RO-MIL-2220

Independently Regulated Dual Output DC-DC Converter
28V Input, ±12/15V 15W Output

Basic Data

Variant	Input	Regulated Outputs
RO-MIL-2220-A	28V	±12V 0.625A
RO-MIL-2220-B	28V	±15V 0.5A
W x D x H:	73.9 x 28.3 x 10.2mm (Flanged) 53.3 x 28.3 x 10.2mm (Non-Flanged)	
Weight: 40g max		
Operating Temperature: –55°C to +125°C		

Description

RO-MIL-2220 is a compact, high efficiency, low power DC-DC converter. Operating from 28V it has a wide range, 15V to 50V, over the full temperature range without derating. The unit is unconditionally stable and does not require any external components for correct operation.

The compact size and high efficiency are achieved by applying innovative design and packaging techniques.

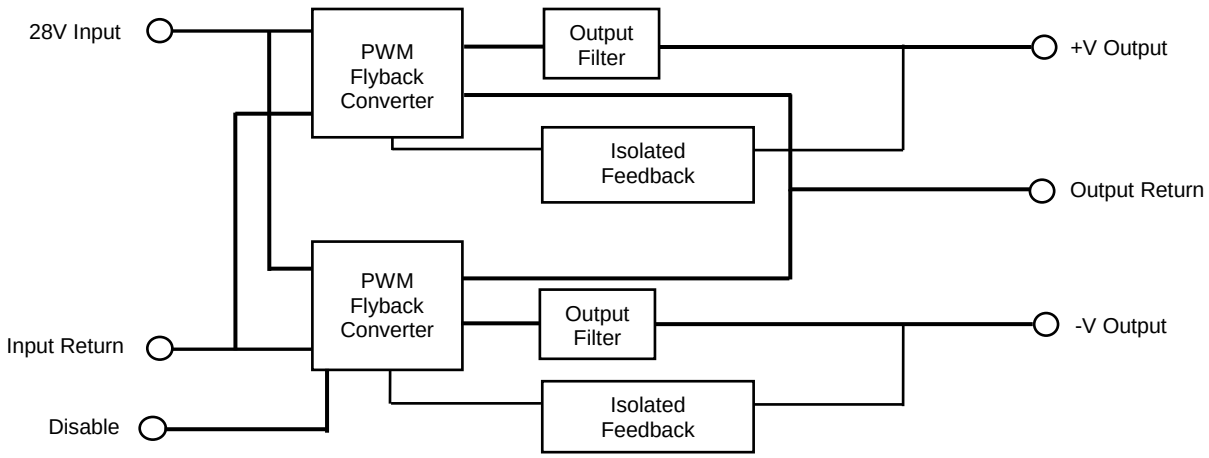
Energy for the dual isolated outputs is provided by two independently regulated PWM flyback converters. This eliminates output cross regulation, so there is no need for load balancing. Both outputs share a common return pin.

Primary side overload protection and output over voltage protection is included as well as a remote disable. See application note on page 4.

The unit is housed in a conversion coated machined box.

All units are manufactured on site in accordance with Roband's approved Quality Management System.

Block Diagram



roband
Electronics plc

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Specification

(T_{case} = 25°C, V_{in} = 28V_{dc} ±2%, Load = 100%, unless otherwise specified)

	RO-MIL-2220-A			RO-MIL-2220-B			
PARAMETER							**UNITS**
Input	**MIN**	**TYP**	**MAX**	**MIN**	**TYP**	**MAX**	
Nominal Voltage	15	28	50	15	28	50	V_{dc}
Surge Rating (100ms) [1]	–	–	80	–	–	80	V_{dc}
Output							
$+V_{out}$ Voltage [2]	+11.76	+12	+12.24	+14.7	+15	+15.3	V_{dc}
$-V_{out}$ Voltage [2]	-12.24	-12	-11.76	-15.3	-15	-14.7	V_{dc}
Current (each output)	0	–	0.65	0	–	0.5	A
Output Power (each output)	0	–	7.5	0	–	7.5	W
Output Power (total)	0	–	15	0	–	15	W
Ripple and Noise [3]	–	75	120	–	100	150	mV_{p-p}
Output Regulation							
Line Regulation (15-50V_{in})	–	5	10	–	5	10	mV
Load Regulation [4]	–	10	20	–	10	20	mV
Efficiency	80	85	–	80	85	–	%
Temperature							
T_{case} (Operating)	-55	–	+125	-55	–	+125	°C
T_{case} (Storage)	-55	–	+125	-55	–	+125	°C
Coefficient	–	100	–	–	100	–	ppm per °C
Dynamic Characteristics							
Load Step Transient [5]	–	–	500	–	–	500	mV_{pk}
Load Step Recovery	–	–	250	–	–	250	µs
Line Step Transient [6]	–	–	500	–	–	500	mV_{pk}
Line Step Recovery	–	–	250	–	–	250	µs
Start up Time	–	–	5	–	–	5	ms
Isolation (at 500V)							
Input to Output	100	–	–	100	–	–	MΩ
Input to Chassis	100	–	–	100	–	–	MΩ
Output to Chassis	100	–	–	100	–	–	MΩ

[1] 80V surge option also available
[2] Measured unit output pins
[3] DC to 20MHz, including spikes
[4] No load to maximum
[5] 50% to 100% or 100% to 50% load change
[6] V_{in} = 15V to 50V or 50V to 15V

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Specification (cont.)

