



FR Series of 5 to 6 Watt DC-DC Converters



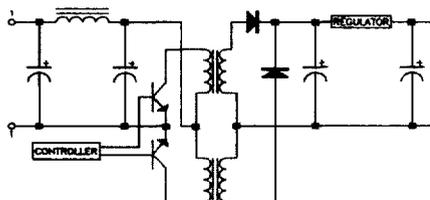
STANDARD DC/DC CONVERTERS WITH SINGLE OR DUAL REGULATED OUTPUTS. ALL MODELS FEATURE THREE TERMINAL OUTPUT REGULATORS FOR TIGHT LINE AND LOAD REGULATION. AN INTERNAL Π (Pi) INPUT FILTER IS STANDARD AND IS USED TO REDUCE REFLECTED RIPPLE CURRENT. ALL MODELS FEATURE A NICKEL-PLATED COPPER CASE WITH SIX-SIDED EMI/RFI SHIELDING.



DIMENSIONS:

2.00" x 2.00" x 0.40"
(50.80) x (50.80) x (10.16)mm

BLOCK DIAGRAM



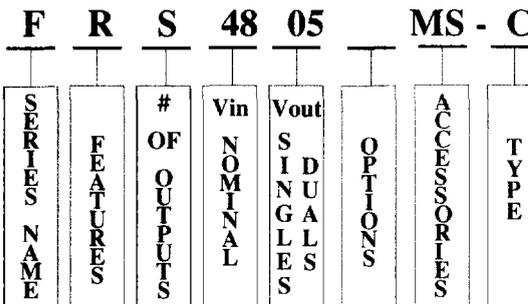
FEATURES

- Industry Standard Pin Out
- Six-Sided Shielding
- 500 VDC I/O Isolation
- Continuous Short Circuit Protection
- Input Π (Pi) Filter
- Up to 74% Efficiency

APPLICATIONS

- A/D and D/A Converters
- Telecommunication
- Process Control Equipment
- Local Power Distribution

PART NUMBER SELECTION GUIDE



Features • Series Pass Transistor • Regulated	Output Voltage (VDC) Single Output: 05 = 5V @ 1000mA 12 = 12V @ 470mA 15 = 15V @ 400mA Dual Output: 12 = $\pm 12V @ \pm 230mA$ 15 = $\pm 15V @ \pm 190mA$ <i>For Other Output Voltages Please Consult Factory</i>	Options S (#) = Modification Number I = Industrial Temperature Range (-40°C to +85°C) Z = Water-washable sealed case
# of Outputs S = SINGLE D = DUAL		Accessories / Type MS = Mating Socket Type = C <i>Please Consult Accessories Page for Mating Socket Selection.</i>
Input Voltage Range (VDC) 5 = 4.65 to 5.50 12 = 10.9 to 13.2 24 = 21.6 to 26.4 28 = 25.2 to 30.8 48 = 43.2 to 52.8		





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PARAMETER	MIN	TYP	MAX	UNITS	CONDITIONS	NOTES:	
GENERAL:							
Switching Frequency	180	200	220	KHz		1. No derating required up to a maximum case temperature of 85°C. Internal Power Dissipation = $P_{out} * (1 - \text{Eff}) / \text{Eff}$.	
Isolation Voltage:							
Input to Output	500			VDC	Note 4		
Input to Case					Note 4		
Output to Case							
Isolation Resistance:							
Input to Output	10 ⁹			Ohms			
Short Circuit Protection					Note 3		
ENVIRONMENTAL:							
Operating Temperature	-25		85	°C	Note 1	2. Provided for input fuse selection.	
Storage Temperature	-40		125	°C	Ambient		
Operating Humidity			95%		Non-Condensing	3. Continuous Short Circuit Protection is provided. For dual output units the short circuit current on each individual output is equivalent to the short circuit current for a single output unit. Long term operation in this mode is not recommended. Converter will auto-restart once short has been removed.	
Storage Humidity			95%		Non-Condensing		
INPUT:							
Input Voltage						4. For 48V input models, the case is connected to +Vin. For all other input voltages, the case is tied to either -Vout (Singles) or the Output Common (Duals).	
5 Vin	4.65	5.00	5.50	VDC			
12 Vin	10.90	12.00	13.20	VDC			
24 Vin	21.60	24.00	26.40	VDC			
28 Vin	25.20	28.00	30.80	VDC			
48 Vin	43.20	48.00	52.80	VDC			
Input Current							
5 Vin			1.96	Amps	Note 2		
12 Vin			0.82	Amps	Note 2		
24 Vin			0.43	Amps	Note 2		
28 Vin			0.37	Amps	Note 2		
48 Vin			0.21	Amps	Note 2		
Input Ripple Current			20%	Iin max			
Reverse Input Current			100%	Iin max			
OUTPUT:							
Singles:							
Voltage Accuracy			±1.00%	Vout	Full Load		
Load Regulation			±0.15%	Vout	10% to 100%		
Line Regulation			±0.15%	Vout	LL to HL		
Duals:							
Voltage Accuracy			±1.00%	Vout	Full Load		
+Vout			±1.00%	Vout	Full Load		
-Vout			±1.00%	Vout	Full Load		
Load Regulation			±0.15%	Vout	10% to 100%		
+Vout			±0.15%	Vout	10% to 100%		
-Vout			±0.15%	Vout	10% to 100%		
Line Regulation			±0.25%	Vout	LL to HL		
Temp. Coefficient			±0.02%	/°C			
Voltage Stability			±0.05%	Vout			
Ripple and Noise			1.00%	Vout	p-p, 20 MHz BW		

* All specifications typical at +25°C Nominal Line and Full Load unless otherwise noted.

* Specifications subject to change without notice.



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