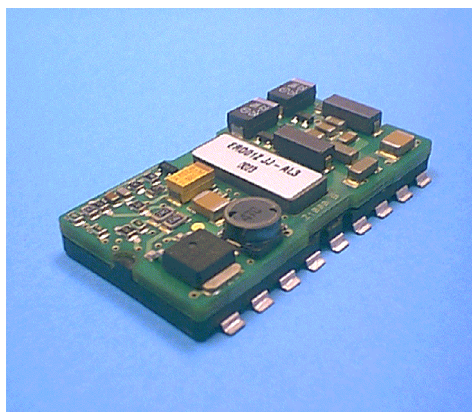


10W Low Profile SMD DC-DC Converter

Wide input voltage range 36-75V DC
Single and dual output voltages
1500 V DC I/O electric strength test



- Remote control input
- Short circuit and overload protection
- Fixed output voltage
- Input under voltage lock-out
- Industry standard c.2 x1" SMD footprint with 8.5 mm profile
- Pick & Place compatible.



Selection chart

Output 1		Output 2		Input voltage	Type	Options
$U_{o \text{ nom}}$ [V DC]	$I_{o \text{ nom}}$ [A]	$U_{o \text{ nom}}$ [V DC]	$I_{o \text{ nom}}$ [A]	U_i [V DC]		(for availability consult sales point)
3.3	3.0			36...75	RNS03ZE	
5.0	2.0			36...75	RNS02ZG	
5.0	1.0	3.3	1.0	36...75	RND02ZGE	
12.0	0.42	-12.0	0.42	36...75	RND0.8ZHH	
15.0	0.34	-15.0	0.34	36...75	RND0.7ZJJ	

10W Low Profile SMD DC-DC Converter

Input

Input voltage range	36...75 V DC
---------------------	--------------

Output

Output voltage setting accuracy	$U_{i\text{ nom}}, 50\% I_{o\text{ nom}}, \text{single output models}$	$\pm 1\% U_{o\text{ nom}}$
Minimum load		$0\% I_{o\text{ nom}}$
Line regulation	$U_{i\text{ min}}...U_{i\text{ max}}, 10...100\% I_{o\text{ nom}}$	$\pm 1\% U_{o\text{ nom}}$
Load regulation	$10\% ...100\% I_{o\text{ nom}}$	$\pm 3\% U_{o\text{ nom}}$
Output voltage switching noise	$U_{i\text{ nom}}, 0...100\% I_{o\text{ nom}}, \text{peak-peak}$	max. $1.0\% U_{o\text{ nom}}$
Efficiency	$U_{i\text{ nom}}, I_{o\text{ nom}}$	5, 3.3Vout Typ 81 % $\pm 12, \pm 15\text{Vout}$ Typ 86 %

Control and protection

Overload protection	$U_{i\text{ min}}...U_{i\text{ max}}, \text{fully protected, hiccup mode}$
No-load protection	
Remote Control	Open collector input Disabled with input $< 0.7\text{ V}$
Input Under Voltage Lock Out	30...34 Vin Min. Hysteresis c. 1.5V
Trim	$\pm 5\%, -20\% U_{o\text{ nom}}$

Safety and EMC

Electric strength test voltage	1500 V DC
Electromagnetic interference	Conducted and radiated EN55022 / FCC class B

Environmental

Operating ambient temperature	$U_{i\text{ nom}}, I_{o\text{ nom}}$	40....85 °C
Storage temperature	non operational	-40...100 °C
Case temperature	Measured at center of top of unit	-40...110 °C
Relative humidity	non condensing	93%
MTBF	$G_B 40\text{ °C}, \text{MIL-HDBK-217F}, N_2$	1,640,000 h

Options

None	
------	--

Accessories

Supplied in JEDEC tray packaging for automated SMD assembly	Standard
---	----------

10W Low Profile SMD DC-DC Converter

Cleaning Agents

As the unit has an open frame construction cleaning with fluids may be possible. Please consult factory for details

Standards and approvals

All DC-DC converters are pending to be UL recognized according to UL 1950, UL recognized for Canada to CAN/CSA C22.2 No. 950-95 and LGA approved to IEC/EN 60950 standards.

