

MRW MODEL TABLE

SPECIFICATION	MODE	OUTPUT VOLTAGE		OVP SETTING	OUTPUT CURRENT	CURRENT LIMIT	OUTPUT POWER				RIPPLE SOURCE	SWITCHING	NOISE (SPIKE)	EFFICIENCY
		Volts		Volts	Amps		Watts				mV		mV	Percent
Condition		Factory Set(1)	Adjustment range	Nominal input, 25°C	50°C (See Curves)	Nominal input	40°C	50°C	60°C	71°C	Nominal input, typ load p-p max		d-c to 20MHz p-p max	Nom. input rated load typ
MRW 145KV (28 WATTS)														
Output #1	MRW 145KV	+5	4.75-5.25	5.8-6.9(2)	0.6-2.0 (typ)	Total max. output power no more than 28 Watts	28	28	20	11	20	80	150	73%
Output #2	MRW 145KV	+12	(3)		0.3-1.5(typ)						30	120	290	
MRW 150KV and MRW 151KV (35 WATTS)														
Output #1		+5	4.75-5.25	5.8-6.9(2)	1.0-2.2 (typ) (4.0 max)	Total max. output power no more than 38.5 Watts	35.0	35.0	24.5	14.0	30	50	150	70%
Output #2	MRW 150KV	+12	(3)	—	0.6-1.8 (typ) (2.5 max)						30	50	290	
	MRW 151KV	+15	(3)	—	0.6-1.4 (typ) (2.0 max)									
Output #3	MRW 150KV	-12	—	—	0-0.1 (typ)						10	20	290	
	MRW 151KV	-15	—	—	(0.3 max)									

(1) Nominal input, typical load, 25°C.

(2) All outputs are shut down when OVP is activated.

(3) This output follows the adjustment of Output #1.

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		Volts		Volts	Amps		Watts				mV		mV	Percent
Condition		Factory Set ⁽¹⁾	Adjustment range	Nominal input, 25°C	50°C (See Curves)	Nominal input	40°C	50°C	60°C	71°C	Nominal input, typ load p-p max		d-c to 20MHz p-p max	Nom. input, rated load typ
MRW 160KV and MRW 161KV (50 WATTS)														
Output #1		+5	4.75-5.25	5.8-6.9 ⁽²⁾	1.0-5.0 (typ) (6.0 max)	Total max. output power no more than 60 Watts	50	50	35	20	30	50	150	72%
Output #2	MRW 160KV	+12	(3)	—	0.5-2.0 (typ) (2.5 max)						30	50	290	
	MRW 161KV	+15	(3)	—	0.5-1.5 (typ) (2.0 max)						30	50	350	
Output #3	MRW 160KV	-12	—	—	0-0.1 (typ) (0.5 max)						10	20	290	
	MRW 161KV	-15	—	—	0-0.1 (typ) (0.4 max)						10	20	350	
MRW 170KV and MRW 171KV (65 WATTS)														
Output #1		+5	4.75-5.25	5.8-6.9 ⁽²⁾	0.8-5.0 (typ) (7.0 max)	Total max. output power no more than 70 Watts	65.0	65.0	45.5	26.0	30	50	150	70%
Output #2	MRW 170KV	+12	(3)	—	0.3-1.7 (typ) (2.5 max)						30	50	250	
	MRW 171KV	+15	(3)	—	0.3-1.3 (typ) (2.0 max)									
Output #3	MRW 170KV	-12	(3)	—	0.3-1.7 (typ) (2.5 max)									
	MRW 171KV	-15	(3)	—	0.3-1.3 (typ) (2.0 max)									

(1) Nominal input, typical load, 25°C.

(2) All outputs are shut down when OVP is activated.

(3) This output follows the adjustment of Output #1.

