

Series 1793

17 – 40 Watt Hybrid

For demanding Industrial and Railroad (EN50155) applications

Features

- Hermetic packaging protects against harsh environments
- Built-in EMI filter limits conducted emissions and reduces transient susceptibility
- Short circuit proof – inherent dual mode overcurrent protection
- Fixed frequency operation offers low ripple and fast load transient response
- User programmable soft start for Vout ramp
- Sync input
- Power on/off – ground INH to shut output: low quiescent current
- Precision RF feedback – no optical devices used
- Parallelable – for higher output prime or redundant power applications

Specifications

INPUT: 110 VDC nominal
Range: 77 to 135 VDC
Operates through input transients of up to 160 V

ISOLATION:

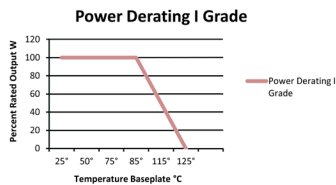
Input to case: 100 MOhms at 500 VDC
Input to output: 100 MOhms at 500 VDC
Output to case: 10 MOhms at 100 VDC

ENVIRONMENT:

Storage temperature: -55°C to +150°C
Mechanical Shock: 50 G's, 11 mSec 1/2 sine pulse, 3X each axis
Random Vibration: 30 G's 50 – 2000Hz, 6dB/octave ramp, .6 PSD, 32g RMS overall

DERATING:

Full Power Output at $T_{case} = +85^{\circ}C$
Linearly derates to 50% at $T_{case} = +115^{\circ}C$



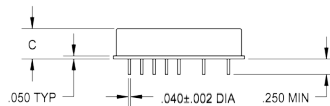
WEIGHT: 90 grams typical

SINGLE OUTPUT DEVICES		1793-S03.3 (26.4W)			1793-S05 (40W)			1793-S05.2 (40W)			1793-S12 (40W)		
PARAMETER	CONDITION	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
Output voltage	—	+3.2	+3.3	+3.4	+4.9	+5.0	+5.1	+5.1	+5.2	+5.3	+11.9	+12.0	+12.1
Output current	$V_{in min} - V_{in max}$	—	—	8A	—	—	8A	—	—	7.69A	—	—	3.33A
Efficiency	$P_{out} = \text{max rated load}$	66%	69%	—	69%	73%	—	71%	74%	—	78%	82%	—
Line regulation	$P_{out} = \text{max rated load}$	—	10mV	30mV	—	10mV	50mV	—	10mV	50mV	—	20mV	100mV
Load regulation	$P_{out} = 10\% \text{ to F.L.}$	—	10mV	30mV	—	10mV	50mV	—	10mV	50mV	—	20mV	100mV
Output ripple	F.L. BW 2 MHz	—	30	65	—	40	85	—	40	85	—	60	150

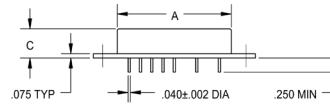
SINGLE OUTPUT DEVICES		1793-S15 (40W)			1793-S28 (40W)		
PARAMETER	CONDITION	MIN	TYP	MAX	MIN	TYP	MAX
Output voltage	—	+14.9	+15.0	+15.1	+27.8	+28.0	+28.2
Output current	$V_{in min} - V_{in max}$	—	—	2.67A	—	—	1.43A
Efficiency	$P_{out} = \text{max rated load}$	79%	83%	—	78%	82%	—
Line regulation	$P_{out} = \text{max rated load}$	—	25mV	125mV	—	50mV	250mV
Load regulation	$P_{out} = 10\% \text{ to F.L.}$	—	25mV	125mV	—	50mV	250mV
Output ripple	F.L. BW 2 MHz	—	75	180	—	150	350

Model No.	Case Style	Pin Count	Mounting
1793	2	12	Solder Sealed Flangeless PCB Mount
1793	F	12	Solder Sealed PCB Mount with Flange
1793	XF	12	Seam Weld Chassis Mount with Flange
1793	PC	10	Solder Sealed Flangeless PCB Stud Mount

