

M802 SERIES

DC/DC POWER SUPPLY



PRODUCT HIGHLIGHTS

- MINIATURE
- HIGH DENSITY
- EIGHT OUTPUTS
- DC/DC CONVERTER
- UP TO 145W



Applications

Military (airborne, shipboard, mobile), Ruggedized, Telecom, Industrial Power Supply

Special Features

- Miniature size
- High efficiency
- Wide input range
- Input / Output isolation
- Fixed switching frequency (250 kHz)
- External synchronization capability
- TTL logic enable
- EMI filters included
- Non-latching protections:
Overload/short-circuit protection
Input over/under-voltage lockout
Over temperature protection

Environmental Conditions

Meets MIL-STD-810G

Temperature:

Operating: $-55\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$ (baseplate)

Storage: $-55\text{ }^{\circ}\text{C}$ to $+125\text{ }^{\circ}\text{C}$

Reliability

150,000 hours, calculated IAW

MIL-HDBK-217F at $+85\text{ }^{\circ}\text{C}$ baseplate,

Ground Fix conditions.

Electrical Specifications

DC INPUT

Voltage range: 18 to 70 V_{DC}

Abnormal transients: Protected

from

transients IAW MIL-STD-1275A ($100\text{ V} / 50\text{ ms}$) and MIL-STD-704A ($80\text{ V} /$

0.1 s) Efficiency: Up to 80%

EMC: Designed to meet MIL-STD-461F*

CE101, CE102, CS101, CS114, CS115, CS116, RE101, RE102, RS101, RS103

Isolation:

Input to Output:

200 V_{DC} Input to Case:

200 V_{DC}

DC OUTPUTS (groups floating)

Output voltage regulation: Less than $\pm 1\%$

(no load to full load, $-55\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$)

Ripple and Noise: $50\text{ mV}_{\text{p-p}}$, typ. (max. 1%)

Current limiting:

Continuous protection for unlimited

time Over voltage protection:

Passive transorbs on outputs.

Over temperature protection:

Shutdown if baseplate temperature exceeds

$+105\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$; Automatic recovery upon

baseplate cooldown to below $+95\text{ }^{\circ}\text{C} \pm$

$5\text{ }^{\circ}\text{C}$. Isolation:

Output to Case: 100 V_{DC}

*EMC compliance achieved when tested with 5 μH LISNs, shielded harness and static resistive load.

Functions and Signals

INHIBIT

The ***INHIBIT*** signal is used to turn the power supply ON and OFF.

TTL "1" or OPEN – Power supply is ON (For normal operation, leave this pin unconnected.)

TTL "0" or SHORT to ***SIGNAL RTN*** – Power supply is OFF.

SYNC

The ***SYNC*** signal is used to allow the power supply's switching frequency to sync with the system clock.

The external clock's frequency can be 250 kHz \pm 10 kHz.

When this pin is left open (unconnected) the power supply will synchronize to its internal clock, set at 250 kHz \pm 10 kHz

