

WDD20 SERIES

DC - DC CONVERTER

15 ~ 20W SINGLE & DUAL OUTPUT



FEATURES

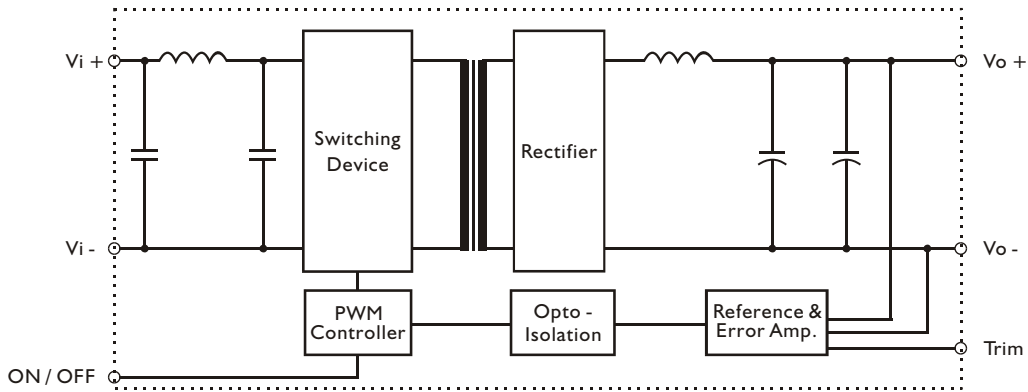
- LOW COST
- 2:1 WIDE INPUT RANGE
- I/O ISOLATION
- INPUT Pi FILTER
- SHORT CIRCUIT PROTECTION
- HIGH PERFORMANCE
- 2 YEARS WARRANTY

MODEL LIST

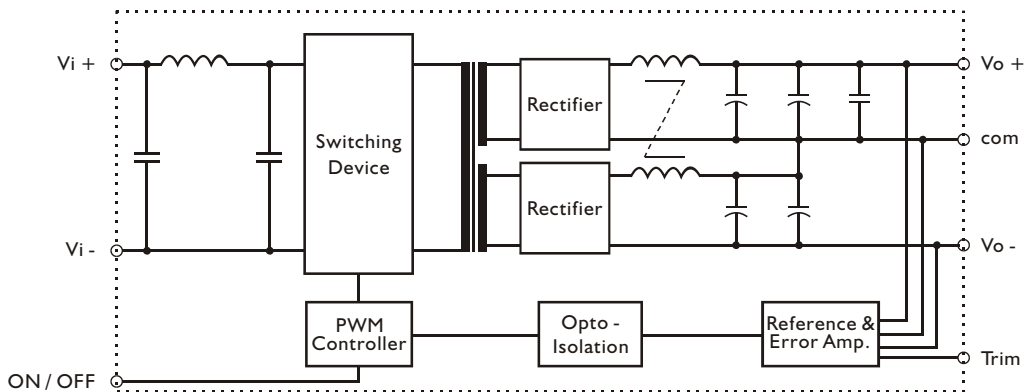
MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (typ.)	EFF. (min.)
Single Output Models						
WDD20 - 03S1	9~18 VDC	15 WATTS	+3.3 VDC	4500 mA	80%	77%
WDD20 - 05S1	9~18 VDC	20 WATTS	+ 5 VDC	4000 mA	83%	81%
WDD20 - 12S1	9~18 VDC	20 WATTS	+ 12 VDC	1670 mA	86%	84%
WDD20 - 15S1	9~18 VDC	20 WATTS	+ 15 VDC	1330 mA	87%	85%
WDD20 - 03S2	18~36 VDC	15 WATTS	+3.3 VDC	4500 mA	80%	78%
WDD20 - 05S2	18~36 VDC	20 WATTS	+ 5 VDC	4000 mA	85%	83%
WDD20 - 12S2	18~36 VDC	20 WATTS	+ 12 VDC	1670 mA	86%	84%
WDD20 - 15S2	18~36 VDC	20 WATTS	+ 15 VDC	1330 mA	88%	86%
WDD20 - 03S3	36~72 VDC	15 WATTS	+3.3 VDC	4500 mA	80%	78%
WDD20 - 05S3	36~72 VDC	20 WATTS	+ 5 VDC	4000 mA	85%	83%
WDD20 - 12S3	36~72 VDC	20 WATTS	+ 12 VDC	1670 mA	87%	85%
WDD20 - 15S3	36~72 VDC	20 WATTS	+ 15 VDC	1330 mA	88%	86%
Dual Output Models						
WDD20 - 12D1	9~18 VDC	20 WATTS	± 12 VDC	± 830 mA	85%	83%
WDD20 - 15D1	9~18 VDC	20 WATTS	± 15 VDC	± 670 mA	87%	85%
WDD20 - 12D2	18~36 VDC	20 WATTS	± 12 VDC	± 830 mA	87%	85%
WDD20 - 15D2	18~36 VDC	20 WATTS	± 15 VDC	± 670 mA	88%	86%
WDD20 - 12D3	36~72 VDC	20 WATTS	± 12 VDC	± 830 mA	87%	85%
WDD20 - 15D3	36~72 VDC	20 WATTS	± 15 VDC	± 670 mA	89%	87%