(Applicable to both variants)

Environmental	**Method**	**Procedure**
To MIL-STD-810G		
Temperature Shock	503.5	(-55°C to +85°C)
High Temperature	501.5	(+85°C Operate)
Low Temperature	502.5	(-55°C Operate)
Low Pressure	500.5	(40.000ft Operate)
Vibration	514.6	(10g, 9 Hours)
Humidity	507.5	(95% Operate)
Fungus	508.6	
Salt Fog	509.5	
Sand and Dust	510.5	

Power Dissipation

Maximum (Full load & Maximum V_{in})	3 Watts

Reliability

To MIL-STD-217F	
Environment	A.I.F. at 70ºC
MTBF	>90,000 Hours

Enclosure

Size	53.3 x 28.3 x 10.2mm
Weight	30g max
Material Options	Aluminium Alloy
Finish	SurTec 650
Clearance Holes	4.1mm Diameter

Lead Soldering

Temperature	300°C max for 5 seconds max

Caution

Unit must be treated as a static sensitive device.

Regulations

RoHS compliant
REACh compliant

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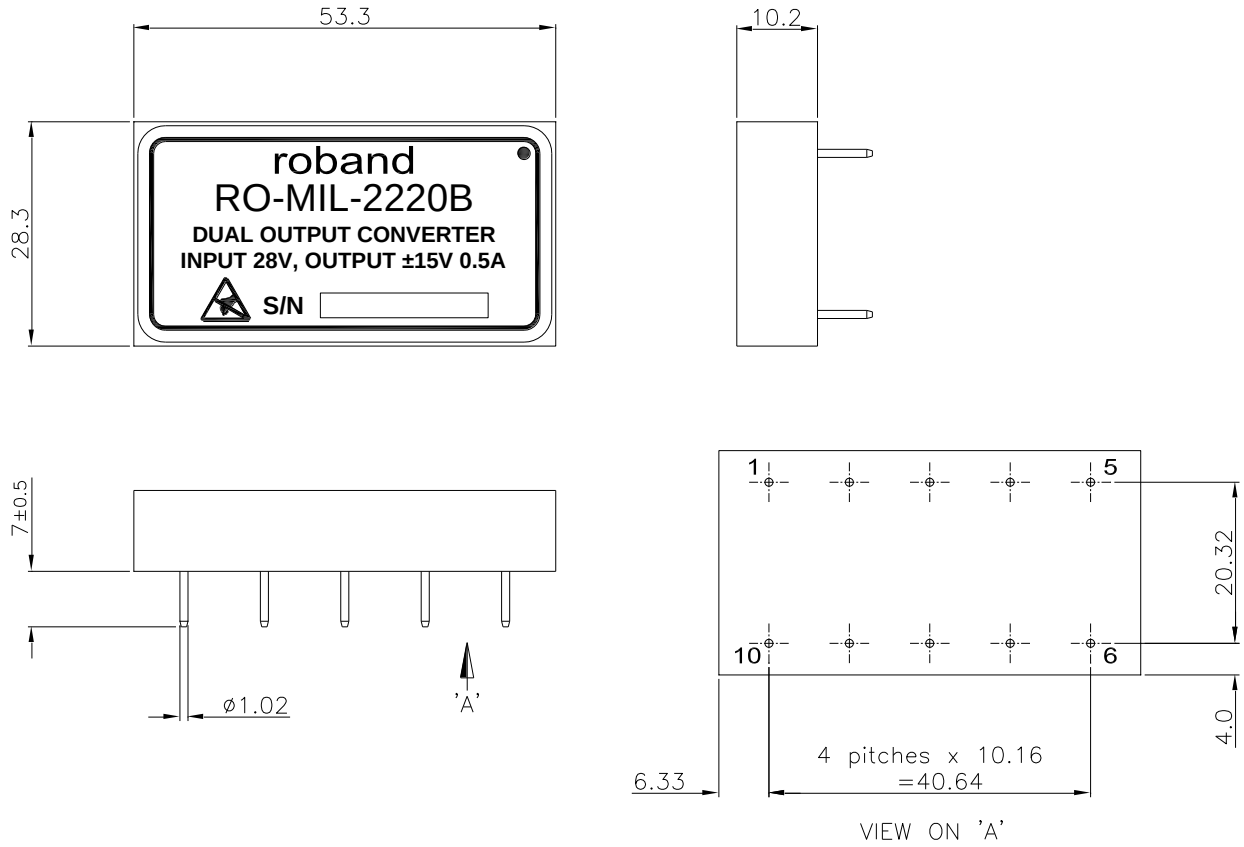
Outline Drawing



Application Notes: Pin Allocation & Disable Signal

Pin	Function	Pin	Function
1	28V Input	6	Chassis Ground
2	Disable Signal	7	Chassis Ground
3	+V Output	8	Chassis Ground
4	Output Return	9	NC
5	-V Output	10	Input Return

Note
Dot on top cover denotes pin 1

Disable
The unit's default state is "ON". To disable the unit, pin 2 should be shorted to the Input Return, pin 10.