1 Watt 7 Pin SIL Package Z

- **Ultra-Miniature Size**
- **Unregulated Output**
- **1000 VDC Isolation**
  2000 VDC Isolation add Suffix „H2“
  3000 VDC Isolation add Suffix „H3“
  4000 VDC Isolation add Suffix „H4“
  5200 VDC Isolation add Suffix „H5“
  6000 VDC Isolation add Suffix „H6“

MODEL NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT CURRENT		%EFF
				NO-LOAD	FULL LOAD	
1ZUS5N3.3M	5 VDC	3.3 VDC	303 mA	30 mA	267 mA	75
1ZUS5N5M		5 VDC	200 mA		256 mA	78
1ZUS5N7.2M		7.2 VDC	138.9 mA		270 mA	74
1ZUS5N9M		9 VDC	111.1 mA		267 mA	75
1ZUS5N12M		12 VDC	83.3 mA		263 mA	76
1ZUS5N15M		15 VDC	66.7 mA			
1ZUS5N18M		18 VDC	55.6 mA		267 mA	75
1ZUS5N24M		24 VDC	41.7 mA		278 mA	72
1ZUD5N3.3M		±3.3 VDC	±151.5 mA		307 mA	65
1ZUD5N5M		±5 VDC	±100 mA		270 mA	74
1ZUD5N7.2M		±7.2 VDC	±69.44 mA		259 mA	77
1ZUD5N9M		±9 VDC	±55.55 mA		256 mA	78
1ZUD5N12M		±12 VDC	±41.67 mA			
1ZUD5N15M		±15 VDC	±33.33 mA		250 mA	80
1ZUD5N18M		±18 VDC	±27.77 mA		253 mA	79
1ZUD5N24M		±24 VDC	±20.83 mA		250 mA	80
1ZUS12N3.3M	12 VDC	3.3 VDC	303 mA	20 mA	113 mA	74
1ZUS12N5M		5 VDC	200 mA			
1ZUS12N7.2M		7.2 VDC	138.9 mA			
1ZUS12N9M		9 VDC	111.1 mA		111 mA	75
1ZUS12N12M		12 VDC	83.3 mA		108 mA	77
1ZUS12N15M		15 VDC	66.7 mA		106 mA	78
1ZUS12N18M		18 VDC	55.6 mA			
1ZUS12N24M		24 VDC	41.7 mA		113 mA	75
1ZUD12N3.3M		±3.3 VDC	±151.5 mA		126 mA	66
1ZUD12N5M		±5 VDC	±100 mA		111 mA	75
1ZUD12N7.2M		±7.2 VDC	±69.44 mA		109 mA	76
1ZUD12N9M		±9 VDC	±55.5 mA			
1ZUD12N12M		±12 VDC	±41.67 mA		106 mA	78
1ZUD12N15M		±15 VDC	±33.33 mA		104 mA	80
1ZUD12N18M		±18 VDC	±27.77 mA			
1ZUD12N24M		±24 VDC	±20.83 mA		109 mA	76

