

An Introduction to Intronics

New High Density DC/DC Converter

W30 Series



Intronics Inc.
1400 Providence Highway
Norwood MA 02062

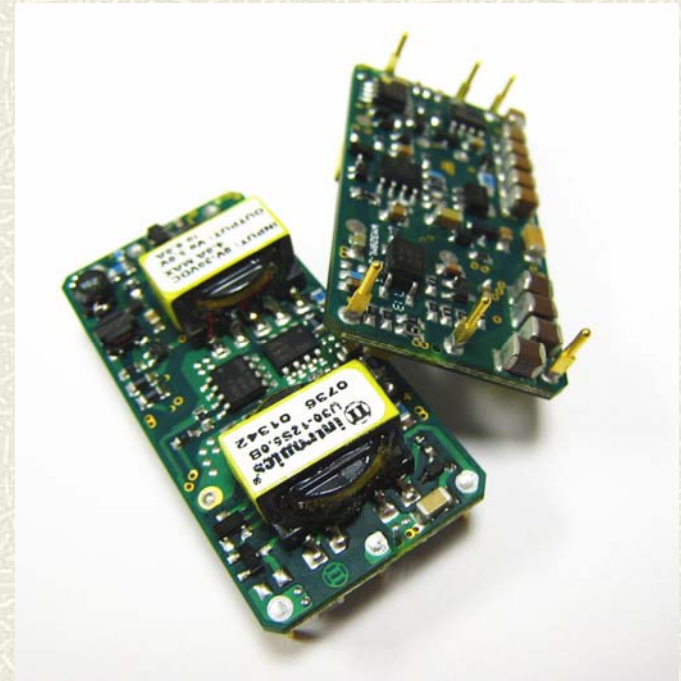


Trends of the DC/DC Converter Market

- Lower Output Voltages
- Higher Output Current Densities
- Higher Power Densities
- Higher Efficiencies
- Less De-rating of Output Current at High Ambient Temperatures with Little Airflow.
- Higher Input Voltage Ranges
- Lower Profiles
- Lower Cost, Lower Margins
- Faster Time to Market

W30 Series : Introduction

- 2" x 1" x 0.45"
- 30W Max Power
- 1500 VDC Isolation
- 2 Different Industry Standard Pin Outs on a Single PCB
- RoHS Compliant Available



| Vin | Vout | Iout | Eff |
|---------|-------|--------------|-------------|
| 9-18 V | 1.5 V | Up to 10A | Max 94 % |
| 9-36 V | 1.8 V | | |
| 18-36 V | 2.5 V | | |
| 36-75 V | 3.3 V | | |
| | 5.0 V | | |
| | 12 V | | |
| | 15 V | | |

Complete Data Sheet on the Website: www.intronics.com

Highest available Output Currents for Various Vout and Vin Ranges.
(4 : 1 Vin Range Available)

The W30 Features

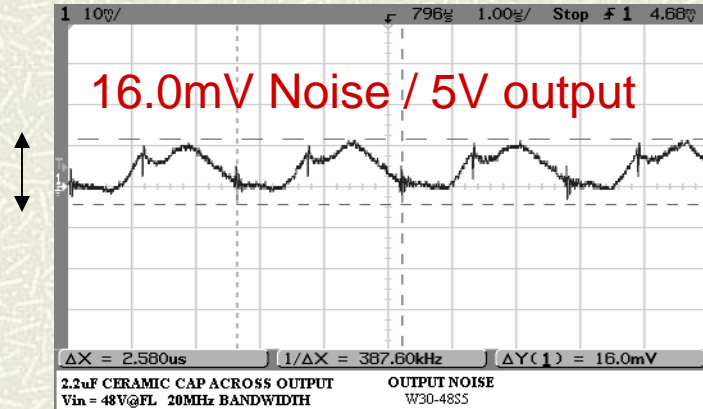
- Output Over Voltage Protection @135%
- Output Over Current Protection @ 120%
- Input Under / Over Voltage Lock-out
- “Hiccup” Output Short Circuit Protection
- Remote On/Off Control Pin with Programmable Polarity (Positive/Negative)
- Thermal Shutdown @ 120 deg C

