



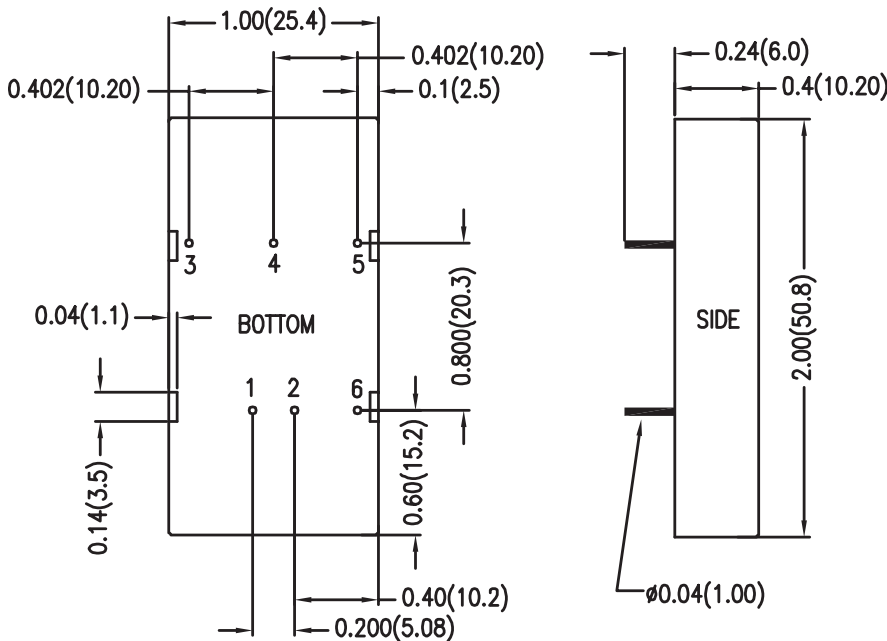
20 Watt TMZ Single and Dual Series



- Efficiency up to 89%
- 1500VDC Isolation
- MTBF > 800,000 Hours
- 2:1 Input
- Six-Sided Shielding
- Over Voltage Protection
- Remote On/Off
- CSA60950 Approved
- RoHS Compliant



Model Number	Voltage			Current				Reflected Ripple	Input Overvoltage (1000ms)	Over Voltage Protection	Efficiency	Capacitive Load
	Input		Output	Input		Output						
	Nom. (VDC)	Range (VDC)	(VDC)	@ No Load (mA)	@ Max Load (mA)	Min (mA)	Max (mA)					
TMZ13H12S3R3	12	9-18	3.3	30	1358	240	4000	50	25	3.9	81	6800µF
TMZ20H12S5	12	9-18	5	30	1984	240	4000	50	25	6.8	84	6800µF
TMZ20H12S12	12	9-18	12	30	1898	100	1670	50	25	15	88	680µF
TMZ20H12S15	12	9-18	15	30	1903	80	1340	50	25	18	88	680µF
TMZ20H12D12	12	9-18	±12	30	1898	±50	±835	50	25	±15	88	270 µF
TMZ20H12D15	12	9-18	±15	30	1903	±40	±670	50	25	±18	88	270 µF
TMZ13H24S3R3	24	18-36	3.3	17	671	240	4000	30	50	3.9	82	6800µF
TMZ20H24S5	24	18-36	5	17	980	240	4000	30	50	6.8	85	6800µF
TMZ20H24S12	24	18-36	12	17	938	100	1670	30	50	15	89	680µF
TMZ20H24S15	24	18-36	15	17	941	80	1340	30	50	18	89	680µF
TMZ20H24D12	24	18-36	±12	17	938	±50	±835	30	50	±15	89	270 µF
TMZ20H24D15	24	18-36	±15	17	941	±40	±670	30	50	±18	89	270 µF
TMZ13H48S3R3	48	36-75	3.3	10	335	240	4000	20	100	3.9	82	6800µF
TMZ20H48S5	48	36-75	5	10	490	240	4000	20	100	6.8	85	6800µF
TMZ20H48S12	48	36-75	12	10	469	100	1670	20	100	15	89	680µF
TMZ20H48S15	48	36-75	15	10	471	80	1340	20	100	18	89	680µF
TMZ20H48D12	48	36-75	±12	10	469	±50	±835	20	100	±15	89	270 µF
TMZ20H48D15	48	36-75	±15	10	471	±40	±670	20	100	±18	89	270 µF



Dimensions are inches (mm) unless noted

Tolerance: Inches	Millimeters
X.XX ±0.01	X.X ±0.25
X.XXX ±0.005	X.XX ±0.13
Pin	±0.002 ±0.05

Pin Connections		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	No Pin	Common
5	-Vout	-Vout
6	Remote On/Off	Remote On/Off