SPECIFICATIONS

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

MODEL NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT CURRENT		%EFF
				NO-LOAD	FULL LOAD	
1ZUS24N3.3M	24 VDC	3.3 VDC	303 mA	10 mA	56 mA	75
1ZUS24N5M		5 VDC	200 mA		54 mA	77
1ZUS24N7.2M		7.2 VDC	138.9 mA		56 mA	75
1ZUS24N9M		9 VDC	111.1 mA			
1ZUS24N12M		12 VDC	83.3 mA		53 mA	78
1ZUS24N15M		15 VDC	66.7 mA			
1ZUS24N18M		18 VDC	55.6 mA			
1ZUS24N24M		24 VDC	41.7 mA			
1ZUD24N3.3M		±3.3 VDC	±151.5 mA		61 mA	68
1ZUD24N5M		±5 VDC	±100 mA		56 mA	74
1ZUD24N7.2M		±7.2 VDC	±69.44 mA		54 mA	76
1ZUD24N9M		±9 VDC	±55.55 mA			
1ZUD24N12M		±12 VDC	±41.67 mA		53 mA	78
1ZUD24N15M		±15 VDC	±33.33 mA			
1ZUD24N18M		±18 VDC	±27.77 mA			
1ZUD24N24M		±24 VDC	±20.83 mA			
1ZUS48N3.3M	48 VDC	3.3 VDC	303 mA	6 mA	29 mA	72
1ZUS48N5M		5 VDC	200 mA			
1ZUS48N7.2M		7.2 VDC	138.9 mA			
1ZUS48N9M		9 VDC	111.1 mA		28 mA	74
1ZUS48N12M		12 VDC	83.3 mA			
1ZUS48N15M		15 VDC	66.7 mA			75
1ZUS48N18M		18 VDC	55.6 mA		29 mA	72
1ZUS48N24M		24 VDC	41.7 mA		30 mA	70
1ZUD48N3.3M		±3.3 VDC	±151.5 mA		34 mA	60
1ZUD48N5M		±5 VDC	±100 mA		30 mA	70
1ZUD48N7.2M		±7.2 VDC	±69.44 mA			
1ZUD48N9M		±9 VDC	±55.55 mA		29 mA	72
1ZUD48N12M		±12 VDC	±41.67 mA		28 mA	74
1ZUD48N15M		±15 VDC	±33.33 mA			
1ZUD48N18M		±18 VDC	±27.77 mA		29 mA	72
1ZUD48N24M		±24 VDC	±20.83 mA		30 mA	70

SPECIFICATIONS

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INPUT SPECIFICATIONS		
Input Voltage Range		±10%
Input Filter		Capacitor Type
Input Reflected Ripple Current [1)]		20 mA p-p

OUTPUT SPECIFICATIONS		
Voltage Accuracy		±3%
Temperature Coefficient		0.02% per °C
Ripple and Noise, 20MHz BW[2)]		75 mV p-p max.
Capacitive Load[3)]	Single Dual	220 µF ±100 µF
Short Circuit Protection		Momentary
Line Regulation		±1.2%/1% of Vin Change
Load Regulation (20% - 100%)	3.3 V	±20% ±10%

NOTE:
1. Measured Input reflected ripple current with a simulated source inductance of 12 µH.
2. Ripple and Noise is measured with 20 MHz bandwidth.
3. Tested by minimal Vin and constant resistive load.

ABSOLUTE SPECIFICATIONS		
These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.		
Input Voltage (100 mS)	5 V 12 V 24 V 48 V	0 VDC to 7 VDC 0 VDC to 15 VDC 0 VDC to 28 VDC 0 VDC to 54 VDC
Lead Soldering Temperature (1.5 mm from case 10 sec.)		+260°C

NOTE:
Exceeding the absolute ratings of the unit could cause damage. It is not allowed for continuous operating.
Operation under no-load conditions will not damage these devices, however they may not meet all listed specifications.

SPECIFICATIONS

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GENERAL SPECIFICATION		
Efficiency		see table
Isolation Voltage (3 sec) add Suffix "H2" add Suffix "H3" add Suffix "H4" add Suffix "H5" add Suffix "H6"	Input/Output	1000 VDC 2000 VDC 3000 VDC 4000 VDC 5200 VDC 6000 VDC
Isolation Capacitance		60 pF
Isolation Resistance		1000 Mohms
Switching Frequency		variable 80 kHz
Operating Temperature Range		-40°C to +85°C (see Derating Curve)
Case Temperature		+100°C max.
Storage Temperature Range		-40°C to +125°C
Derating		None Required
Humidity		95% rel H
Cooling		Natural Convection
Reliability Calculated MTBF (MIL-HDBK-217F)		>1.121 Mhrs
Safety Standard (designed to meet)		IEC60950-1
Radiated Emissions		EN55022 Class B FCC 47 CFR Part 15 Subpart A Class B
ESD (Electrostatic Discharge)		IEC61000-4-2 Perf. Criteria B
RS (Radiated, Radio-Frequency Disturbances)		IEC61000-4-3 Perf. Criteria A
Case Material		Non-Conductive Black Plastic (UL94V-0 rated)
Pin Material		0.5 mm Alloy42 Solder-coated
Potting Material		Epoxy (UL94V-0 rated)
Weight		2.3 g
Case Dimensions		19.5 x 6.0 x 10.0 mm (0.76 x 0.24 x 0.39 Inches)

