

Series 1631

30 – 80 Watt Hybrid

For demanding industrial applications not requiring military specifications

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: 24 VDC nominal
Range: 18 to 50 VDC
Operates through input transients of up to 80 V

ISOLATION:

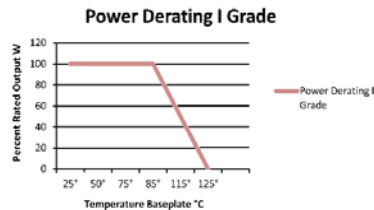
Input to case: 100 MOhms at 500 VDC
Input to output: 100 MOhms at 500 VDC
Output to case: 10 MOhms at 100 VDC

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 $T_{case} = +115^{\circ}C$



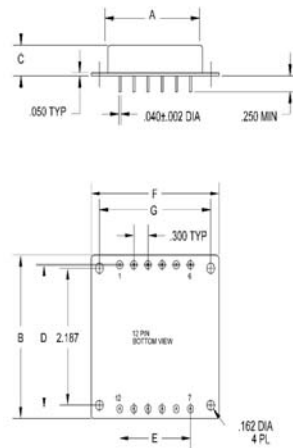
WEIGHT: 160 grams typical

SINGLE OUTPUT DEVICES		1631-S02 (30W)			1631-S02.5 (37.5W)			1631-S03.3 (50W)			1631-S05 (75W)		
PARAMETER	CONDITION	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
Output voltage	—	+1.9	+2.0	+2.1	+2.4	+2.5	+2.6	+3.2	+3.3	+3.4	+4.9	+5.0	+5.1
Output current	$V_{in min} - V_{in max}$	—	—	15A	—	—	15A	—	—	15A	—	—	15A
Efficiency	$P_{out} = \text{max rated load}$	55%	58%	—	60%	63%	—	65%	68%	—	70%	73%	—
Line regulation	$P_{out} = \text{max rated load}$ $V_{in min} - V_{in max}$	—	10mV	30mV	—	10mV	30mV	—	10mV	30mV	—	10mV	50mV
Load regulation	$P_{out} = 10\%$ to F.L.	—	10mV	30mV	—	10mV	30mV	—	10mV	30mV	—	10mV	50mV
Output ripple	F.L. BW 2 MHz mV _{pp}	—	25	50	—	30	60	—	30	65	—	40	85

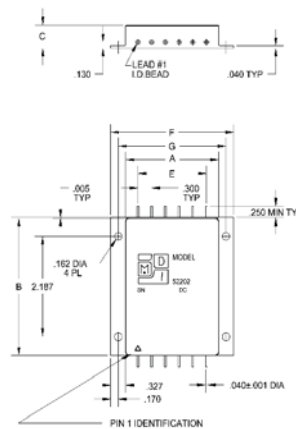
SINGLE OUTPUT DEVICES		1631-S05.2 (78W)			1631-S12 (75W)			1631-S15 (75W)			1631-S28 (70W)		
PARAMETER	CONDITION	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
Output voltage	—	+5.1	+5.2	+5.3	+11.9	+12.0	+12.1	+14.9	+15.0	+15.1	+27.8	+28.0	+28.2
Output current	$V_{in min} - V_{in max}$	—	—	15A	—	—	6.25A	—	—	5A	—	—	2.5A
Efficiency	$P_{out} = \text{max rated load}$	70%	73%	—	78%	81%	—	78%	82%	—	77%	81%	—
Line regulation	$P_{out} = \text{max rated load}$ $V_{in min} - V_{in max}$	—	10mV	50mV	—	20mV	100mV	—	25mV	125mV	—	50mV	250mV
Load regulation	$P_{out} = 10\%$ to F.L.	—	10mV	50mV	—	20mV	100mV	—	25mV	125mV	—	50mV	250mV
Output ripple	F.L. BW 2 MHz mV _{pp}	—	40	85	—	60	150	—	75	180	—	150	350

Model No.	Case Style	Pin Count	Mounting
1631	4	12	Solder Sealed PCB Mount with Flange
1631	ZF	9	Seam Weld PCB Chassis Mount with Flange
1631	PD	11	Solder Sealed Flangeless PCB Stud Mount

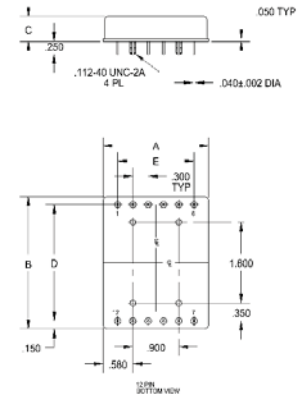
CASE STYLE 4
Solder Sealed



CASE STYLE 9
Seam Welded



CASE STYLE 11
Solder Sealed



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
4	2.040 51.816	2.610 66.294	0.495 12.573	2.300 58.420	1.500 38.100	2.710 68.834	2.360 59.944
9 ZF	2.040 51.816	3.010 76.454	0.495 12.573	— —	1.500 38.100	2.710 68.834	2.360 59.944
11 PD	2.040 51.816	2.610 66.294	0.495 12.573	2.300 58.420	1.500 38.100	— —	— —



