

# MDR-100SP Series

## Single Output, 100W Compact, DIN-Rail AC/DC Power Supplies



### Key Features:

- 100W Output Power
- 4,000 VAC I/O Isolation
- DIN-Rail Mountable
- -40°C to 70°C Operation
- Universal 85-264 VIN
- UL 62368 Approval
- Class II Operation
- Adjustable Output Volt.
- Meets OVC III EN 61558
- Meets EN 55032 B
- DC On Indicator
- >300 kHour MTBF



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### Electrical Specifications

Specifications typical @ +25°C, nominal input voltage & rated output current, unless otherwise noted. Specifications subject to change without notice.

Input						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Input Voltage Range		85		264	VAC	
		120		370	VDC	
Input Frequency		47		63	Hz	
Input Current	See Model Selection Guide					
Leakage Current	240 VAC			0.5	mA	
Start Up Time				3.0	S	
Inrush Current, Cold Start	115 VAC		35		A Pk	
	230 VAC		70			

Output						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Output Voltage Accuracy	0 to 100% Load		±2.0		%	
Line Regulation	At Rated Load		±0.5		%	
Load Regulation, 0 - 100% Load	230 VAC		±1.5		%	
Ripple & Noise (20 MHz), See Note 1	12V Output			120	mV	
	15V Output			120		
	24V Output			150		
	48V Output			240		
Hold-Up Time	230 VAC		30		mSec	
Temperature Coefficient			±0.03		%/°C	
Standby Power Consumption	12V/15V Output			0.30	W	
	24V Output			0.35		
	48V Output			0.40		
Over Current Protection	Self Recovery	110		200	%I <sub>OUT</sub>	
Short Circuit Protection, See Note 2	Continuous (Autorecovery)					

General						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Isolation Voltage, See Note 3	Input to Output	4,000			VAC	
Operating Altitude				2,000	m	
Switching Frequency			65		kHz	

### EMI See Page 2

Environmental						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Operating Temperature Range	Ambient	-40	+25	+70	°C	
Storage Temperature Range		-40		+85	°C	
Cooling	Free Air Convection (See Derating Curves)					
Humidity	RH, Non-condensing			95	%	

Physical						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Size and Weight	See Mechanical Drawing (Page 4)					
Case Material	Plastic, UL 94V-0, Heat Resistant					
DIN Rail	TS35X7.5 & TS35X15 "TOP HAT" Rail					

### Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units	
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	300			kHours	
Safety Standards	UL/cUL 62368-1 recognition (UL certificate)					
Safety Class	Class II					

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Model Number	Input		Voltage (VDC)	Adjust Range (VDC)	Output		Over Voltage Protection (VDC) See Note 4	Max Output Capacitance ( $\mu$ F)	Efficiency % (Typ @ 230 VAC)
	Current (A)				Current (A)				
	115 VAC	230 VAC				Rated			
MDR-100SP-12	3.0	1.6	12.0	12.0 - 13.8	7.50	0.00	20.0	10,000	88
MDR-100SP-15	3.0	1.6	15.0	13.5 - 18.0	6.50	0.00	25.0	6,400	89
MDR-100SP-24	3.0	1.6	24.0	21.6 - 29.0	4.20	0.00	35.0	2,500	90
MDR-100SP-48	3.0	1.6	48.0	43.2 - 55.2	2.10	0.00	60.0	1,100	90