- Fixed Switching Frequency 350kHz Typical
- Synchronous Rectification for very High Efficiency
- -40 deg C to +85 deg C Ambient Operation
- No Minimum Load Required
- MBTF up to 1,000,000 hours @ 50 deg C (Bellcore)

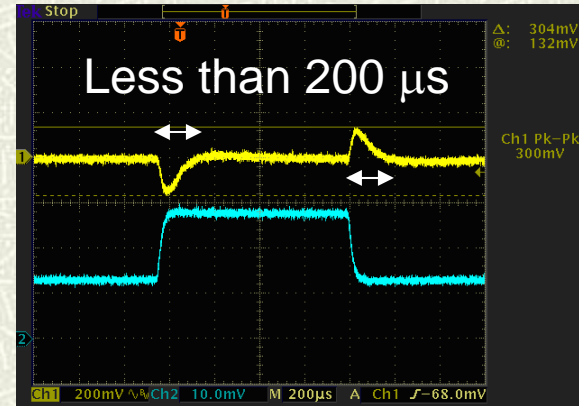
Very reliable Design !!

The W30 Features

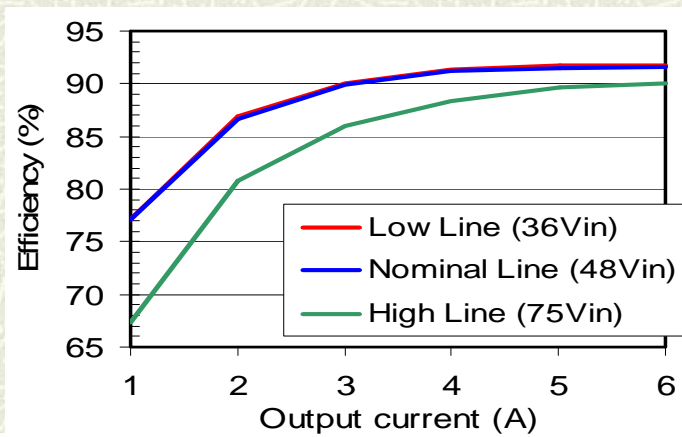
Ultra Low Output Noise



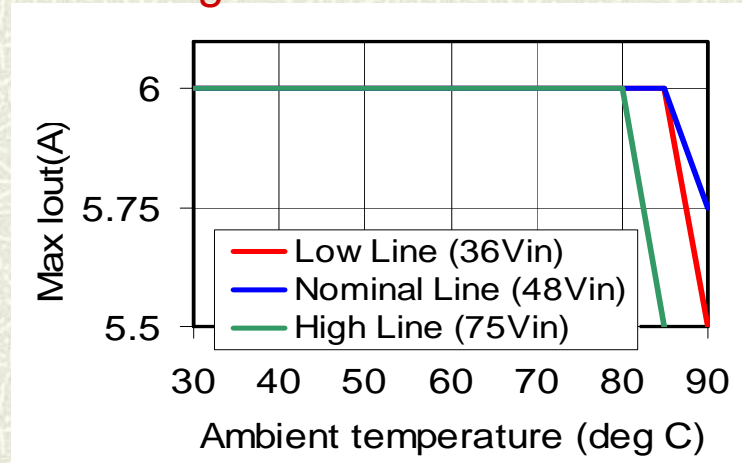
Excellent Turn On, and Output Load Transient Characteristics