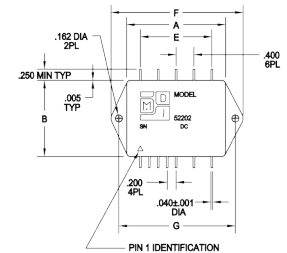
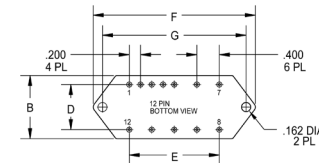
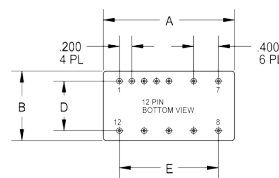
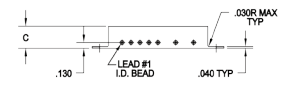
CASE STYLE 2
Solder Sealed
Flangeless PCB Mount



CASE STYLE 3
Solder Sealed
PCB Mount with Flange



CASE STYLE 8
Seam Weld
Chassis Mount with Flange



Case Dimensions

Units: inches | millimeters

TOLERANCES: ALL DIMENSIONS ±0.01 EXCEPT F= MAX. C = +0.01/-0.02; **DRAWINGS IN INCHES.**

Case Style		A	B	C	D	E	F	G
2		2.205 56.007	1.755 44.577	0.495 12.573	1.400 35.560	1.600 40.640	— —	— —
3	F	2.205 56.007	1.755 44.577	0.495 12.573	1.400 35.560	1.600 40.640	2.960 75.184	2.610 66.294
8	XF	2.220 56.388	2.110 53.594	0.495 12.573	— —	1.600 40.640	2.960 75.184	2.610 66.294
10	PC	2.220 56.388	1.760 44.704	0.495 12.573	1.400 35.560	1.600 40.640	— —	— —



Modular Devices, Inc.
Power Conversion for Industrial/Railroad

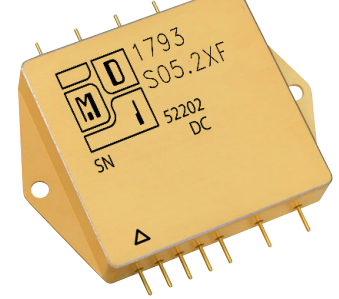
Modular Devices, Inc. • One Roned Road • Shirley, New York 11967
www.mdipower.com • Fax 631.345.3106 • Tel 631.345.3100

Series 1793

DC – DC Converters INDUSTRIAL/RAILROAD GRADE

DUAL OUTPUT DEVICES		1793-D05 (40W)			1793-D12 (40W)			1793-D15 (40W)		
PARAMETER	CONDITION	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
Output voltage	—	+4.9	+5.0	+5.1	+11.9	+12.0	+12.1	+14.9	+15.0	+15.1
		-4.9	-5.0	-5.1	-11.9	-12.0	-12.1	-14.9	-15.0	-15.1
Output current*	$V_{in\ min} - V_{in\ max}$	±150mA	—	±4A	±95mA	—	±1.67A	±76mA	—	±1.33A
Efficiency	$P_{out} = \text{max rated load}$	73%	76%	—	78%	82%	—	79%	83%	—
Line regulation	$P_{out} = \text{max rated load}$ $V_{in\ min} - V_{in\ max}$	—	±10mV	±50mV	—	±20mV	±100mV	—	±25mV	±125mV
Load regulation ¹	$P_{out} = 10\% \text{ to F.L.}$	—	±10mV	±50mV	—	±20mV	±100mV	—	±25mV	±125mV
Output ripple	F.L. BW 2 MHz mV _{pp}	—	40	85	—	60	150	—	75	180

110 Volts DC Input



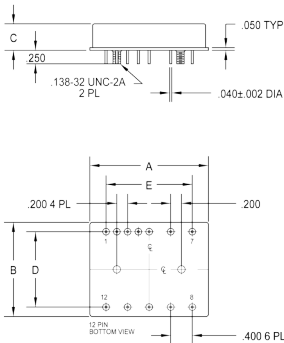
Notes: *Up to 90% full power available from either output if rated output power is not exceeded; ¹balanced load conditions.