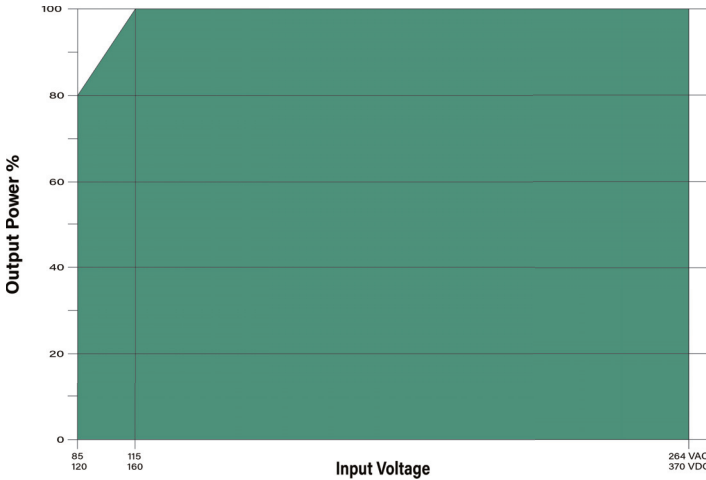
EMI/RFI

Parameter	Standard	Criteria	Level
Radiated Emissions	CISPR 32/EN 55032		Class B
Conducted Emissions	CISPR 32/EN 55032		Class B
ESD	EN 61000-4-2	A	$\pm 6$ kV Contact
			$\pm 8$ kV Air
RS	EN 61000-4-3	A	10V/m
EFT	EN 61000-4-4	A	$\pm 4$ kV
Surge	EN 61000-4-5	A	$\pm 2$ kV L-L
CS	EN 61000-4-6	A	10 Vrms
Voltage Dips	EN 61000-4-11	A	0% - 70%

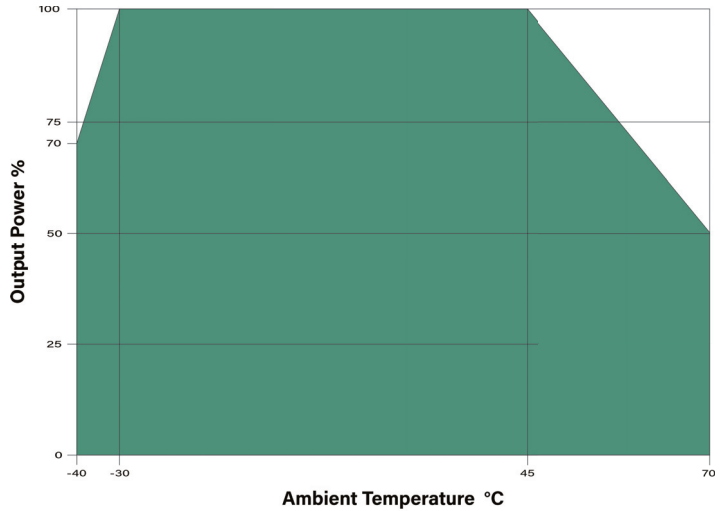
Notes:

1. Output ripple is measured at 20 MHz bandwidth using 0.1  $\mu$ F and 10  $\mu$ F capacitors connected in parallel as close to the power supply terminals as possible.
2. Output short circuit protection is provided by a "hiccup mode" circuit. The unit recovers <5 seconds after the fault condition is removed.
3. Isolation is tested for 60 seconds with a leakage current of <5 mA.
4. After an overvoltage fault the unit will recover automatically.