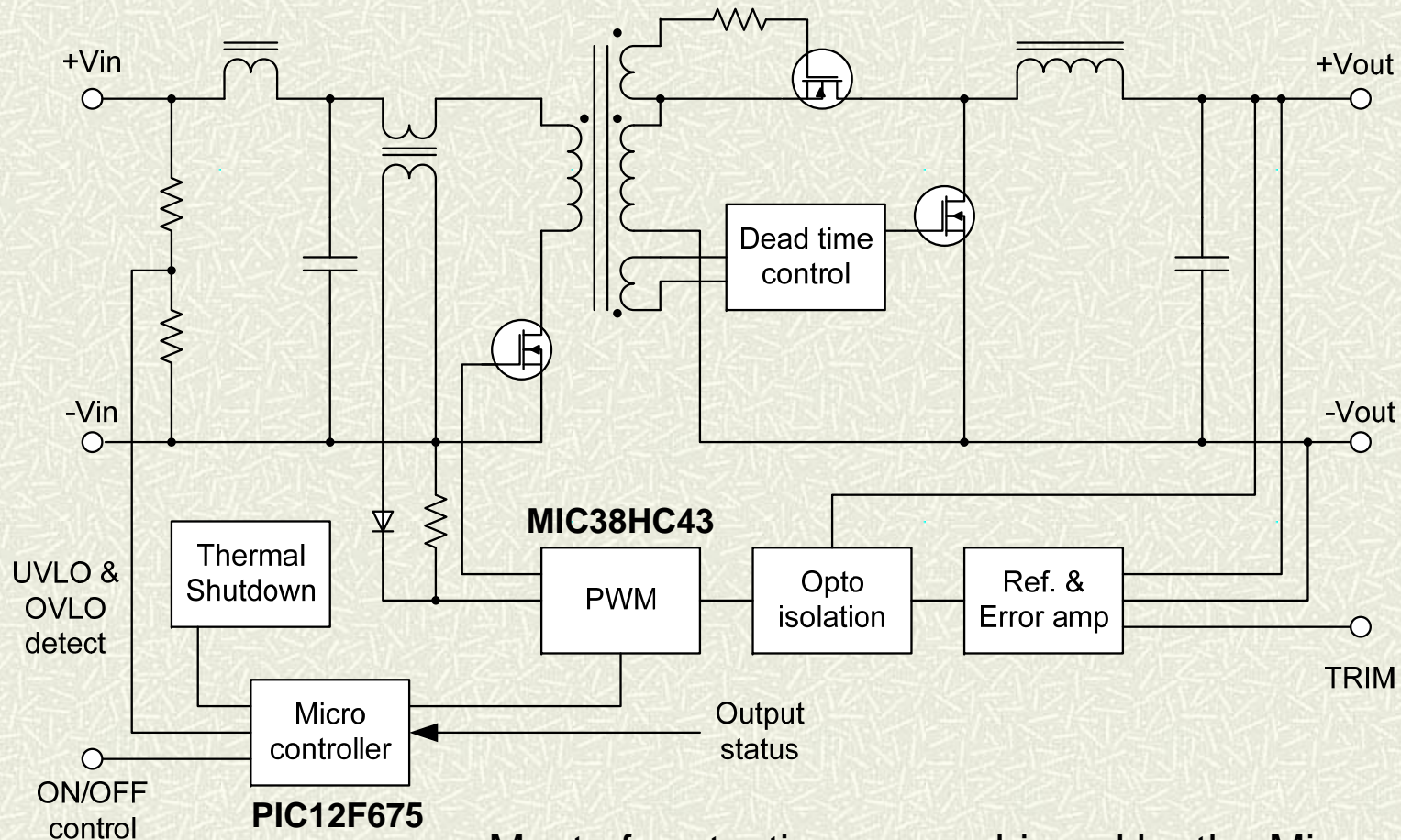
Very High Efficiency for a DC/DC Converter with Isolation



Excellent Thermal De-rating Spec. up to 85 deg C with No Airflow Needed.



W30 Simplified Schematic



Most of protections are achieved by the Micro controller

- 8 bit Flash based CMOS 8 pin SMT
- Programmed with Assembly language
- MPLAB IDE software
- 4 MHz Oscillator

Our Design:

Hybrid of Analog and Digital Technology

Hybrid !!