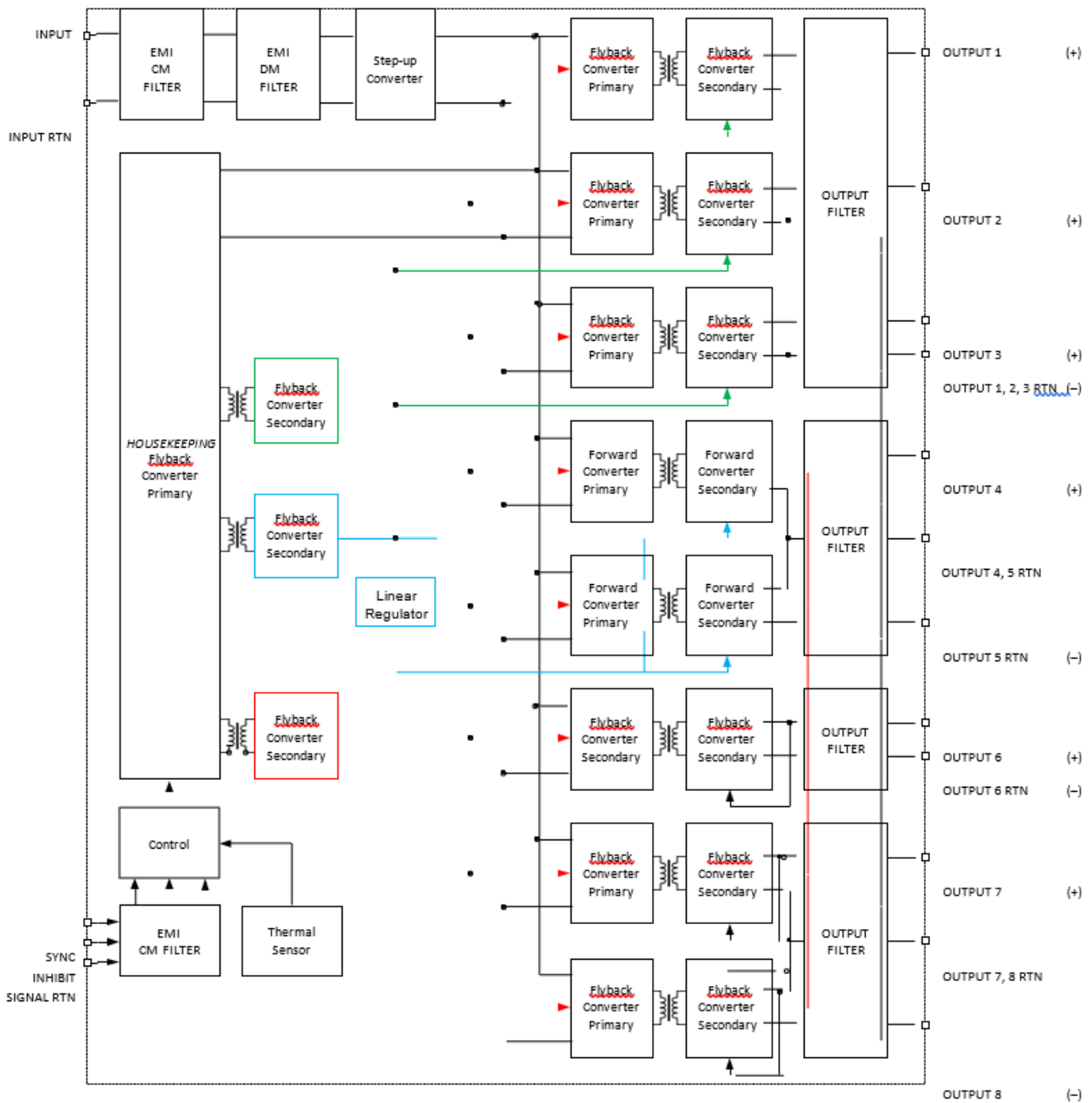
SIGNAL RTN

The ***SIGNAL RTN*** is used as a return path for the ***SYNC*** and ***INHIBIT*** signals.

This pin is referenced to ***VIN RTN***.

TYPE A

Operational Block Diagram



Outputs Isolation (Ground RTN groups)

- All outputs are isolated from the input.
- Outputs are separated into the following four galvanically isolated groups:
 - Group A: Outputs #1, #2 and #3
 - Group B: Outputs #4 and #5
 - Group C: Output #6
 - Group D: Outputs #7 and #8

TYPE A

Outputs Configuration Range

| Output # | Voltage Range | Current Range | Power Range |
|--------------|------------------|---------------|------------------------|
| 1 | 1.25 to 100 VDC | 0 to 5 A | 10A total 0 to 20 W |
| 2 | 1.25 to 100 VDC | 0 to 5 A | |
| 3 | 1.25 to 100 VDC | 0 to 5 A | |
| 4 | 1.25 to 50 VDC | 0 to 8 A | 10A total 0 to 45 W |
| 5 | -1.25 to -50 VDC | 0 to 8 A | |
| 6 | 5 to 18 VDC | 0 to 5 A | 0 to 20 W |
| 7 | 5 to 18 VDC | 0 to 1 A | 0 to 15 W |
| 8 | -5 to -18 VDC | 0 to 1 A | 0 to 15 W |
| Total | | | 0 to 150 W |

Pin Assignment

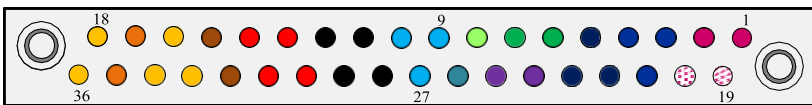
Connector type: M55302/61-A36 or eq.

