

LA5756

Electrical Characteristics at $T_a = 25^\circ\text{C}$, $V_O = 3.3\text{V}$

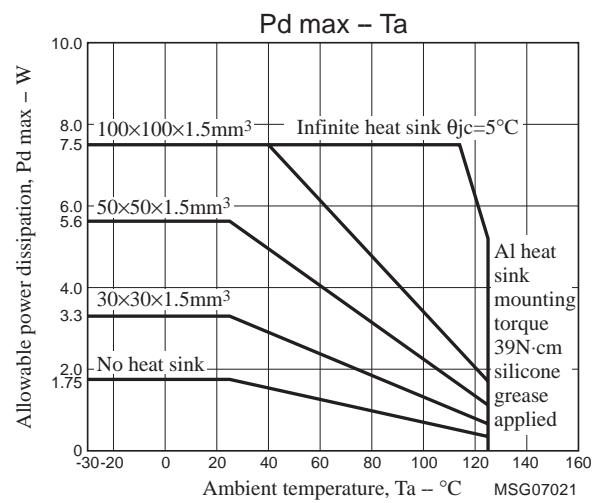
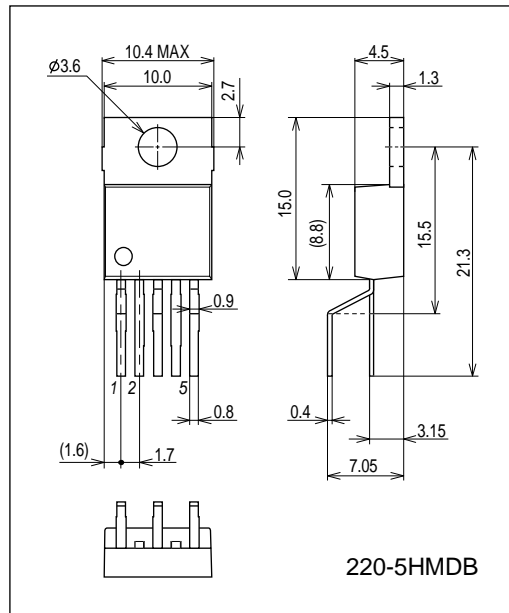
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Reference voltage	V_{OS}		1.235	1.26	1.285	V
Efficiency	η			78		%
Switching frequency	f	$V_{IN} = 15\text{V}$, $I_O = 1.0\text{A}$	60	80	100	kHz
Line regulation	$\Delta V_{O\text{LINE}}$	$V_{IN} = 8$ to 20V , $I_O = 1.0\text{A}$		40	100	mV
Load regulation	$\Delta V_{O\text{LOAD}}$	$V_{IN} = 15\text{V}$, $I_O = 0.5$ to 1.5A		10	30	mV
Output voltage temperature coefficient	$\Delta V_O/\Delta T_a$	Designed target value*		± 0.5		mV/ $^\circ\text{C}$
Ripple attenuation factor	RREJ	$f = 100$ to 120Hz		45		dB
Current limiter operating voltage	I_S	$V_{IN} = 15\text{V}$	4.2			A
Thermal shutdown operating temperature	TSD	Designed target value*		165		$^\circ\text{C}$
Thermal shutdown hysteresis width	ΔTSD	Designed target value*		15		$^\circ\text{C}$

* Designed target value: No measurement made.

Package Dimensions

unit : mm (typ)

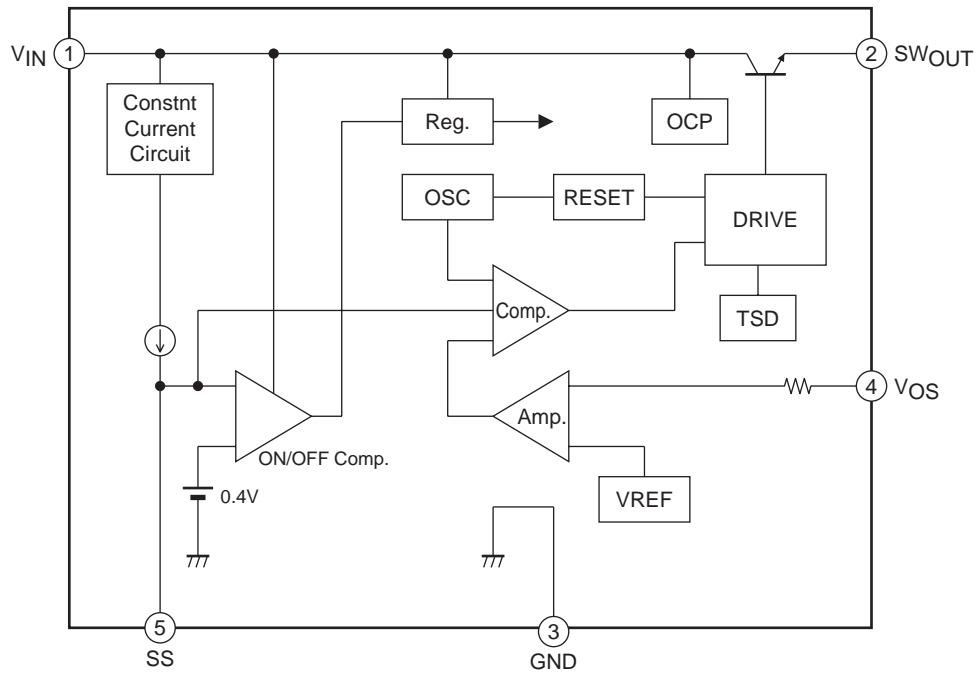
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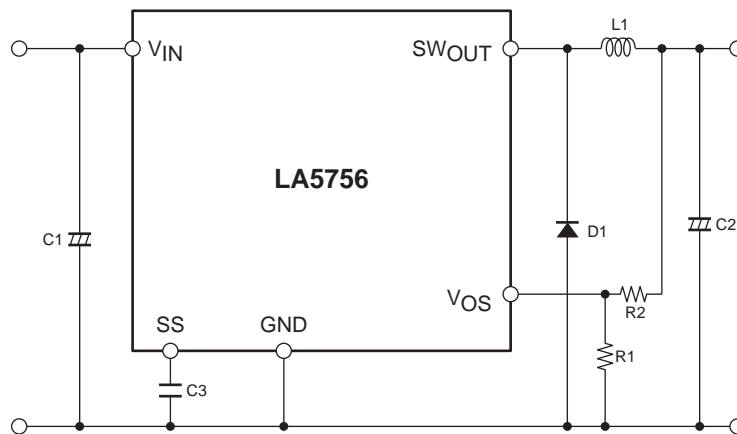
Pin Assignment