Series 1631

INDUSTRIAL GRADE

DC – DC Converters

24 Volts DC Input



DUAL OUTPUT DEVICES		1631-D3.3/5 (37.78W)			1631-D05 (75W)			1631-D12 (74.4W)			1631-D15 (75W)		
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	+11.9	+12.0	+12.1	+14.9	+15.0	+15.1
		+4.9	+5.0	+5.1	-4.9	-5.0	-5.1	-11.9	-12.0	-12.1	-14.9	-15.0	-15.1
Output current*	$V_{in\ min} - V_{in\ max}$	600mA	—	6.6A	±266mA	—	±7.5A	±158mA	—	±3.1A	±127mA	—	±2.5A
Efficiency	$P_{out} = \text{max rated load}$	64%	67%	—	72%	75%	—	77%	81%	—	78%	82%	—
Line regulation	$P_{out} = \text{max rated load}$ $V_{in\ min} - V_{in\ max}$	—	10mV	30mV	—	±10mV	±50mV	—	±20mV	±100mV	—	±25mV	±125mV
		—	10mV	50mV	—	±10mV	±50mV	—	±20mV	±100mV	—	±25mV	±125mV
Load regulation†	$P_{out} = 10\% \text{ to F.L.}$	—	10mV	30mV	—	±10mV	±50mV	—	±20mV	±100mV	—	±25mV	±125mV
Output ripple	F.L. BW 2 MHz mV_{pp}	—	30	65	—	40	85	—	60	150	—	75	180
		—	25	50	—	—	—	—	—	—	—	—	—

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

TRIPLE OUTPUT DEVICES		1631-T3.3/5 (32.25W)			1631-T3.3/12 (42.75W)			1631-T3.3/15 (47.25W)			1631-T05 (32.5W)			1631-T12 (43W)			1631-T15 (47.5W)		
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
Output current	$V_{in\ min} - V_{in\ max}$	750mA	—	7.5A	750mA	—	7.5A	750mA	—	7.5A	90mA	—	5A	90mA	—	5A	90mA	—	5A
		±40mA	—	±750mA	±40mA	—	±750mA	±32mA	—	±750mA	±40mA	—	±750mA	±40mA	—	±750mA	±32mA	—	±750mA
Efficiency	$P_{out} = \text{max rated load}$	65%	68%	—	65%	68%	—	65%	68%	—	65%	68%	—	70%	73%	—	71%	74%	—
Line regulation	$P_{out} = \text{max rated load}$ $V_{in\ min} - V_{in\ max}$	—	10mV	50mV	—	10mV	50mV	—	10mV	125mV	—	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	—	40	85	—	40	85	—	40	85	—	40	85
		—	—	50	—	—	50	—	—	50	—	—	50	—	—	50	—	—	50

1631-SXX output < 24 VDC		1631-SXX output ≥ 24 VDC				1631-DXX				1631-TXX					
Pin 1	N/C	Pin 7	N/C	Pin 1	N/C	Pin 7	N/C	Pin 1	N/C	Pin 7	N/C	Pin 1	N/C	Pin 7	N/C
Pin 2	Inhibit Not	Pin 8	Main Output	Pin 2	Inhibit Not	Pin 8	N/C	Pin 2	Inhibit Not	Pin 8	N/C	Pin 2	Inhibit Not	Pin 8	N/C
Pin 3	Soft Start	Pin 9	Main Output Ret	Pin 3	Soft Start	Pin 9	N/C	Pin 3	Soft Start	Pin 9	N/C	Pin 3	Soft Start	Pin 9	N/C
Pin 4	Sync	Pin 10	+ Remote Sense	Pin 4	Sync	Pin 10	Main Output	Pin 4	Sync	Pin 10	+ Dual Output	Pin 4	Sync	Pin 10	+ Dual Output
Pin 5	+ Input	Pin 11	Adjust	Pin 5	+ Input	Pin 11	N/C	Pin 5	+ Input	Pin 11	Dual Output Ret	Pin 5	+ Input	Pin 11	Dual Output Ret
Pin 6	Input Ret	Pin 12	- Remote Sense	Pin 6	Input Ret	Pin 12	Main Output Ret	Pin 6	Input Ret	Pin 12	- Dual Output	Pin 6	Input Ret	Pin 12	- Dual Output