Digital : Microcontroller for Protections

- Low Cost
- Small Size
- Low complexity, Easy to Program
- In House Programming Manufacturing Process
- Fast Time to Market

Analog : PWM and the other circuitries

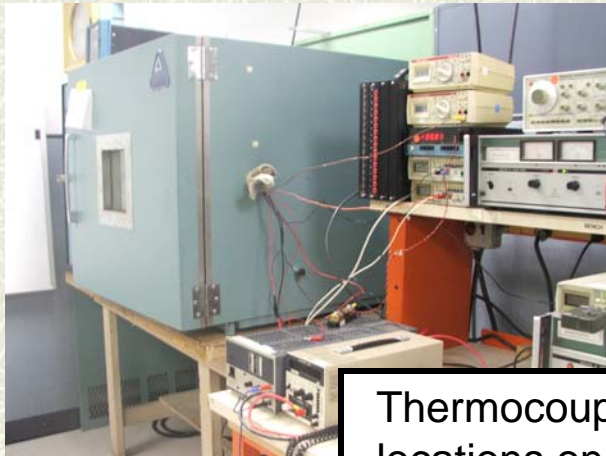
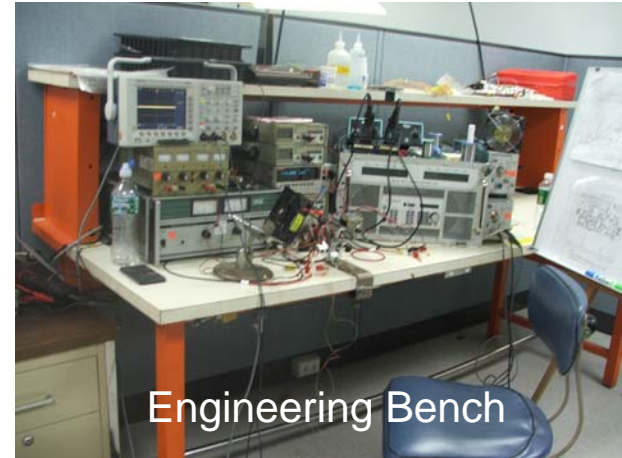
- Easy to Compensate for Stability using Current Mode Control PWM.
- Well known and Established Technology
- Known Design Time Cost
- Very fast Pulse by Pulse Overload Protection

Full digital disadvantages

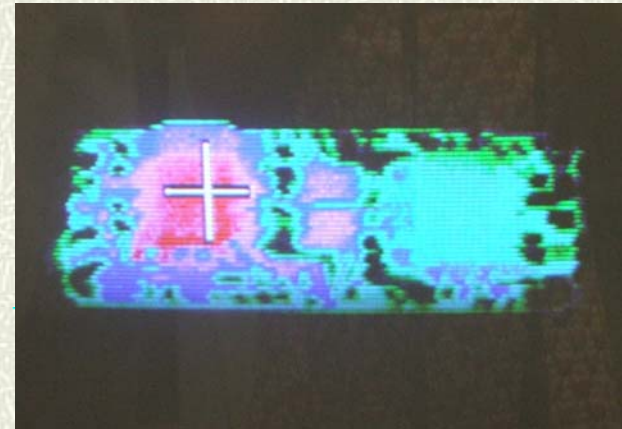
- High Complexity Feedback loop programming
- Digital PWM
 - How Known is the PWM?
 - How Fast is the Short Circuit Protection?
 - Is it Pulse by Pulse Current Limit?
- Size of the Part is Too Big for High Density Converters
- Cost of the Part

Design Verification

- Basic functional test
 - Loop stability analysis (Bode plots)
 - Steady state voltage waveforms on all power switching devices
 - Transient response
 - Turn on time
 - Input ripple current
 - Switching frequency
 - Open loop over voltage protection
-
- Thermal Test in a sealed enclosure within an environmental chamber at Still Air



- Thermal Imaging



Design Verification

- All Pre-Release units go through 1000 hours of High Accelerated Life Testing
 - Input Voltage step changing from Low to High line
 - Programmed ON/OFF sequence
 - Short Circuit into “Hiccup” mode at all line and load conditions



Quality

- ISO 9001:2000 Certified Facility in Norwood, MA



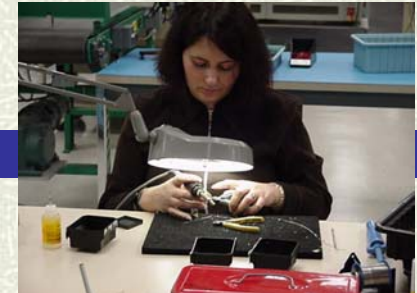
SMT Assembly



Wave Soldering



Aqueous Cleaning



Inspection



Automated Test



Burn-In



Hi-Pot Testing



Final Inspection

For more information

- Visit our website

<http://www.intronics.com>

And get a complete datasheet !

