

MPE-50SV Series

Single Output, 50W Wide Input, Enclosed AC/DC Power Supplies



Key Features:

- 50W Output Power
- Universal 85-305 VAC In.
- UL 62368 Approval
- -30°C to 70°C Operation
- Reinforced Insulation
- Meets EN 55032 B
- Meets EN 60335
- Meets EN 61558
- >300 kHour MTBF
- Low Cost



RoHS



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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		Min.	Typ.	Max.	Units
Parameter	Conditions				
Input Voltage Range		85		305	VAC
		120		430	VDC
Input Frequency		47		63	Hz
Input Current	See Model Selection Guide				
Leakage Current	277 VAC			0.75	mA
Inrush Current, Cold Start	115 VAC		30		A Pk
	230 VAC		60		

Output		Min.	Typ.	Max.	Units
Parameter	Conditions				
Output Voltage Accuracy	5V Output	±2.0			%
	All Other Outputs	±1.0			
Line Regulation	At Rated Load	±0.5			%
Load Regulation, 0 - 100% Load	5V Output	±1.0			%
	All Other Outputs	±0.5			
Ripple & Noise (20 MHz), See Note 1	5 V Output	80			mV
	12 & 15V Outputs	120			
	24V Output	150			
	36 & 48V Outputs	240			
Hold-Up Time	115 VAC	8			mSec
	230 VAC	30			
Temperature Coefficient			±0.03		%/°C
Standby Power Consumption				0.50	W
Over Current Protection	See Note 2	110		200	%IOUT
Short Circuit Protection, See Note 3	Continuous (Autorecovery)				

General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage, See Note 4	Input to Output	4,000			VAC
	Input to Ground	2,000			
	Output to Ground	1,250			
Insulation Resistance	See Note 5	100			MΩ
Switching Frequency			65		kHz

EMI See Page 2

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-30	+25	+70	°C
Storage Temperature Range		-40		+85	°C
Cooling	Free Air Convection (See Derating Curves)				
Humidity, Operating	RH, Non-condensing	20		90	%

Physical

Size	See Mechanical Drawing (Page 4)				
Case Material	Metal (AL1100, SGCC)				
Conformal Coating, See Note 8	Option Available For Use In Harsh Environments				
Weight	6.70 Oz (190g)				

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 I				
Overvoltage Class	Class III				

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Model Number	Input		Output					Over Voltage Protection (VDC) See Note 6	Max Output Capacitance (μF)	Efficiency (% Typ)
	Current (A)		Voltage (VDC)	Adjust Range (VDC)	Current (A)		Power (W)			
	115 VAC	230 VAC			Rated	% Min.				
MPE-50SV-05	1.2	0.8	5.0	4.5 - 5.5	10.00	0.00	50.0	6.30	8,500	83
MPE-50SV-12	1.2	0.8	12.0	10.2 - 13.8	4.20	0.00	50.4	16.20	2,000	86
MPE-50SV-15	1.2	0.8	15.0	13.5 - 18.0	3.40	0.00	51.0	21.75	1,500	87
MPE-50SV-24	1.2	0.8	24.0	21.6 - 28.8	2.20	0.00	52.8	33.60	1,000	88
MPE-50SV-36	1.2	0.8	36.0	32.4 - 39.6	1.45	0.00	52.2	49.00	470	89
MPE-50SV-48	1.2	0.8	48.0	43.2 - 52.3	1.10	0.00	52.8	60.00	220	90