The units have been evaluated for:

- Building in
- Supplementary insulation input to output, based on their maximum input voltage
- The use in a pollution degree 2 environment
- Connecting the input to a secondary circuit which is subject to a maximum transient rating of 1500 V

The DC-DC converters are subject to manufacturing surveillance in accordance with the above mentioned UL, CSA, EN and ISO 9001 standards.

Isolation

The electric strength test is performed as factory test in accordance with IEC/EN 60950 and UL 1950 and should not be repeated in the field.

Table 2: Electric strength test voltages, clearance and creepage distances

Characteristic	I/O	O/O	Unit
Electric strength test voltage 1 s	1.2	0.1	kV _{rms}
	1.5	0.15	kV DC
Coupling capacitance	1.2	-	nF
Isulation resistance at 500 V DC	>100	-	M
Partial discharge extinction voltage	Consult factory	-	kV

Remote Control Function

The outputs of the unit may be enabled or disabled by means of a logic signal applied to the remote control pin. If this feature is not required then the pin should be left open circuit.

The shutdown signal operates by pulling the error amplifier output of the internal pulse width modulator low. The unit is enabled by releasing the shutdown input to a high impedance state (> 50k ohm) which allows normal operation of the PWM.

For this reason the shutdown input should be controlled by a device with 'open-collector' characteristics.

Adjustable Output Voltage (Trim input)

If the trim pin is left open circuit the output voltage $\ll U_{o\text{ nom}}$. For $U_{o\text{ nom}}$ connect Trim to NOR.

Increased output voltage is achieved by inserting a between Trim and Vi-. Reduced output voltage is achieved by the insertion of a resistor between Trim and NOR.

Increasing U_o :

$$U_{\text{ext}} = C_5 \times (C_6 - U_o) / (U_o - U_{o\text{ nom}}) K_{\text{ohm}}$$

RNS02ZG: $C_5 = 4.20$, $C_6 = 6.40$

RNS03ZE: $C_5 = 4.20$, $C_6 = 6.40$

Decreasing U_o :

$$U_{\text{ext}} = C_7 \times (U_{o\text{ nom}} - U_o) / (U_o - C_8) K_{\text{ohm}}$$