- Contact our Sales and Marketing Dept.

– TEL: 1-800-367-0004

– FAX: 1-781-551-5555

– info@intronicspower.com

| Part Number | Input Voltage | Output Voltage | Output Current | Power |
|---------------|---------------|----------------|----------------|-------|
| W30-12V-1.0A | 12V | 12V | 1.0A | 12W |
| W30-12V-1.5A | 12V | 12V | 1.5A | 18W |
| W30-12V-2.0A | 12V | 12V | 2.0A | 24W |
| W30-12V-2.5A | 12V | 12V | 2.5A | 30W |
| W30-12V-3.0A | 12V | 12V | 3.0A | 36W |
| W30-12V-3.5A | 12V | 12V | 3.5A | 42W |
| W30-12V-4.0A | 12V | 12V | 4.0A | 48W |
| W30-12V-4.5A | 12V | 12V | 4.5A | 54W |
| W30-12V-5.0A | 12V | 12V | 5.0A | 60W |
| W30-12V-5.5A | 12V | 12V | 5.5A | 66W |
| W30-12V-6.0A | 12V | 12V | 6.0A | 72W |
| W30-12V-6.5A | 12V | 12V | 6.5A | 78W |
| W30-12V-7.0A | 12V | 12V | 7.0A | 84W |
| W30-12V-7.5A | 12V | 12V | 7.5A | 90W |
| W30-12V-8.0A | 12V | 12V | 8.0A | 96W |
| W30-12V-8.5A | 12V | 12V | 8.5A | 102W |
| W30-12V-9.0A | 12V | 12V | 9.0A | 108W |
| W30-12V-9.5A | 12V | 12V | 9.5A | 114W |
| W30-12V-10.0A | 12V | 12V | 10.0A | 120W |
| W30-12V-10.5A | 12V | 12V | 10.5A | 126W |
| W30-12V-11.0A | 12V | 12V | 11.0A | 132W |
| W30-12V-11.5A | 12V | 12V | 11.5A | 138W |
| W30-12V-12.0A | 12V | 12V | 12.0A | 144W |
| W30-12V-12.5A | 12V | 12V | 12.5A | 150W |
| W30-12V-13.0A | 12V | 12V | 13.0A | 156W |
| W30-12V-13.5A | 12V | 12V | 13.5A | 162W |
| W30-12V-14.0A | 12V | 12V | 14.0A | 168W |
| W30-12V-14.5A | 12V | 12V | 14.5A | 174W |
| W30-12V-15.0A | 12V | 12V | 15.0A | 180W |
| W30-12V-15.5A | 12V | 12V | 15.5A | 186W |
| W30-12V-16.0A | 12V | 12V | 16.0A | 192W |
| W30-12V-16.5A | 12V | 12V | 16.5A | 198W |
| W30-12V-17.0A | 12V | 12V | 17.0A | 204W |
| W30-12V-17.5A | 12V | 12V | 17.5A | 210W |
| W30-12V-18.0A | 12V | 12V | 18.0A | 216W |
| W30-12V-18.5A | 12V | 12V | 18.5A | 222W |
| W30-12V-19.0A | 12V | 12V | 19.0A | 228W |
| W30-12V-19.5A | 12V | 12V | 19.5A | 234W |
| W30-12V-20.0A | 12V | 12V | 20.0A | 240W |
| W30-12V-20.5A | 12V | 12V | 20.5A | 246W |
| W30-12V-21.0A | 12V | 12V | 21.0A | 252W |
| W30-12V-21.5A | 12V | 12V | 21.5A | 258W |
| W30-12V-22.0A | 12V | 12V | 22.0A | 264W |
| W30-12V-22.5A | 12V | 12V | 22.5A | 270W |
| W30-12V-23.0A | 12V | 12V | 23.0A | 276W |
| W30-12V-23.5A | 12V | 12V | 23.5A | 282W |
| W30-12V-24.0A | 12V | 12V | 24.0A | 288W |
