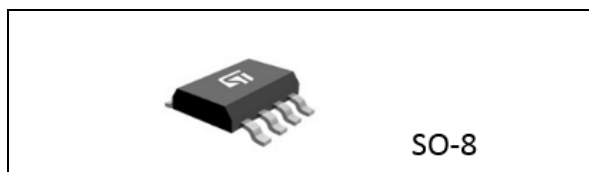


Single and Dual isolated 5 V low drop linear voltage regulators for automotive application


Data brief



Features

Max DC supply voltage	V_S	40 V
Max output voltage tolerance	ΔV_o	+/- 2%
Max dropout voltage	V_{dp}	500 mV
Output current	I_o	50 mA ⁽¹⁾
		2 x50 mA ⁽²⁾
Quiescent current	I_{qn}	50 μ A ⁽³⁾

1. For L5050S - single output
2. For L5050SD - dual output
3. Typical value valid for each single output

- AEC-Q100 compliant qualified 
- Operating DC supply voltage range 5.6 V to 40 V
- Low dropout voltage
- Low quiescent current consumption
- Precision output voltage 5 V \pm 2%
- Dual electrically isolated voltage regulators (only for L5050SD)
- Enable input for enabling/disabling the voltage regulator
- Thermal shutdown and short circuit protection
- Wide temperature range ($T_j = -40^\circ\text{C}$ to 150°C)

Description

L5050x is a low dropout linear 5 V regulator suitable for automotive application, available in single (L5050S) or dual isolated (L5050SD) linear output voltage in a SO-8 package. The LDO delivers up to 50 mA (2x50 mA for the dual version) of load current, and consumes as low as 50 μ A (per each Output) of quiescent current in light load condition. High output voltage accuracy (2%) is kept over wide temperature range line and load variation. Enable feature (two Enables for the dual version) allow enabling or disabling each output. The maximum input voltage is 40 V. The regulator output current is internally limited and the device is protected against short circuit, overload and over temperature conditions. In addition, only low value ceramic capacitor on output is required for stability.

Table 1. Device summary

Package	Order codes	
	Tube	Tape and reel
SO-8	L5050S	L5050STR
	L5050SD	L5050SDTR

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1 Block diagram and pins description