MRW INPUT CHARACTERISTICS

SPECIFICATION	MRW 145KV	MRW 150KV MRW 151KV	MRW 160KV MRW 161KV	MRW 170KV MRW 171KV	CONDITION
Voltage range	90 to 264V a-c; 130-370V d-c (1)				
Brownout voltage	85V a-c; 120V d-c (1)				Typical load
Input current	0.8A	1.0A	1.3A	1.5A	Typ, 115V a-c
	0.5A	0.5A	0.8A	0.8A	Typ, 230V a-c
Fuse value	2.0A	2.5A	3A	3A	
Initial turn-on surge first half cycle	50A max				115V a-c, typ load 25°C cold start
Frequency	50/60Hz nominal range 47-440Hz (2)				Single phase
EMI	Meets the conducted noise standard of FCC 20780, class B and VDE 0871, class B				
Leakage current	0.5mA				115V a-c (UL method) 25°C
	0.75mA				230V a-c (VDE method) 25°C
Start-up time	750ms	400ms	500ms	600ms	typ std (3)
Hold-up time	20ms				typ std (3)
Circuit type	Flyback converter				
Switching frequency	100KHz	100KHz	80KHz	100KHz	

(1) Safety approval is valid for a-c operation only.

(2) At 440Hz the leakage current exceeds the UL/VDE safety specification limit.

(3) Std conditions = nominal input, typical load, 25°C.

MRW 145KV, 150KV, 151KV OUTPUT CHARACTERISTICS

SPECIFICATION	MRW 145KV OUTPUT		MRW 150KV/MRW 151KV OUTPUT			CONDITION
	#1	#2	#1	#2	#3	
Source Effect	1.5% max	2.0% max	1% max	1% max	1% max	90-132V a-c or 180-264V a-c
Load Effect	2.5% max	3.5% max	3% max	5% max	1% max	Minimum load to rated load
Temperature Effect (0-50°C)	2.5% max	3.5% max	2% max	2% max	1% max	Nominal input, rated load
Combined Effect (source, load & temperature)	+4% -3% max	+5% -5% max	+4% -2% max	+4% -6% max	+6% -6% max	Initial setting 5.00V ±20mV
Time Effect (drift)	0.5% max					0.5-8.5 hrs std (1)
Cross Effect max Output #1	—	4.0%	—	4.0%	0.5%	Load change from minimum to typical, std (1)
Output #2	3%	—	1.5%	—	0.5%	
Output #3	—	—	0.5%	0.5%	—	
Recovery Characteristics: Excursion	<4.0%					Step load change from 50% to 100% of rated load, std (1)
Recovery within 1%)	<1.0msec		<2msec			

(1) Std conditions = nominal input, typical load, 25°C.

MRW 160/161KV, 170/171KV OUTPUT CHARACTERISTICS

SPECIFICATION	MRW 160KV/MRW 161KV OUTPUT			MRW 170KV/MRW 171KV OUTPUT			CONDITION
	#1	#2	#3	#1	#2	#3	
Source Effect	2% max	2% max	1% max	1% max	1% max	1% max	90-132V a-c or 180-264V a-c
Load Effect	4% max	2% max	1% max	3.5% max	5% max	5% max	Minimum load to rated load
Temperature Effect (0-50°C)	2% max	2% max	1% max	2% max	3.5% max	3.5% max	Nominal input, rated load
Combined Effect (source, load & temperature)	+4% -4% max	+6% -4% max	+6% -6% max	+4% -4% max	+8% -7% max	+8% -7% max	Initial setting 5.00V ±20mV
Time Effect (drift)	0.5% max						0.5-8.5 hrs std (1)
Cross Effect max Output #1	—	4.0%	1.0%	—	5.0%	5.0%	Load change from minimum to typical, std (1)
Output #2	1.5%	—	1.0%	3.0%	—	5.0%	
Output #3	0.5%	0.5%	—	3.0%	5.0%	—	
Recovery Characteristics: Excursion	<4.0%						Step load change from 50% to 100% of rated load, std (1)
Recovery within 1%)	<2msec						

(1) Std conditions = nominal input, typical load, 25°C.