| W30-12V-24.5A | 12V | 12V | 24.5A | 294W |
| W30-12V-25.0A | 12V | 12V | 25.0A | 300W |
| W30-12V-25.5A | 12V | 12V | 25.5A | 306W |
| W30-12V-26.0A | 12V | 12V | 26.0A | 312W |
| W30-12V-26.5A | 12V | 12V | 26.5A | 318W |
| W30-12V-27.0A | 12V | 12V | 27.0A | 324W |
| W30-12V-27.5A | 12V | 12V | 27.5A | 330W |
| W30-12V-28.0A | 12V | 12V | 28.0A | 336W |
| W30-12V-28.5A | 12V | 12V | 28.5A | 342W |
| W30-12V-29.0A | 12V | 12V | 29.0A | 348W |
| W30-12V-29.5A | 12V | 12V | 29.5A | 354W |
| W30-12V-30.0A | 12V | 12V | 30.0A | 360W |
| W30-12V-30.5A | 12V | 12V | 30.5A | 366W |
| W30-12V-31.0A | 12V | 12V | 31.0A | 372W |
| W30-12V-31.5A | 12V | 12V | 31.5A | 378W |
| W30-12V-32.0A | 12V | 12V | 32.0A | 384W |
| W30-12V-32.5A | 12V | 12V | 32.5A | 390W |
| W30-12V-33.0A | 12V | 12V | 33.0A | 396W |
| W30-12V-33.5A | 12V | 12V | 33.5A | 402W |
| W30-12V-34.0A | 12V | 12V | 34.0A | 408W |
| W30-12V-34.5A | 12V | 12V | 34.5A | 414W |
| W30-12V-35.0A | 12V | 12V | 35.0A | 420W |
| W30-12V-35.5A | 12V | 12V | 35.5A | 426W |
| W30-12V-36.0A | 12V | 12V | 36.0A | 432W |
| W30-12V-36.5A | 12V | 12V | 36.5A | 438W |
| W30-12V-37.0A | 12V | 12V | 37.0A | 444W |
| W30-12V-37.5A | 12V | 12V | 37.5A | 450W |
| W30-12V-38.0A | 12V | 12V | 38.0A | 456W |
| W30-12V-38.5A | 12V | 12V | 38.5A | 462W |
| W30-12V-39.0A | 12V | 12V | 39.0A | 468W |
| W30-12V-39.5A | 12V | 12V | 39.5A | 474W |
| W30-12V-40.0A | 12V | 12V | 40.0A | 480W |
| W30-12V-40.5A | 12V | 12V | 40.5A | 486W |
| W30-12V-41.0A | 12V | 12V | 41.0A | 492W |
| W30-12V-41.5A | 12V | 12V | 41.5A | 498W |
| W30-12V-42.0A | 12V | 12V | 42.0A | 504W |
| W30-12V-42.5A | 12V | 12V | 42.5A | 510W |
| W30-12V-43.0A | 12V | 12V | 43.0A | 516W |
| W30-12V-43.5A | 12V | 12V | 43.5A | 522W |
| W30-12V-44.0A | 12V | 12V | 44.0A | 528W |
| W30-12V-44.5A | 12V | 12V | 44.5A | 534W |
| W30-12V-45.0A | 12V | 12V | 45.0A | 540W |
| W30-12V-45.5A | 12V | 12V | 45.5A | 546W |
| W30-12V-46.0A | 12V | 12V | 46.0A | 552W |
| W30-12V-46.5A | 12V | 12V | 46.5A | 558W |
| W30-12V-47.0A | 12V | 12V | 47.0A | 564W |
| W30-12V-47.5A | 12V | 12V | 47.5A | 570W |
| W30-12V-48.0A | 12V | 12V | 48.0A | 576W |
| W30-12V-48.5A | 12V | 12V | 48.5A | 582W |
| W30-12V-49.0A | 12V | 12V | 49.0A | 588W |
| W30-12V-49.5A | 12V | 12V | 49.5A | 594W |
| W30-12V-50.0A | 12V | 12V | 50.0A | 600W |