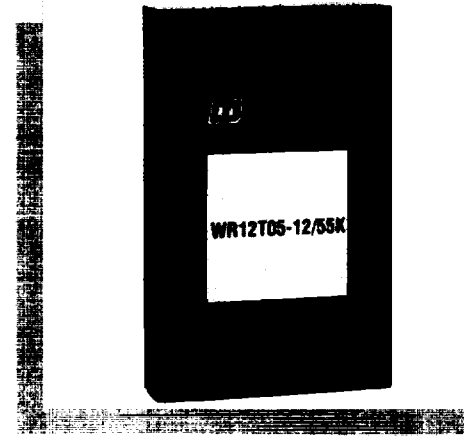


WRK SERIES

Single, Dual and Triple 60 Watt DC/DC Converters

- Low Profile 0.91 Inch High
- Efficiencies to 84%
- 2:1 Input Range
- PC or Chassis Mounting
- Pi Input Filter
- OVP on All Outputs
- 2 Year Warranty

**NOT
RECOMMENDED
FOR NEW
DESIGNS**



WRK Series devices are efficient, high power DC/DC converters with single, dual and triple outputs supplying 50 to 60 watts. Their low-profile 3.5 x 5.5 x 0.91 inch package provides a power density of 3.4 watts per cubic inch. Efficiencies range from 80 to 84%. These converters feature unique dual power stages utilizing forward converters with MOSFET switching at 100 kHz. A Pi

network input filter is also included. High efficiency is virtually constant down to 30% output loading. Other features include output short circuit protection, overvoltage protection, remote sensing of primary output, input surge protection, and remote ON/OFF control. The 2 to 1 input voltage ranges are 9 to 18 VDC, 18 to 36 VDC and 36 to 72 VDC.

SPECIFICATIONS

All specifications typical at nominal line, full load, and 25°C unless otherwise noted.

OUTPUT SPECIFICATIONS		
Voltage Accuracy	Primary Outputs	±1.0%, max.
Voltage Adjustment	Singles and duals	±10% max.
Auxiliary Output Balance⁽¹⁾	Triple outputs	±2% max.
Load Regulation⁽²⁾	100% to 25% load	±1% max.
	Dual output	±2% max.
	Triples, -5V output	±5% max.
Line Regulation	HL - LL	±0.5% max.
	Triples, -5V output	±1% max.
Ripple and Noise	20 MHz BW	10 mV RMS, max. 75 mV P-P, max.
	Temperature Coefficient	±0.02%/°C, max.
Voltage Stability	24 Hours	±0.05%, max.
Transient Response	±1% Error Band	500 μsec., max.
	25% Step Load Change	
Short Circuit Protection	All Outputs	Indefinite
Overvoltage Protection	5V output	6.8V
	12V, 15V outputs	18V
INPUT SPECIFICATIONS		
Input Voltage Range	See Table	
Input Filter	Pi Network	
Surge Protection	Transient Clamp	
Reverse Voltage Protection	Internal Shunt Diode	

GENERAL SPECIFICATIONS		
Efficiency	See Table	
Isolation Voltage	Input to Output	500 VDC, min.
	Input to Case	250 VDC, min.
Isolation Resistance	Input to Output	10 ⁹ ohms, min.
	Input to Case	10 ⁸ ohms, min.
Switching Frequency	100 kHz	
ENVIRONMENTAL SPECIFICATIONS		
Operating Temperature Range	Ambient	-25°C to +55°C
	With Optional Heatsink	-25°C to +71°C
	Case	-25°C to +85°C
Derating	above 85°C Case	Linearly to Zero Power at +100°C
Storage Temperature Range	-55°C to +105°C	
Cooling	Free-Air Convection or Conduction	
MTBF	200,000 hours	
PHYSICAL SPECIFICATIONS		
Weight	Without Heatsink	16 oz. (454 grams)
Case Material	Black Coated Aluminium with Non-Conductive Base	

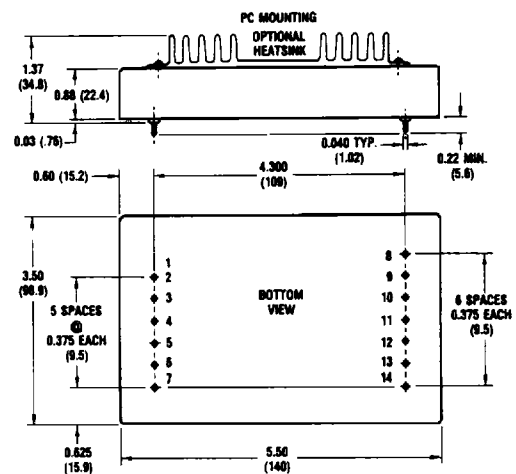
Remote on/off Control	
Logic Compatibility	CMOS or Open Collector TTL
E _c -ON,	+5.5 VDC or Open Circuit
E _c -OFF,	1.8 VDC
Shutdown Idle Current	5 mA
Input Resistance	(E _{in} 0 VDC to 9 VDC > 100 K)
Control Common	Referenced to Input Minus

