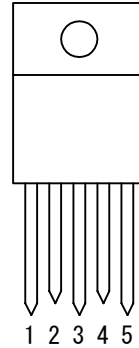


## LA5751 Development Specification

**1. Description:** This is a simple general purpose Buck Switching regulator with a nominal output of 3.3V.

**2. Features:**

- High Efficiency
- Few external parts (4 only)
- Built-in reference oscillator (60 KHz)
- Thermal Shutdown capability
- Includes soft start circuit
- Current Limit capability



**Pin out**

- 1 Vin
- 2 SWout
- 3 GND
- 4 VOS
- 5 SS

**3. Package TO-220 5H**

**4. Maximum Ratings Ta=25°C**

Parameter	Symbol	Conditions	Ratings	Unit
Input Voltage	VIN		30	V
Allowable power dissipation	Pdmax1	Ideal heat dissipation		
	Pdmax2	Individual		
Junction Temperature	Tjmax		125	°C
Output current	Iomax		3	A
Impressed reverse voltage at SW pin	Vsw		-1	V
Storage temperature	Tstg		-40 ~+125	

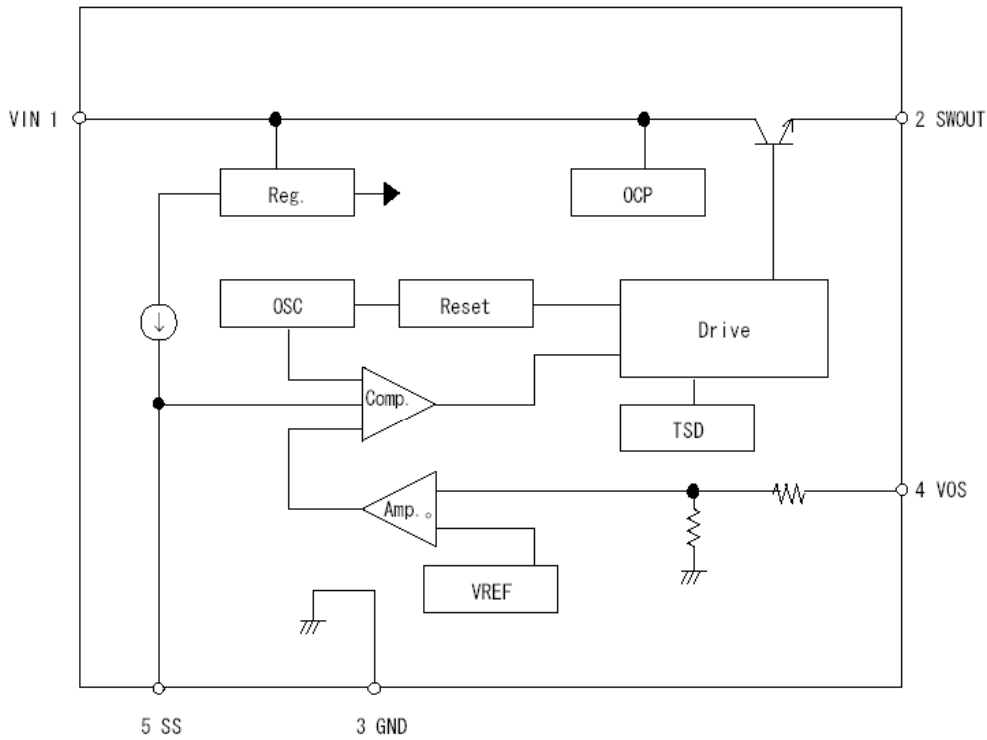
**5. Operating Conditions Ta=25°C**

Parameter	Symbol	Conditions	Ratings	Unit
Input Voltage	VIN		7-28	V
Allowable power dissipation	Tjop		-30 ~ +125	°C

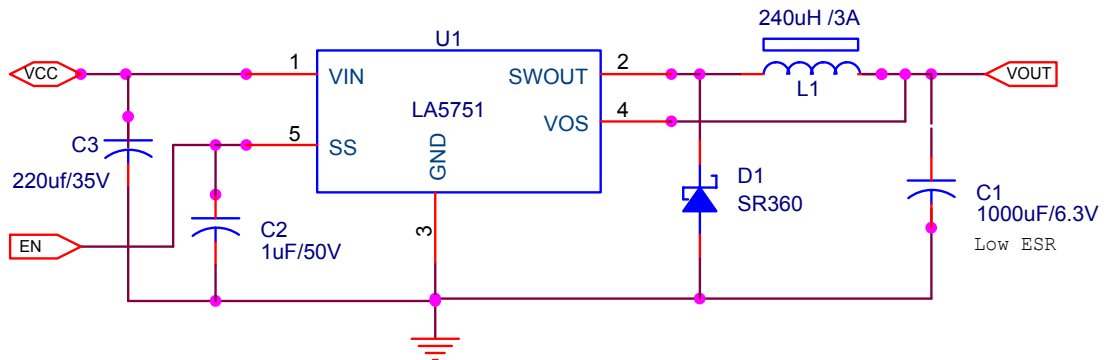
**6. Electrical Characteristics Ta=25°C**