EMI/RFI

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

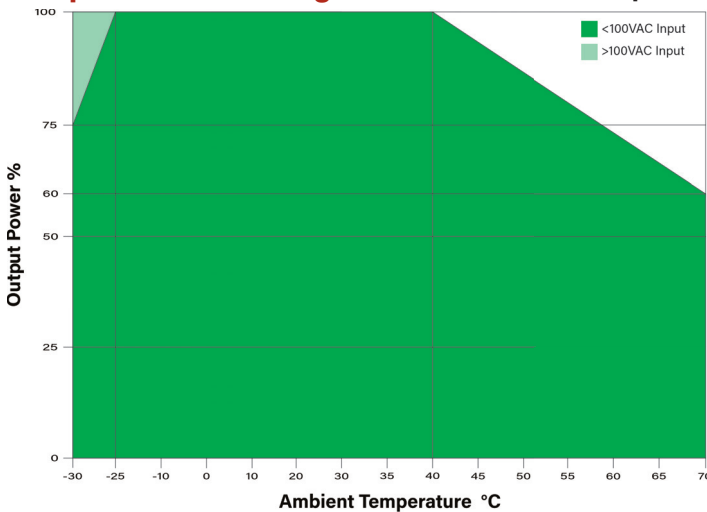
Notes:

- Output ripple is measured at 20 MHz bandwidth using 0.1 μF and 10 μF capacitors connected in parallel as close to the power supply terminals as possible.
- Over current protection is specified at 230 VAC, with a full load and an operating temp that is normal to high. At low temp it is >110% IOUT. The unit recovers automatically after a fault.
- Output short circuit protection is provided by a "hiccup mode" circuit. The unit recovers <5 seconds after the fault condition is removed.
- Input-output, input-ground and output-ground isolation are tested for 60 seconds with a leakage current of <10 mA.
- Insulation resistance is given for input - output, input - ground and output - ground. It is tested at 500 VDC.
- After an overvoltage fault the unit will recover automatically.
- All units include an on-board slow blow fuse.
- For use in harsh environments such as exposure to a salt or chemical spray or high humidity the unit is available conformally coated.

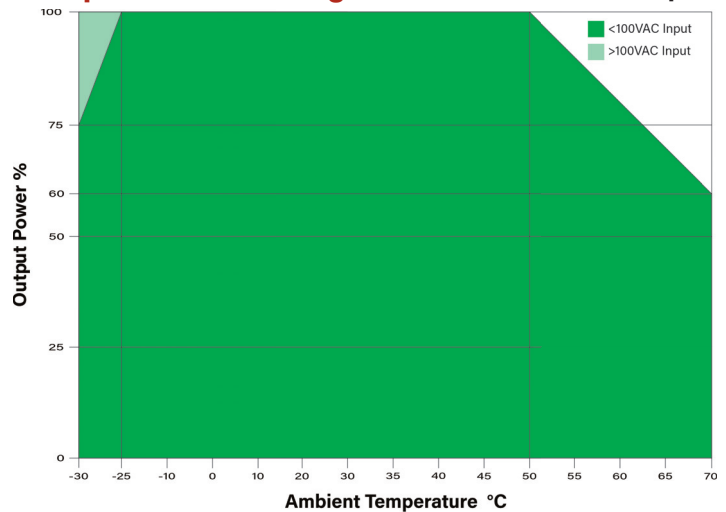
For a Terminal Strip Cover, add the suffix "TC" to the part number:
(i.e. MPE-50SV-05TC)

For Conformal Coating, add the suffix "CC" to the part number:
(i.e. MPE-50SV-24CC)

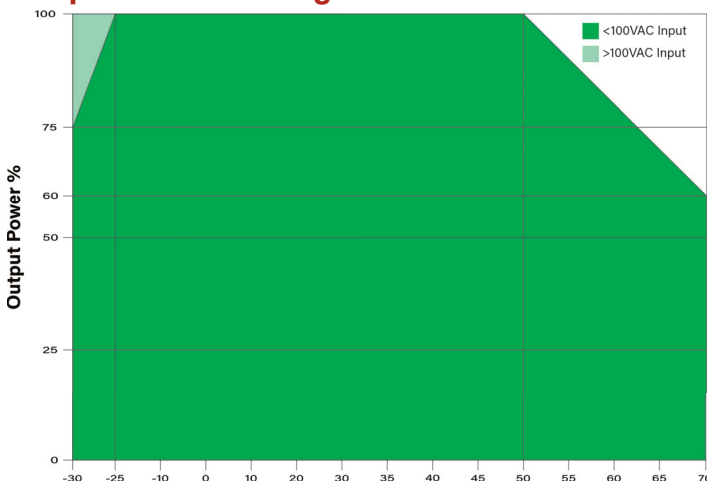
Temperature Derating: 5VOUT, 85 - 165 VAC Input



