

MC2500xRW Series

High Performance, 25W Wide Input Range DC/DC Converters



Key Features:

- 25W Output Power
- Wide 2:1 Input Range
- High Efficiency
- 1,500 VDC Isolation
- Single and Dual Outputs
- >1.12 MHour MTBF
- -40°C to +85°C Operation

RoHS



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Electrical Specifications

Specifications typical @ +25°C, nominal input voltage & rated output current, unless otherwise noted. Specifications subject to change without notice.

Input

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Range	12 VDC Input	9.0	12.0	18.0	VDC
	24 VDC Input	18.0	24.0	36.0	
	48 VDC Input	36.0	48.0	72.0	
Input Filter	Internal Capacitors				

Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy			±1.0		%
Line Regulation	V _{IN} = Min to Max		±0.5		%
Load Regulation, I _{OUT} = 0% to 100%	Single Output		±0.5		%
	Dual Output, See Note 1		±0.5		
Ripple & Noise (20 MHz), See Note 2			100		mV P - P
Temperature Coefficient			±0.02		%/°C
Output Overload Protection			140		%I _{OUT}
Output Short Circuit	Continuous (Autorecovery)				

General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	Input/Output 3 Seconds	1,500			VDC
Isolation Voltage	Case/Input or Output	1,000			VDC
Isolation Resistance	500 VDC		1,000		MΩ
Isolation Capacitance	100 kHz, 0.1V		1,000		pF
Switching Frequency			125		kHz

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-40	+25	+85	°C
Operating Temperature Range	Case			+100	°C
Storage Temperature Range		-40		+125	°C
Cooling	Free Air Convection				
Humidity	RH, Non-condensing			95	%

Physical

Case Size	2.00 x 2.00 x 0.40 Inches (50.80 x 50.80 x 10.16 mm)				
Case Material	Metal Case, Epoxy Base (UL-94V0)				
Weight	2.1 Oz (60.0g)				

Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	1.121			MHours

Absolute Maximum Ratings

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Surge (0.1 Sec)	12 VDC Input	-0.7		25.0	VDC
	24 VDC Input	-0.7		50.0	
	48 VDC Input	-0.7		100.0	
Lead Temperature	1.5 mm From Case For 10 Sec			260	°C

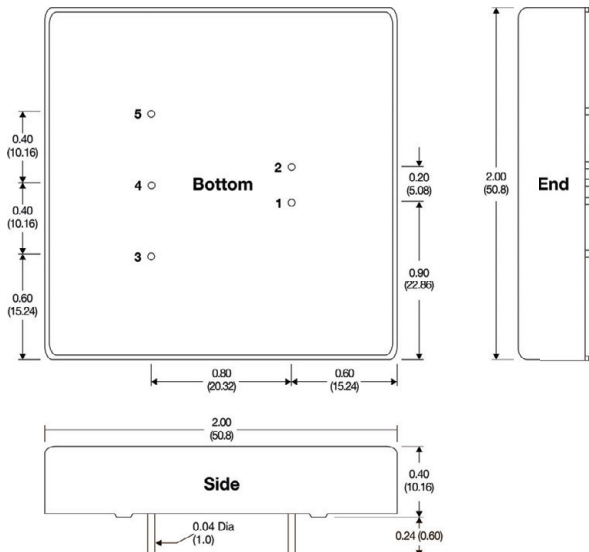
Caution: Exceeding Absolute Maximum Ratings may damage the module. These are not continuous operating ratings.

