

## FEATURES

- ▶ DIP-24 Plastic Package
- ▶ Ultra-wide 4:1 Input Ranges
- ▶ High Efficiency up to 84%
- ▶ Operating Temp. Range -40°C to +85°C
- ▶ Overload Protection
- ▶ I/O-isolation Voltage 1500VDC ( opt. 3000VDC)
- ▶ Input Filter meets EN 55022, class A and FCC, level A
- ▶ 3 Years Product Warranty



## PRODUCT OVERVIEW

The MINMAX MIWI06 series is a new range of high performance dc-dc converter modules with 6W output power, featuring ultra-wide 4:1 input voltage ranges and tight output voltage regulation. The product comes in a shielded DIP-24 metal package with industry standard footprint.

Excellent efficiency allows an operation temperature range of -40°C to +85°C (with derating). Standard features include overvoltage and overload protection. Typical applications for these cost optimized converters are battery powered equipment, instrumentation, datacom and industrial electronics.

### Model Selection Guide

Model Number	Input Voltage	Output Voltage	Output Current		Input Current		Reflected Ripple Current	Capacitive Load	Efficiency
			Max.	Min.	@Max. Load	@No Load			
	VDC	VDC	mA	mA	mA(Typ.)	mA(Typ.)	mA(Typ.)	uF	% (Typ.)
MIWI06-24S033	24 (9 ~ 36)	3.3	1200	0	214	20	20	470	77
MIWI06-24S05		5	1200	0	313			470	80
MIWI06-24S12		12	500	0	298			100	84
MIWI06-24S15		15	400	0	298			100	84
MIWI06-24D05		±5	±500	0	260			100#	80
MIWI06-24D12		±12	±250	0	298			100#	84
MIWI06-24D15		±15	±200	0	298			100#	84
MIWI06-48S033	48 (18 ~ 75)	3.3	1200	0	107	10	15	470	77
MIWI06-48S05		5	1200	0	156			470	80
MIWI06-48S12		12	500	0	149			100	84
MIWI06-48S15		15	400	0	149			100	84
MIWI06-48D05		±5	±500	0	130			100#	80
MIWI06-48D12		±12	±250	0	149			100#	84
MIWI06-48D15		±15	±200	0	149			100#	84

# For each output

### Input Specifications

Parameter	Model	Min.	Typ.	Max.	Unit
Input Surge Voltage (1 sec. max.)	24V Input Models	-0.7	---	50	VDC
	48V Input Models	-0.7	---	100	
Start-Up Voltage	24V Input Models	7	8	9	
	48V Input Models	14	16	18	
Under Voltage Shutdown	24V Input Models	---	---	8.5	
	48V Input Models	---	---	16	
Short Circuit Input Power		---	---	3000	mW
Input Filter	All Models		Pi Filter		
Internal Power Dissipation		---	---	2500	mW

**Output Specifications**

Parameter	Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy		---	±1.0	±2.0	%
Output Voltage Balance	Dual Output, Balanced Loads	---	±1.0	±2.0	%
Line Regulation	V <sub>in</sub> =Min. to Max.	---	±0.1	±0.5	%
Load Regulation	I <sub>o</sub> =0% to 100%	---	±0.6	±1.2	%
Ripple & Noise (20MHz)		---	50	80	mV P-P
Ripple & Noise (20MHz)	Over Line, Load & Temp.	---	---	100	mV P-P
Transient Recovery Time	25% Load Step Change	---	300	600	uS
Transient Response Deviation		---	±3	---	%
Temperature Coefficient		---	±0.01	±0.02	%/°C
Over Load Protection	Current Limitation at 150% typ. of I <sub>out</sub> max., foldback				
Output Short Circuit	Continuous				

**General Specifications**

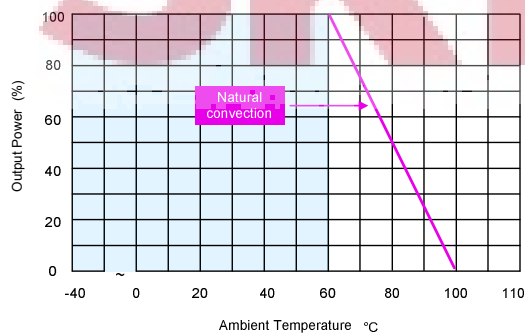
Parameter	Conditions	Min.	Typ.	Max.	Unit	
I/O Isolation Voltage Rated (note 8)	60 Seconds	Standard	1500	---	---	VDC
		Suffix H	3000	---	---	VDC
I/O Isolation Test Voltage (note 8)	Flash Tested For 1 Second	Standard	1650	---	---	VDC <sub>PK</sub>
		Suffix H	3650	---	---	VDC <sub>PK</sub>
I/O Isolation Resistance	500 VDC	1000	---	---	MΩ	
I/O Isolation Capacitance	100KHz, 1V	---	1000	---	pF	
Switching Frequency		---	330	---	KHz	

