

5V Input, 3A Output Current
+3.3V, +2.5V +1.8V, +1.5V Output
Switching Regulator
Three Terminal Package

FEATURES

- High Efficiency
- Internal Short Circuit Protection
- Small Footprint
- High Power Density- 60W/in.³

APPLICATIONS

- High Power 5V to 3.3V Regulation
- Low Voltage Battery regulation
- Embedded Processor Power
- General Purpose Low Voltage Logic Supply
- FPGA Power

DESCRIPTION

The OM955X series of Switching Regulators are designed for pin compatibility with standard 3-Pin linear regulators. They are well suited for on-board, non- isolated power applications where efficient point- of- load regulation is needed. The package is designed using Chip- on – Board technology to reduce cost and maintain power density. These units will typically not require any additional components in your application due to capacitance provided internal to the package.

MAXIMUM RATINGS @ Ta=25° C (unless otherwise specified)

Parameter	Value	Conditions
Input Voltage	8V	
Output Current	4A	Short Circuit
Power Dissipation	1.8W	Short Circuit
Output Power	10W	Short Circuit
Lead Temp.	230°C	< 1 min.

CONFIGURATION CHART

MODEL	OUTPUT VOLTAGE	TEMPERATURE RANGE	MAX. OUTPUT CURRENT
OM9551SP	3.3V	-25 to +85°C	3.0A
OM9552SP	2.5V	-25 to +85°C	3.0A
OM9553SP	1.8V	-25 to +85°C	3.0A
OM9554SP	1.5V	-25 to +85°C	3.0A

PERFORMANCE CHARACTERISTICS (Ta= 25°C)**INPUT**

Parameter	Symbol	Test Conditions	MIN	MAX	Units
Line Regulation	Rline	$4.5V \leq V_{in} \leq 5.5V$	-0.5	+0.5	%
Input Voltage Range	Vin		4.5	7.0	V
Input Filtering ¹				22	uF

OUTPUT

Parameter	Symbol	Test Conditions	MIN	TYP	MAX	Units
Power	Po	Vo= 3.3V			10	W
Vout Accuracy	ΔV_o	Vo= 3.3V, +2.5V, +1.5V+1.8V		0.8	1.0	%
Vout Regulation	Vreg	Vin= 5V, 0.1 ≤ Io ≤ 3A		0.3	0.1	%
Output Ripple	V η	Vin= 5V, Io= 3.0A		80	100	mV(p-p)
Current Limiting	Ilim	Vin= 5V		4.0		A
Efficiency	η	Vin=5V, Io=3A, Vo=+3.3V		88		%
Efficiency	η	Vin=5V, Io=3A, Vo=+2.5V		87		%
Efficiency	η	Vin=5V, Io=3A, Vo=+1.8V		86		%
Efficiency	η	Vin=5V, Io=3A, Vo=+1.5V		85		%
Min. Load Current	I _L (min)		0.1			A
Output Filter Capacitance ¹	Co	All Models		330		uF

DYNAMIC

Parameter	Test Conditions	MIN	TYP	MAX	Units
Transient Response	50% load step ΔV_{out}		40	200	μS mV
Frequency	0 to 85°C	175	200	225	KHz