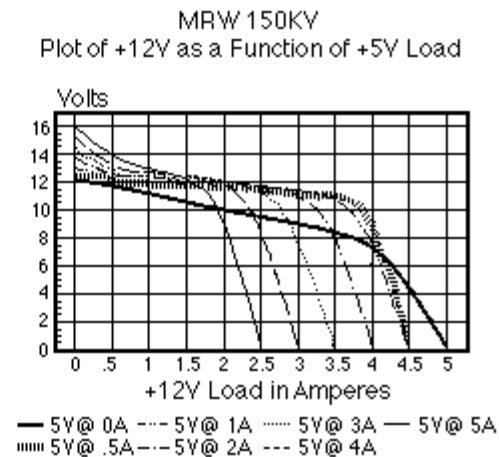
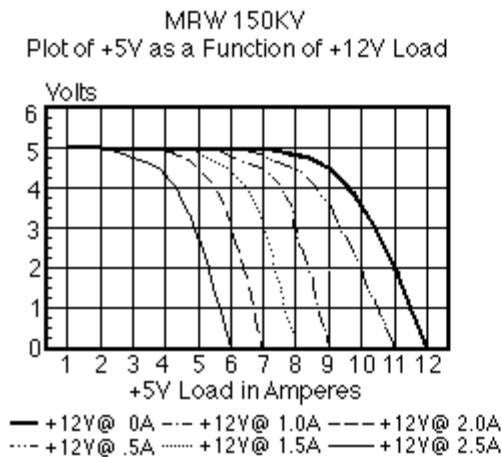
MRW GENERAL SPECIFICATIONS

SPECIFICATION		RATING/DESCRIPTION	CONDITION
Temperature		0-71°C (see model table)	Operating
		-40 to 85°C	Storage
Humidity		95% RH	Non-condensing; operating & storage
Shock		20g, 3 axes (11msec ±5msec pulse duration)	Non-operating 3 shocks each axis
Vibration		5-10Hz: 10mm amplitude	Non-operating 1 hour each axis
		10-55Hz: 2g, 3 axes	
Isolation	Output to ground	500V d-c, 100MΩ	25°C, 65% RH
Withstand voltage	Input to output	3.75KV a-c for 1 minute	25°C, 65% RH Y capacitor removed
	Input to ground	2KV a-c for 1 minute	25°C, 65% RH
Safety		UL 1950 recognized, CSA 1402 C certified. EN 60950 approved by TÜV Rheinland.	
Type of construction		PC card	
Enclosure		Optional metal(1)	
Cooling		Convection	

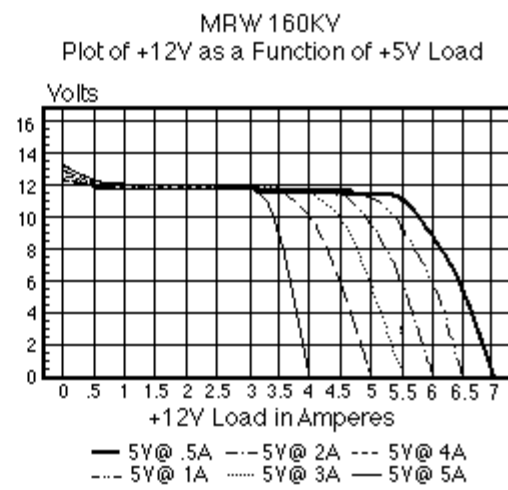
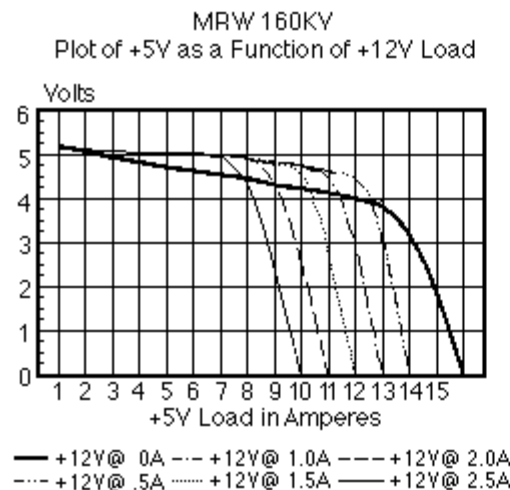
(1) Models MRW 150KV, 151KV, 160KV, 161KV, 170KV, 171KV only.