Mating connector type: M55302/62-A36M (solder cup termination) or M55302/66-32M (#22 AWG crimp termination) or eq.

| Pin # | Function | P | |
|-------|-------------|---|---|
| 1 | OUT 6 | + | ● |
| 2 | OUT 6 | + | ● |
| 3 | OUT 5 | - | ● |
| 4 | OUT 5 | - | ● |
| 5 | OUT 4,5 RTN | | ● |
| 6 | OUT 8 | - | ● |
| 7 | OUT 7,8 RTN | | ● |
| 8 | OUT 7 | + | ● |
| 9 | OUT 4 | + | ● |
| 10 | OUT 4 | + | ● |
| 11 | INPUT RTN | - | ● |
| 12 | INPUT RTN | - | ● |

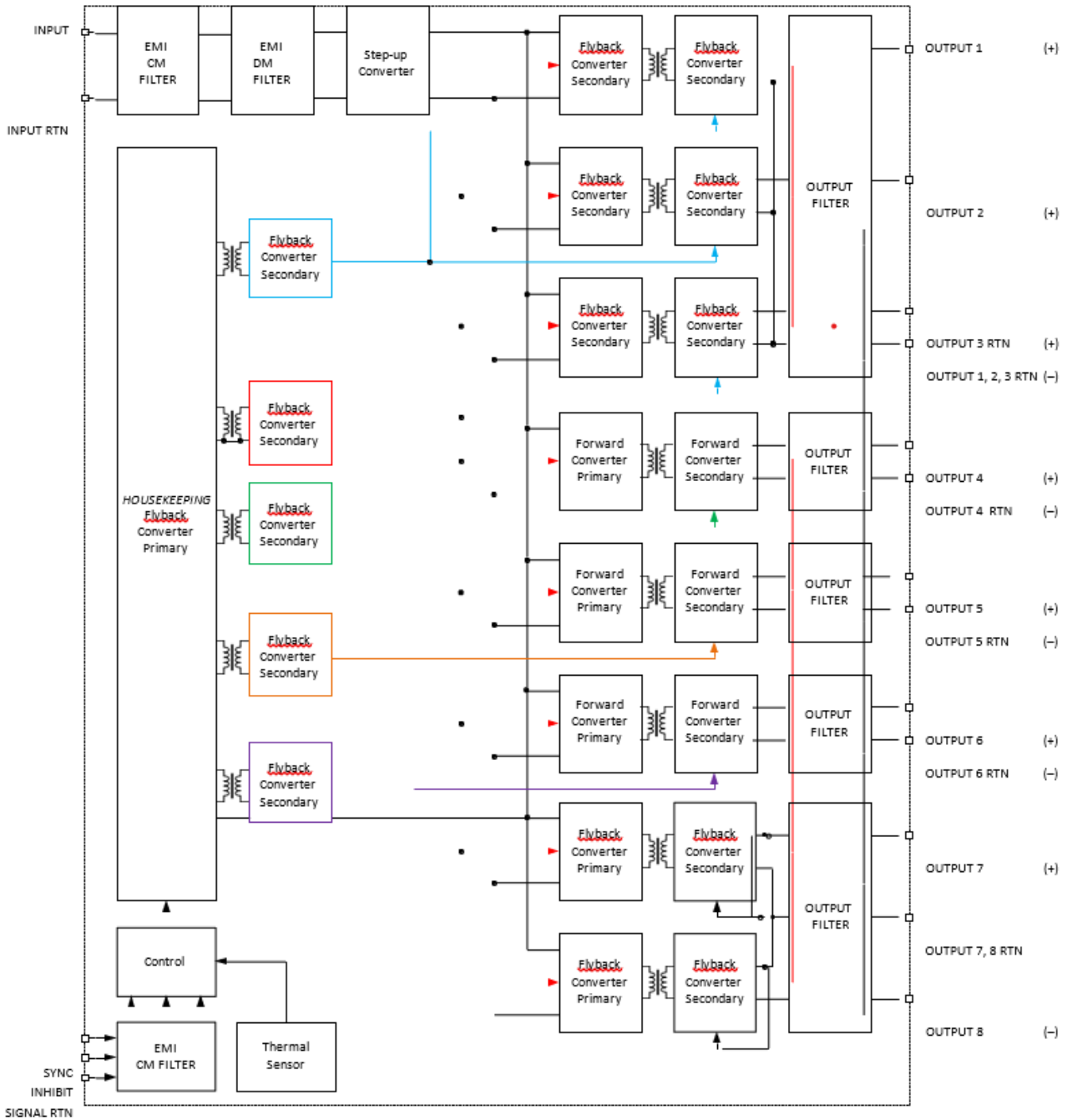
| Pin # | Function | P | |
|-------|---------------|---|---|
| 13 | INPUT | + | ● |
| 14 | INPUT | + | ● |
| 15 | OUT 1 | + | ● |
| 16 | OUT 1,2,3 RTN | - | ● |
| 17 | OUT 2 | + | ● |
| 18 | OUT 3 | + | ● |
| 19 | OUT 6 RTN | - | ● |
| 20 | OUT 6 RTN | - | ● |
| 21 | OUT 5 | - | ● |
| 22 | OUT 4,5 RTN | | ● |
| 23 | OUT 4,5 RTN | | ● |
| 24 | SYNC | + | ● |

