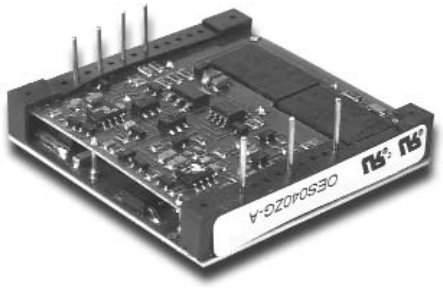


RoHS Compliant

Features

- RoHS lead solder exemption compliant
- Ultra-dense 40 W converter
- Industry-standard package
- 100 °C baseplate operation
- Open-frame packaging
- 5, 3.3, 2.5, and 2.1 V outputs
- Remote enable pin
- 1500 V isolation
- Input Pi filter

Description

OES dc-dc converters are ultra-dense, 40 watt, single output converters produced for the telecom and networking markets. Making use of open-frame packaging, planar magnetics, high efficiency topologies, and surface-mount design, the OES has superior thermal performance. The OES features 1500 VDC isolation and overvoltage protection, as well as input undervoltage lockout.

Technical Specifications

Input	
Voltage Range	
48 VDC Nominal	36 - 72 VDC
Input Under Voltage Lockout	<34V
Input Undervoltage Hysteresis	1V Nominal
Reflected Ripple	50 mA pk-Pk
Input Reverse Voltage Protection	Shunt Diode

Output	
Setpoint Accuracy	±1%
3.3/5.0 V Line Regulation V_{in} Min. - V_{in} Max., I_{out} Rated	0.2% V_{out}
2.5/2.1 V Line Regulation V_{in} Min. - V_{in} Max., I_{out} Rated	0.4% V_{out}
Load Regulation I_{out} Min. - I_{out} Max., V_{in} Nom.	0.5% V_{out}
Minimum Output Current	10%, I_{out} Rated
Dynamic Regulation, Loadstep	25% I_{out}
Pk Deviation	6% V_{out}
Settling Time	500 µs
Voltage Trim Range	±10%
Short Circuit / Overcurrent Protection	Shutdown / Hiccup
Current Limit Threshold Range, % of I_{out} Rated	110 - 140%
OVP Trip Range	120 - 140% V_{out} Nom.
Remote Shutdown Reference	V_{in} Negative

Notes

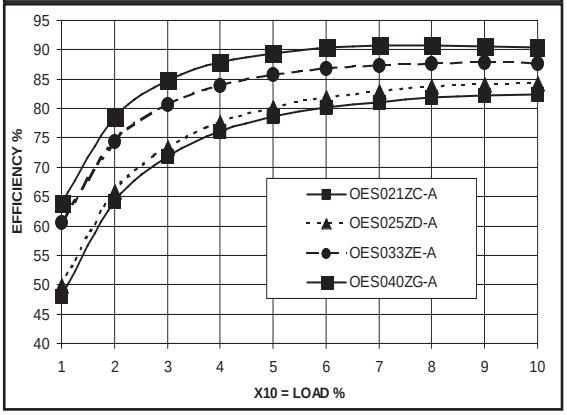
† MTBF predictions may vary slightly from model to model.

Specifications typically at 25 °C, normal line, and full load, unless otherwise stated.

Soldering Conditions: I/O pins, 260 °C, ten seconds; fully compatible with commercial wave-soldering equipment.

Units are water-washable and fully compatible with commercial spray or immersion post wave-solder washing equipment.