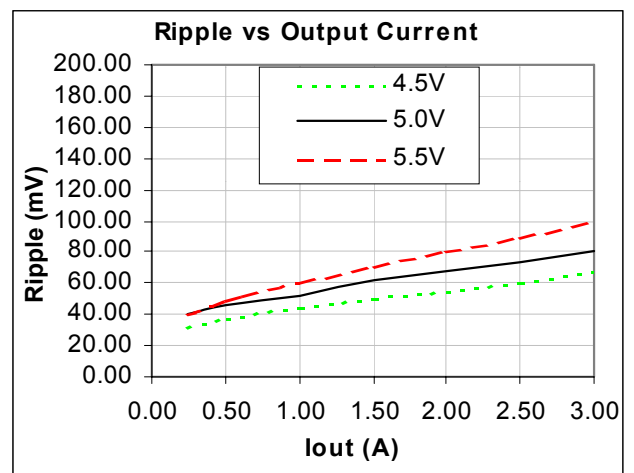
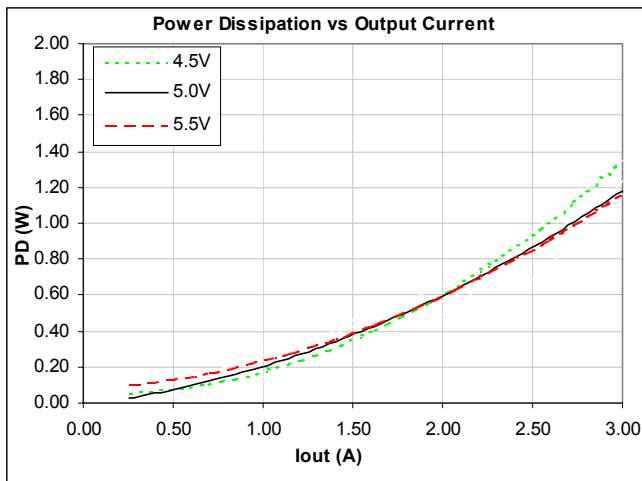
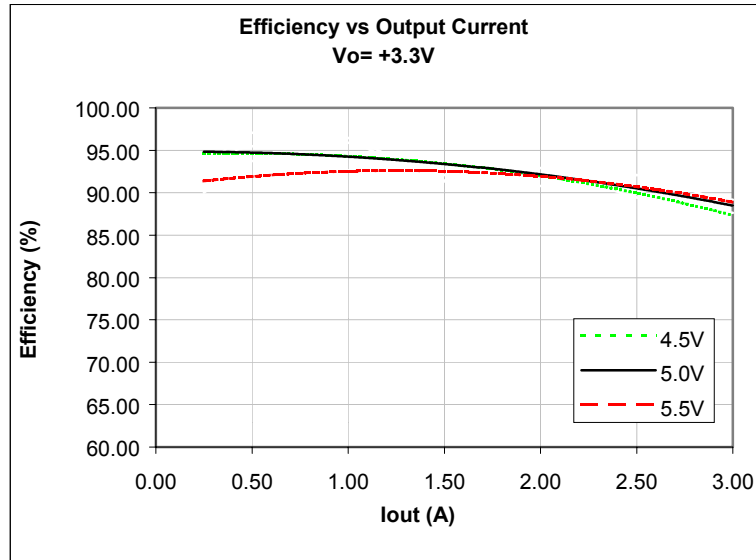
ENVIRONMENTAL

Parameter	MODEL	MIN	MAX	Units
Operating Temperature	OM9551SP, OM9552SP, OM9553SP, OM9554SP	-25	85	°C
Storage Temp.		-40	125	°C
Flammability			UL94V0	