Parameter	Symbol	Conditions	Min	Typ	Max	
Output Voltage	VO	VIN=15V, IO=1 A	3.17	3.3	3.43	V
Efficiency	η	VIN=15V, IO=1 A		79		%
Switching frequency	F	VIN=15V, IO=1 A		60		KHz
Line regulation	Δ VOLINE	VIN=8 ~ 20V, IO=1 A		25	80	mV
Load regulation	Δ VLOAD	VIN=15V, IO=0.5 ~ 1.5A		10	30	mV
Temperature coefficient of output voltage	Δ VO/Δ Ta			±0.5		mV/°C
Ripple Rejection	RREJ	F=100 ~ 120Hz		45		dB
Max Current Limit	IS	VIN=15	3.5			A
Thermal shutdown	TSD	Design target			165	°C
TSD hysteresis	Δ TSD	Design target			15	°C

## 7. Block Diagram



## 8. Application Circuit

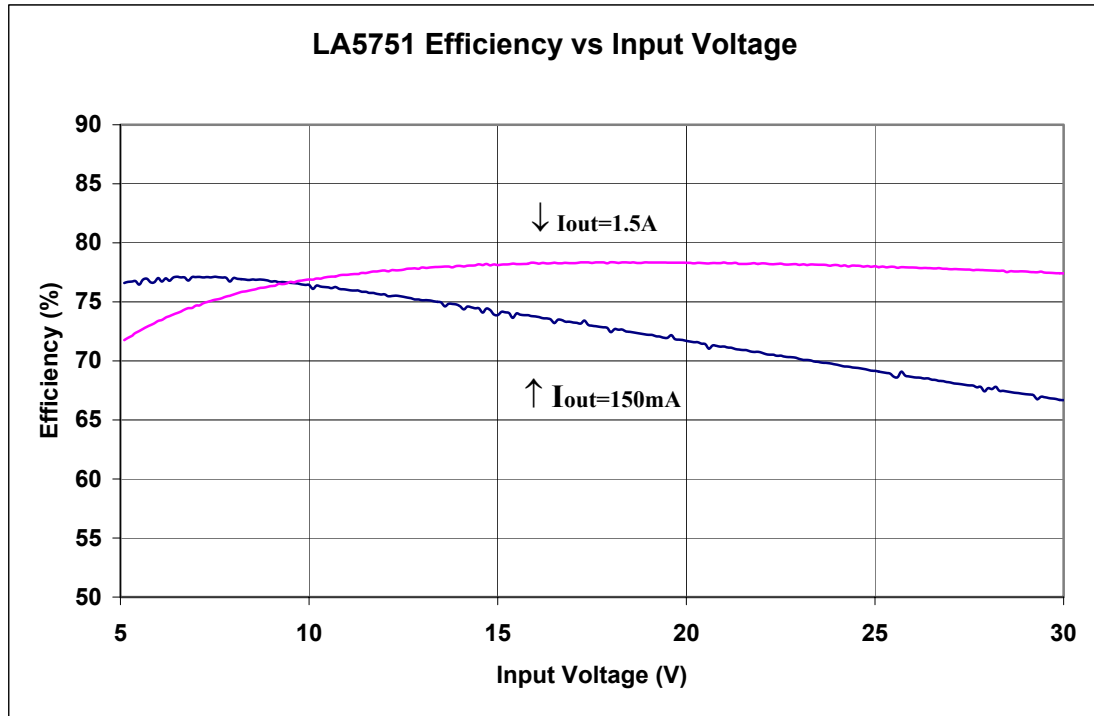


- U1- LA5751 switching regulator (SANYO)
- D1- 3A Schottky diode (Won top electronics)
- L1 – 240uH power choke (Axis Power)