Input Voltage Range	Output #1	Output #2	Output #3	Input Current ⁽³⁾		% EFF	Output Power	Model Number ⁽⁴⁾
				No Load	Full Load			
Single Output								
9-18 VDC	5V@10.0A			25 mA	5.2 A	80	50W	WR12S05/50K1
9-18 VDC	12V@ 5.0A			25 mA	6.1 A	82	60W	WR12S12/60K1
18-36 VDC	12V@ 5.0A			20 mA	3.0 A	83	60W	WR24S12/60K1
36-72 VDC	5V@10.0A			20 mA	1.27A	82	50W	WR48S05/50K1
36-72 VDC	12V@ 5.0A			20 mA	1.48A	84	60W	WR48S12/60K1
36-72 VDC	15V@ 4.0A			20 mA	1.48A	84	60W	WR48S15/60K1
Dual Output								
9-18 VDC	12V@2.5A	12V@2.5A		25 mA	6.1 A	82	60W	WR12D12/60K1
36-72 VDC	12V@2.5A	12V@2.5A		20 mA	1.49A	84	60W	WR48D12/60K1
36-72 VDC	15V@2.0A	15V@2.0A		20 mA	1.49A	84	60W	WR48D15/60K1
Triple Output								
9-18 VDC	+ 5V@5.0A	- 12V@1.25A	+ 12V@1.25A	70 mA	5.72 A	80	55W	WR12T05-12/55K1
18-36 VDC	+ 5V@5.0A	- 12V@1.25A	+ 12V@1.25A	45 mA	2.83 A	81	55W	WR24T05-12/55K1
18-36 VDC	+ 5V@5.0A	- 15V@1.0A	+ 15V@1.0A	45 mA	2.83 A	81	55W	WR24T05-15/55K1
36-72 VDC	+ 5V@5.0A	- 12V@1.25A	+ 12V@1.25A	35 mA	1.40 A	82	55W	WR48T05-12/55K1
36-72 VDC	+ 12V@2.5A	- 5V@0.5 A	+ 5V@5.0 A	35 mA	1.46 A	83	57.5W	WR48T12-05/55K1

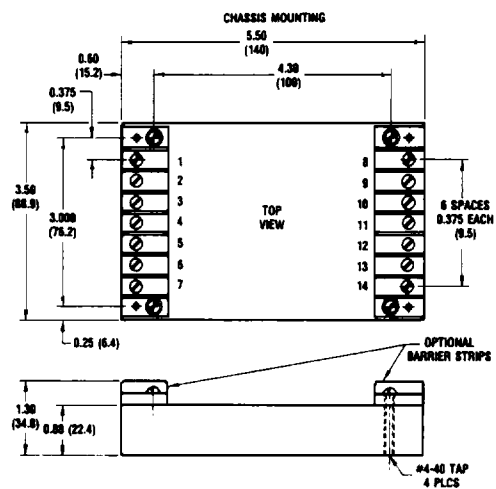
Pin Connections			
Term	Single	Dual	Triple
1	(No Pin)	(No Pin)	(No Pin)
2	- Input	- Input	- Input
3	- Input	- Input	- Input
4	+ Input	+ Input	+ Input
5	+ Input	+ Input	+ Input
6	Control	Control	Control
7	Case	Case	Case
8	- Output	- Sense 1	- Sense 1
9	- Output	- Output 1	- Output 1
10	+ Output	+ Output 1	+ Output 1
11	+ Output	+ Sense 1	+ Sense 1
12	- Sense	- Output 2	- Output 2
13	Trim	Trim 2	Com 2 & 3
14	+ Sense	+ Output 2	+ Output 3

Notes:

- (1) Auxilliary output balance (triple output models) is the voltage difference between outputs 2 and 3 voltage magnitude.
- (2) No minimum load is required for operation.
- (3) Nominal input 12V, 24V or 48VDC.
- (4) The model numbers listed are for case K1, which includes a heatsink and is intended for PCB mounting. These models can be ordered with another case style for chassis mounting by changing the model number suffix from K1 to K3.
- (5) REMOTE SENSE is provided on all singles, and on output #1 on duals and triples. It will compensate for up to 1V drop between converter and load. If remote sense is not being used, the + Sense should be connected to its corresponding + Output, and likewise the - Sense should be connected to its corresponding - Output.
- (6) INPUT REVERSE VOLTAGE PROTECTION is provided by an internal shunt diode. Connect an external fuse in series with the input.
- (7) TRIM - SINGLE OUTPUT MODELS: To trim up, connect term 12 to term 13 with a 10K resistor. To trim down, connect term 13 to term 14 with a 10K resistor.
- (8) TRIM - DUAL OUTPUT MODELS: Trim is provided only for output #2. To trim up, connect term 12 to term 13 with a 10K resistor. To trim down, connect term 13 to term 14 with a 10K resistor.
- (9) OUTPUT ISOLATION ON DUALS: The two outputs are isolated, and can be referenced as either positive or negative. No load sharing is possible.
- (10) Fixed frequency design makes input filtering easier and improves noise performance.



CASE K1



CASE K3