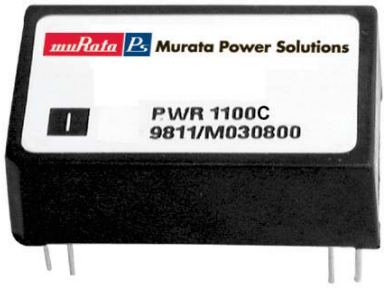
PWR11xxC

1.5 Watt Unregulated Dual-in-Line DC/DC Converter



FEATURES

- RoHS Compliant
- Low Cost
- Industry-Standard Package
- Single and Dual Outputs
- Internal Input and Output Filtering
- 24-Pin DIP Package
- Built-In Standoffs

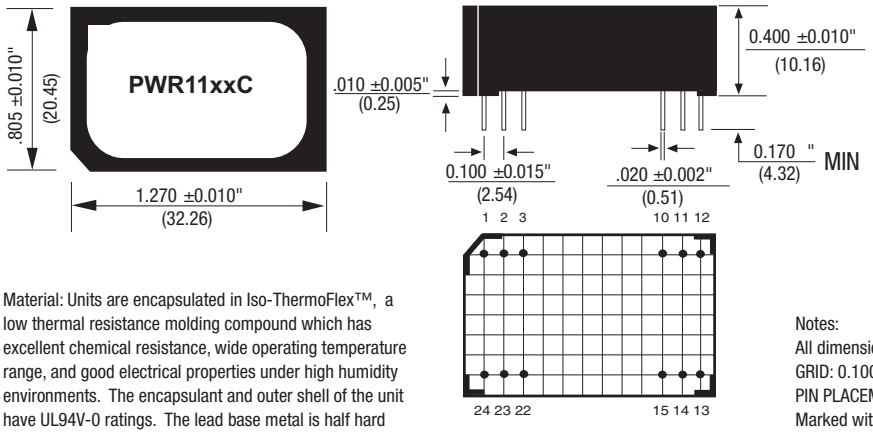
DESCRIPTION

The PWR11xxC Series offers a broad line of low-cost, high-performance, unregulated, single and dual output DC/DC converters in a 24-pin DIP package. These miniature converters offer better performance and lower cost in industry-standard packages and pin-outs. The PWR11xxC Series is internally filtered. No external parts are necessary.

Surface mounted components and a special encapsulant allow for superior reliability, excellent thermal dissipation, and an extended temperature range of –25°C to +85°C at no extra cost.

The PWR11xxC Series is ideal for use on high-density PC boards where isolated, unregulated, power is needed. Standoffs allow for PC board cleaning, helping preserve isolation. They also allow for visual inspection of solder joints.

MECHANICAL



PIN #	SINGLES	DUALS
1	+VIN	+VIN
2	NC	–VOUT
3	NC	Common
10	–VOUT	Common
11	+VOUT	+VOUT
12	–VIN	–VIN
13	–VIN	–VIN
14	+VOUT	+VOUT
15	–VOUT	Common
22	NC	Common
23	NC	–VOUT
24	+VIN	+VIN

Material: Units are encapsulated in Iso-ThermoFlex™, 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. The lead base metal is half hard brass. Lead finish is matte tin 100 microinches minimum over nickel 40-80 microinches.

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.

RoHS COMPLIANT 2002/95/EC

For full details go to www.murata-ps.com/rohs

ISO9001 CERTIFIED

ELECTRICAL SPECIFICATIONS

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

MODEL	NOMINAL INPUT VOLTAGE	RATED OUTPUT VOLTAGE	RATED OUTPUT CURRENT	INPUT CURRENT		REFLECTED RIPPLE CURRENT
				NO LOAD	RATED LOAD	
Units	VDC	VDC	mA	mA	mA	mAp-p
PWR1100C	5	5	300	30	400	45
PWR1101C	5	12	125	30	400	45
PWR1102C	5	15	100	30	400	45
PWR1103C	5	±5	±150	30	400	45
PWR1104C	5	±12	±63	30	400	45
PWR1105C	5	±15	±50	30	400	45
PWR1106C	12	5	300	30	175	25
PWR1107C	12	12	125	30	175	25
PWR1108C	12	15	100	30	175	25
PWR1109C	12	±5	±150	30	175	25
PWR1110C	12	±12	±63	30	175	25
PWR1111C	12	±15	±50	30	175	25
PWR1112C	15	5	300	30	140	20
PWR1113C	15	12	125	30	140	20
PWR1114C	15	15	100	30	140	20
PWR1115C	15	±5	±150	30	140	20
PWR1116C	15	±12	±63	30	140	20
PWR1117C	15	±15	±50	30	140	20
PWR1118C	24	5	300	30	90	20
PWR1119C	24	12	125	30	90	20
PWR1120C	24	15	100	30	90	20
PWR1121C	24	±5	±150	30	90	20
PWR1122C	24	±12	±63	30	90	20
PWR1123C	24	±15	±50	30	90	20
PWR1140C	5	9	167	30	400	45
PWR1141C	12	9	167	30	175	25
PWR1142C	15	9	167	30	140	20
PWR1143C	24	9	167	30	90	20

