FEATURES

NEW

- Very high Power Density
- Small SIP-8 Package: 21.8 x 9.3 x 11.2 mm
- Ultra-wide 4:1 Input Voltage Range
- Fully regulated Single- and Dual-Output Models
- No Min. Load Requirement
- Low Stand-by Power Consumption
- Operating Temp.Range -40°C to +75°C
- I/O- Isolation 1500VDC
- Remote ON/OFF Control
- Safety Approval to UL/cUL/IEC/EN 60950-1
- 3 Years Product Warranty

RoHS Compliant

3 year warranty

PRODUCT OVERVIEW

The MINMAX MCWI05 series is a new range of isolated 5W DC/DC converter modules featuring fully regulated output voltages and ultra-wide 4:1 input voltage ranges.The converters come in a very small SIP-8 package which occupies only 2.0 cm^2 of PCB space.An excellent efficiency allows operating temperatures up to +65°C without power derating.Further features include remote ON/OFF.
The very low stand-by power consumption makes these converter modules an ideal solution for applications in battery powered equipment and instrumentation.

Model Selection Guide

Model Number	Input Voltage (Range)	Output Voltage	Output Current	Input Current		Max. capacitive Load	Efficiency (typ.)
			Max.	@Max. Load	@No Load		@Max. Load
	VDC	VDC	mA	mA(typ.)	mA(typ.)	μF	%
MCWI05-12S033	12 (4.5 ~ 18)	3.3	1075	389	60	1000	76
MCWI05-12S05		5	1000	514		1000	81
MCWI05-12S12		12	417	502		220	83
MCWI05-12S15		15	334	503		100	83
MCWI05-12S24		24	209	510		100	82
MCWI05-12D12		±12	±209	516		100#	81
MCWI05-12D15		±15	±167	509		47#	82
MCWI05-24S033	24 (9 ~ 36)	3.3	1075	194	30	1000	76
MCWI05-24S05		5	1000	257		1000	81
MCWI05-24S12		12	417	251		220	83
MCWI05-24S15		15	334	249		100	84
MCWI05-24S24		24	209	252		100	83
MCWI05-24D12		±12	±209	255		100#	82
MCWI05-24D15		±15	±167	255		47#	82
MCWI05-48S033	48 (18 ~ 75)	3.3	1075	97	20	1000	76
MCWI05-48S05		5	1000	130		1000	80
MCWI05-48S12		12	417	126		220	83
MCWI05-48S15		15	334	124		100	84
MCWI05-48S24		24	209	127		100	82
MCWI05-48D12		±12	±209	127		100#	82
MCWI05-48D15		±15	±167	126		47#	83

For each output

Input Specifications

Parameter	Model	Min.	Typ.	Max.	Unit
Input Surge Voltage (1 sec. max.)	12V Input Models	-0.7	---	36	VDC
	24V Input Models	-0.7	---	50	
	48V Input Models	-0.7	---	100	
Start-Up Threshold Voltage	12V Input Models	---	---	4.5	
	24V Input Models	---	---	9	
	48V Input Models	---	---	18	
Under Voltage Shutdown	12V Input Models	---	---	4	
	24V Input Models	---	---	8	
	48V Input Models	---	---	16	
Short Circuit Input Power	All Models	---	---	2500	mW
Internal Filter Type		Capacitor type			

Output Specifications

Parameter	Conditions	Min.	Typ.	Max.	Unit
Output Voltage Setting Accuracy	At 50% Load and Nominal Vin	---	---	±2.0	%Vnom.
Output Voltage Balance	Dual Output, Balanced Loads	---	±1.0	±2.0	%
Line Regulation	Vin=Min. to Max.	---	±0.3	±0.5	%
Load Regulation	Io=0% to 100%	---	±0.5	±1.0	%
Min.Load	No minimum Load Requirement				
Ripple & Noise	0-20 MHz Bandwidth	---	---	100	mV P-P
Transient Recovery Time	25% Load Step Change	---	500	---	µsec
Transient Response Deviation		---	±3	±5	%
Temperature Coefficient		---	±0.01	±0.02	%/℃
Output Short Circuit	Continuous				

General Specifications

Parameter	Conditions	Min.	Typ.	Max.	Unit
I/O Isolation Voltage (rated)	60 Seconds	1500	---	---	VDC
I/O Isolation Resistance	500 VDC	1000	---	---	MΩ
I/O Isolation Capacitance	100KHz, 1V	---	250	---	pF
Switching Frequency		100	---	---	KHz
MTBF (calculated)	MIL-HDBK-217F@25℃, Ground Benign	2,400,000	---	---	Hours
Safety Approvals(pending)	UL/cUL 60950-1 recognition(CSA certificate), IEC/EN 60950-1(CB-scheme)				

