



OBSOLETE PRODUCT

Last time buy: 3 March 2014

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**Features**

- No external I/O filtering required
- +10.8V to +13.6V input
- +5V (±50mV), 5 Amp output
- Synchronous-rectifier topology
- 300kHz switching frequency
- Low output noise, 60mVp-p
- Quick transient response, 30µsec
- High efficiency, 91%
- -40 to +70°C operation with no derating
- On/off control; Undervoltage shutdown
- Output trim capability (3.3V to 6V)
- 1" x 2" metal package; EMC compliant
- IEC950/EN60950/UL1950 pending
- Modifications and customs for OEM's

When your new tapping in 12V-to-5V Amps of current. T

lutely no external filtering to achieve specified performance. The UNR-5/5-D12 achieves its high power density (25W/in<sup>3</sup>) through circuit topology and packaging. Its 91% efficient, fixed-frequency (300kHz), synchronous-rectifier design is packaged, with thermally conductive potting compound, in a heat-radiating, black metal case. It achieves low cost and high reliability through its use of proven, fully automated, SMT-on-pcb assembly techniques. Consequently, every 1 Amp of 12V current gives you 2.2 Amps of additional 5V current at an incremental cost.

The impressively efficient UNR-5/5-D12 delivers its full rated 25W output power over the -40 to +70°C ambient temperature range without heat sinking or forced-air cooling. Units derate to +100°C ambient. Devices are fully line (±0.25% max.) and load (±0.5% max.) regulated and feature user-optional remote on/off control and output-voltage trim capabilities (from 3.3 to 6 Volts).

If you need more 5V current and you've already rejected the use of inefficient, step-down, linear regulators, take a look at one of Murata Power Solutions' "switchers." Their high efficiency and ease of use may surprise you. Safety agency approvals and full EM/EMC characterization tests are currently in progress.

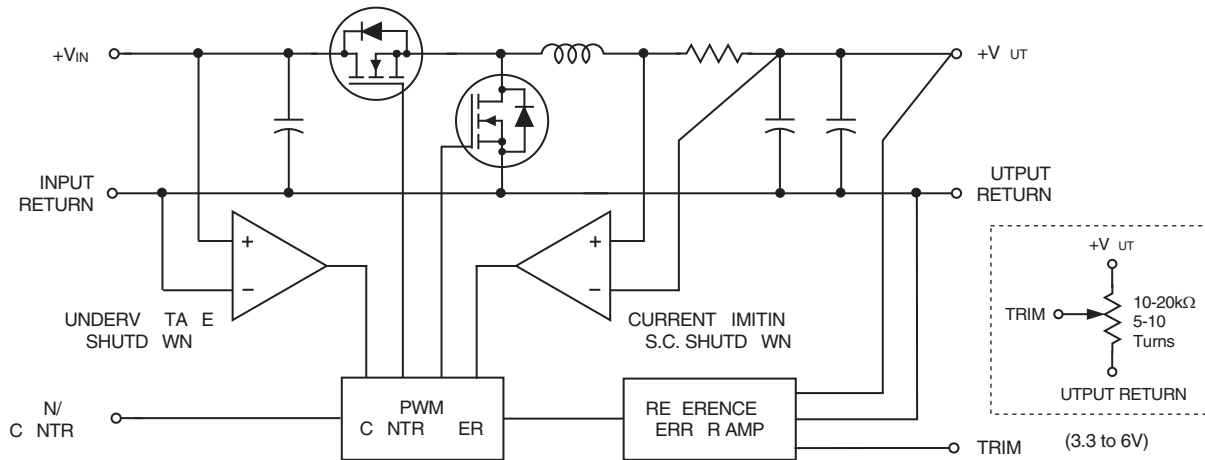


Figure 1. Simplified Schematic

Typical topology is shown.