TRIPLE OUTPUT DEVICES		1793-T3.3/5 (17.7W)			1793-T3.3/12 (24W)			1793-T3.3/15 (25.2W)			1793-T05 (19.5W)			1793-T12 (25.8W)			1793-T15 (27W)		
PARAMETER	CONDITION	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
Output voltage	$+I_{out} = -I_{out}$	+3.2	+3.3	+3.4	+3.2	+3.3	+3.4	+3.2	+3.3	+3.4	+4.9	+5.0	+5.1	+4.9	+5.0	+5.1	+4.9	+5.0	+5.1
		+4.9	+5.0	+5.1	+11.9	+12.0	+12.1	+14.9	+15.0	+15.1	+4.9	+5.0	+5.1	+11.9	+12.0	+12.1	+14.9	+15.0	+15.1
		-4.9	-5.0	-5.1	-11.9	-12.0	-12.1	-14.9	-15.0	-15.1	-4.9	-5.0	-5.1	-11.9	-12.0	-12.1	-14.9	-15.0	-15.1
Output current	$V_{in\ min} - V_{in\ max}$	400mA	—	4A	400mA	—	4A	400mA	—	4A	90mA	—	3A	90mA	—	3A	90mA	—	3A
		±40mA	—	±450mA	±40mA	—	±450mA	±32mA	—	±400mA	±40mA	—	±450mA	±40mA	—	±450mA	±32mA	—	±400mA
Efficiency	$P_{out} = \text{max rated load}$	66%	69%	—	66%	69%	—	66%	69%	—	66%	69%	—	71%	74%	—	71%	74%	—
Line regulation	$P_{out} = \text{max rated load}$ $V_{in\ min} - V_{in\ max}$	—	10mV	50mV	—	10mV	50mV	—	10mV	50mV	—	10mV	50mV	—	10mV	50mV	—	10mV	50mV
		—	25mV	50mV	—	25mV	50mV	—	25mV	50mV	—	25mV	50mV	—	25mV	50mV	—	25mV	50mV
Load regulation	$P_{out} = 10\% \text{ to F.L.}$	—	10mV	50mV	—	10mV	50mV	—	10mV	50mV	—	10mV	50mV	—	10mV	50mV	—	10mV	50mV
		—	25mV	50mV	—	25mV	50mV	—	25mV	50mV	—	25mV	50mV	—	25mV	50mV	—	25mV	50mV
Output ripple	F.L. BW 2 MHz mV _{pp}	—	30	65	—	30	65	—	30	65	—	40	85	—	40	85	—	40	85
		—	—	50	—	—	50	—	—	50	—	—	50	—	—	50	—	—	50

CASE STYLE 10

Solder Sealed

Flangeless PCB Stud Mount



1793-SXX output < 24 VDC		1793-SXX output ≥ 24 VDC		1793-DXX		1793-TXX	
Pin 1	N/C	Pin 7	+ Input	Pin 1	N/C	Pin 7	+ Input
Pin 2	Inhibit Not	Pin 8	Main Output	Pin 2	Inhibit Not	Pin 8	+ Remote Sense
Pin 3	Soft Start	Pin 9	Main Output Ret	Pin 3	Soft Start	Pin 9	- Remote Sense
Pin 4	Sync	Pin 10	+ Remote Sense	Pin 4	Sync	Pin 10	+ Dual Output
Pin 5	N/C	Pin 11	Adjust	Pin 5	Adjust	Pin 11	Dual Output Ret
Pin 6	Input Ret	Pin 12	- Remote Sense	Pin 6	Input Ret	Pin 12	- Dual Output
		Pin 1	N/C	Pin 7	+ Input	Pin 1	N/C
		Pin 2	Inhibit Not	Pin 8	+ Remote Sense	Pin 2	Inhibit Not
		Pin 3	Soft Start	Pin 9	- Remote Sense	Pin 3	Soft Start
		Pin 4	Sync	Pin 10	Main Output	Pin 4	Sync
		Pin 5	Adjust	Pin 11	N/C	Pin 5	N/C
		Pin 6	Input Ret	Pin 12	Main Output Ret	Pin 6	Input Ret
		Pin 7	+ Input	Pin 8	+ Remote Sense	Pin 7	+ Input
		Pin 8	Main Output	Pin 9	- Remote Sense	Pin 8	Main Output
		Pin 9	Main Output Ret	Pin 10	+ Dual Output	Pin 9	Main Output Ret
		Pin 10	+ Remote Sense	Pin 11	Dual Output Ret	Pin 10	+ Dual Output
		Pin 11	Adjust	Pin 12	- Dual Output	Pin 11	Dual Output Ret
		Pin 12	- Remote Sense			Pin 12	- Dual Output



Modular Devices, Inc.
Power Conversion for Industrial/Railroad

Modular Devices, Inc. • One Roned Road • Shirley, New York 11967
www.mdipower.com • Fax 631.345.3106 • **Tel 631.345.3100**

Page 2 of 2

Released 2016-02-09