

# 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

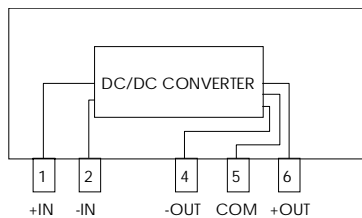
- Voltage ..... Per Table
- Voltage Accuracy .....  $\pm 5\%$
- Ripple & Noise 20MHz BW ..... 1% p-p
- Load Regulation .....  $\pm 10\%$

## ELECTRICAL SPECIFICATIONS AT 25°C

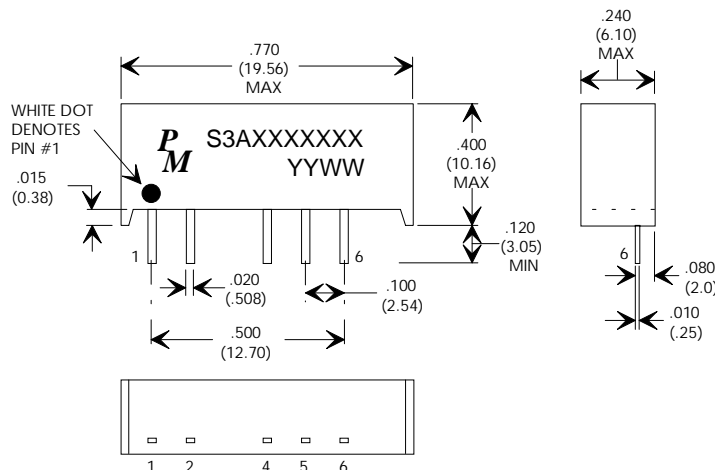
PART NUMBER	INPUT VOLTAGE (Vdc)	OUTPUT VOLTAGE (Vdc)	OUTPUT CURRENT (mA max.)
S3AS050520	5	5	200
S3AD050510	5	+ 5	+100
S3AS051208	5	12	84
S3AD051204	5	+ 12	+ 42
S3AS051507	5	15	66
S3AD051503	5	+ 15	+ 33
S3AS120520	12	5	200
S3AD120510	12	+ 5	+100
S3AS121208	12	12	84
S3AD121204	12	+ 12	+ 42

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.

# 1 WATT HI-ISOLATION 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 ..... 70% Typ.
- Switching Frequency ..... 90KHz Typ.
- Isolation Voltage ..... 3000Vdc min.
- Operating Temperature ..... -25 to +85°C

## OUTPUT SPECIFICATIONS

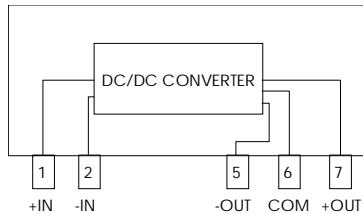
- Voltage ..... Per Table
- Voltage Accuracy .....  $\pm 5\%$
- Ripple & Noise 20MHz BW ..... 1% p-p
- Load Regulation .....  $\pm 10\%$

## ELECTRICAL SPECIFICATIONS AT 25°C

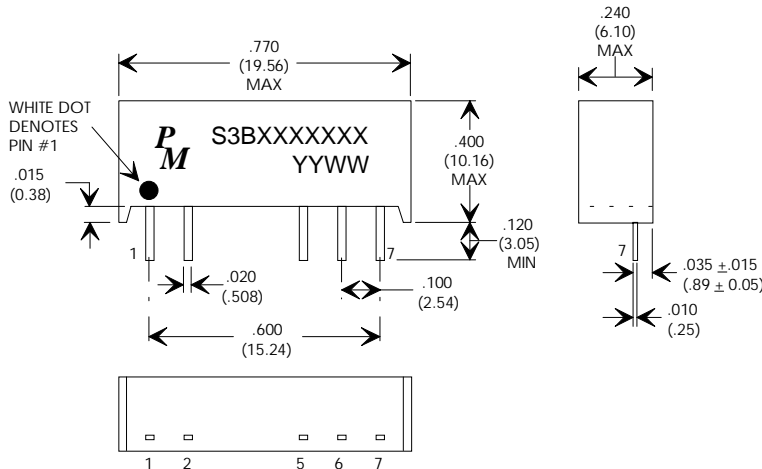
PART NUMBER	INPUT VOLTAGE (Vdc)	OUTPUT VOLTAGE (Vdc)	OUTPUT CURRENT (mA max.)
S3BS050520	5	5	200
S3BD050510	5	+ 5	100
S3BS051208	5	12	84
S3BD051204	5	+ 12	+ 42
S3BS051507	5	15	66
S3BD051503	5	+ 15	+ 33
S3BS120520	12	5	200
S3BD120510	12	+ 5	+ 100
S3BS121208	12	12	84