CIRCUIT SCHEMATIC

• Block diagram for WDD20 series with single output



• Block diagram for WDD20 series with dual output



SPECIFICATION

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

GENERAL

Characteristics	Conditions	min.	typ.	max.	unit
Switching frequency	Vi nom, Io nom		180		KHz
Isolation voltage	Input / Output	1,500			VDC
Isolation resistance	Input / Output, @ 500VDC	100			MΩ
Ambient temperature	Vi nom, 3.3V & 5V output models	-25		+ 60	°C
	Io nom 12V, 15V & dual output models	-25		+ 71	°C
Case temperature	Operating at Vi nom, Io nom			+ 100	°C
Derating	Vi nom	See derating curve			% / °C
Storage temperature	Non operational	-40		+ 100	°C
M.T.B.F.	According to MIL-HDBK-217F, GF40		277,000		Hrs
Dimension	L40.6 x W50.8 x H10.2				mm
Cooling	Free air convection				
Case material	Metal				

INPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Input voltage range	Ta min ... Ta max, Io nom	9	12	18	VDC
		18	24	36	VDC
		36	48	72	VDC
No load input current	Vi nom, Io = 0	12V models		20	mA
		24V models		15	mA
		48V models		10	mA
Input voltage w/o damage	Io nom	12V models		20	VDC
		24V models		40	VDC
		48V models		75	VDC
Startup voltage	Io nom	12V models	8.5		VDC
		24V models	15		VDC
		48V models	33		VDC
Input filter	Pi type				

OUTPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Output voltage accuracy	Vi nom, Io nom			± 2	%
Minimum load	Vi nom single output models	0			%
	Vi nom dual output models (each output)	16			%
Line regulation	Io nom, Vi min ... Vi max			± 1	%
Load regulation	Vi nom, Io 0 ... Io nom, single output models			± 2	%
	Vi nom, Io min ... Io nom, dual output models			± 5	%
Transient recovery time	Vi nom, Io 0 ... I/2 Io nom		500		μS
Temperature coefficient	Vi nom, Io nom			± 0.02	% / °C
Ripple & noise	Vi nom, Io nom, 3.3V & 5V output models			100	mV
	BW = 20MHz 12V, 15V & dual			150	mV
Voltage trim range	Vi nom 3.3V output models		± 5		%
	5V, 12V, 15V & dual		± 10		%
Efficiency	Vi nom, Io nom, Po / Pi	Up to 89%, See model list			

