C&D TECHNOLOGIES

Product Data Sheet

# 5 WATTS REGULATED DC/DC CONVERTERS

# PWR1546A


## FEATURES

- 1mVp-p MAXIMUM OUTPUT NOISE
- 5W RATED OUTPUT POWER
- SHORT-CIRCUIT PROTECTION
- SIX-SIDED SHIELDING
- INTERNAL INPUT AND OUTPUT FILTERING
- FULLY REGULATED

## APPLICATIONS

- HIGH RESOLUTION DATA ACQUISTION
- PRECISION TEST EQUIPMENT
- HIGH GAIN AMPLIFIERS
- PRECISION INSTRUMENTATION

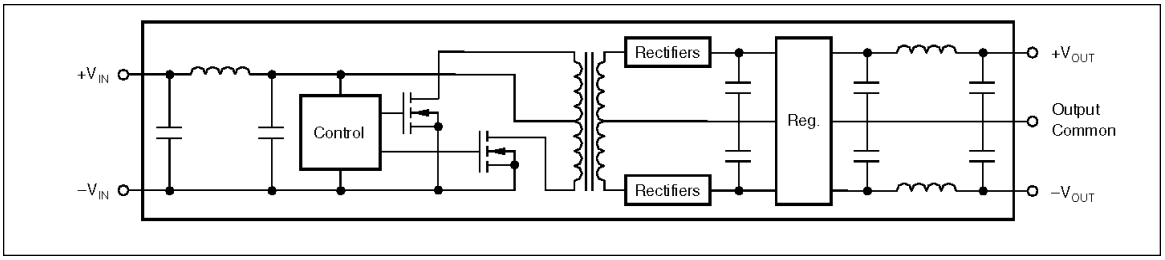
## DESCRIPTION

The PWR1546A has a maximum of 1mVp-p output noise. This unit incorporates input and output filtering along with an internal shield, giving full six-sided shielding that keeps unwanted radiated noise from your circuit. No external parts are required to meet the 1mVp-p maximum guaranteed output noise.

The PWR1546A is a miniature DC/DC converter providing dual isolated ±15VDC outputs from a single +5VDC input. Each output will supply full-rated current over the entire specification range. Each output is regulated and is protected against all shorts. The isolation barrier is guaranteed to be 750VDC.

Surface-mounted components and thermal encapsulant allow superior reliability and excellent thermal dissipation. The calculated MTTF (per MIL-HDBK-217 Rev. E, Circuit-Stress Analysis Method) is in excess of 100 years at 25°C.

## SIMPLIFIED CIRCUIT DIAGRAM



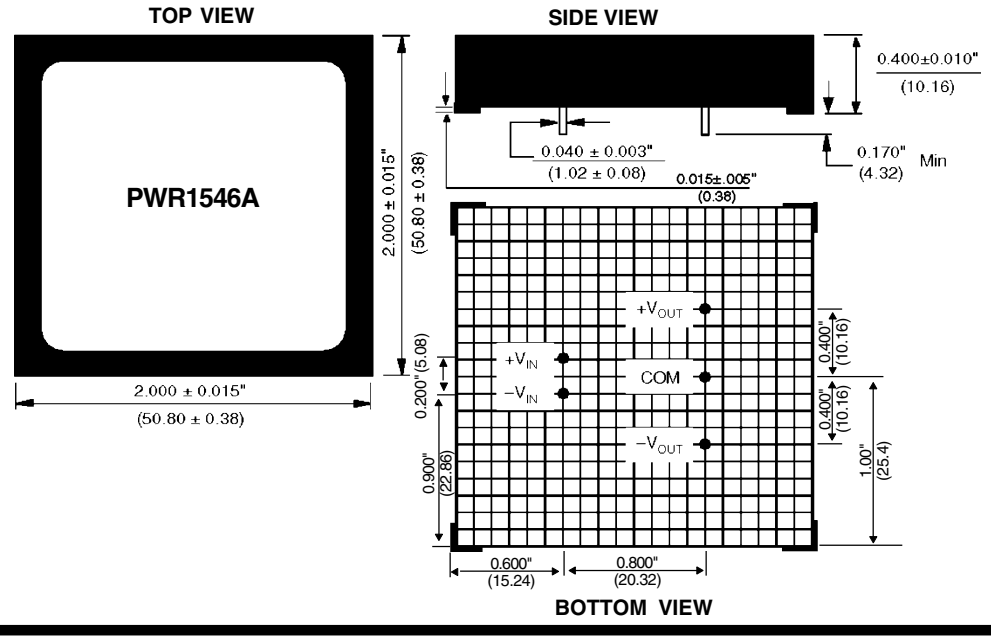
# COMMON SPECIFICATIONS

Specifications typical at $T_A$ = +25°C, rated input voltage, rated output current unless otherwise noted.

