     | 5                    | 300                      | 540                       |
| B3AS051212  | 5.0                     | 12                   | 125                      | 450                       |
| B3AS051510  | 5.0                     | 15                   | 100                      | 440                       |
| B3AD051212  | 5.0                     | + 12                 | + 60                     | 450                       |
| B3AD051510  | 5.0                     | + 15                 | + 50                     | 440                       |
|             |                         |                      |                          |                           |
| B3AS120530  | 12.0                    | 5                    | 300                      | 195                       |
| B3AS121212  | 12.0                    | 12                   | 125                      | 190                       |
| B3AS121510  | 12.0                    | 15                   | 100                      | 190                       |
| B3AD121212  | 12.0                    | + 12                 | + 60                     | 190                       |
| B3AD121510  | 12.0                    | + 15                 | + 50                     | 190                       |
|             |                         |                      |                          |                           |
| B3AS240530  | 24.0                    | 5                    | 300                      | 95                        |
| B3AS241212  | 24.0                    | 12                   | 125                      | 90                        |
| B3AS241510  | 24.0                    | 15                   | 100                      | 90                        |
| B3AD241212  | 24.0                    | + 12                 | + 60                     | 90                        |
| B3AD241510  | 24.0                    | + 15                 | + 50                     | 90                        |
|             |                         |                      |                          |                           |
| B3AS280530  | 28.0                    | 5                    | 300                      | 95                        |
| B3AS281212  | 28.0                    | 12                   | 125                      | 90                        |
| B3AS281510  | 28.0                    | 15                   | 100                      | 90                        |
| B3AD281212  | 28.0                    | + 12                 | + 60                     | 90                        |
| B3AD281510  | 28.0                    | + 15                 | + 50                     | 90                        |
|             |                         |                      |                          |                           |
| B3AS480530  | 48.0                    | 5                    | 300                      | 52                        |
| B3AS481212  | 48.0                    | 12                   | 125                      | 47                        |
| B3AS481510  | 48.0                    | 15                   | 100                      | 47                        |
| B3AD481212  | 48.0                    | + 12                 | + 60                     | 47                        |
| B3AD481510  | 48.0                    | + 15                 | + 50                     | 47                        |

### ELECTRICAL SPECIFICATIONS AT 25°C 3.0 WATT DC/DC CONVERTERS DUAL & SINGLE OUTPUTS REGULATED

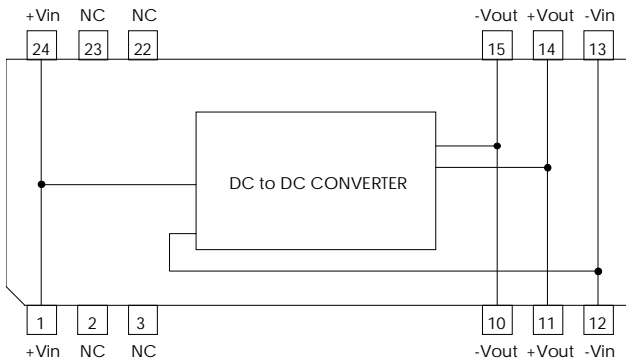
| PART NUMBER | INPUT VOLTAGE (Vdc+10%) | OUTPUT VOLTAGE (Vdc) | OUTPUT CURRENT (mA max.) | FULL LOAD INPUT (mA typ.) |
|-------------|-------------------------|----------------------|--------------------------|---------------------------|
| B3AS050550  | 5.0                     | 5                    | 500                      | 540                       |
| B3AS051225  | 5.0                     | 12                   | 250                      | 450                       |
| B3AS051520  | 5.0                     | 15                   | 200                      | 440                       |
| B3AD051225  | 5.0                     | + 12                 | + 125                    | 450                       |
| B3AD051520  | 5.0                     | + 15                 | + 100                    | 440                       |
|             |                         |                      |                          |                           |
| B3AS120550  | 12.0                    | 5                    | 500                      | 195                       |
| B3AS121225  | 12.0                    | 12                   | 250                      | 190                       |
| B3AS121520  | 12.0                    | 15                   | 200                      | 190                       |
| B3AD121225  | 12.0                    | + 12                 | + 125                    | 190                       |
| B3AD121520  | 12.0                    | + 15                 | + 100                    | 190                       |
|             |                         |                      |                          |                           |
| B3AS240550  | 24.0                    | 5                    | 500                      | 95                        |
| B3AS241225  | 24.0                    | 12                   | 250                      | 90                        |
| B3AS241520  | 24.0                    | 15                   | 200                      | 90                        |
| B3AD241225  | 24.0                    | + 12                 | + 125                    | 90                        |
| B3AD241520  | 24.0                    | + 15                 | + 100                    | 90                        |
|             |                         |                      |                          |                           |
| B3AS280550  | 28.0                    | 5                    | 500                      | 95                        |
| B3AS281225  | 28.0                    | 12                   | 250                      | 90                        |
| B3AS281520  | 28.0                    | 15                   | 200                      | 90                        |
| B3AD281225  | 28.0                    | + 12                 | + 125                    | 90                        |
| B3AD281520  | 28.0                    | + 15                 | + 100                    | 90                        |
|             |                         |                      |                          |                           |
| B3AS480550  | 48.0                    | 5                    | 500                      | 52                        |
| B3AS481225  | 48.0                    | 12                   | 250                      | 47                        |
| B3AS481520  | 48.0                    | 15                   | 200                      | 47                        |
| B3AD480560  | 48.0                    | + 5                  | + 300                    | 52                        |
| B3AD481225  | 48.0                    | + 12                 | + 125                    | 47                        |
| B3AD481520  | 48.0                    | + 15                 | + 100                    | 47                        |