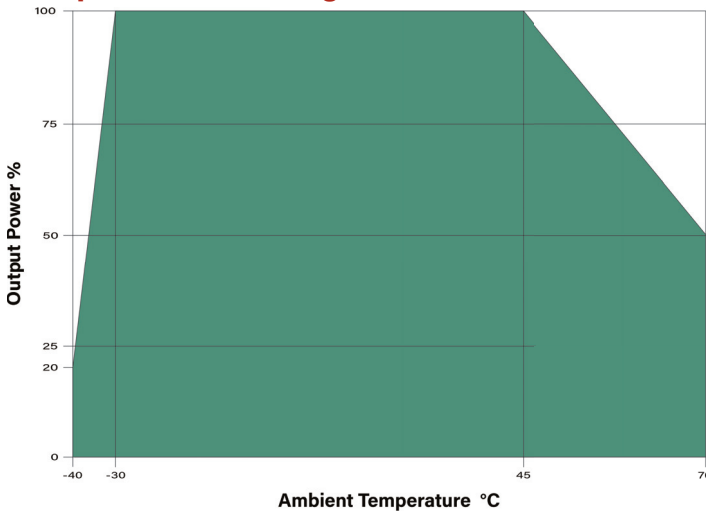
Input Voltage Derating



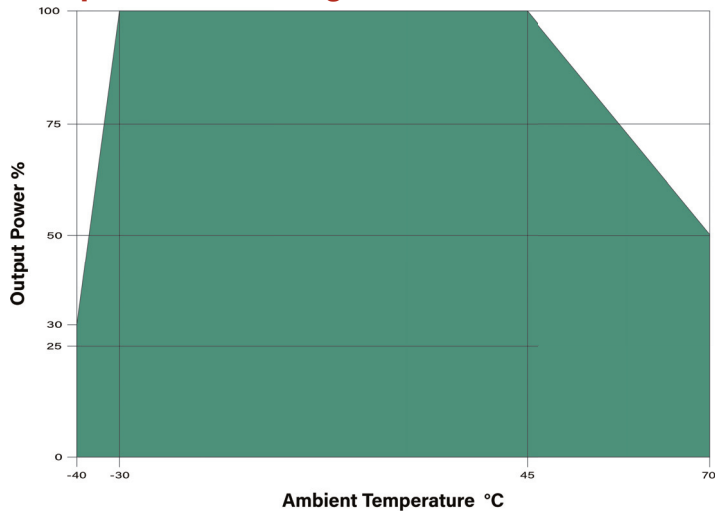
Temperature Derating: 12 & 48 VOUT Models