SPECIFICATION

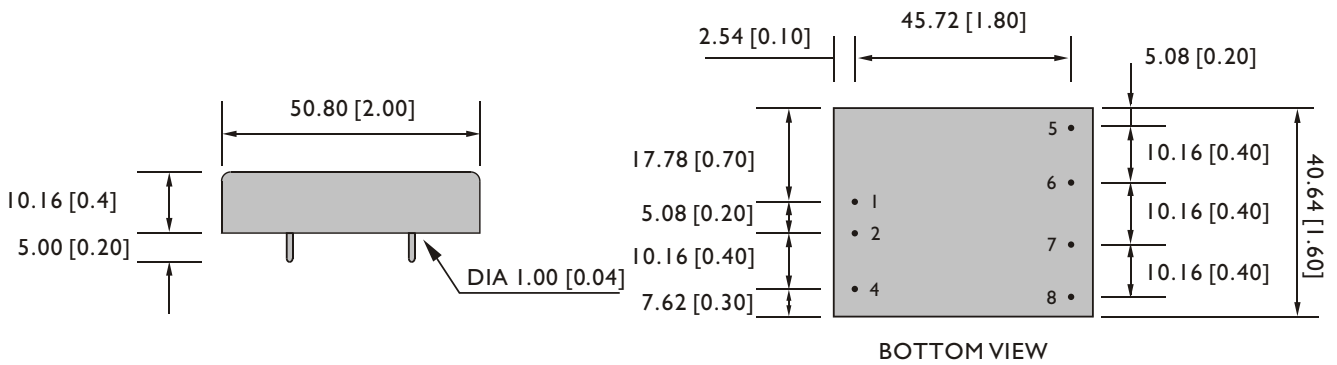
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CONTROL AND PROTECTION

Remote ON / OFF	ON: opened or 8 ~ 10VDC applied, reference to input GND OFF: -0.3 ~ 2VDC applied, reference to input GND
Input reversed	Shunt diode built in, external fuse recommended
Output short circuit	Continuous

MECHANISM & PIN CONFIGURATION

mm [inch]



PHYSICAL CHARACTERISTICS

CASE SIZE	40.6 x 50.8 x 10.2 mm 1.6 x 2 x 0.4 inches
CASE MATERIAL	Metal
WEIGHT	60 g

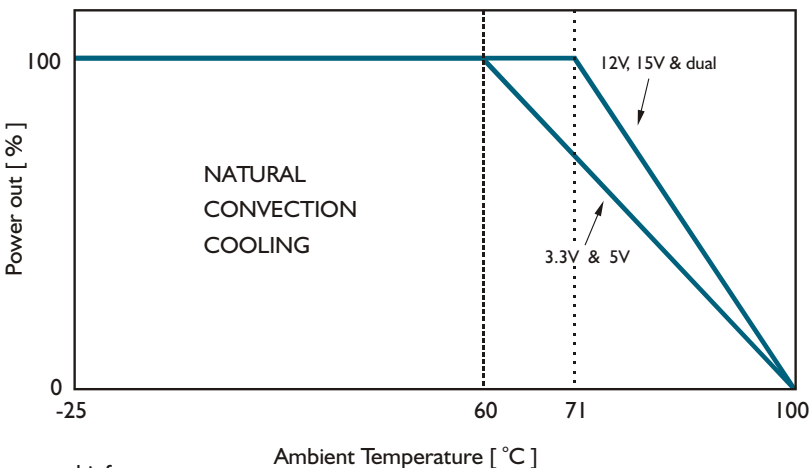
PIN ASSIGNMENT

GENERAL

PIN NO.	1	2	4	5	6	7	8
SINGLE	Vi+	Vi-	S. D.	NO PIN	Vo+	Vo-	Trim
DUAL	Vi+	Vi-	S. D.	Vo+	com	Vo-	Trim