There are three outputs in most MRW power supplies. Outputs #1 and #2 of the MRW 150/151KV and 160/161KV can share the available power as illustrated by these curves. For MRW 170/171KV all three outputs share the power. The curves illustrate these possibilities.

NOTE: The maximum current from each output is limited to the tabulated value. The MRW 145KV has two outputs; sharing is not provided.



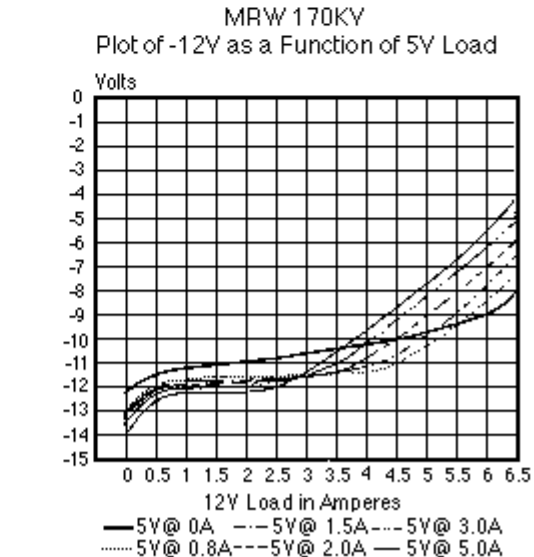
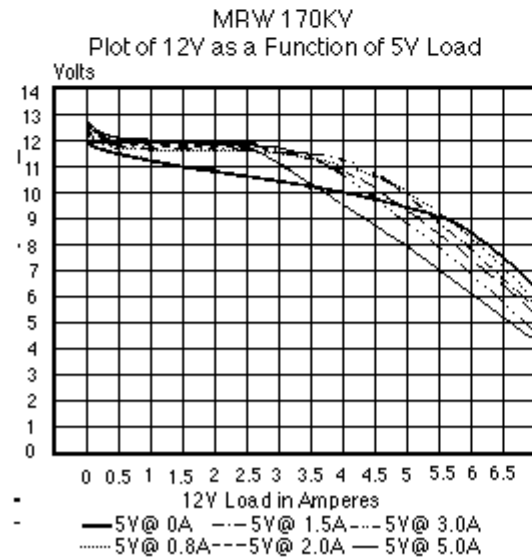
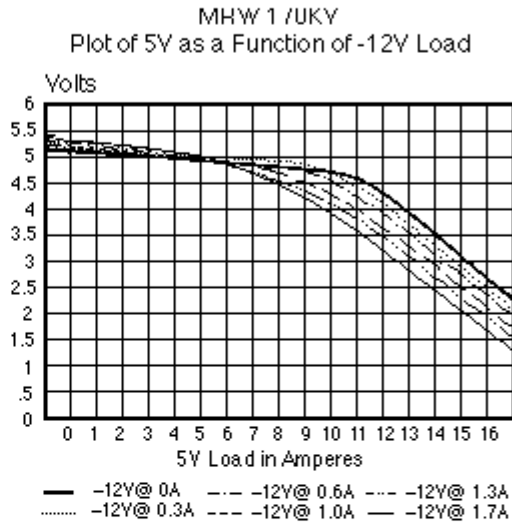
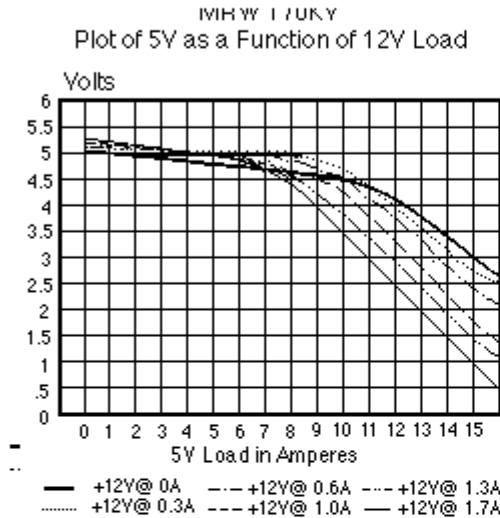
MRW 151KV curves are similar