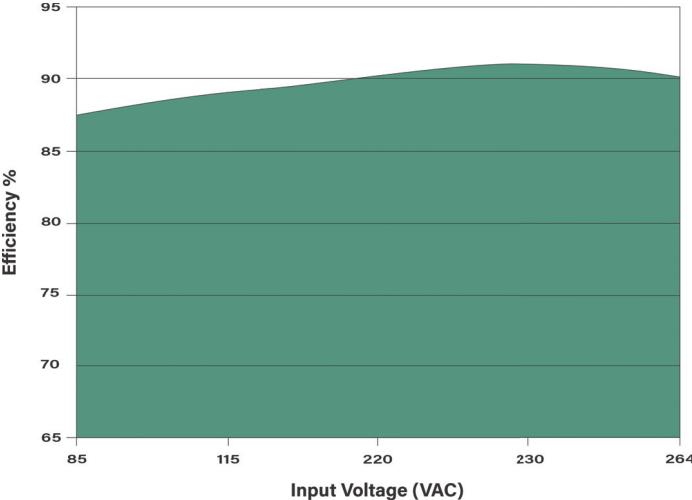
Temperature Derating: 15 VOUT Models



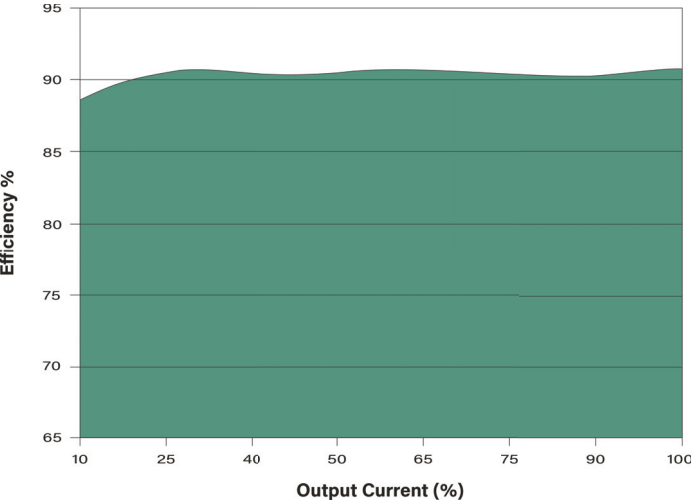
Temperature Derating: 24 VOUT Models



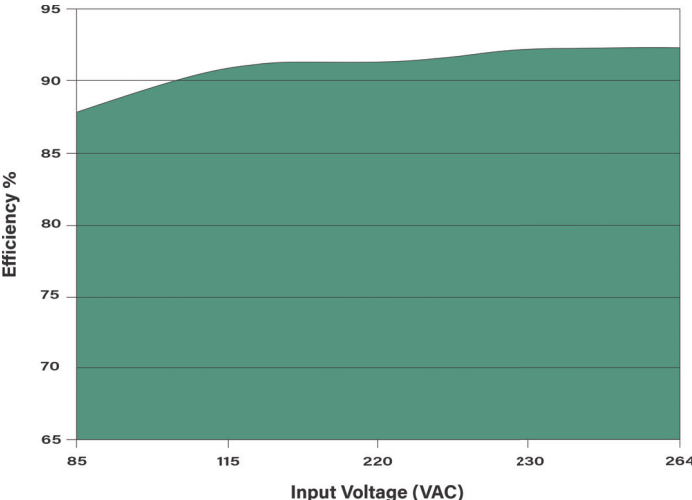
Efficiency vs Input Voltage: 12 Vout



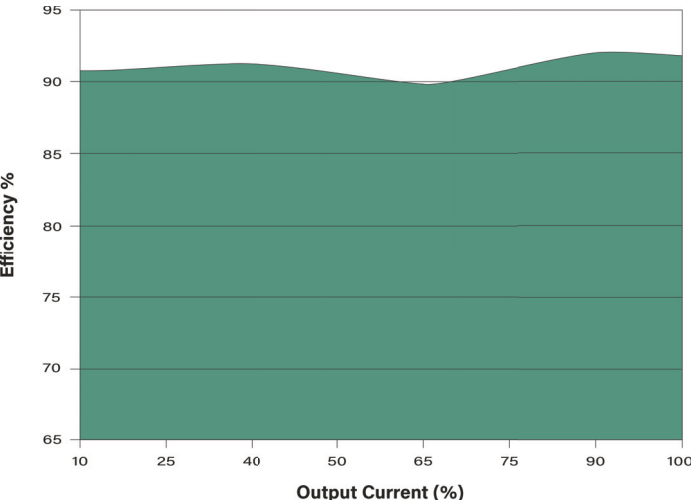
Efficiency vs Output Load: 12 Vout



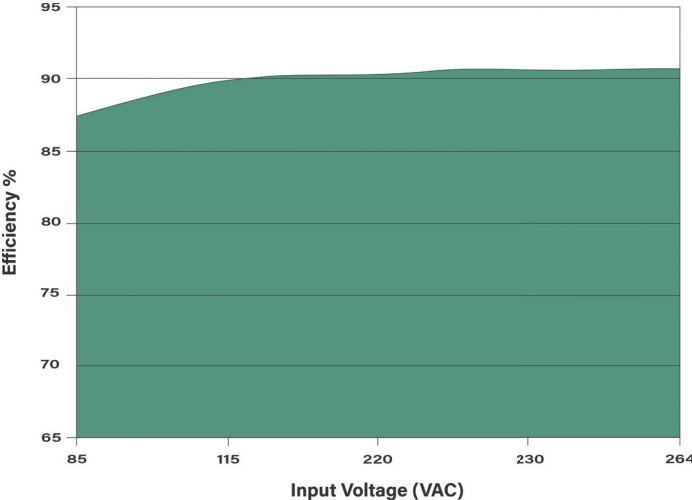