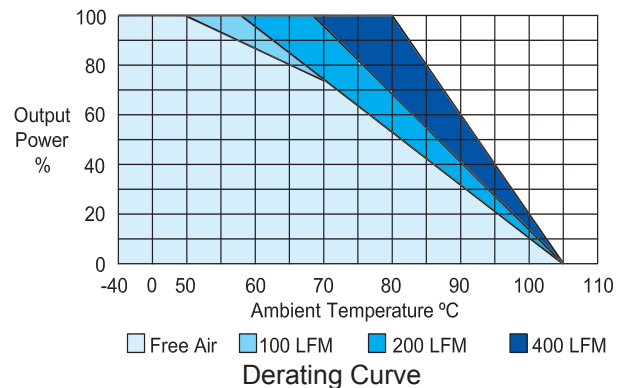
See Model Selection Table for Model Specific Parameters

Input Parameters	Min	Typ	Max	Units	
Reverse Polarity Input Current			2	A	
Short Circuit Input Power			3500	mW	
Start Voltage	12 Vin	8.6	8.8	9	VDC
	24 Vin	17	17.5	18	
	48 Vin	34	35	36	
Under Voltage	12 Vin	8.1	8.3	8.5	VDC
	24 Vin	16	16.5	17	
	48 Vin	32	33	34	
Switching Frequency	290	330	360		kHz
Conducted EMI	Meets EN55022 Class A and FCC Part 15, Class A				
Input Filter	Pi Filter				
Output Parameters	Min	Typ	Max	Units	
Output Voltage Accuracy		±0.5	±1.0	%	
Output Voltage Balance Dual Output, Balanced Loads		±0.5	±2.0	%	
Load Regulation (3.3Vout) Io = 0% to 100%		±0.5	±1.0	%	
Load Regulation Io = 10% to 100%		±0.1	±0.5	%	
Line Regulation Vin=Min. to Max.		±0.1	±0.3	%	
Ripple & Noise (20MHz)		55	80	mV P-P	
Ripple & Noise (20 MHz)			10	mV RMS	
Over Power Protection Foldback	110		160	%	
Transient Recovery Time 25% Load Step Change		150	300	µs	
Transient Response Deviation, 25% Load Step Change		±2	±4	%	
Temperature Coefficient		±0.01	±0.02	% / °C	
Short Circuit Protection	Continuous				
General Specifications	Min	Typ	Max	Units	
Isolation Voltage, 60 seconds	1500			VDC	
Isolation Resistance 500VDC	1000			Mohms	
Isolation Capacitance, 100kHz, 1V		1200	1500	pF	
Operating Temperature (Ambient)	-40		+80	°C	
Case Temperature			+100	°C	
Storage Temperature	-50		+125	°C	
Humidity			95	%	
MTBF MIL-HDBK-217F @25°C, Ground Benign	800			K Hours	
Cooling	Free-Air Convection				
Case Size	2.0 x 1.0 x 0.4 inches 50.8 x 25.4 x 10.2 mm				
Case Material	Metal with Non-Conductive Baseplate (UL94V-0)				
Weight	32g				
Agency Approval	CSA60950 Approved				

Remote On/Off	Min	Typ	Max	Units
Supply On	2.5 to 100VDC or Open Circuit			VDC
Supply Off	0 to 1 VDC or Short Circuit			VDC
Device Standby Input Current		2	5	mA
Control Input Current (on) Vin - RC = 5.0V			5	µA
Control Input Current (off) Vin - RC = 0V			-100	µA
Control Common	Referenced to Negative Logic			

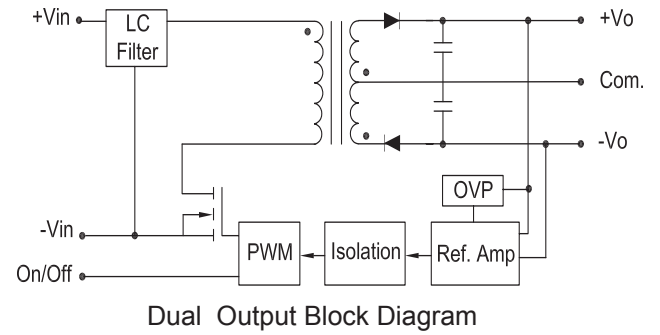
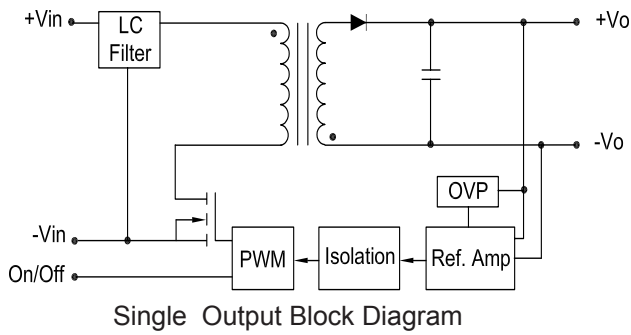
Notes:

- Specifications typical at Ta=+25°C, resistive load, nominal input voltage, full rated output current unless otherwise noted.
- Transient recovery time is measured to within 1% error band for a step change in output load 75% to 100%.
- ConTech power converters require a minimum output loading to maintain specified regulation. Operation under no-load conditions will not damage these modules; however, they may not meet all specifications listed.
- The series has a limitation of a maximum connected capacitance at the output. The power module may be operated in current limiting mode during start-up, affecting the ramp-up and the startup time.
- When measuring peak-to-peak output noise, use a Cout 1.0µF ceramic capacitor. Scope measurement should be made by using a BNC socket, measurement bandwidth is 0-20MHz. Position the load between 2" and 2.5" from the converter.
- Water washability - ConTech DC/DC converters are designed to withstand most solder/wash processes. Careful attention should be used when assessing the applicability in your specific manufacturing process. Converters are not hermetically sealed.
- See ConTech website for Definition of Terms, Application Notes, and Test Setups and Parameters. www.ConTech-us.com/appnotes.html.
- Specifications subject to change without notice.
- See ConTech website www.ConTech-us.com/pdf/rohs.pdf for RoHS Statement.



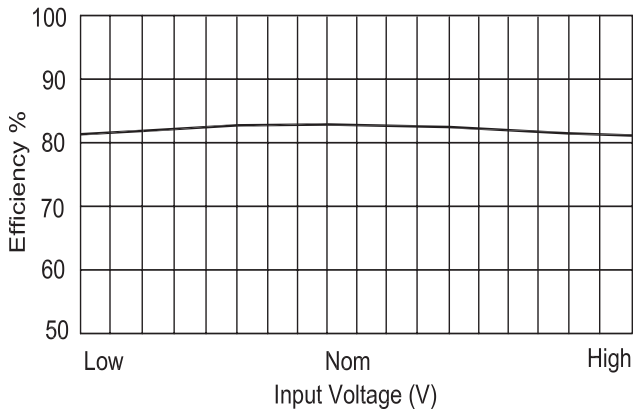
Input Fuse Selection Table	
12V Input	4000 mA Slow-Blow
24V Input	2000 mA Slow-Blow
48V Input	1000 mA Slow-Blow

External fusing should be used for system protection due to a catastrophic failure. See ConTech website for Fusing Application Notes to determine the correct fuse.

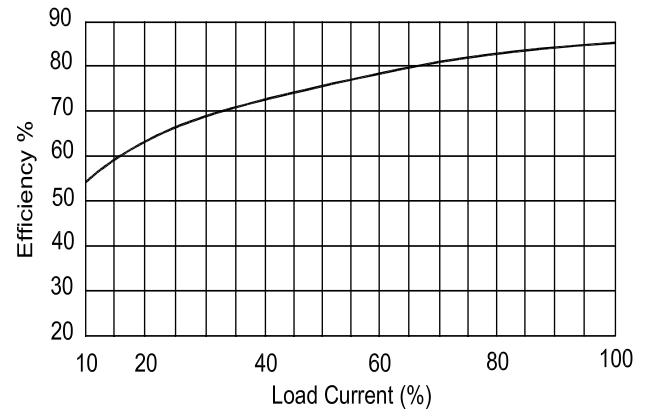


Efficiency Curves

Single Output

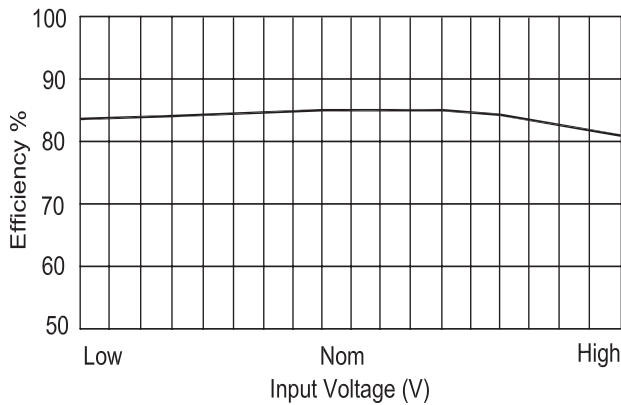


Efficiency vs Input Voltage

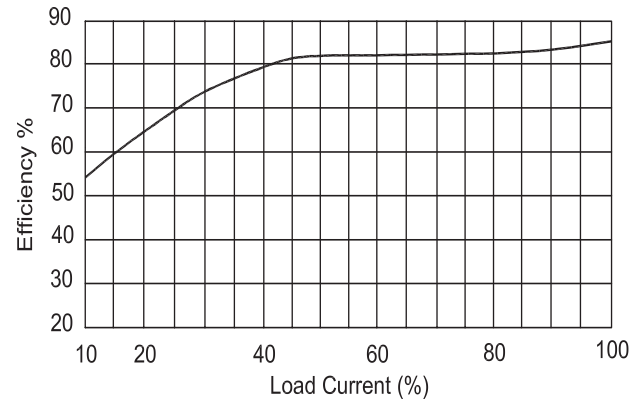


Efficiency vs Output Load

Dual Output



Efficiency vs Input Voltage



Efficiency vs Output Load