MRW 161KV curves are similar

There are three outputs in most MRW power supplies. Outputs #1 and #2 of the MRW 150/151KV and 160/161KV can share the available power as illustrated by these curves. For MRW 170/171KV all three outputs share the power. The curves illustrate these possibilities.

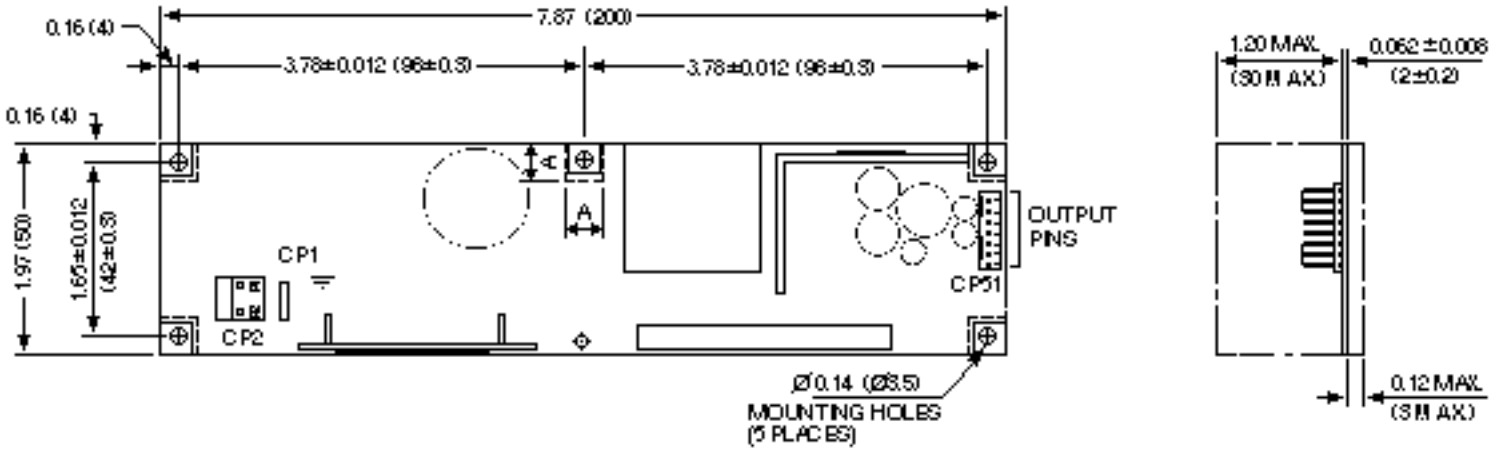
NOTE: The maximum current from each output is limited to the tabulated value. The MRW 145KV has two outputs; sharing is not provided.



MRW 171KV curves are similar

MRW 145KV

DIMENSIONS ARE IN INCHES, DIMENSIONS IN BRACKETS ARE IN MILLIMETERS



MRW 150KV, 151KV, 160KV 161KV, 170KV, 171KV

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