**Input Fuse**

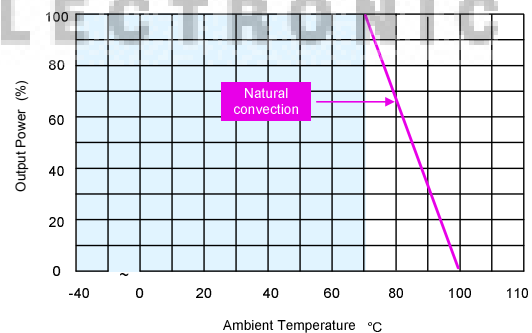
24V Input Models	48V Input Models
1500mA Slow-Blow Type	800mA Slow-Blow Type

**Environmental Specifications**

Parameter	Conditions	Min.	Max.	Unit
Operating Temperature Range With Derating	Ambient	-40	+85	°C
Case Temperature Range		-40	+100	°C
Storage Temperature Range		-40	+125	°C
Humidity (non condensing)		---	95	% rel. H
Cooling	Free-Air convection			
Conducted EMI	EN55022 Class A			
Lead Temperature (1.5mm from case for 10Sec.)		---	260	°C

**Derating Curve**


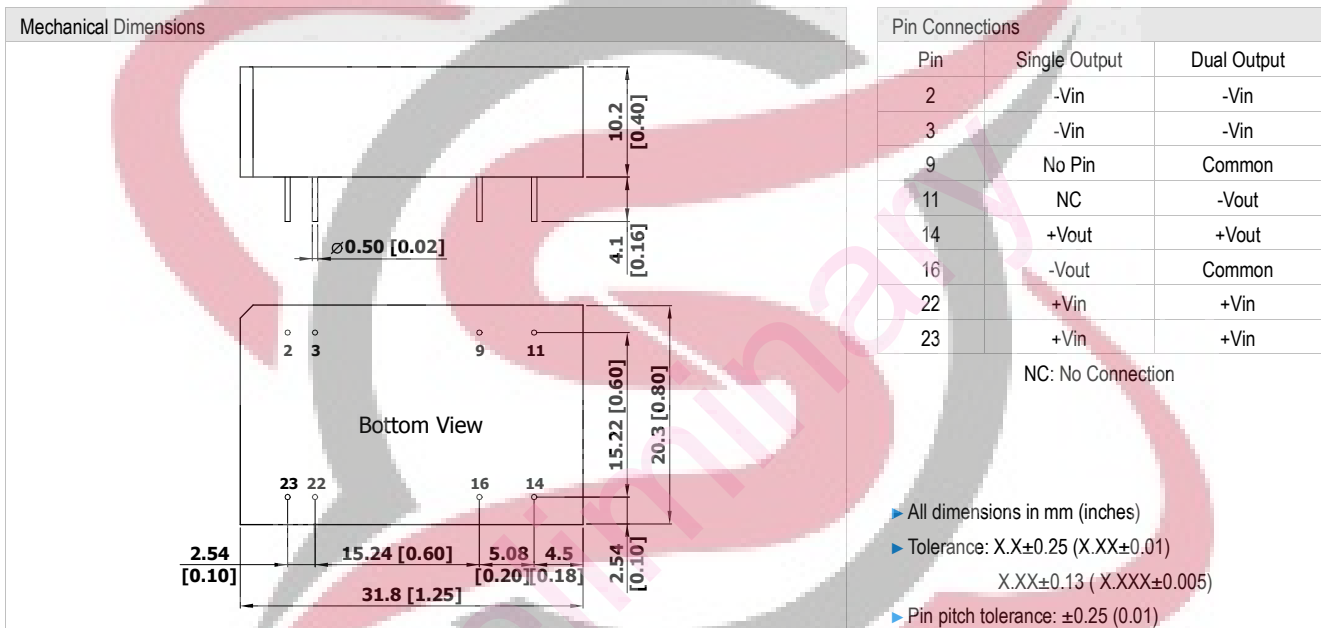
(3.3 &amp; 5V Output)



(Other Output)

**Notes**

- 1 Specifications typical at Ta=+25°C, resistive load, nominal input voltage, rated output current unless otherwise noted.
- 2 Transient recovery time is measured to within 1% error band for a step change in output load of 75% to 100%
- 3 Ripple & Noise measurement bandwidth is 0-20MHz.
- 4 These power converters require a minimum output loading to maintain specified regulation.
- 5 Operation under no-load conditions will not damage these modules; however, they may not meet all specifications listed.
- 6 All DC/DC converters should be externally fused at the front end for protection.
- 7 Other input and output voltage may be available, please contact factory.
- 8 To order the converter at 3KVDC isolation, please add a suffix H (e.g. MIWI06-12S05H).
- 9 Specifications subject to change without notice.

**Package Specifications**

**Physical Characteristics**

Case Size : 31.8X20.3X10.2mm (1.25X0.80X0.40 Inches)

Case Material : Non-Conductive Black Plastic (flammability to UL 94V-0 rated)

Weight : TBD