COMMON SPECIFICATIONS

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

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
INPUT					
Voltage Range		4.5	5	5.5	VDC
		10.8	12	13.2	VDC
		13.5	15	16.5	VDC
		21.6	24	26.4	VDC
ISOLATION					
Rated Voltage		500			VDC
Test Voltage	60 Hz, 10 Seconds	500			Vpk
Resistance			10		GΩ
Capacitance			90		pF
Leakage Current	V_{ISO} = 240VAC, 60Hz		10		µArms
OUTPUT					
Rated Power			1.5		W
Voltage Setpoint Accuracy	Rated Load, Nominal V_{in}		±3	±5	%
Temperature Coefficient			±0.02		%/%°C
Ripple and Noise					
(BW = DC to 20MHz)	No External Components		150		mVp-p
	10µF Across Each Output		10		mVrms
	10µF Across Each Output		30		mVp-p
Voltage	No Load, V_{OUT} = +5V			7	VDC
	No Load, V_{OUT} = ±12V			±15	VDC
	No Load, V_{OUT} = ±15V			±18	VDC
Line Regulation			1.2		%/%V_{IN}
Load	No Load To Rated Load		6		%
GENERAL					
Switching Frequency			150		kHz
Package Weight			12		g
MTTF per MIL-HDBK-217 Rev. E	Circuit Stress Method		800		kHr
Efficiency			75		%
TEMPERATURE					
Specification		–25	+25	+85	°C
Operation		–40		+100	°C
Storage		–40		+110	°C

ABSOLUTE MAXIMUM RATINGS

Output Short-Circuit Duration	Momentary
Internal Power Dissipation	750mW

ORDERING INFORMATION

PWR 11XX C

Device Family
PWR Indicates DC/DC Converter

Model Number
Selected from Table of Electrical Characteristics

RoHS Compliant

APPLICATION NOTE

UNBALANCED LOADS

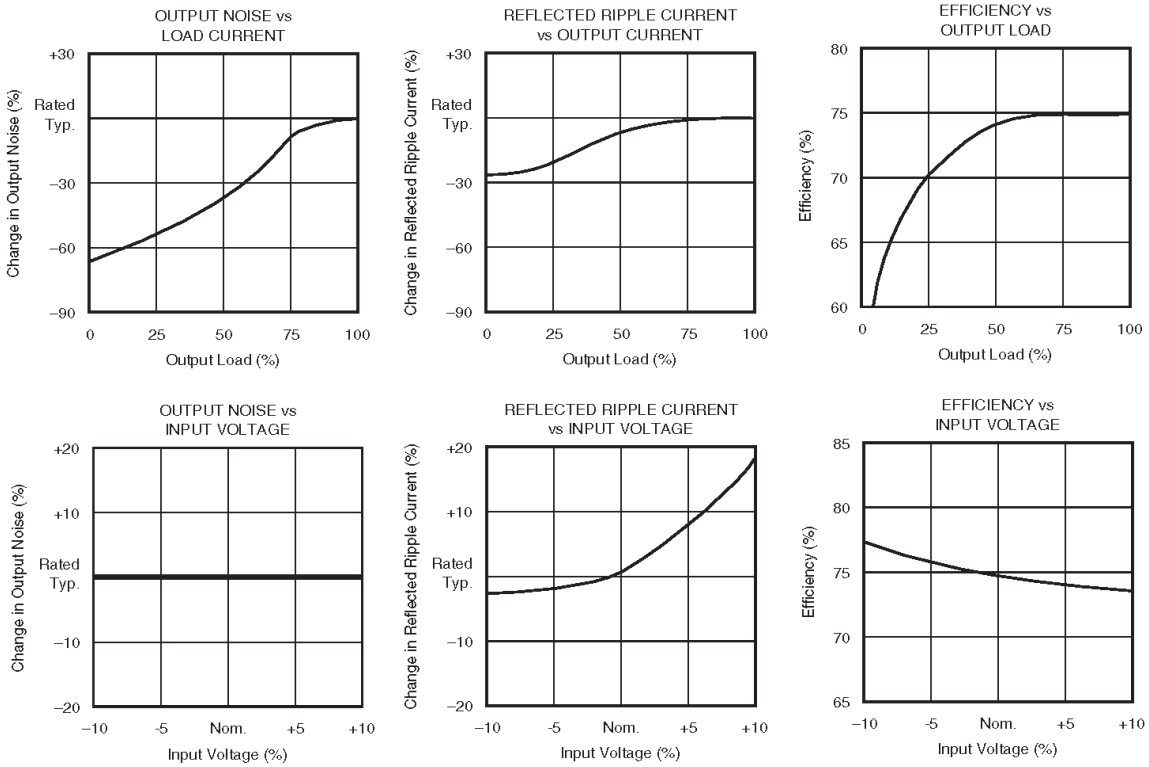
Unbalanced loads may be used on dual output models with either side providing up to its rated current. Output voltages, by design, will track each other in an unbalanced state within ±10% of one another.