Specifications subject to change without notice.

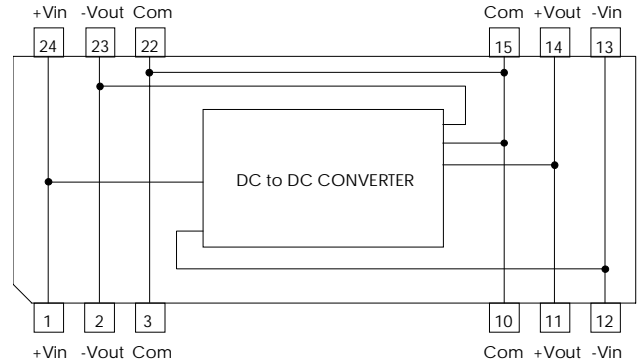


# 1.5 & 3.0 WATT DC/DC CONVERTERS

**SCHEMATIC DIAGRAM  
SINGLE OUTPUT**

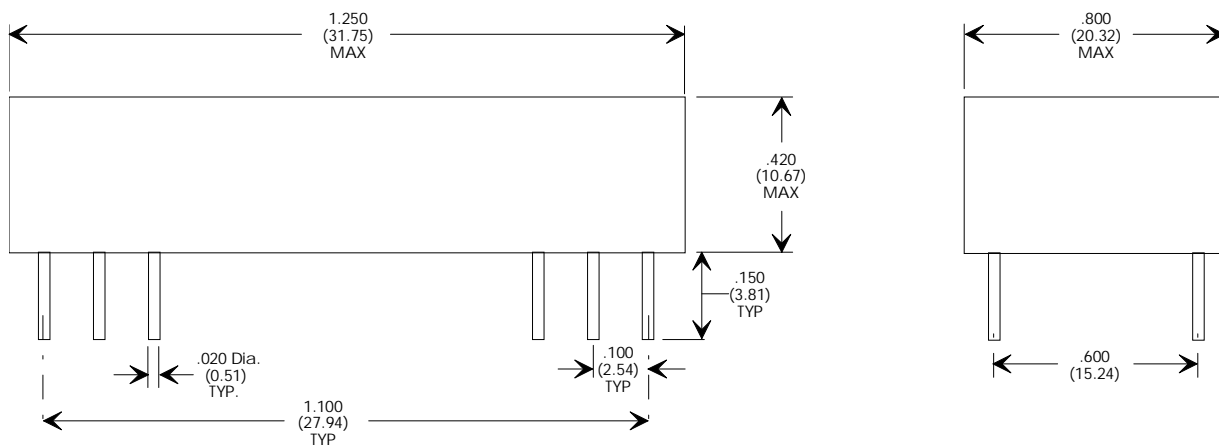


**SCHEMATIC DIAGRAM  
DUAL OUTPUT**



| PIN NUMBER | SINGLE OUTPUT | DUAL OUTPUT |
|------------|---------------|-------------|
| 1          | +INPUT        | +INPUT      |
| 2          | NC            | -OUTPUT     |
| 3          | NC            | COMMON      |
| 10         | -OUTPUT       | COMMON      |
| 11         | +OUTPUT       | +OUTPUT     |
| 12         | -INPUT        | -INPUT      |
| 13         | -INPUT        | -INPUT      |
| 14         | +OUTPUT       | +OUTPUT     |
| 15         | -OUTPUT       | COMMON      |
| 22         | NC            | COMMON      |
| 23         | NC            | -OUTPUT     |
| 24         | +INPUT        | +INPUT      |

**PHYSICAL DIMENSIONS .... DIMENSIONS IN INCHES (mm)**



Specifications subject to change without notice.