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

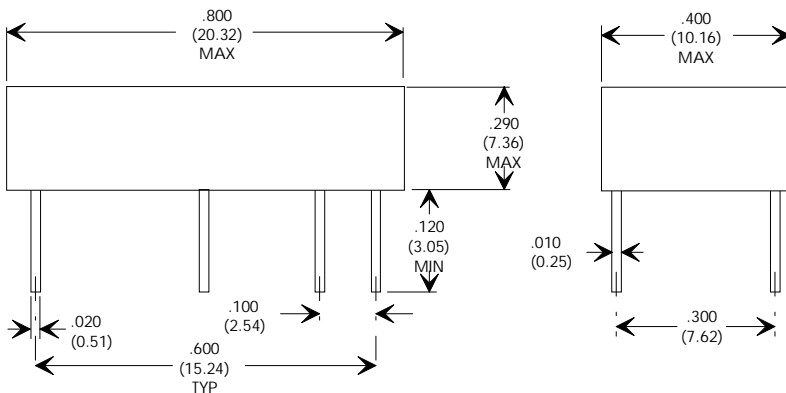
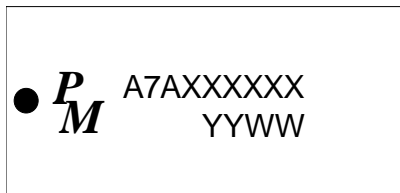
- Voltage ..... Per Table
- Voltage Accuracy ..... ±5%
- Ripple & Noise 20MHz BW ..... 1% p-p
- Load Regulation ..... ±10%

## ELECTRICAL SPECIFICATIONS AT 25°C

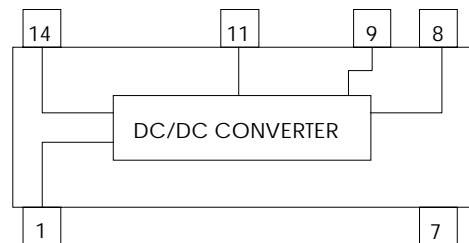
PART NUMBER	INPUT VOLTAGE (Vdc)	OUTPUT VOLTAGE (Vdc)	OUTPUT CURRENT (mA max.)
A7AS050520	5	5	200
A7AD050510	5	+ 5	100
A7AS051208	5	12	84
A7AD051204	5	+ 12	+ 42
A7AS051507	5	15	66
A7AD051503	5	+ 15	+ 33
A7AS120520	12	5	200
A7AD120510	12	+ 5	100
A7AS121208	12	12	84

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

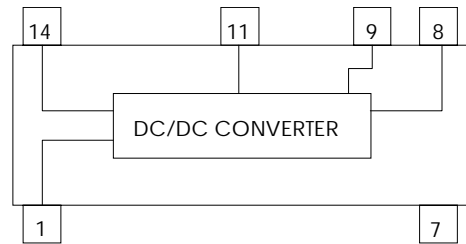
- Voltage ..... Per Table
- Voltage Accuracy .....  $\pm 5\%$
- Ripple & Noise 20MHz BW ..... 150mV p-p
- Load Regulation .....  $\pm 10\%$