S.D. : REMOTE ON / OFF

DERATING



WDD20 SERIES

DC - DC CONVERTER
20W SINGLE & DUAL OUTPUT



FEATURES

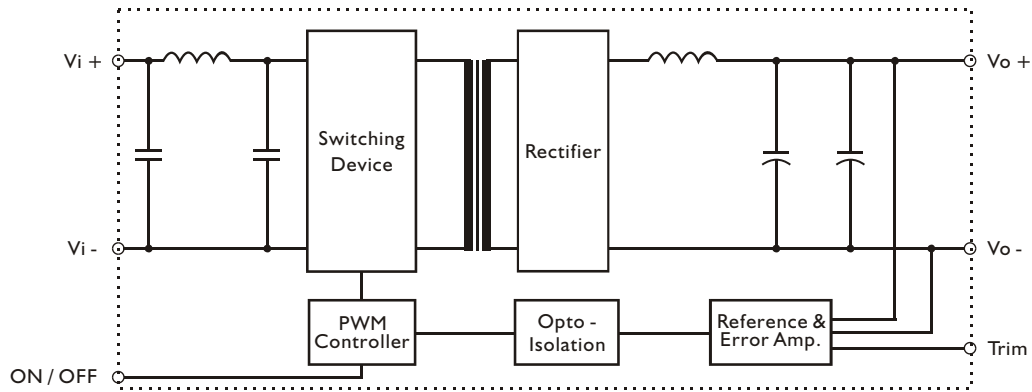
- LOW COST
- 4:1 WIDE INPUT RANGE
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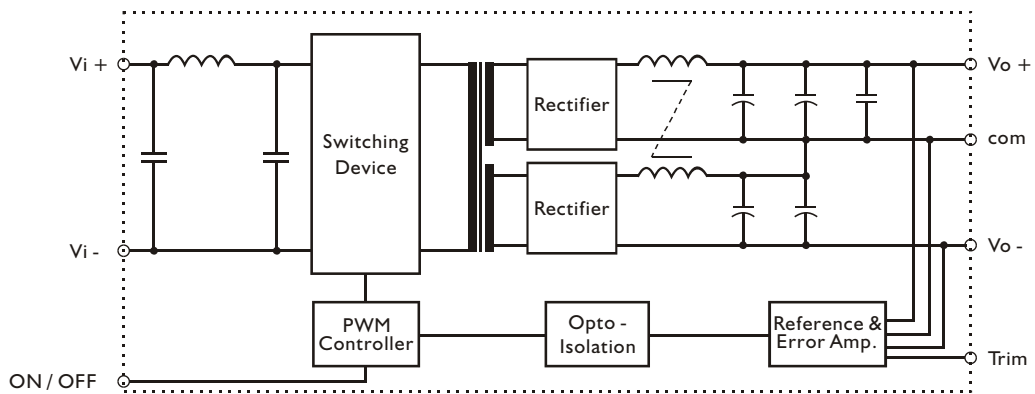
MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (typ.)	EFF. (min.)
Single Output Models						
WDD20 - 03S4	10~36 VDC	20 WATTS	+3.3 VDC	6000 mA	78%	76%
WDD20 - 05S4	10~36 VDC	20 WATTS	+ 5 VDC	4000 mA	80%	78%
WDD20 - 12S4	10~36 VDC	20 WATTS	+ 12 VDC	1670mA	82%	80%
WDD20 - 15S4	10~36 VDC	20 WATTS	+ 15 VDC	1330 mA	82%	80%
WDD20 - 03S5	18~72 VDC	20 WATTS	+3.3 VDC	6000 mA	80%	78%
WDD20 - 05S5	18~72 VDC	20 WATTS	+ 5 VDC	4000 mA	82%	80%
WDD20 - 12S5	18~72 VDC	20 WATTS	+ 12 VDC	1670 mA	84%	82%
WDD20 - 15S5	18~72 VDC	20 WATTS	+ 15 VDC	1330 mA	84%	82%
Dual Output Models						
WDD20 - 05D4	10~36 VDC	20 WATTS	± 5 VDC	± 2000 mA	78%	76%
WDD20 - 12D4	10~36 VDC	20 WATTS	± 12 VDC	± 830 mA	82%	80%
WDD20 - 15D4	10~36 VDC	20 WATTS	± 15 VDC	± 670 mA	82%	80%
WDD20 - 05D5	18~72 VDC	20 WATTS	± 5 VDC	± 2000 mA	80%	78%
WDD20 - 12D5	18~72 VDC	20 WATTS	± 12 VDC	± 830 mA	84%	82%
WDD20 - 15D5	18~72 VDC	20 WATTS	± 15 VDC	± 670 mA	84%	82%