# 1.0 to 2.25 WATT DIP DC/DC CONVERTERS

## FEATURES

- ① 1 to 2.25 Watt
- ② Regulated & Unregulated Models
- ③ Short Circuit Protection
- ④ 24-Pin DIP Package

## INPUT SPECIFICATIONS

- Voltage ..... 5 or 12Vdc
- Voltage Range .....  $\pm 10\%$
- Input Filter ..... Pi Network

## GENERAL SPECIFICATIONS

- Efficiency (unregulated) ..... 70%
- Efficiency (regulated) ..... 50%
- Switching Frequency ..... 20KHz min.
- Isolation Voltage ..... 500Vdc min.
- Operating Temperature ..... 0 to +70°C

## OUTPUT SPECIFICATIONS

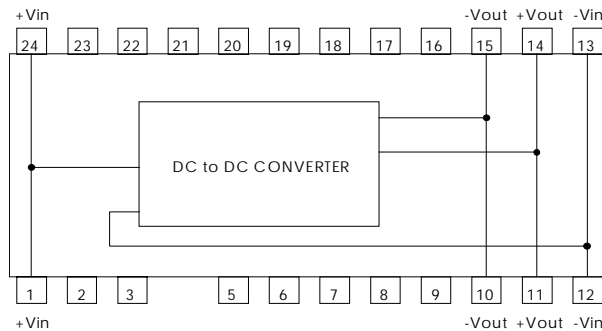
- Voltage ..... 9.0Vdc
- Voltage Accuracy .....  $\pm 5\%$
- Ripple & Noise 20MHz BW ..... 100mV p-p
- Load Regulation (unregulated).....  $\pm 6\%$
- Load Regulation (regulated).....  $\pm 5\%$

## ELECTRICAL SPECIFICATIONS AT 25°C

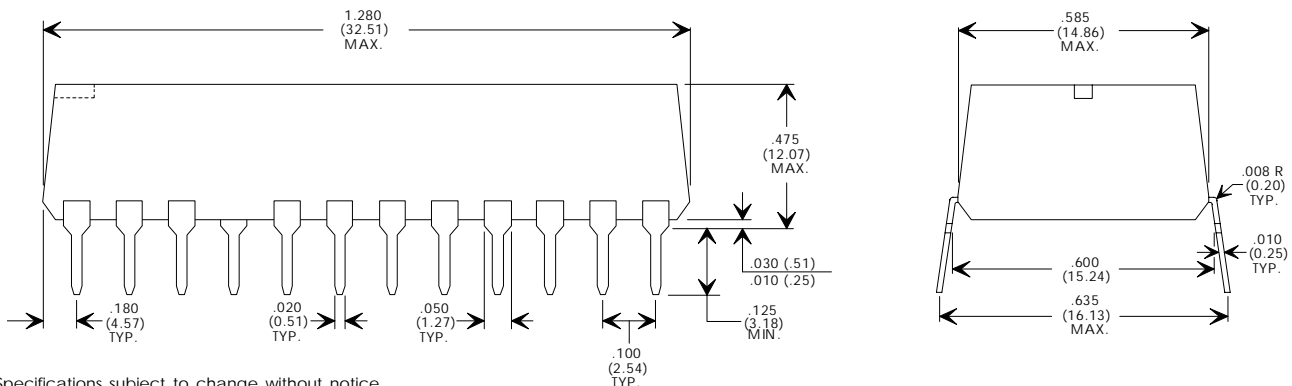
| PART NUMBER   | INPUT VOLTAGE (Vdc) | OUTPUT VOLTAGE (Vdc) | OUTPUT CURRENT (mA max.) | REGULATED OUTPUT | INPUT CURRENT (mA typ.) |           |
|---------------|---------------------|----------------------|--------------------------|------------------|-------------------------|-----------|
|               |                     |                      |                          |                  | NO LOAD                 | FULL LOAD |
| B2AU050920    | 5                   | 9                    | 200                      | NO               | 100                     | 575       |
| B2AU050921(*) | 5                   | 9                    | 200                      | NO               | 100                     | 575       |
| B2AU050925    | 5                   | 9                    | 250                      | NO               | 100                     | 625       |
| B2AU120920    | 12                  | 9                    | 200                      | NO               | 40                      | 200       |
| B2AU120925    | 12                  | 9                    | 250                      | NO               | 40                      | 250       |
| B2AR050920    | 5                   | 9                    | 200                      | YES              | 120                     | 720       |
| B2AR050925    | 5                   | 9                    | 250                      | YES              | 120                     | 750       |
| B2AR120920    | 12                  | 9                    | 200                      | YES              | 50                      | 320       |
| B2AR120925    | 12                  | 9                    | 250                      | YES              | 50                      | 350       |

NOTE: (\*) B2AU050921: MAY USING B2AU050920 AND REMOVE PIN #2-9, 16-23.

## SCHEMATIC DIAGRAM



## PHYSICAL DIMENSIONS .... DIMENSIONS IN INCHES (mm)



Specifications subject to change without notice.