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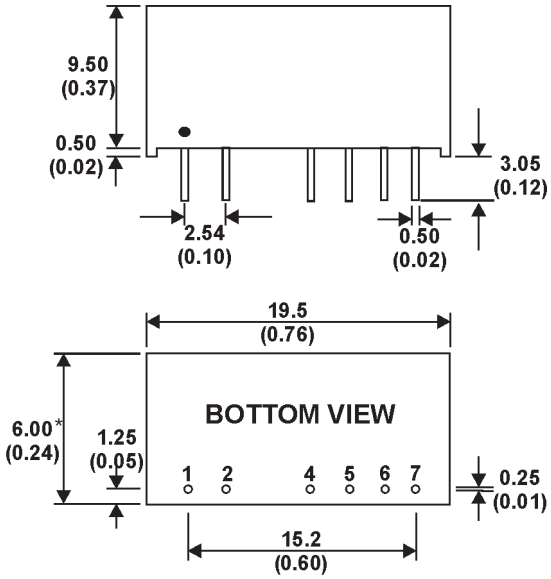
MECHANICAL SPECIFICATIONS

Case "Z"



All Dimensions in mm (Inches).
Tolerance x.xx = ±0.25 (±0.01)

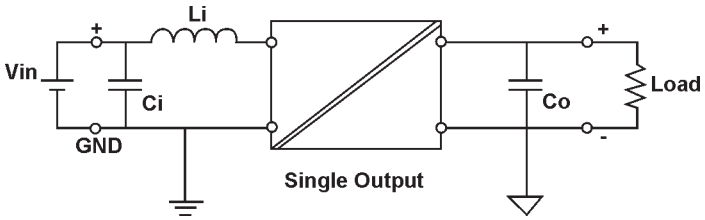
*The thickness of 48V Input Voltage Model is 7.20 (0.28)

PIN CONNECTIONS				
Pins	***Single***	***Dual***	***Single-H***	***Dual-H***
1	+INPUT	+INPUT	+INPUT	+INPUT
2	-INPUT	-INPUT	-INPUT	-INPUT
4	-OUTPUT	-OUTPUT	NO PIN	NO PIN
5	NO PIN	COMMON	-OUTPUT	-OUTPUT
6	+OUTPUT	+OUTPUT	NO PIN	COMMON
7	NO PIN	NO PIN	+OUTPUT	+OUTPUT

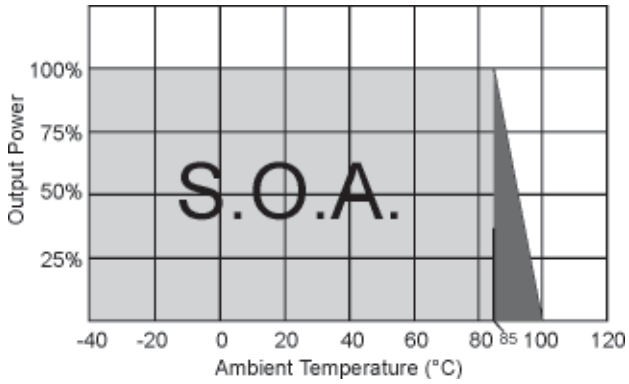
APPLICATION NOTES & DIAGRAMS

Ripple & Noise Filter

For reduce converter's ripple & noise, it is recommended to add a 4.7 µF to 100 µF (±4.7 µF to ±68 µF for dual output) capacitor in output end. For EMI performance improvement, it is recommended to add a 12 µH inductor and a 10 µF to 100 µF capacitor in input end.