| Pin # | Function | P | |
|-------|---------------|---|---|
| 25 | SIGNAL RTN | - | ● |
| 26 | INHIBIT | + | ● |
| 27 | OUT 4 | + | ● |
| 28 | INPUT RTN | - | ● |
| 29 | INPUT RTN | - | ● |
| 30 | INPUT | + | ● |
| 31 | INPUT | + | ● |
| 32 | OUT 1 | + | ● |
| 33 | OUT 1,2,3 RTN | - | ● |
| 34 | OUT 1,2,3 RTN | - | ● |
| 35 | OUT 2 | + | ● |
| 36 | OUT 3 | + | ● |



TYPE B

Operational Block Diagram



Outputs Isolation (Ground RTN groups)

- All outputs are isolated from the input.
- Outputs are separated into the following five galvanically isolated groups:
 - Group A: Outputs #1, #2 and #3
 - Group B: Output #4
 - Group C: Output #5
 - Group D: Output #6
 - Group E: Outputs #7 and #8

TYPE B

Outputs Configuration Range

| Output # | Voltage Range | Current Range | Power Range |
|--------------|-----------------------------|---------------|-------------|
| 1 | 1.25 to 100 V _{DC} | 0 to 8 A | 0 to 25 W |
| 2 | 1.25 to 100 V _{DC} | 0 to 5 A | 0 to 10 W |
| 3 | 1 to 100 V _{DC} | 0 to 5 A | 0 to 10 W |
| 4 | 1.5 to 50 V _{DC} | 0 to 5 A | 0 to 40 W |
| 5 | 1.5 to 50 V _{DC} | 0 to 5 A | 0 to 40 W |
| 6 | 5 to 18 V _{DC} | 0 to 5 A | 0 to 25 W |
| 7 | 5 to 18 V _{DC} | 0 to 1 A | 0 to 15 W |
| 8 | -5 to -18 V _{DC} | 0 to 1 A | 0 to 15 W |
| Total | | | 0 to 150 W |

Pin Assignment

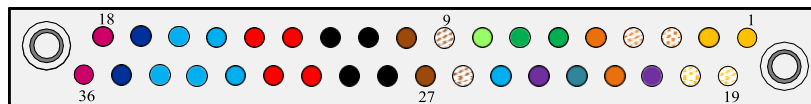
Connector type: M55302/61-A36 or eq.

Mating connector type: M55302/62-A36M (solder cup termination) or M55302/66-32M (#22 AWG crimp termination) or eq.

| Pin # | Function | P | |
|-------|-------------|---|---|
| 1 | OUT 3 | + | ● |
| 2 | OUT 3 | + | ● |
| 3 | OUT 2 RTN | - | ○ |
| 4 | OUT 2 RTN | - | ○ |
| 5 | OUT 2 | + | ● |
| 6 | OUT 8 | - | ● |
| 7 | OUT 7,8 RTN | | ● |
| 8 | OUT 7 | + | ● |
| 9 | OUT 1 RTN | - | ○ |
| 10 | OUT 1 | + | ● |
| 11 | INPUT RTN | - | ● |
| 12 | INPUT RTN | - | ● |