OUTPUT NOISE

Output noise can be reduced to 30mVp-p, typically, by adding a 10µF tantalum capacitor with an equivalent series resistance (ESR) of less than 150mΩ at 10kHz across each output.

TYPICAL PERFORMANCE CURVES

T_A = +25˚C, Rated Input Voltage, Rated Output Current unless otherwise noted.



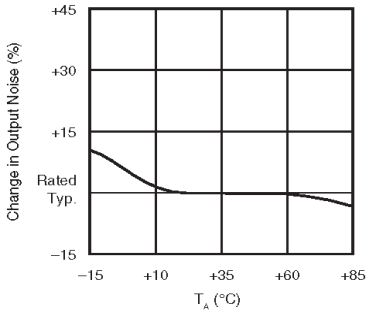
THROUGH-HOLE SOLDERING INFORMATION

These devices are intended for wave soldering or manual soldering.
They are not intended to be subject to surface mount processes under any circumstances.

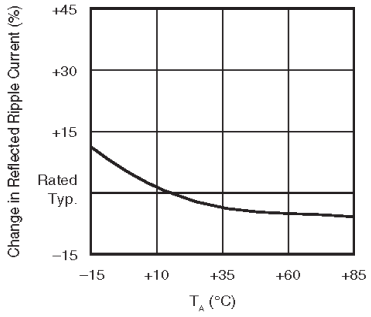
The normal wave soldering process can be used with these devices where the device is subjected to a maximum wave temperature of 260°C for a period of no more than 10 seconds. Within this time and temperature range, the integrity of the device's plastic body will not be compromised and internal temperatures within the converter will not exceed 175°C. Care should be taken to control manual soldering limits identical to that of wave soldering.

T_A = +25°C, Rated Input Voltage, Rated Output Current unless otherwise noted.

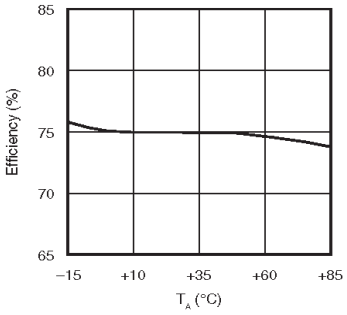
OUTPUT NOISE vs AMBIENT TEMPERATURE



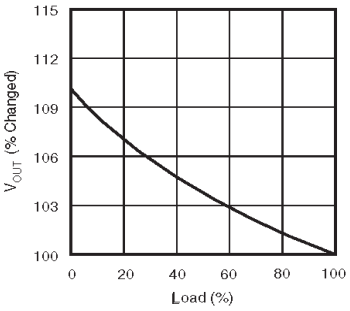
REFLECTED RIPPLE CURRENT vs AMBIENT TEMPERATURE



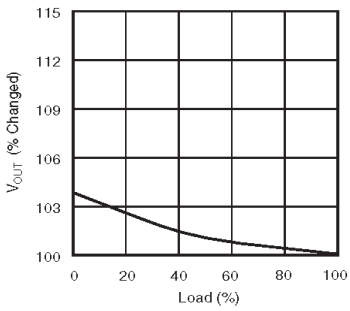
EFFICIENCY vs AMBIENT TEMPERATURE



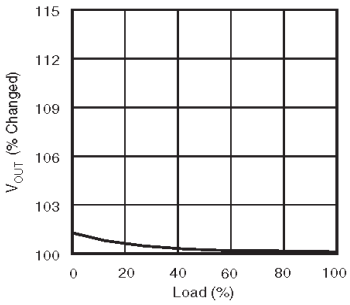
V_{OUT} vs LOAD ($5V_{OUT}$ MODELS)



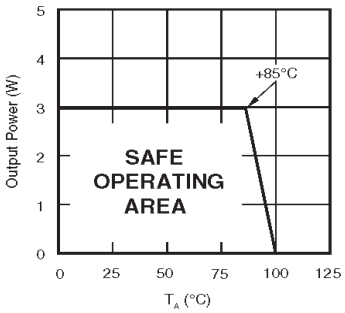
V_{OUT} vs LOAD ($\pm12V_{OUT}$ MODELS)



V_{OUT} vs LOAD ($\pm15V_{OUT}$ MODELS)



OUTPUT POWER DERATING



Murata Power Solutions

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