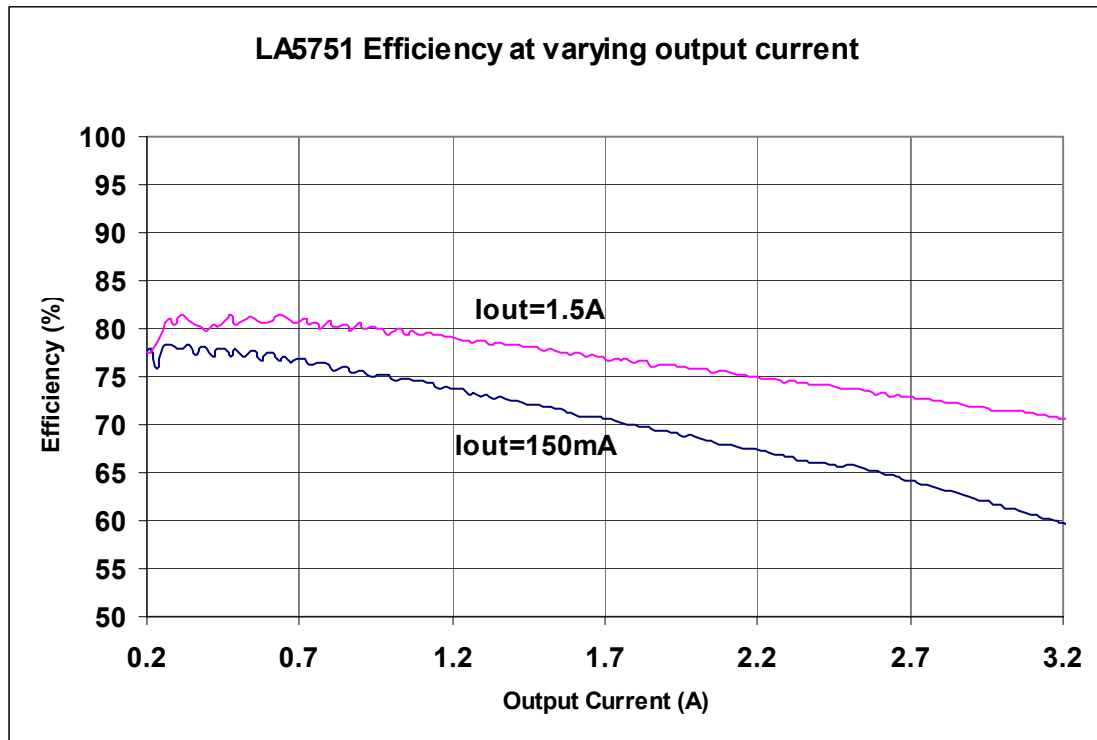
### 9. Typical Characteristics

Efficiency

Test conditions:  $T=25^{\circ}\text{C}$

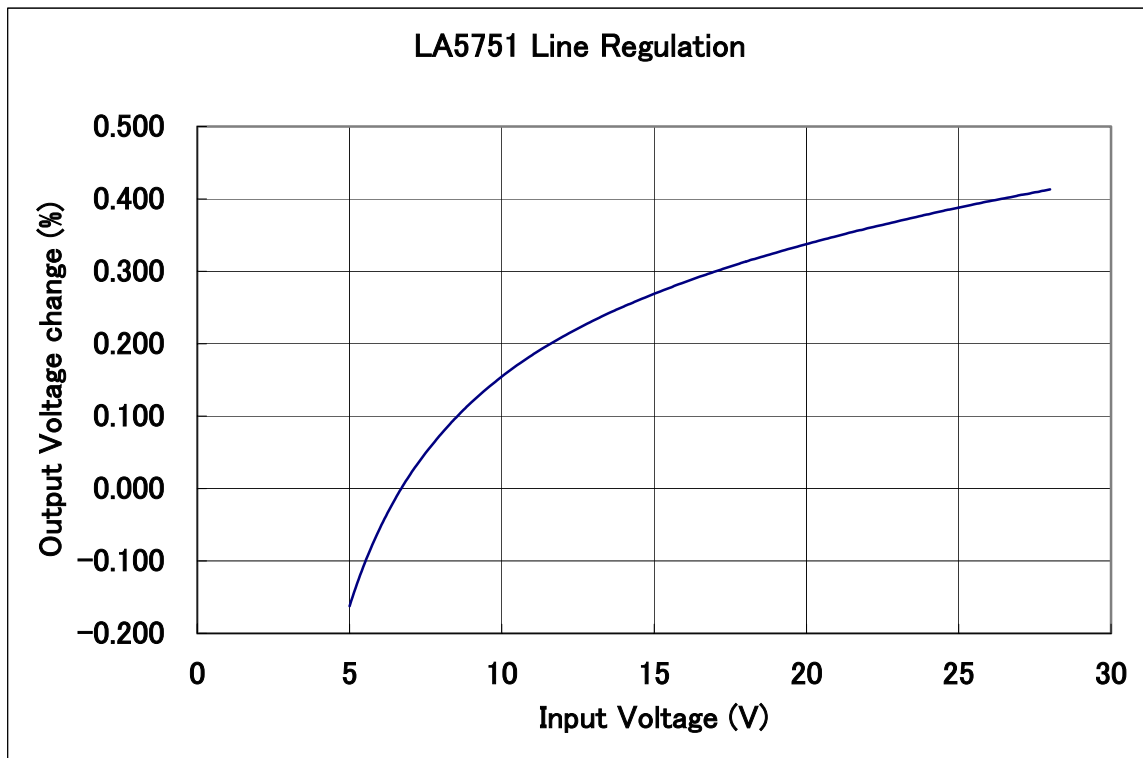


Test conditions:  $V_{IN}=6.6\text{V}$  at  $T=25^{\circ}\text{C}$

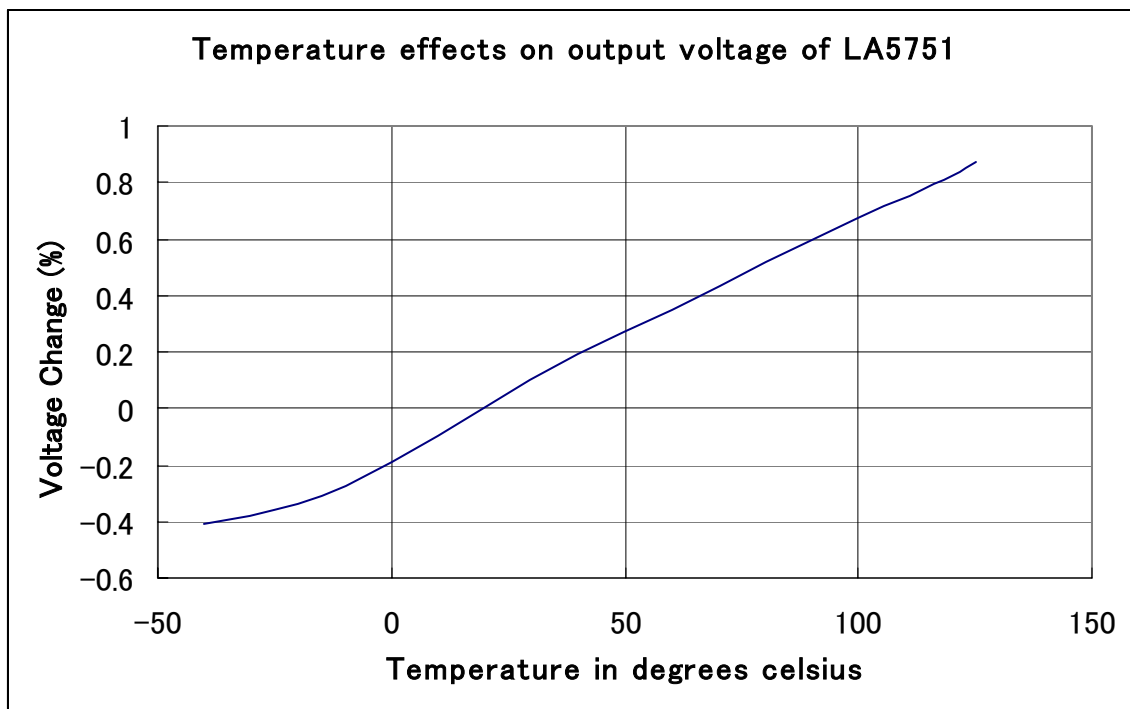