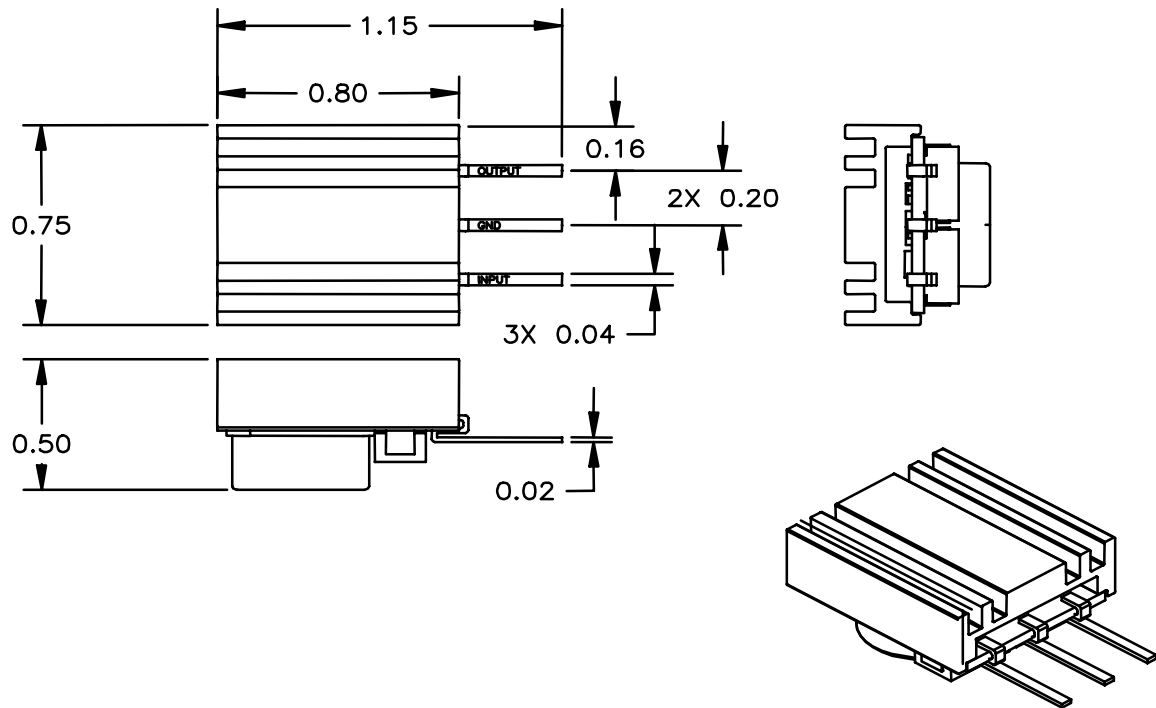
¹ Included in the package

Typical Performance Characteristics (Ta= 25°C)

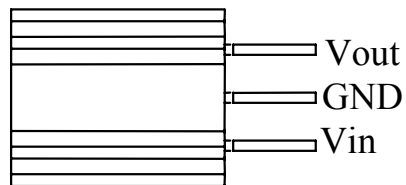
Vo= +3.3V

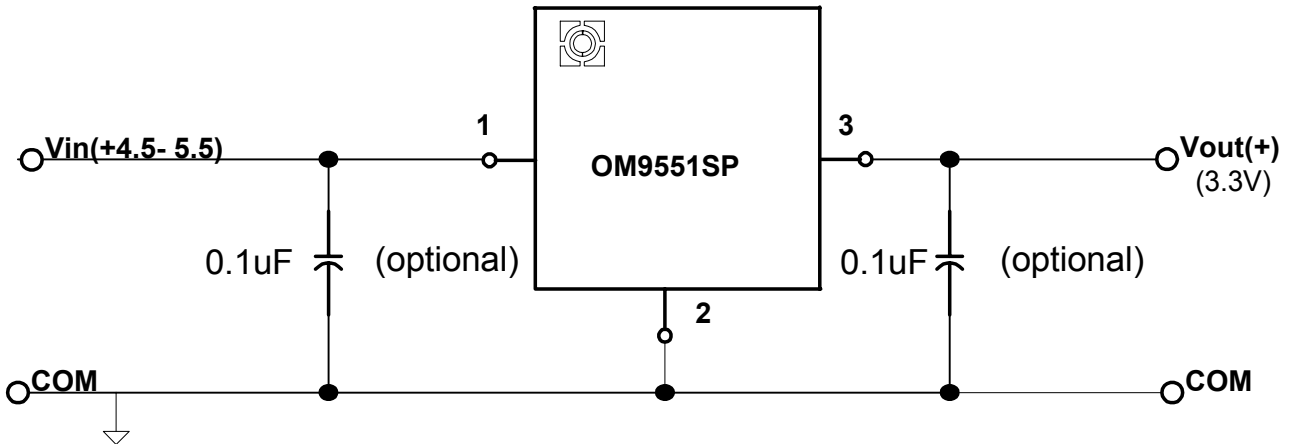


MECHANICAL OUTLINE



Package Pinout



APPLICATION CIRCUIT

Internal to the package is a 22uF input capacitor and a 330uF output capacitor. The Omnirel process allows sufficient space allocation to include all components necessary to complete the basic regulation design. The additional by-pass capacitors are suggested if an improvement in switching noise becomes necessary.