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Model Number	Input				Output			Output Capacitive Load (µF Max)	Efficiency (% Typ)	Fuse Rating Slow-Blow (mA)
	Voltage (VDC)		Current (mA)		Voltage (VDC)	Current (mA, Max)	Current (mA, Min)			
	Nominal	Range	Full-Load	No-Load						
MC2512S-05RW	12	9.0 - 18.0	2,510	20	5.0	5,000	0.0	3,300	83	5,000
MC2512S-07RW	12	9.0 - 18.0	2,480	20	7.2	3,472	0.0	2,200	84	5,000
MC2512S-09RW	12	9.0 - 18.0	2,480	20	9.0	2,777	0.0	1,000	84	5,000
MC2512S-12RW	12	9.0 - 18.0	2,480	20	12.0	2,083	0.0	1,000	84	5,000
MC2512S-15RW	12	9.0 - 18.0	2,450	30	15.0	1,666	0.0	680	85	5,000
MC2512S-18RW	12	9.0 - 18.0	2,450	30	18.0	1,388	0.0	470	85	5,000
MC2512S-24RW	12	9.0 - 18.0	2,450	30	24.0	1,041	0.0	470	85	5,000
MC2512D-03RW	12	9.0 - 18.0	1,718	20	±3.3	±2,500	±0.0	±1,500	80	5,000
MC2512D-05RW	12	9.0 - 18.0	2,540	25	±5.0	±2,500	±0.0	±1,500	82	5,000
MC2512D-07RW	12	9.0 - 18.0	2,510	25	±7.2	±1,736	±0.0	±1,000	83	5,000
MC2512D-09RW	12	9.0 - 18.0	2,480	25	±9.0	±1,388	±0.0	±680	84	5,000
MC2512D-12RW	12	9.0 - 18.0	2,480	30	±12.0	±1,041	±0.0	±470	84	5,000
MC2512D-15RW	12	9.0 - 18.0	2,450	30	±15.0	±833	±0.0	±330	85	5,000
MC2512D-18RW	12	9.0 - 18.0	2,450	35	±18.0	±694	±0.0	±220	85	5,000
MC2512D-24RW	12	9.0 - 18.0	2,450	35	±24.0	±520	±0.0	±220	85	5,000
MC2524S-03RW	24	18.0 - 36.0	838	25	3.3	5,000	0.0	3,300	82	2,500
MC2524S-05RW	24	18.0 - 36.0	1,240	25	5.0	5,000	0.0	3,300	84	2,500
MC2524S-07RW	24	18.0 - 36.0	1,240	25	7.2	3,472	0.0	2,200	84	2,500
MC2524S-09RW	24	18.0 - 36.0	1,240	25	9.0	2,777	0.0	1,000	84	2,500
MC2524S-12RW	24	18.0 - 36.0	1,225	25	12.0	2,083	0.0	1,000	85	2,500
MC2524S-15RW	24	18.0 - 36.0	1,225	25	15.0	1,666	0.0	680	85	2,500
MC2524S-18RW	24	18.0 - 36.0	1,225	25	18.0	1,388	0.0	470	85	2,500
MC2524S-24RW	24	18.0 - 36.0	1,211	25	24.0	1,041	0.0	470	86	2,500
MC2524D-03RW	24	18.0 - 36.0	859	25	±3.3	±2,500	±0.0	±1,500	80	2,500
MC2524D-05RW	24	18.0 - 36.0	1,240	25	±5.0	±2,500	±0.0	±1,500	84	2,500
MC2524D-07RW	24	18.0 - 36.0	1,240	25	±7.2	±1,736	±0.0	±1,000	84	2,500
MC2524D-09RW	24	18.0 - 36.0	1,240	25	±9.0	±1,388	±0.0	±680	84	2,500
MC2524D-12RW	24	18.0 - 36.0	1,225	25	±12.0	±1,041	±0.0	±470	85	2,500
MC2524D-15RW	24	18.0 - 36.0	1,211	25	±15.0	±833	±0.0	±330	86	2,500
MC2524D-18RW	24	18.0 - 36.0	1,211	25	±18.0	±694	±0.0	±220	86	2,500
MC2524D-24RW	24	18.0 - 36.0	1,197	30	±24.0	±520	±0.0	±220	87	2,500
MC2548S-03RW	48	36.0 - 72.0	429	20	3.3	5,000	0.0	3,300	80	1,250
MC2548S-05RW	48	36.0 - 72.0	627	20	5.0	5,000	0.0	3,300	83	1,250
MC2548S-07RW	48	36.0 - 72.0	620	20	7.2	3,472	0.0	2,200	84	1,250
MC2548S-09RW	48	36.0 - 72.0	620	20	9.0	2,777	0.0	1,000	84	1,250
MC2548S-12RW	48	36.0 - 72.0	612	20	12.0	2,083	0.0	1,000	85	1,250
MC2548S-15RW	48	36.0 - 72.0	605	20	15.0	1,666	0.0	680	86	1,250
MC2548S-18RW	48	36.0 - 72.0	605	20	18.0	1,388	0.0	470	86	1,250
MC2548S-24RW	48	36.0 - 72.0	592	25	24.0	1,041	0.0	470	88	1,250
MC2548D-03RW	48	36.0 - 72.0	429	20	±3.3	±2,500	±0.0	±1,500	80	1,250
MC2548D-05RW	48	36.0 - 72.0	620	20	±5.0	±2,500	±0.0	±1,500	84	1,250
MC2548D-07RW	48	36.0 - 72.0	620	20	±7.2	±1,736	±0.0	±1,000	84	1,250
MC2548D-09RW	48	36.0 - 72.0	620	20	±9.0	±1,388	±0.0	±680	84	1,250
MC2548D-12RW	48	36.0 - 72.0	612	20	±12.0	±1,041	±0.0	±470	85	1,250
MC2548D-15RW	48	36.0 - 72.0	598	20	±15.0	±833	±0.0	±330	87	1,250
MC2548D-18RW	48	36.0 - 72.0	598	20	±18.0	±694	±0.0	±220	87	1,250
MC2548D-24RW	48	36.0 - 72.0	598	25	±24.0	±520	±0.0	±220	87	1,250

- Notes:
1. Load regulation is specified for a load change of 10% to 100% for dual output units.
 2. When measuring output ripple, an external 1 µF ceramic capacitor & 10 µF electrolytic capacitor should be placed in parallel from the +Vout pin to the -Vout pin for single output models, or from each output to common for dual output models.
 3. These converters are specified for operation without external components. However, in some applications the addition of 10 µF capacitor across the input will enhance stability and performance.
 4. It is recommended that a fuse be used on the input of a power supply for protection. See the Model Selection table above for the correct rating.

Mechanical Dimensions

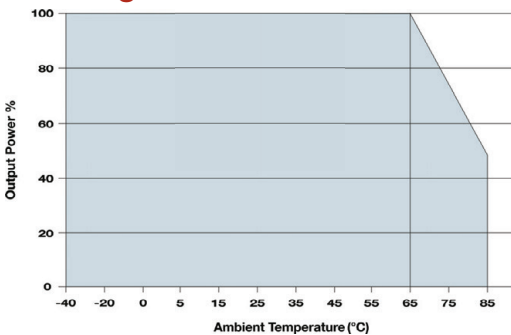


Pin Connections

Pin	Single Output
1	+VIN
2	-VIN
3	+VOUT
4	No Pin
5	-VOUT

Pin	Dual Output
1	+VIN
2	-VIN
3	+VOUT
4	Common
5	-VOUT

Derating Curve



- Notes:
- All dimensions are typical in inches (mm)
 - Tolerance x.xx = ±0.02 (±0.50)



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