Input Fuse (recommended)

12V Input Models	24V Input Models	48V Input Models
3000mA Slow-Blow Type	1500mA Slow-Blow Type	700mA Slow-Blow Type

Remote On/Off Control

Parameter	Conditions	Min.	Typ.	Max.	Unit
Converter On	Open or high impedance				
Converter Off	2~4mA current applied via 1Kohm resistor				
Standby Input Current	Supply Off & Nominal Vin	---	2.5	---	mA

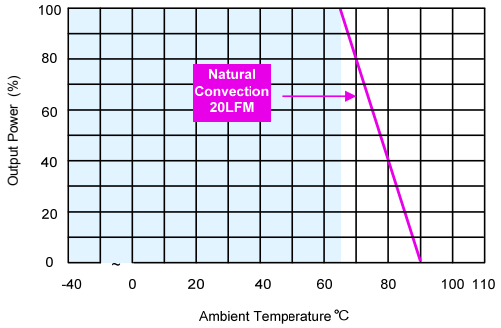
Environmental Specifications

Parameter	Conditions	Min.	Max.	Unit
Operating Ambient Temperature Range (See Power Derating Curve)	Natural Convection	-40	+75	℃
Case Temperature		---	+90	℃
Storage Temperature Range		-55	+125	℃
Humidity (non condensing)		---	95	% rel. H
Cooling	Free-Air convection			
Lead Temperature (1.5mm from case for 10Sec.)		---	260	℃

EMC Specifications

Parameter	Standards & Level	Performance
Conducted EMI	Compliance to EN 55022,class A and FCC, part 15,level A	
ESD	EN61000-4-2 air ± 8KV , Contact ± 6KV	Perf. Criteria A
Radiated immunity	EN61000-4-3 10V/m	Perf. Criteria A
Fast transient (see Note 5)	EN61000-4-4 ± 2KV	Perf. Criteria A
Surge (see Note 5)	EN61000-4-5 ±1KV	Perf. Criteria A
Conducted immunity	EN61000-4-6 10V/m	Perf. Criteria A

Power Derating Curve

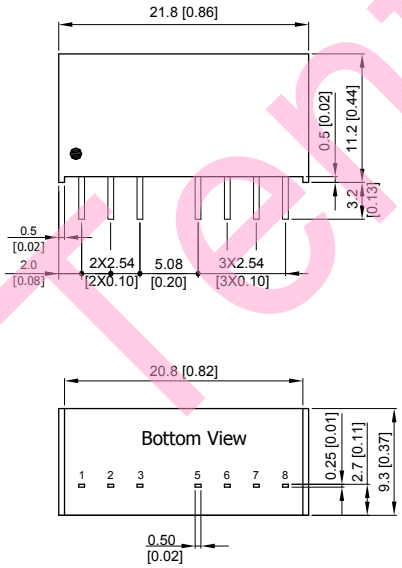


Notes

1. Specifications typical at Ta=+25℃, resistive load, nominal input voltage and 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. We recommend to protect the converter by a slow blow fuse in the input supply line.
4. Other input and output voltage may be available, please contact factory.
5. To meet EN61000-4-4 & EN61000-4-5 an external capacitor across the input pins is required.Suggested capacitor:TBD
6. That "natural convection" is about 20LFM but is not equal to still air (0 LFM).
7. Specifications are subject to change without notice.

Package Specifications

Mechanical Dimensions



Pin Connections

Pin	Single Output	Dual Output
1	-Vin	-Vin
2	+Vin	+Vin
3	Remote On/Off	Remote On/Off
5	NC	NC
6	+Vout	+Vout
7	-Vout	Common
8	NC	-Vout

NC: No Connection

- All dimensions in mm (inches)
- Tolerance: X.X±0.5 (X.XX±0.02)
  X.XX±0.25 (X.XXX±0.01)
- Pins ±0.1(±0.004)

Physical Characteristics

Case Size	:	21.8x9.3x11.2 mm (0.86x0.37x0.44 inches)
Case Material	:	Non-Conductive Black Plastic (flammability to UL 94V-0 rated)
Pin Material	:	Alloy 42
Weight	:	4.8g