### Line Regulation

Test Condition: T=25°C

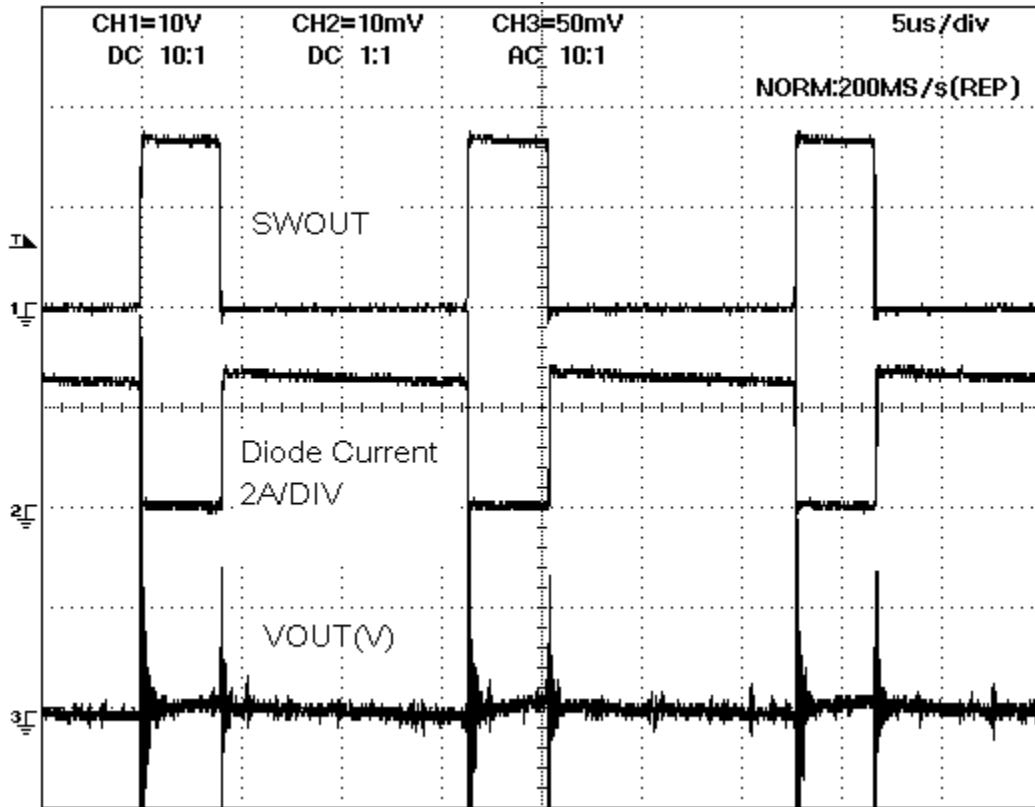


Test Conditions: VIN=6.6V

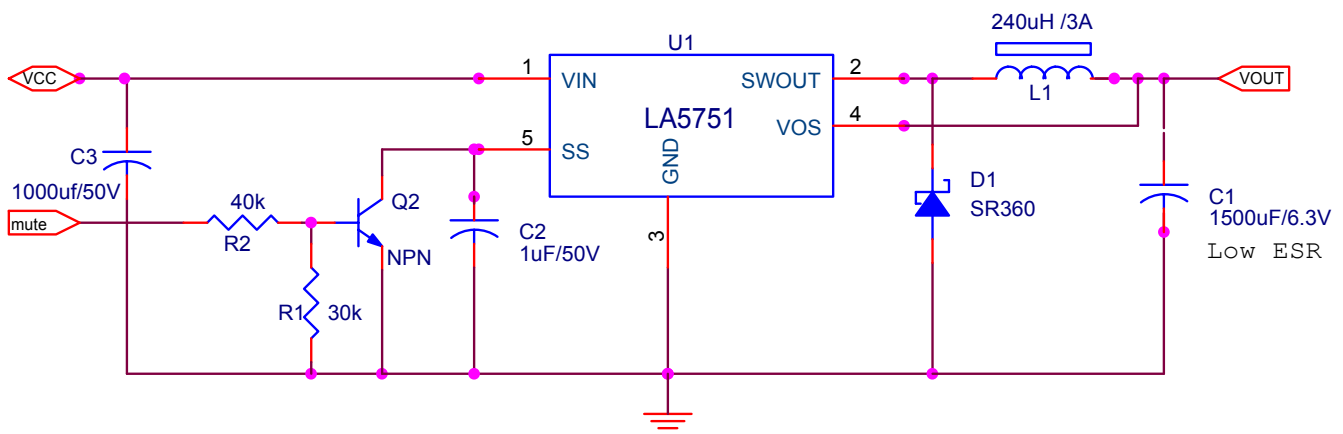


## Transient response

Test condition: Input Voltage=18V, Output current=3A



Waveform shows the response of the demo board.



Mute or shutdown functionality can be added by placing an open collector inverter at pin SS . Circuit shows a simple circuit with mute functionality. The NPN transistor used is a general purpose type with  $V_{CE0} > 30V$  and  $I_c \text{ max} > 100mA$ .