## ELECTRICAL SPECIFICATIONS AT 25°C

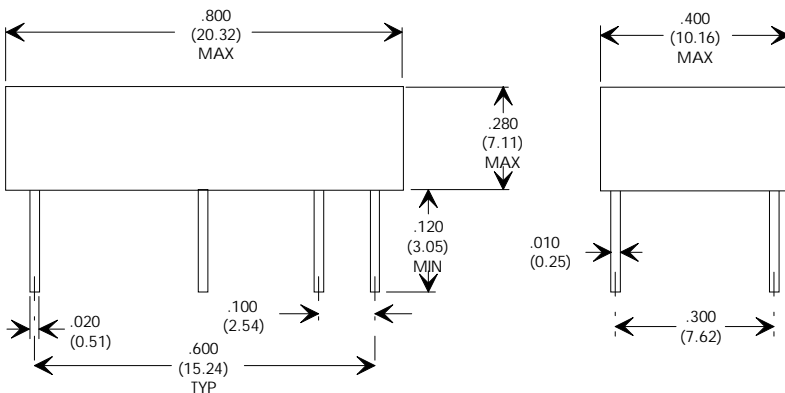
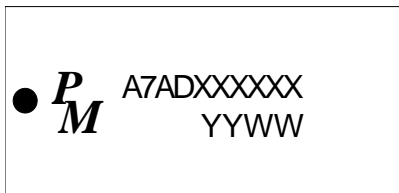
PART NUMBER	INPUT VOLTAGE (Vdc)	OUTPUT VOLTAGE (Vdc)	OUTPUT CURRENT (mA max.)
A7AD050520	5	+ 5	+ 200
A7AD050910	5	+ 9	+ 111
A7AS050920 <sup>(1)</sup>	5	9	200
A7AD050520	5	+ 5	+ 200
A7AD051208	5	+ 12	+ 85
A7AD051506	5	+ 15	+ 65
A7AD120520	12	+ 5	+ 200
A7AD121208	12	+ 12	+ 85
A7AD121506	12	+ 15	+ 65
A7AD240520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

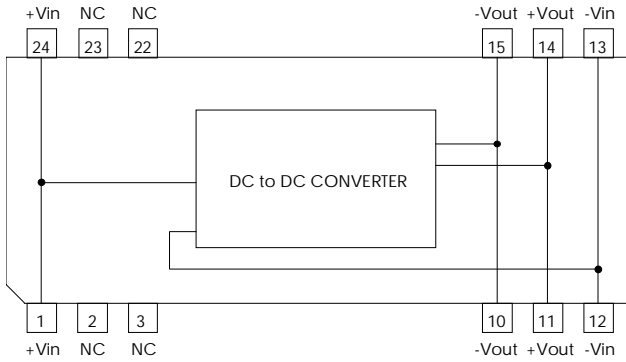
PART NUMBER	INPUT VOLTAGE (Vdc+10%)	OUTPUT VOLTAGE (Vdc)	OUTPUT CURRENT (mA max.)	FULL LOAD INPUT (mA typ.)
B3AS050550	5.0	5	500	540
B3AS051225	5.0	12	250	450
B3AS051520	5.0	15	200	440
B3AD051225	5.0	+ 12	+ 125	450
B3AD051520	5.0	+ 15	+ 100	440
B3AS120550	12.0	5	500	195
B3AS121225	12.0	12	250	190
B3AS121520	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.