Efficiency vs. Load (48V Input)



General	
Turn-On Time	10 ms
Remote Shutdown	Positive Logic
Switching Frequency, 3.3V Output	400 kHz
Switching Frequency, 5.0, 2.5, 2.1V Outputs	300 kHz
Isolation	
Input - Output	1500 VDC
Input - Case	1050 VDC
Output - Case	500 VDC
Temperature Coefficient	±0.03%/°C
Case Temperature	
Operating Range	-40 To +100 °C
Storage Range	-40 To +125 °C
Thermal Shutdown Range	105 To 115 °C
Vibration, 3 Axes, 5 Min Each	5 g, 10 - 55 Hz
MTBF† (Bellcore TR-NWT-000332)	2.5 X 10^6 hrs
Safety	UL, cUL, TUV
Weight (Approx.)	1.4 oz

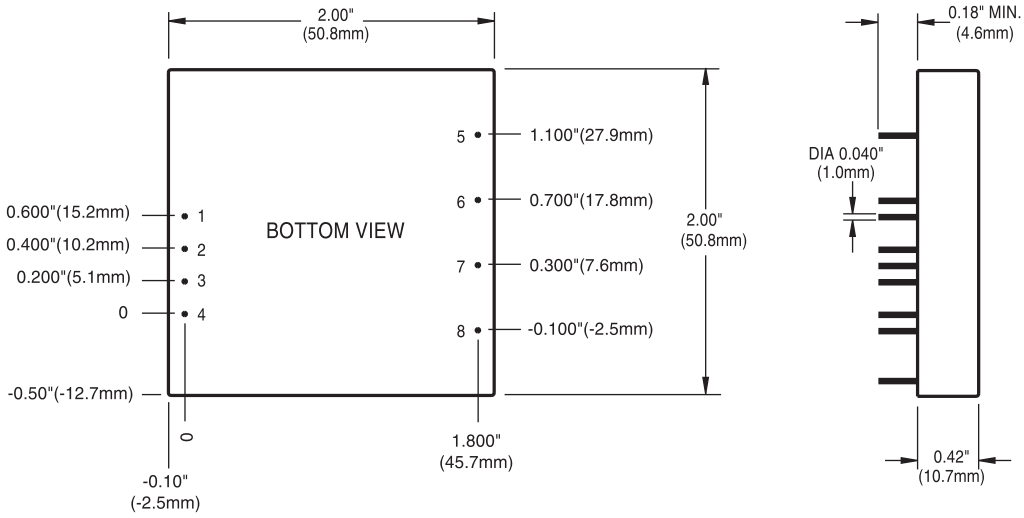
Model Selection

MODEL	INPUT VOLTAGE (VOLTS)	INPUT VOLTAGE RANGE (VOLTS)	MAXIMUM INPUT CURRENT (AMPS)*	OUTPUT VOLTAGE (VOLTS)	RATED OUTPUT CURRENT (AMPS)	RIPPLE & NOISE pk-pk (mV)	TYPICAL EFFICIENCY**
OES021ZC-A	48	36-72	0.77	2.1	10.00	50	84%
OES025ZD-A	48	36-72	0.87	2.5	10.00	50	81%
OES033ZE-A	48	36-72	1.12	3.3	10.00	75	85%
OES040ZG-A	48	36-72	1.31	5	8.00	75	89%

NOTES: * Maximum input current at minimum input voltage, maximum rated output power.
** At nominal V_{in}, rated output.

Model numbers highlighted in yellow or shaded are not recommended for new designs.

Mechanical Drawing



Thermal Impedance	
Natural Convection	11.3 C/W
100 LFM	8.9 C/W
200 LFM	6.2 C/W
300 LFM	4.4 C/W
400 LFM	3.4 C/W

Note:
Thermal impedance data is dependent on many environmental factors. The exact thermal performance should be validated for specific application.

Pin	Function
1	$+V_{in}$
2	$-V_{in}$
3	No Conn.
4	Enable
5	$+V_{out}$
6	$-V_{out}$
7	Trim

Tolerances	
Inches:	(Millimeters)
.XX ± 0.020	.X ± 0.5
.XXX ± 0.010	.XX ± 0.25
Pin:	
± 0.002	± 0.05

(Dimensions as listed unless otherwise specified.)

NUCLEAR AND MEDICAL APPLICATIONS - Power-One products are not designed, intended for use in, or authorized for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems without the express written consent of the respective divisional president of Power-One, Inc.

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