**25**  
For full details go to  
[www.murata-ps.com/rohs](http://www.murata-ps.com/rohs)

Single Output, Non-Isolated, 12V-to-5V  
5 Amp, DC/DC Converters

**Performance/Functional Specifications**

Typical @ TA = +25°C under nominal line voltage and full-load conditions, with no external I/O filtering, unless noted. ①

Input	
Input Voltage Range	10.8-13.6 Volts (12V nominal)
Input Current ②	40/2290mA
Input Filter Type	Capacitive
Overshoot Protection	None
Reverse-Polarity Protection	None
Start-Up Threshold ③	10.2V typical, 10.4V maximum
Undervoltage Shutdown ③	9.6V typical, 8.2V minimum
On/Off Control (Pin 3) ④	TTL high (or open) = on, low = off
Output	
V <sub>OUT</sub> Accuracy (50% load)	±1% (±50mV) maximum
Temperature Coefficient	±0.02% per °C
Ripple/Noise (20MHz BW) ⑤	60mVp-p typical, 85mVp-p maximum
Line/Load Regulation	±0.25% maximum/±0.5% maximum
Efficiency	91% typical, 87% minimum
Current Limiting ⑥	Auto-recovery
Dynamic Characteristics	
Transient Response (50% load step)	30µsec to ±1% of final value
Switching Frequency	300kHz (±30kHz)
Environmental	
Operating Temperature (Ambient):	
Without Derating	-40 to +70°C
With Derating	to +100°C ( Straight line to 0 Watts)
Storage Temperature	-40 to +105°C
Physical	
Dimensions	2" x 1" x 0.48" (51 x 25 x 12.2mm)
Shielding	5-sided
Case Connection	Pin 2 (Input Return)
Case Material	Corrosion resistant steel with non-conductive, epoxy-based, black enamel finish and plastic baseplate
Pin Material	RoHS: Gold plate over copper alloy Non-RoHS: Pure tin over copper alloy
Weight	1.6 ounces (45.4 grams)
Flammability	UL 94V-0

**Absolute Maximum Ratings**

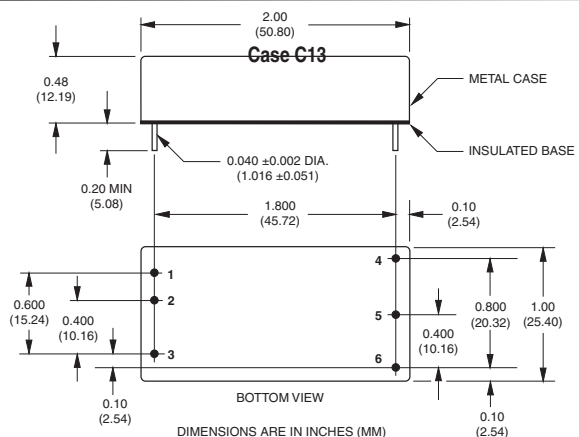
Input Voltage	15 Volts
Output Current	Current limited. Devices can withstand a sustained output short circuit without damage.
Storage Temperature	-40 to +105°C
Lead Temperature (soldering, 10 sec.)	+300°C

These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability. Proper operation under conditions other than those listed in the Performance/Functional Specifications Table is not implied.

**On/Off Control Functionality**

The On/Off Control pin has an internal 10kΩ pull-up resistor to +V<sub>IN</sub>. It can be driven with any logic circuit capable of meeting the following drive requirements. Logic "0" = 0 to +0.8V. Logic "1" = +2.0V to +V<sub>IN</sub>. I<sub>IH</sub> (@ V<sub>IN</sub> = +2.0V) = -1.2mA. I<sub>IL</sub> (@ V<sub>IN</sub> = 0V) = -1.4mA. Open collector logic or a single NPN drive transistor can be used. The drive circuit should be rated for more than 13.6V. Applying a voltage to pin 3 when no input power is applied to the converter can cause permanent damage to the converter.

**MECHANICAL SPECIFICATIONS**



I/O Connections	
Pin	Function P21
1	+Input
2	Input Return
3	On/Off Control
4	+Output
5	Output Return
6	Trim

**Note:**

The case is connected to pin 2 (Input Return).

UNR-5/5-D12 Non-Isolated, 12V-to-5V, 25 Watt, DC/DC Converter  
UNR-5/5-D12-C RoHS version



This product is subject to the following [operating requirements](#) and the [Life and Safety Critical Application Sales Policy](#):  
Refer to: <http://www.murata-ps.com/requirements/>

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- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
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- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
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- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
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## JONHON

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Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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