RNS02ZG: $C_7 = 4.20$, $C_8 = 6.40$

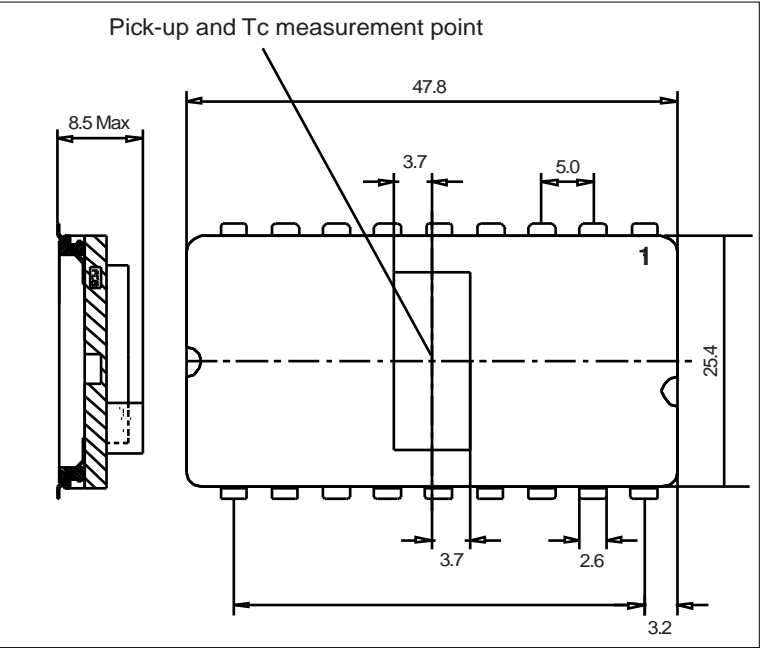
RNS03ZE: $C_7 = 4.20$, $C_8 = 6.40$

U_o [% $U_{o\text{ nom}}$]	U_{ext} [V]
105	0
102	1.6
95	4.5
85	9
80	11.5

10W Low Profile SMD DC-DC Converter

Mechanical data

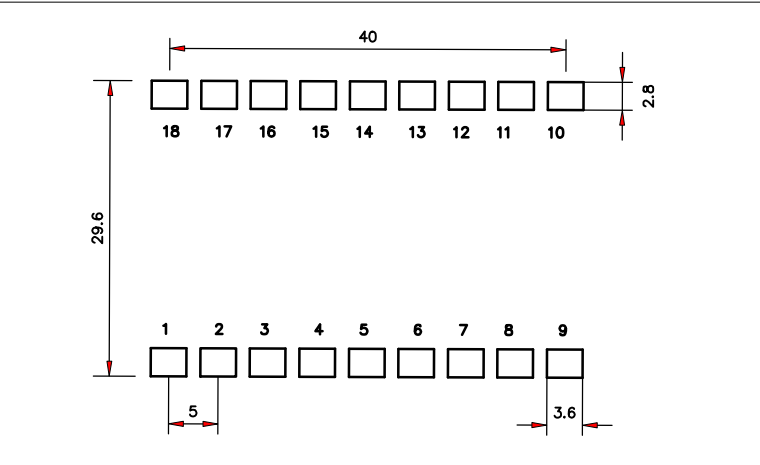
Tolerances +/- 0.2 mm unless otherwise indicated.



Pin-out

Pin	Function
1	Uout 1
2	Output Return
3	Uout 2
4	n.c.
5	n.c.
6	n.c.
7	n.c.
8	Trim
9	n.c.
10	n.c.
11	Remote Control
12	n.c.
13	n.c.
14	n.c.
15	n.c.
16	n.c.
17	- Vin
18	+Vin

Footprint - Component Side



Thermal Impedance

Airflow (LFM)	Deg C/W
Natural Conv.	15.4
100	12.2
150	10.7
200	9.3

Weight < 17g
Coplanarity < 0.1mm

10W Low Profile SMD DC-DC Converter

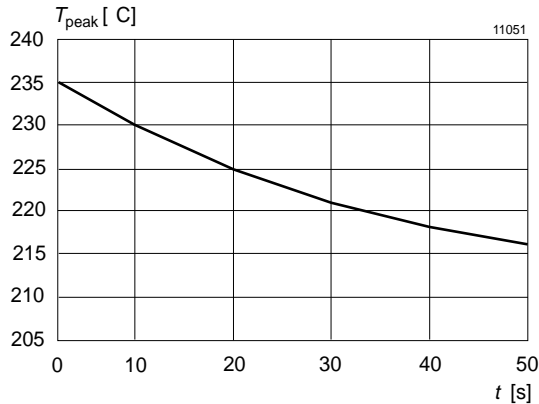
Soldering instructions.

Note: Precautions should be taken when reflow soldering this SMD version. The reflow soldering instructions below must be strictly adhered to.
Power-One will not honour guarantee or warranty claims resulting from damage caused by ignoring the soldering instructions.

NB : Infrared soldering is not permitted.

The surface mountable version of this product is assembled with high melting point solder (227 C) to ensure that the solder joints of the assembly do not degrade in the end users SMD soldering process.

This product is only specified for "Forced Convection Reflow Soldering" (Hot Air). Any conventional soldering profile is acceptable provided that the restriction curve below is not exceeded at any time during the reflow process.



Forced convection reflow soldering restriction curve measured at T_c measurement point.

JEDEC Tray