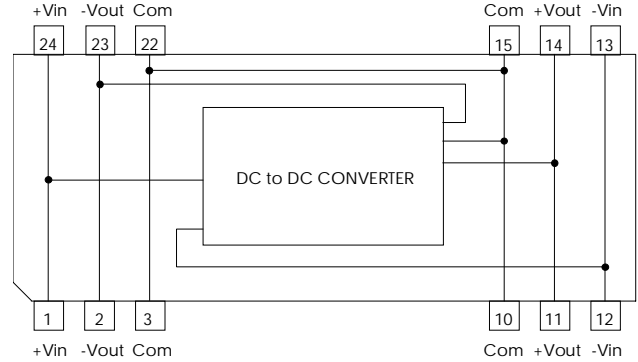


# 1.5 & 3.0 WATT DC/DC CONVERTERS

**SCHEMATIC DIAGRAM  
SINGLE OUTPUT**

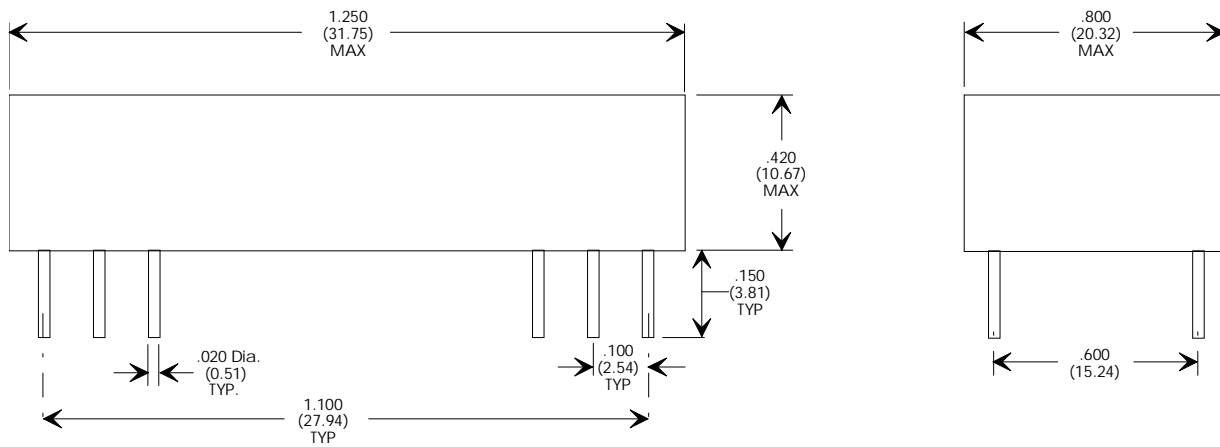


**SCHEMATIC DIAGRAM  
DUAL OUTPUT**



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

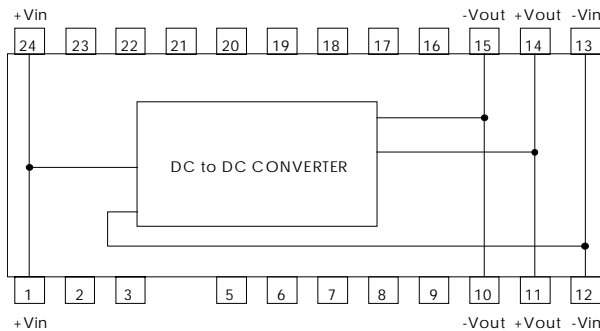
- Voltage ..... 9.0Vdc
- Voltage Accuracy .....  $\pm 5\%$
- Ripple & Noise 20MHz BW ..... 100mV p-p
- Load Regulation (unregulated).....  $\pm 6\%$
- Load Regulation (regulated).....  $\pm 5\%$

## ELECTRICAL SPECIFICATIONS AT 25°C

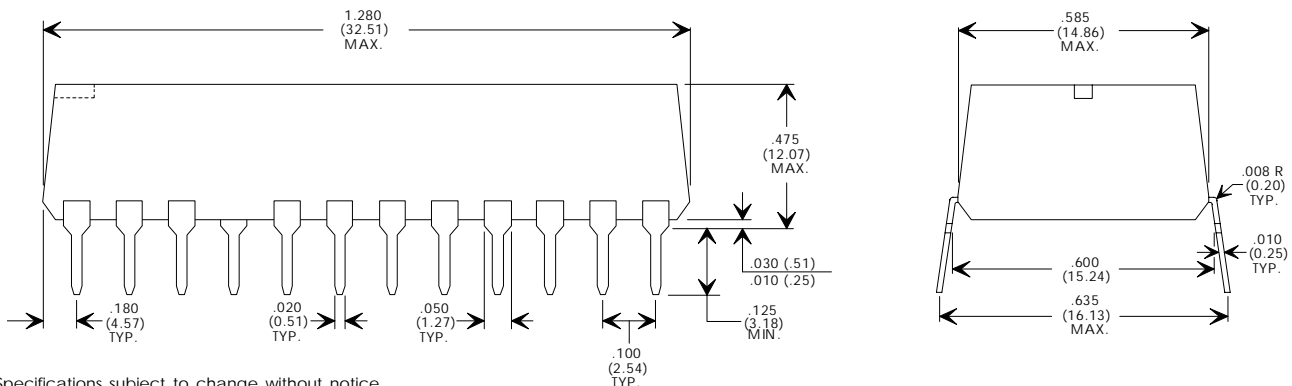
PART NUMBER	INPUT VOLTAGE (Vdc)	OUTPUT VOLTAGE (Vdc)	OUTPUT CURRENT (mA max.)	REGULATED OUTPUT	INPUT CURRENT (mA typ.)	
					NO LOAD	FULL LOAD
B2AU050920	5	9	200	NO	100	575
B2AU050921(*)	5	9	200	NO	100	575
B2AU050925	5	9	250	NO	100	625
B2AU120920	12	9	200	NO	40	200
B2AU120925	12	9	250	NO	40	250
B2AR050920	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.