

1W

Convection cooled

DC-DC converters

The IE series is housed in a SIP4 or DIP8 plastic case for PCB mounting. Featuring a $\pm 10\%$ input voltage range for 3.3, 5, 12, 15 & 24VDC nominal inputs, offering single outputs of 3.3, 5, 9, 12, 15 & 24VDC.

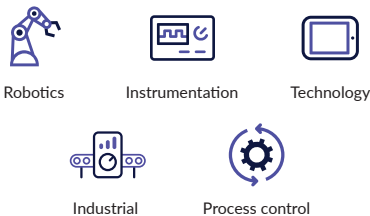
The 1W IE provides 1kVDC isolation between input and output as standard, with 3kVDC isolation available as an option.



Features

- ▶ Unregulated single output
- ▶ $\pm 10\%$ input range
- ▶ Single outputs 3.3 to 24VDC
- ▶ SIP4 or DIP8 package
- ▶ 1.0kVDC isolation, 3.0kVDC option
- ▶ -40°C to $+85^{\circ}\text{C}$ operating temperature
- ▶ 3 year warranty

Applications



Dimensions

See mechanical details

More resources

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→

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Models & ratings

Model number ^(1,2)	Input voltage	No load input current	Output voltage ⁽³⁾	Output current	Efficiency
IE0303S	3.3VDC	25mA	3.3VDC	300mA	71%
IE0305S		25mA	5.0VDC	200mA	75%
IE0309S		30mA	9.0VDC	111mA	74%
IE0312S		45mA	12.0VDC	84mA	74%
IE0315S		40mA	15.0VDC	66mA	77%
IE0324S		40mA	24.0VDC	42mA	77%

Continued on page 2

- Notes:
1. For DIP package, replace 'S' in model number with 'D'.

2. Add suffix '-H' to model number for 3000VDC isolation.

3. Operation at no load will not damage unit but it may not meet all specifications.

4. All dimensions in mm (inches)

5. Pin pitch tolerance: ± 0.35 (± 0.014)

6. Case tolerance: ± 0.5 (± 0.02)

7. Weight: SIP 1.4g (0.003lbs), DIP 1.8g (0.004lbs)

Models & ratings

Model number ^(1,2)	Input voltage	No load input current	Output voltage ⁽³⁾	Output current	Efficiency
IE0503S	5.0VDC	25mA	3.3VDC	300mA	72%
IE0505S		25mA	5.0VDC	200mA	75%
IE0509S		25mA	9.0VDC	111mA	77%
IE0512S		25mA	12.0VDC	84mA	78%
IE0515S		25mA	15.0VDC	66mA	78%
IE0524S		25mA	24.0VDC	42mA	80%
IE1203S	12.0VDC	16mA	3.3VDC	300mA	72%
IE1205S		16mA	5.0VDC	200mA	75%
IE1209S		16mA	9.0VDC	111mA	77%
IE1212S		16mA	12.0VDC	84mA	80%
IE1215S		16mA	15.0VDC	66mA	78%
IE1224S		16mA	24.0VDC	42mA	78%
IE1505S	15.0VDC	9mA	5.0VDC	200mA	78%
IE2403S	24.0VDC	10mA	3.3VDC	300mA	72%
IE2405S		10mA	5.0VDC	200mA	75%
IE2409S		10mA	9.0VDC	111mA	77%
IE2412S		10mA	12.0VDC	84mA	80%
IE2415S		10mA	15.0VDC	66mA	78%
IE2424S		10mA	24.0VDC	42mA	80%

Notes:

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- Add suffix '-H' to model number for 3000VDC isolation.
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- All dimensions in mm (inches)
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- Weight: SIP 1.4g (0.003lbs), DIP 1.8g (0.004lbs)

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range		± 10		%	Nominal
Input reflected ripple current		20		mA pk-pk	12 μ H inductor, 5Hz to 20MHz
Input reverse voltage protection	None				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	See models & ratings table				
Minimum load	0			%	Operation at no load will not damage unit but it may not meet all specifications.
Line regulation		1.2/1		%	ΔV_{in}
Load regulation		± 10		%	3.3 V models $\pm 20\%$, 15 V model $\pm 8\%$
Setpoint accuracy		± 3		%	
Ripple & noise			100	mV pk-pk	20MHz bandwidth
Temperature coefficient		0.02		%/ $^{\circ}$ C	
Maximum capacitive load		220		μ F	

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency	See models & ratings table				
Isolation voltage	1000			VDC	Optional 3000VDC -H option
Isolation resistance		10 ⁹		Ω	
Isolation capacitance		60		pF	
Switching frequency	40		150	kHz	Variable
Mean time between falEure		>1.1		Mhrs	MIE-HDBK-217F, +25°C GB
Case material	Non conductive black plastic (UL94V-0 rated)				
Potting material	Epoxy (UL94V-0 rated)				
Pin material	SIP Solder coated alloy 42, DIP solder coated brass				
Solder process			260	°C	1.5mm from case 10s max

Environmental

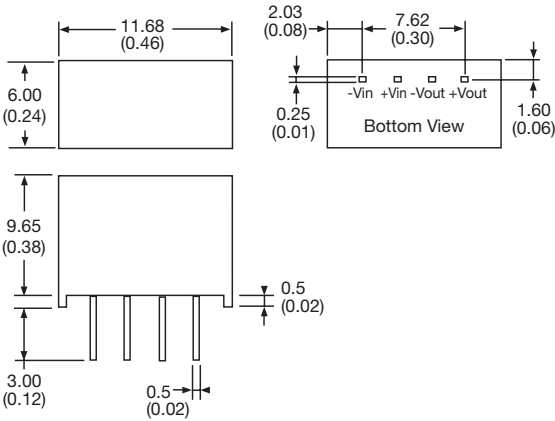
Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+85	°C	
Storage temperature	-40		+125	°C	
Case temperature			+100	°C	
Cooling	Convection cooled				

Safety approvals

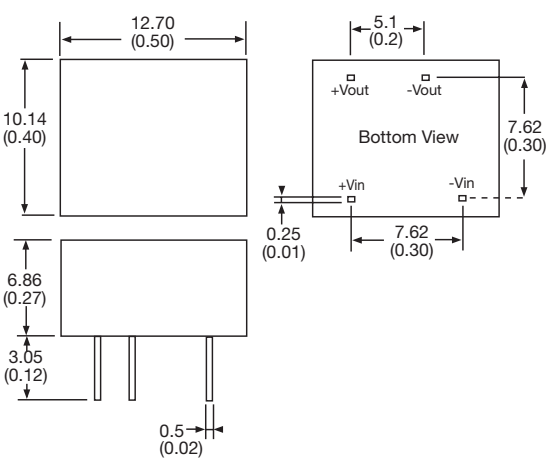
Certification	Standard	Notes & conditions
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Mechanical details

SIP package



DIP package



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