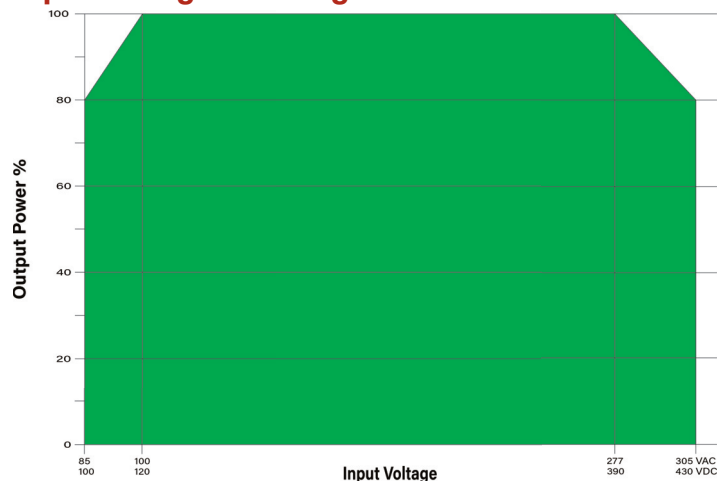
Temperature Derating: 5 VOUT, 165 - 305 VAC Input



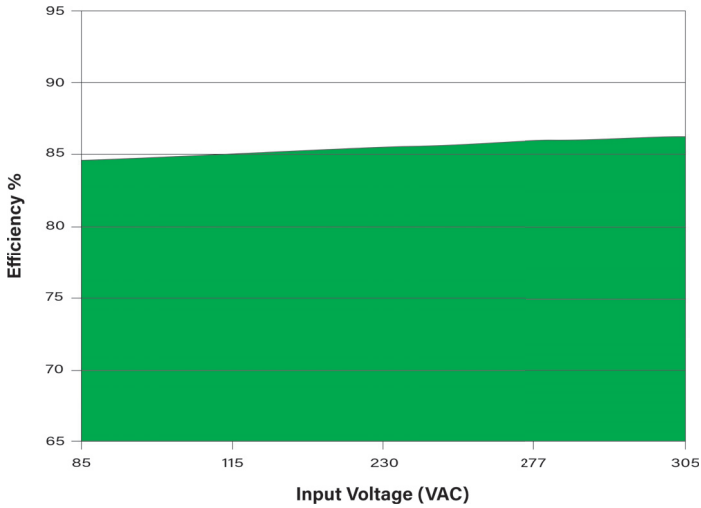
Temperature Derating: All Other Models



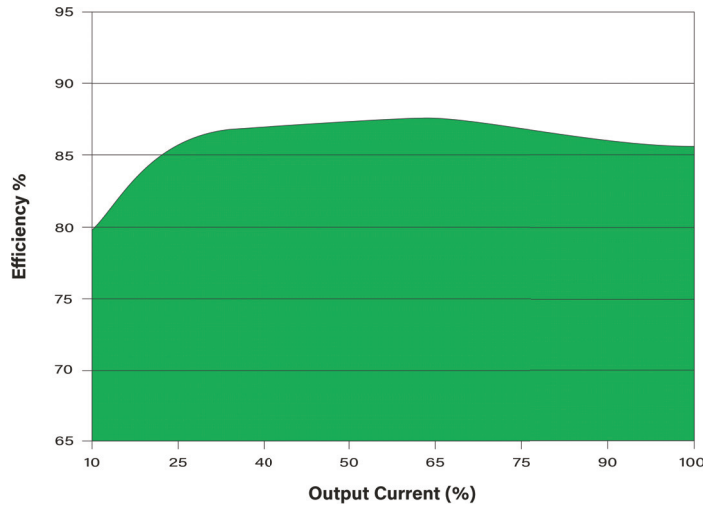
Input Voltage Derating



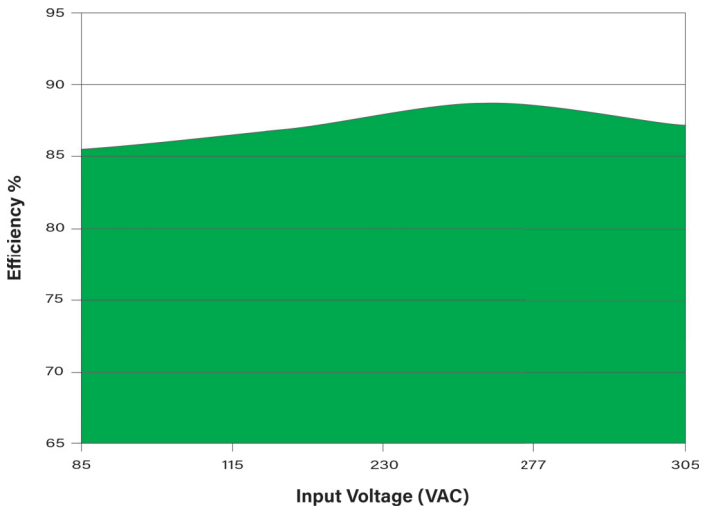
Efficiency vs Input Voltage: 5 V_{OUT}



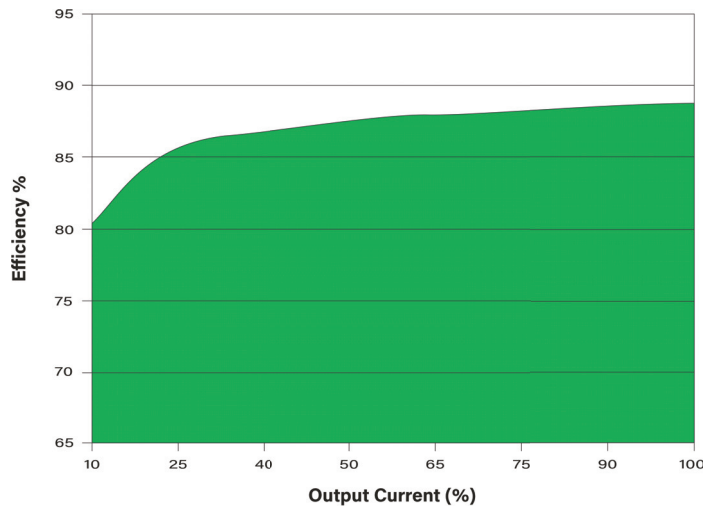