| PARAMETER | CONDITIONS | MIN | TYP | MAX | UNITS |
|---|---|---|---|---|---|
| **INPUT** | | | | | |
| Rated Voltage | | | 5.0 | | $V_{DC}$ |
| Voltage Range | | 4.5 | | 5.5 | $V_{DC}$ |
| Current | $I_{LOAD}$ = 0 | | 80 | | mA |
| | $I_{LOAD}$ = Rated Output | | 1650 | | mA |
| Reflected Ripple Current | BW = DC to 10MHz | | 18 | | mAp-p |
| **ISOLATION** | | | | | |
| Rated Voltage | | 750 | | | $V_{DC}$ |
| Test Voltage | 60 Hz, 10 seconds | 750 | | | Vpk |
| Resistance | | | 10 | | GΩ |
| Capacitance | | | 110 | | pF |
| Leakage Current | $V_{ISO}$ = 240VAC, 60HZ | | | 15 | µArms |
| **OUTPUT** | | | | | |
| Rated Voltage | | | ±15 | | $V_{DC}$ |
| Voltage Setpoint Accuracy | Rated Load, Nominal $V_{IN}$ | | | ±1 | % |
| Voltage Balance | | | | ±0.5 | % |
| Temperature Coefficient | | | ±0.01 | | %/°C |
| Rated Current | | | ±167 | | mA |
| Transient Recovery Time | To 0.1% of Final Value | | 10 | | ms |
| **REGULATION** | | | | | |
| Line | 4.5$V_{DC}$ to 5.5$V_{DC}$ | | ±0.02 | | % |
| Load | 0mA to ±167mA | | 0.02 | | % |
| **OUTPUT NOISE** | | | | | |
| Ripple and Noise | BW = DC to 10MHz | | 0.6 | 1.0 | mVp-p |
| **GENERAL** | | | | | |
| Efficiency | | | 60 | | % |
| Package Weight | | | 50 | | g |
| Switching Frequency | | | 50 | | kHz |
| MTTF per MIL-HDBK-217, Rev E. | Circuit Stress Method, $T_A$=+25°C | | 890 | | kHr |
| **TEMPERATURE** | | | | | |
| Specification | | –25 | +25 | +85 | °C |
| Operating | | –40 | | +100 | °C |
| Storage | | –55 | | +125 | °C |

NOTE: Other input and output voltages may be available upon request. Please consult factory.

# MECHANICAL




NOTES: All dimensions are in inches (millimeters).

GRID: 0.100 inches (2.54 millimeters)

Pin Placement Tolerance: ±0.015

Marked with: specific model ordered, date code, job code.

MATERIAL: Units are encapsulated in a low thermal resistance molding compound which has excellent chemical resistance, wide operating temperature range, and good electrical properties under high humidity environments. The encapsulant and outer shell of the unit have UL94V-0 ratings. Lead material is brass with a solder plated surface to allow ease of solderability.

## ABSOLUTE MAXIMUM RATINGS

| | |
|---|---|
| Output Short-Circuit Duration | Continuous |
| Internal Power Dissipation | 4W |
| Lead Temperature (soldering, 10 seconds max) | +300°C |

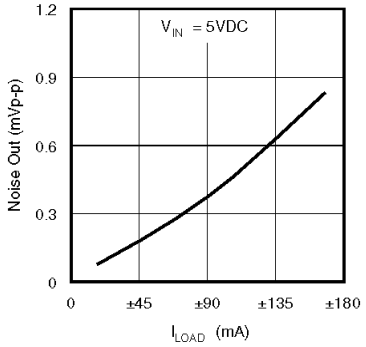
## ORDERING INFORMATION

| | PWR | 1546A | /H |
|---|---|---|---|
| Device Family<br>PWR indicates DC/DC converter | | | |
| Model Number | | | |
| Screening Option | | | |

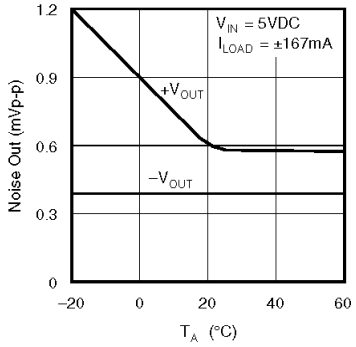
# TYPICAL PERFORMANCE CURVES

$T_A$ = +25°C, $V_{IN}$ = 5VDC, $I_{LOAD}$ = ±167mA unless otherwise noted.