CIRCUIT SCHEMATIC

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• Block diagram for WDD20 series with dual output



SPECIFICATION

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

GENERAL

Characteristics	Conditions	min.	typ.	max.	unit
Switching frequency	Vi nom, Io nom		250		KHz
Isolation voltage	Input / Output	1,500			VDC
Isolation resistance	Input / Output, @ 500VDC	100			MΩ
Ambient temperature	Vi nom, 3.3V & 5V output models	-25		+ 60	°C
	Io nom 12V, 15V & dual output models	-25		+ 71	°C
Case temperature	Operating at Vi nom, Io nom			+ 100	°C
Derating	Vi nom	See derating curve			% / °C
Storage temperature	Non operational	-40		+ 100	°C
Dimension	L50.8 x W40.6 x H10.2				mm
Cooling	Free air convection				
Case material	Metal				

INPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Input voltage range	Ta min ... Ta max, Io nom	10	24	36	VDC
		18	48	72	VDC
No load input current	Vi nom, Io = 0	24V models		20	mA
		48V models		15	mA
Input voltage w/o damage	Io nom	24V models		40	VDC
		48V models		80	VDC
Startup voltage	Io nom	24V models		9.5	VDC
		48V models		16	VDC
Input filter	Pi type				

OUTPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Output voltage accuracy	Vi nom, Io nom			± 2	%
Minimum load	Vi nom single output models	0			%
	Vi nom dual output models (each output)	10			%
Line regulation	Io nom, Vi min ... Vi max			± 1	%
Load regulation	Vi nom, Io 0 ... Io nom, single output models			± 2	%
	Vi nom, Io min ... Io nom, dual output models			± 5	%
Transient recovery time	Vi nom, Io 0 ... 1/2 Io nom		500		μs
Temperature coefficient	Vi nom, Io nom			± 0.02	% / °C
Ripple & noise	Vi nom, Io nom, 3.3V & 5V output models			100	mV
	BW = 20MHz 12V, 15V & dual			150	mV
Voltage trim range	Vi nom	3.3V output models		± 5	%
		5V, 12V, 15V & dual		± 10	%
Efficiency	Vi nom, Io nom, Po / Pi	Up to 84%, See model list			

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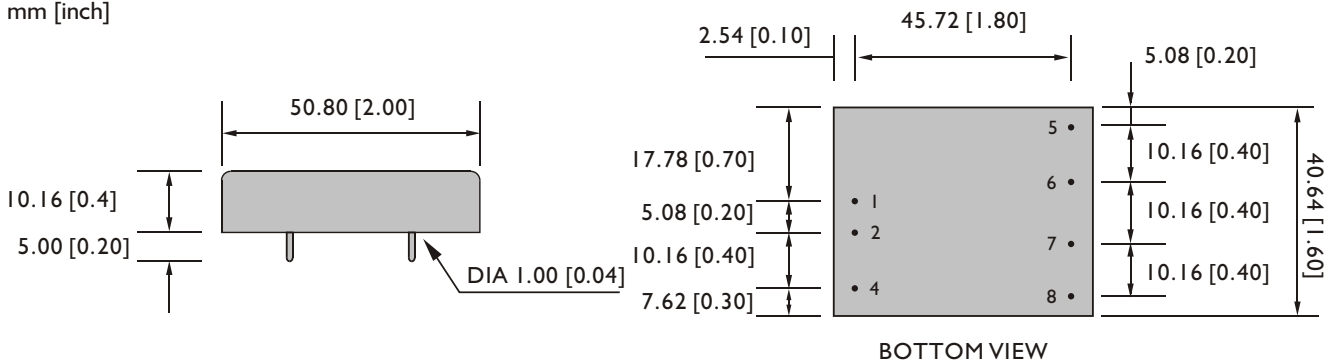
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DUAL	Vi+	Vi-	S. D.	Vo+	com	Vo-	Trim

S.D. : REMOTE ON / OFF

DERATING