Efficiency vs Output Load: 5 V_{OUT}



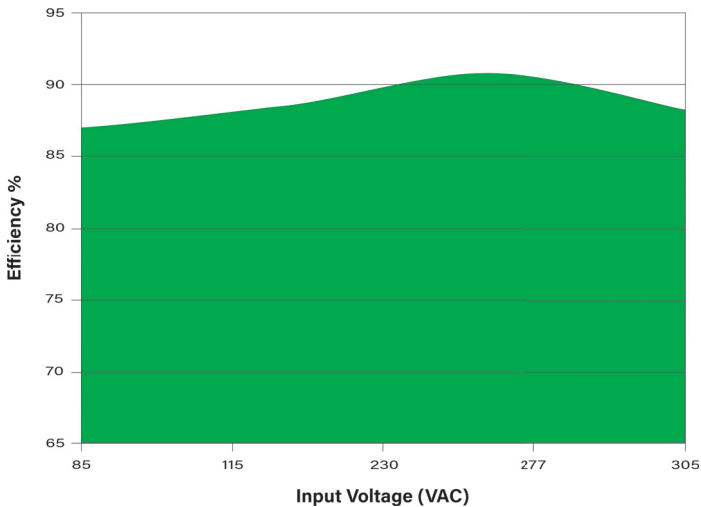
Efficiency vs Input Voltage: 15 V_{OUT}



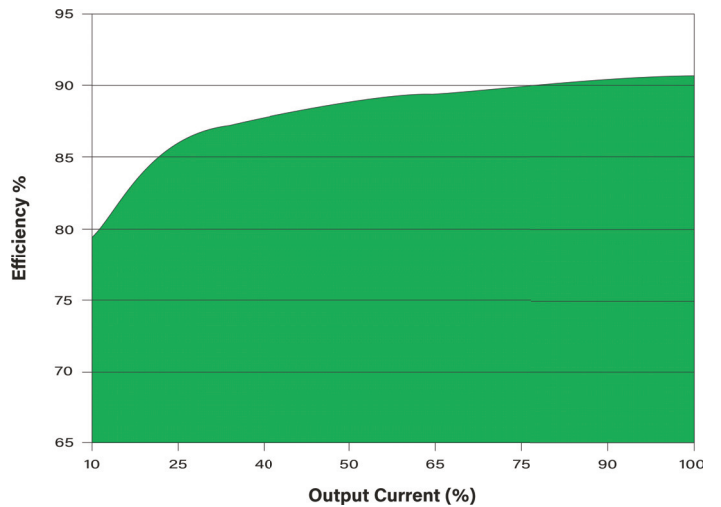
Efficiency vs Output Load: 15 V_{OUT}



Efficiency vs Input Voltage: 48 V_{OUT}

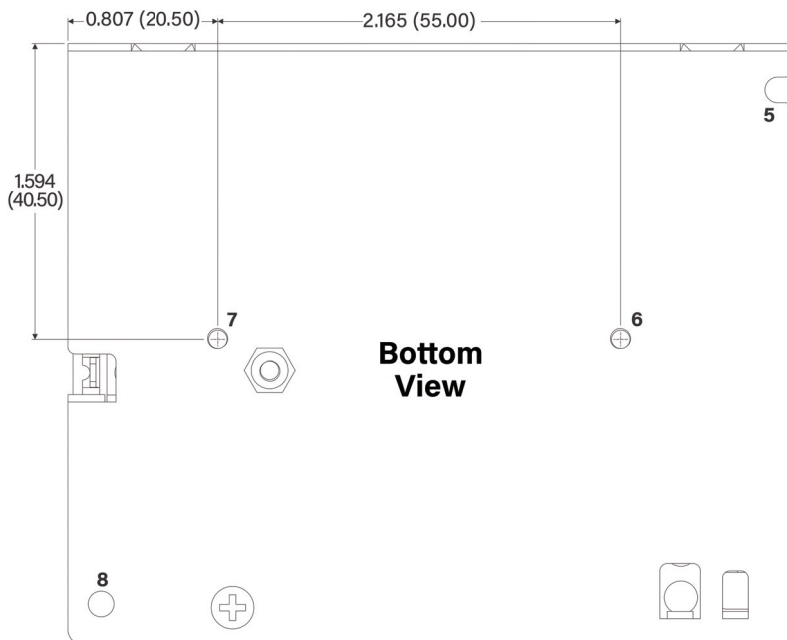
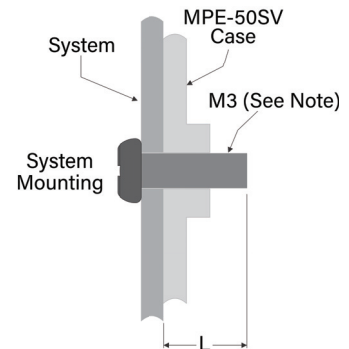
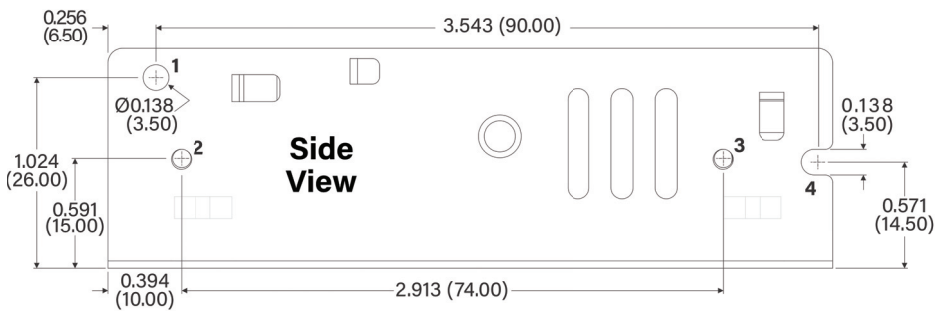