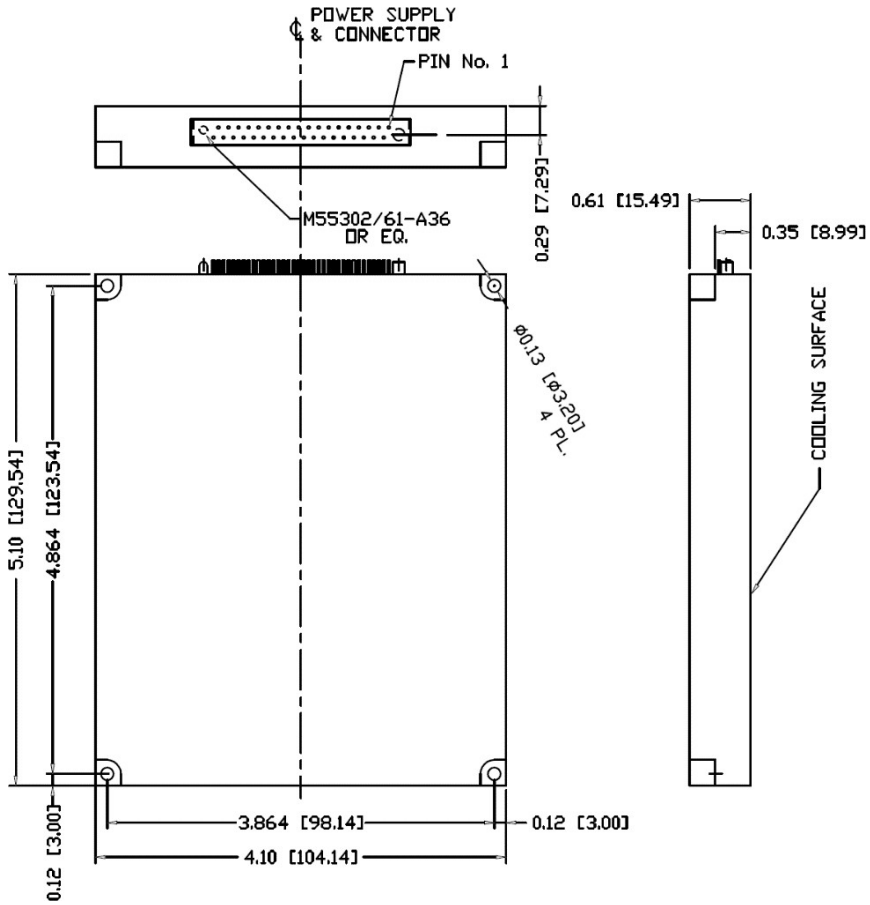
| Pin # | Function | P | |
|-------|---------------|---|---|
| 13 | INPUT | + | ● |
| 14 | INPUT | + | ● |
| 15 | OUT 4 | + | ● |
| 16 | OUT 4,5,6 RTN | - | ○ |
| 17 | OUT 5 | + | ● |
| 18 | OUT 6 | + | ● |
| 19 | OUT 3 RTN | - | ○ |
| 20 | OUT 3 RTN | - | ○ |
| 21 | SIGNAL RTN | - | ○ |
| 22 | OUT 2 | + | ● |
| 23 | INHIBIT | + | ● |
| 24 | SYNC | + | ● |

| Pin # | Function | P | |
|-------|---------------|---|---|
| 25 | OUT 4 | + | ● |
| 26 | OUT 1 RTN | - | ○ |
| 27 | OUT 1 | + | ● |
| 28 | INPUT RTN | - | ● |
| 29 | INPUT RTN | - | ● |
| 30 | INPUT | + | ● |
| 31 | INPUT | + | ● |
| 32 | OUT 4 | + | ● |
| 33 | OUT 4,5,6 RTN | - | ○ |
| 34 | OUT 4,5,6 RTN | - | ○ |
| 35 | OUT 5 | + | ● |
| 36 | OUT 6 | + | ● |

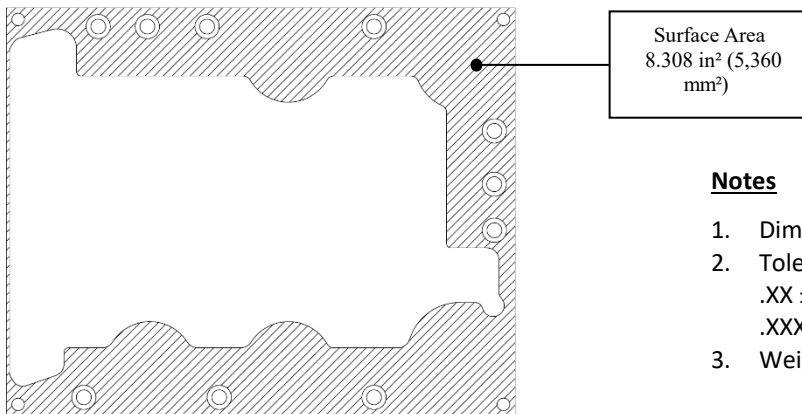


TYPES A+B

Outline Drawing



Heat Dissipation Surface



Notes

1. Dimensions are in inches [mm]
2. Tolerance is:
.XX ± 0.01 in
.XXX ± 0.005 in
3. Weight: Approx. 14 oz [400 g]

Note: Specifications are subject to change without prior notice by the manufacturer