Efficiency vs Input Voltage: 24 Vout



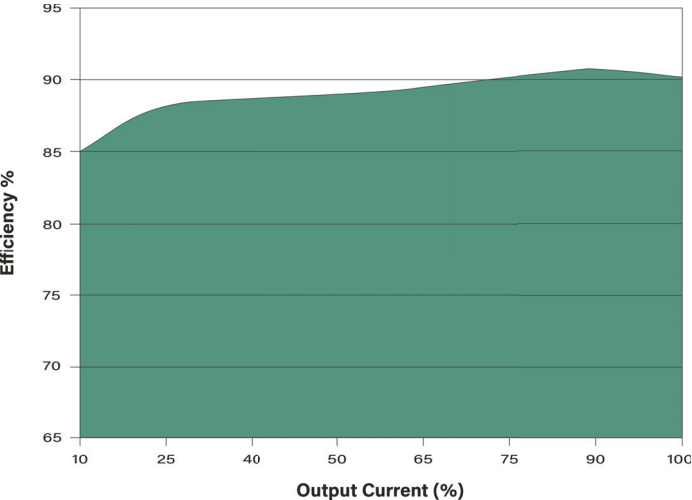
Efficiency vs Output Load: 24 Vout



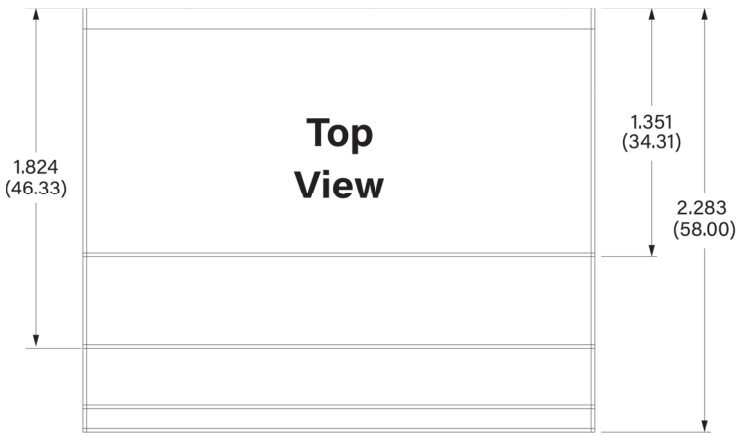
Efficiency vs Input Voltage: 48 Vout



Efficiency vs Output Load: 48 Vout



**Mechanical Dimensions**



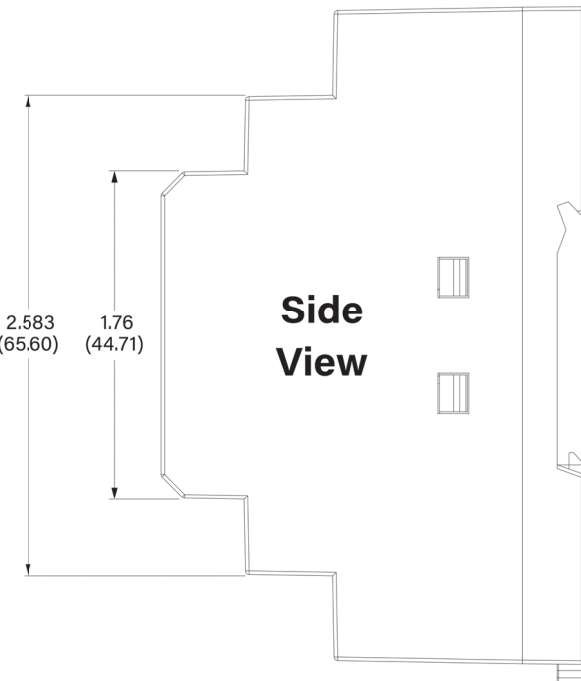
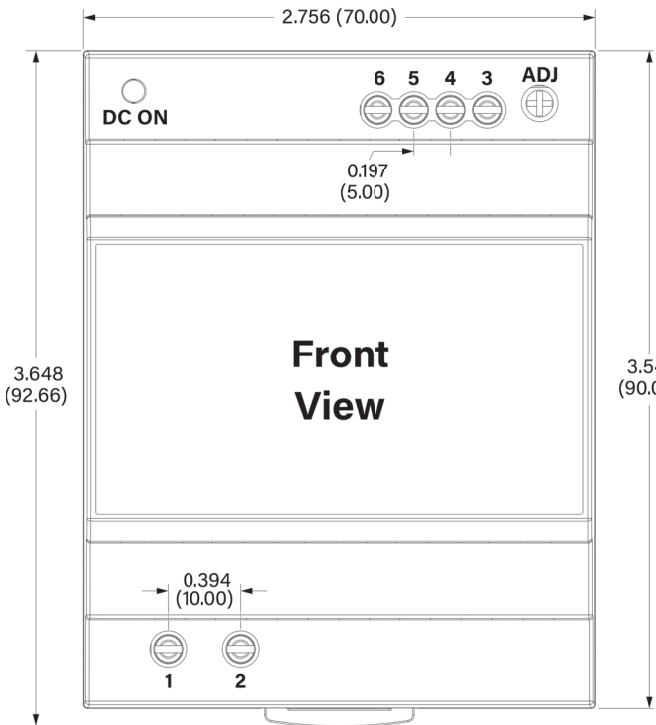
**Connections**