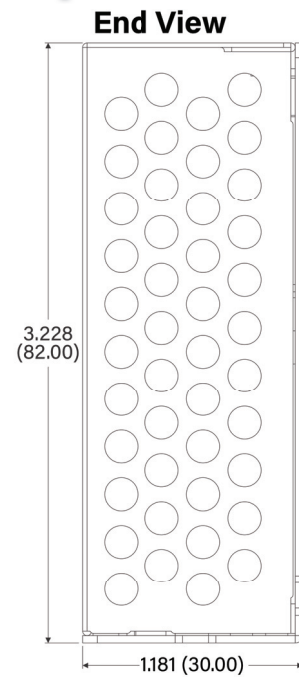
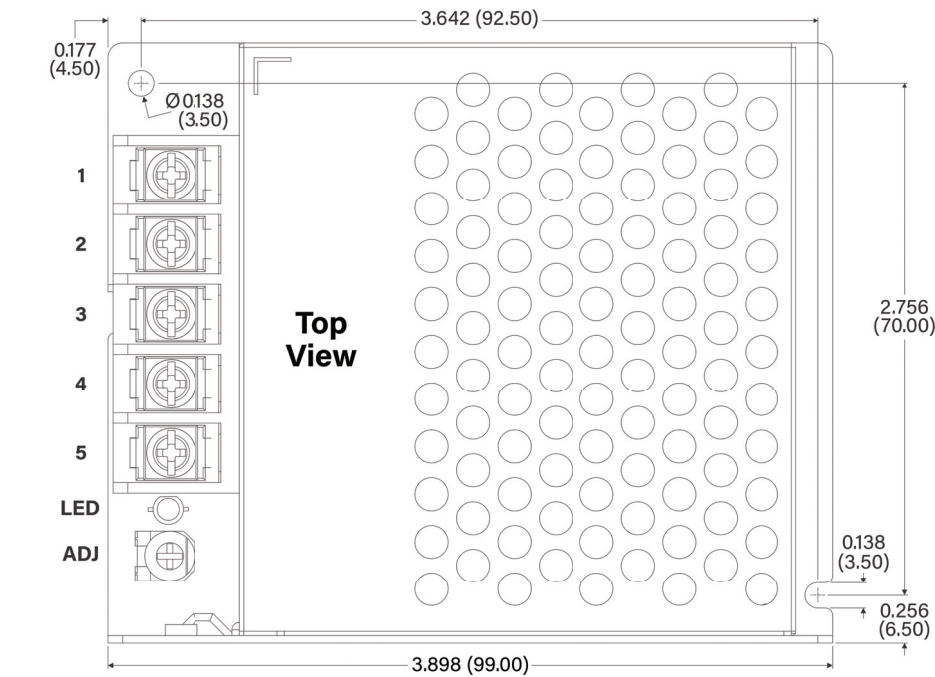


Efficiency vs Output Load: 48 V_{OUT}



Mechanical Dimensions

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Connections

- Wire range - 22 -12 AWG
- Tightening Torque: M3.5, 0.8 N·m

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

The unit should be connected to PE before operating. This connection can be made at any position (1 to 8) as shown on the mechanical diagram. See the mechanical and system mounting diagrams at left and above.

Position	Screw	Max L	Max Torque
2, 3	M3	5 mm	0.4N·m
6, 7	M3	3 mm	0.4N·m

Notes:

- All dimensions are typical in inches (mm)
- Tolerance x.xx = ±0.039 (±1.00)



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