Figure 1. Functional block diagram - L5050S

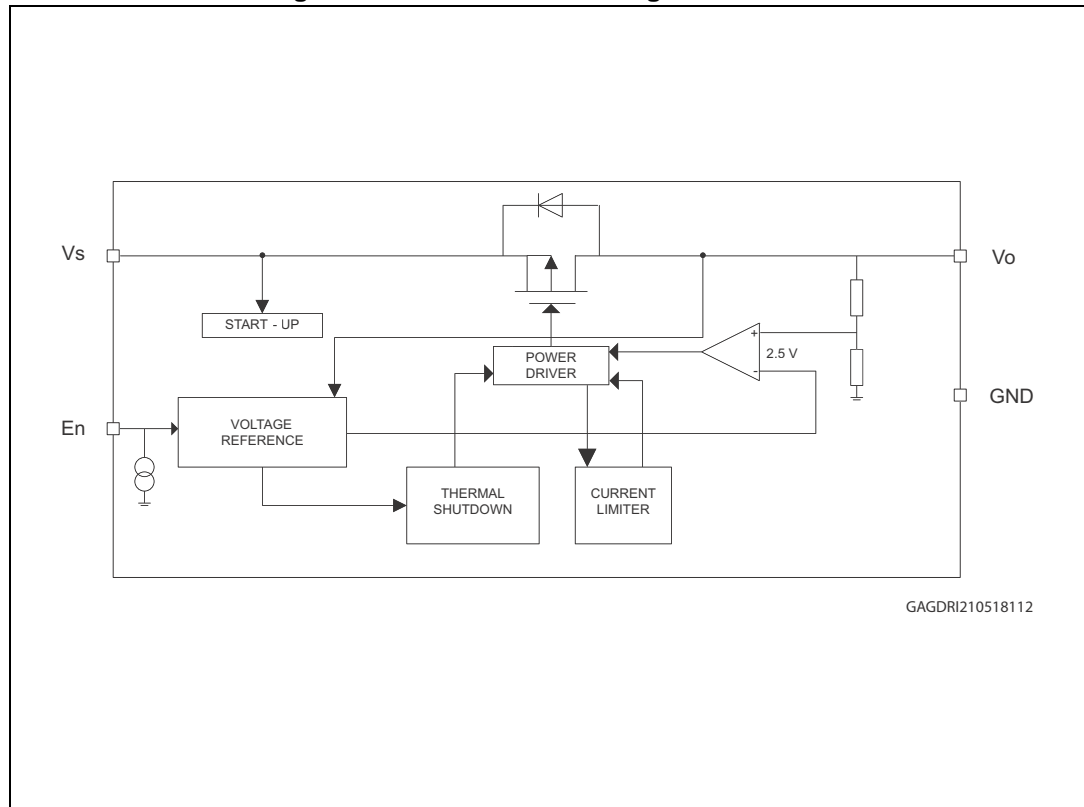


Figure 2. Functional block diagram - L5050SD

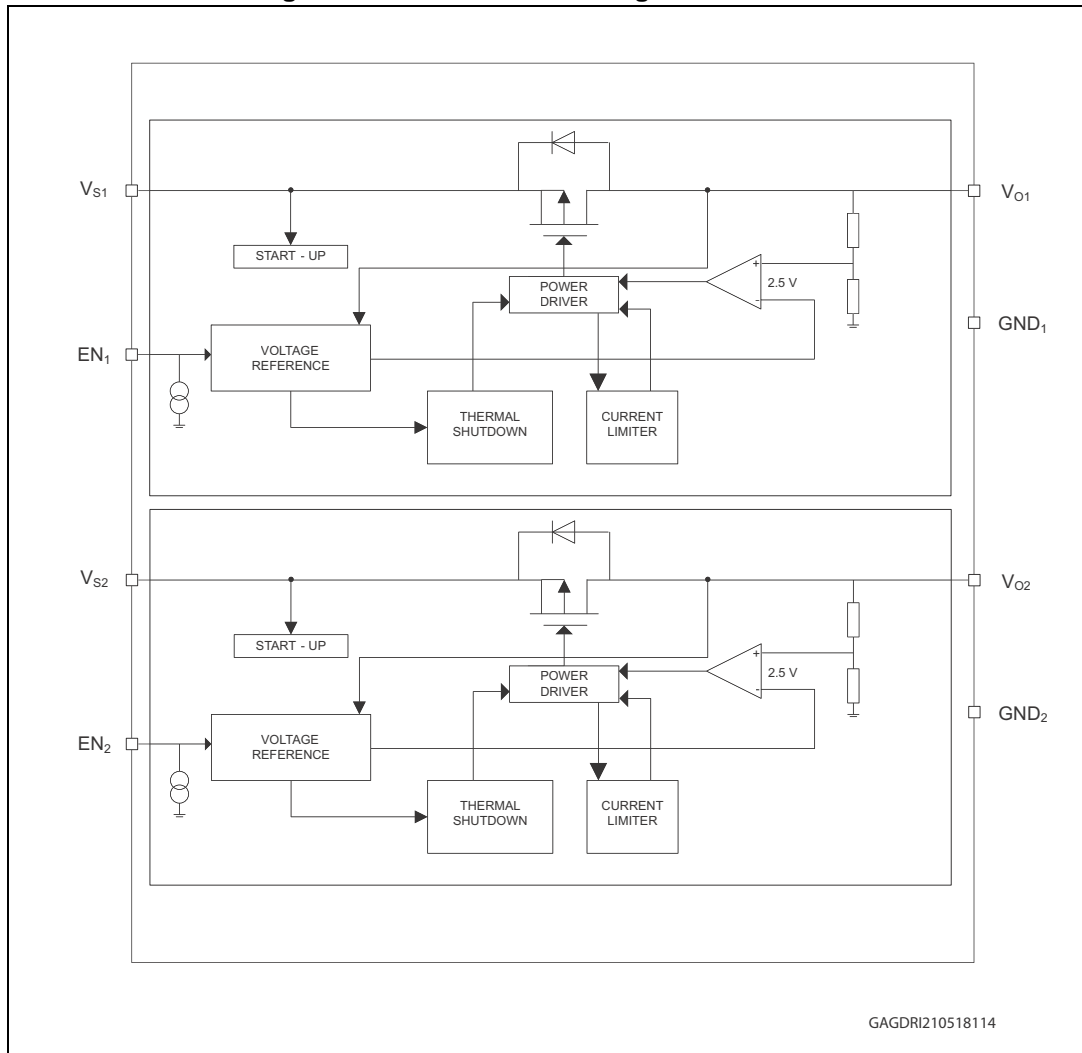


Figure 3. Pins configuration

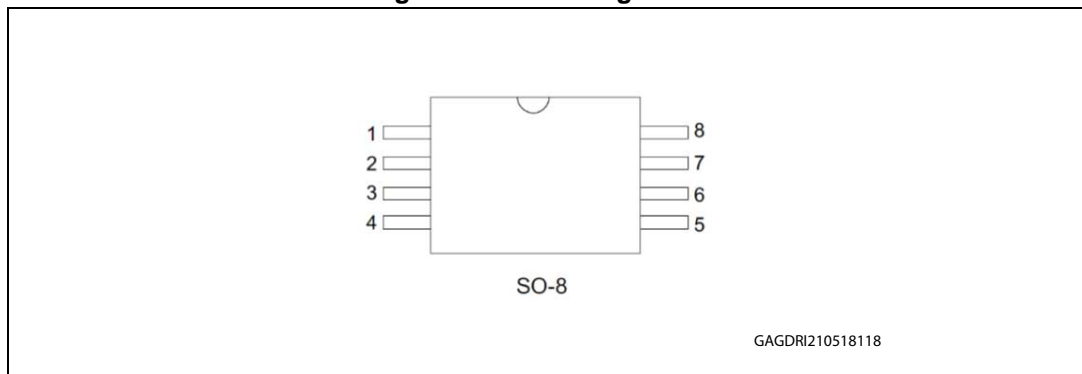


Table 2. Pins description

Pin name	L5050S Pin name	L5050SD Pin name	Function
GND1	2	1	Ground reference for regulator 1
V _{o1}	3	2	5 V regulated output 1. Block to GND1 with a ceramic capacitor (> 220 nF for regulator stability)
GND2	N.C.	3	Ground reference for regulator 2
V _{o2}	N.C.	4	5 V regulated output 2. Block to GND2 with a ceramic capacitor (> 220 nF for regulator stability)
V _{S2}	N.C.	5	Supply voltage 2, block directly to GND2 on the IC with a capacitor.
En2	N.C.	6	Enable pin for regulator 2: high signal to switch the regulator on
V _{S1}	6	7	Supply voltage 1, block directly to GND1 on the IC with a capacitor.
En1	7	8	Enable pin for regulator 1: high signal to switch the regulator on

2 Revision history

Table 3. Document revision history

Date	Revision	Changes
22-May-2018	1	Initial release.

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