- Wire range - 24 -12 AWG
- Max Tightening Torque: 0.4 N·m

Pin	Function
1	AC-Line
2	AC-Neutral
3	+VOUT
4	+VOUT
5	-VOUT
6	-VOUT

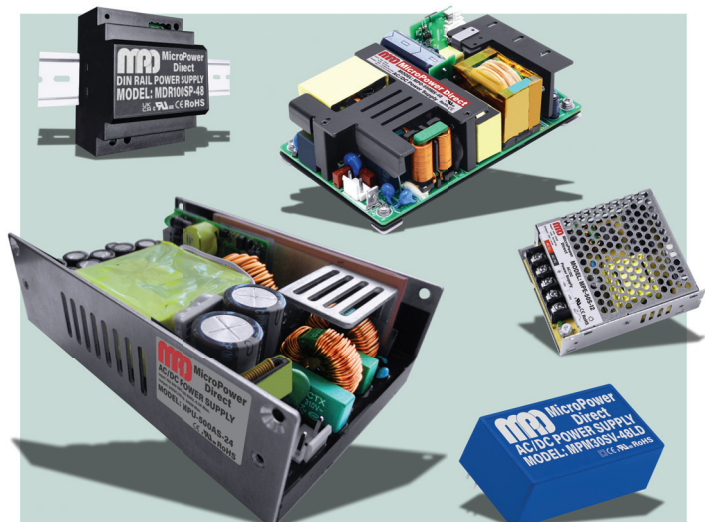
**Notes:**

- All dimensions are typical in inches (mm)
- Tolerance x.xx = ±0.039 (±1.00)
- Mounting Rail: TS35
- Weight = 8.28 Oz (235g)



MPD offers a very wide variety of cost effective, high performance AC/DC power supplies. Our product line now includes a full range of compact, potted AC modules; enclosed units ranging from 15W to 1,000W; industrial/medical supplies ranging from 120W to 550W and industrial DIN Rail supplies.

Call today for low cost and fast delivery.



## **MPD offers a full range of industrial "DIN Rail" power supplies.**

These include the models below. Call today or go to our website "MICROPOWERDIRECT.COM" for more info.

### **MDR-15S Series:**

Ultra Slim, Single Output, 15W, Industrial DIN Rail Power Supplies

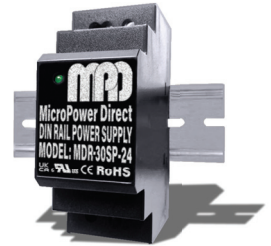
- 15W Output Power
- UL 62368 Approved
- Adjustable DC Output
- Ultra Thin Package
- UL 62368 Approved
- Meets EN 55032 B



### **MDR-30S Series:**

Very Compact, Low Cost 30W, Industrial DIN Rail Power Supplies

- 30W Output Power
- 4,000 VAC I/O Isolation
- Fits Standard TS35 DIN Rails
- UL 62368 Approved
- Meets OVC III, EN 61558
- -40°C to +70°C Operation



### **MDR-60S Series:**

Compact, Low Cost, 60W Industrial DIN Rail Power Supplies

- 60W Output Power
- Universal 85 -264 VIN
- -40°C to +70°C Operation
- UL 62368 Approved
- 4,000 VAC I/O Isolation
- Fits Standard TS35 DIN Rails



### **MDR-120SIF Series:**

Very Compact, 120W Industrial DIN Rail Power Supplies

- 120W Output Power
- Fits Standard TS35 DIN Rails
- Efficiency to 94%
- 4,000 VAC I/O Isolation
- -40°C to +70°C Operation
- UL 62368/61010 Compliant



### **MDR-240SIF Series:**

Compact, 240W Industrial DIN Rail Power Supplies

- 240W Output Power
- Fits Standard TS35 DIN Rails
- Active PFC
- 4,000 VAC I/O Isolation
- -40°C to +70°C Operation
- UL 62368/61010 Compliant



### **MDR-480SIF Series:**

Compact 480W, Single Output, Industrial DIN Rail Power Supply

- 480W Output Power
- Active PFC
- Fits Standard TS35 DIN Rails
- 4,000 VAC I/O Isolation
- Meets IEC 62368 Standards
- -40°C to +70°C Operation



# **MicroPower Direct**

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