(1) V_{IN} (2) SW_{OUT} (3) GND (4) V_{OS} (5) SS

Block Diagram



Application Circuit Example



Notes: $C3$ is for the soft start function. Delete $C3$ and keep the SS pin open when the soft function is not necessary.

Description of Functional Settings

1. Calculation equation to set the output voltage

This IC controls the switching output so that the V_{OS} pin voltage becomes 1.26V (typ).

The equation to set the output voltage is as follows:

$$V_O = \left(1 + \frac{R2}{R1}\right) \times 1.26V(typ)$$

The V_{OS} pin has the inrush current of 1μA (typ). Therefore, the error becomes larger when $R1$ and $R2$ resistance values are large.

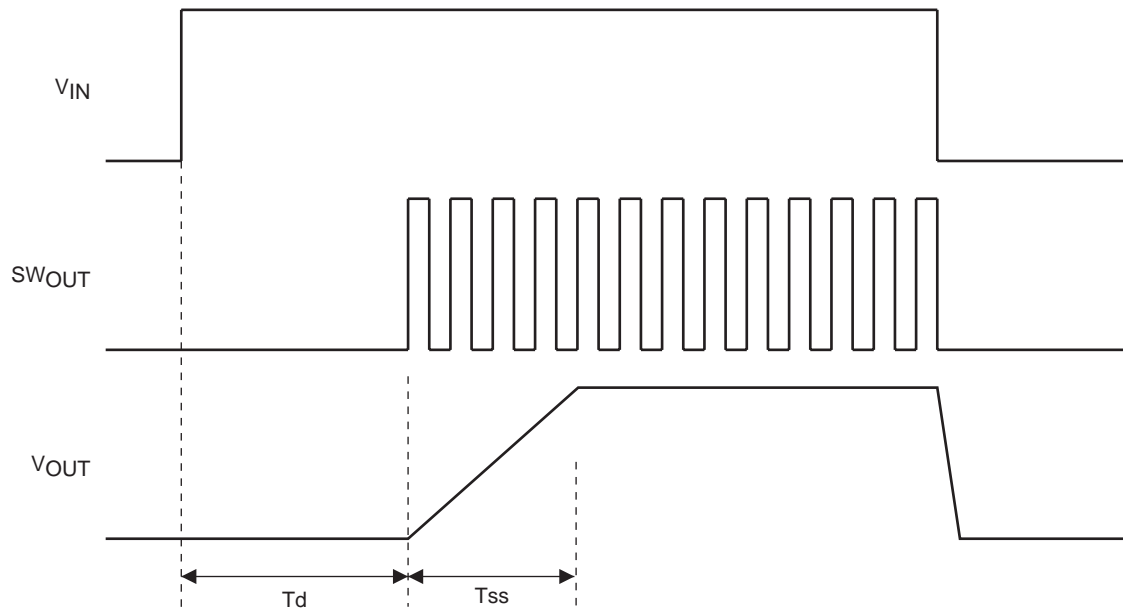
2. Start delay function

The SS pin has the internally-connected 10μA (typ) constant-current supply. When the voltage of SS pin exceeds the threshold voltage, the regulator starts operation. As the threshold is 0.62V(typ), the start delay time can be calculated as follows:

ex. For setting at 1μF

$$T_d = \frac{C \times V}{i} = \frac{1\mu \times 0.4}{10\mu} = 40 \text{ msec}$$

Timing Chart



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