Derating Curve



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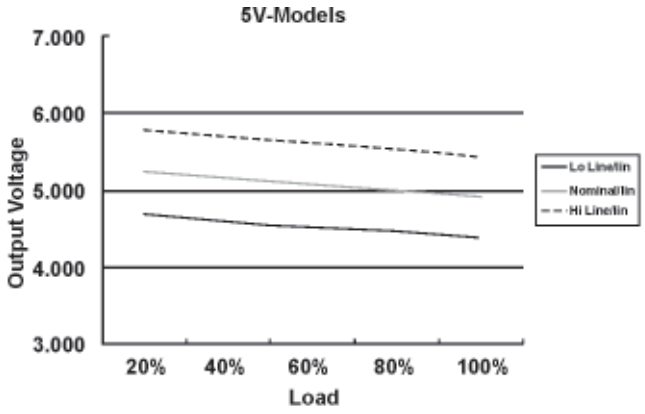
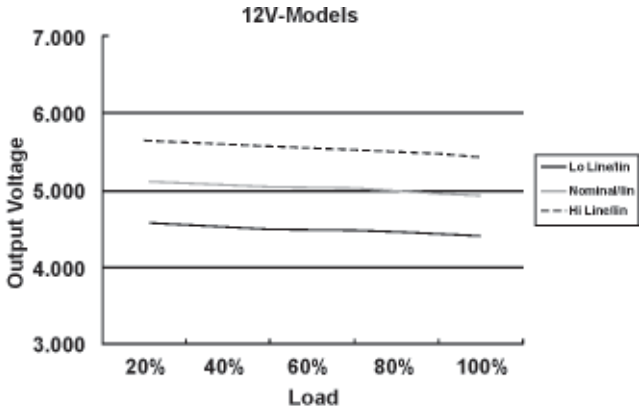
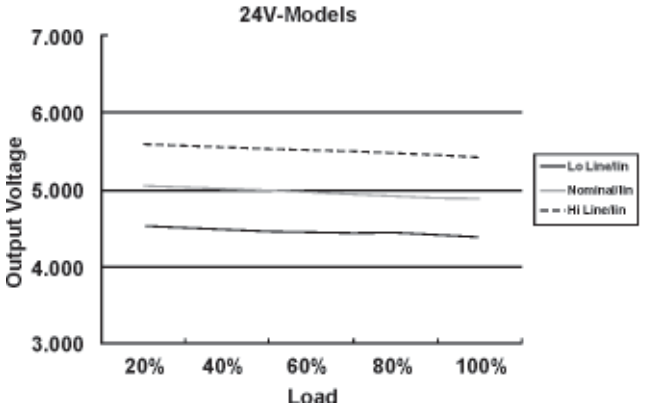
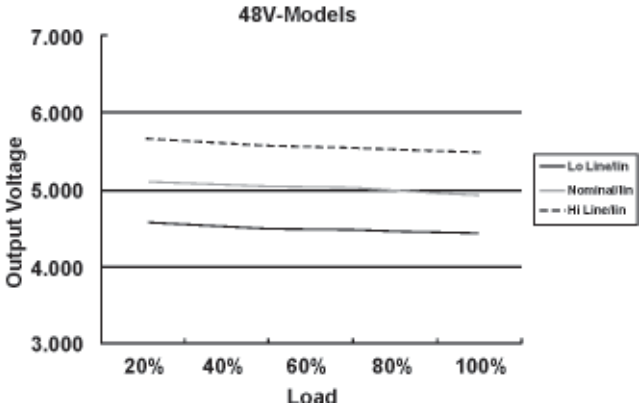
Loading vs Output Voltage









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