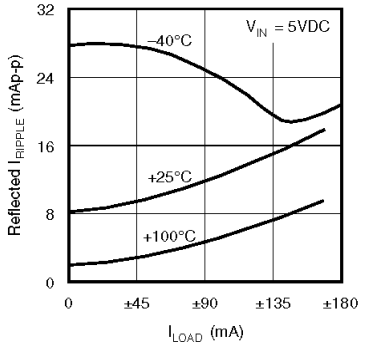
OUTPUT CURRENT



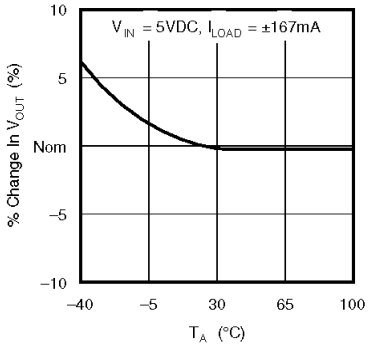

AMBIENT TEMPERATURE



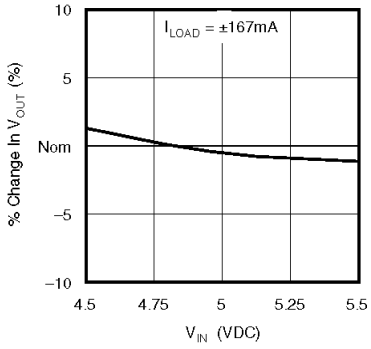

vs OUTPUT CURRENT



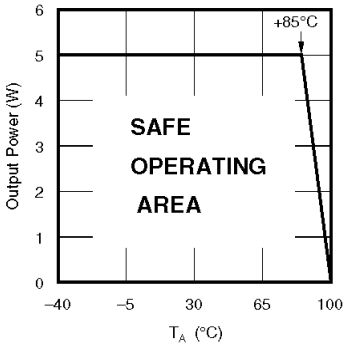

INPUT CURRENT vs AMBIENT TEMPERATURE



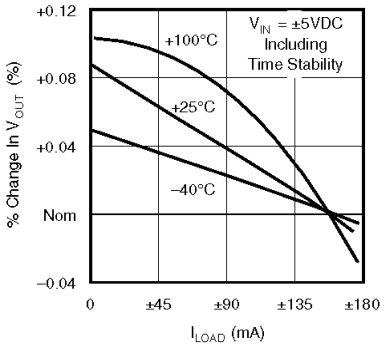

INPUT CURRENT vs INPUT VOLTAGE



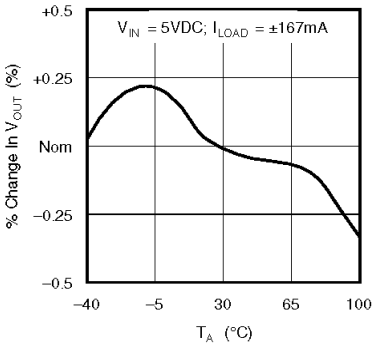

POWER DERATING



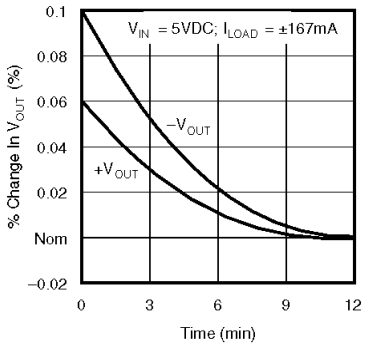

OUTPUT VOLTAGE vs OUTPUT CURRENT




OUTPUT VOLTAGE vs AMBIENT TEMPERATURE




WARMUP DRIFT



# ENGINEERING NOTES

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