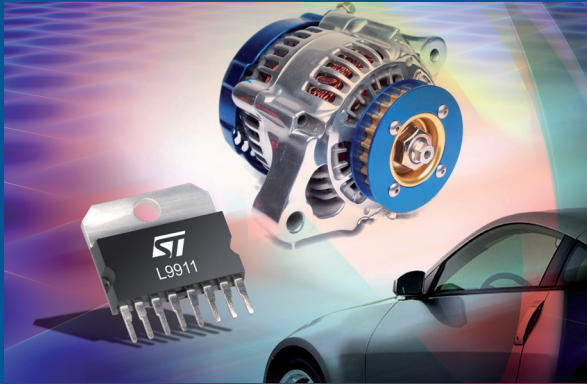


Alternator regulators

L9911: highly flexible, high-performance multifunction battery voltage regulator



L9911 is a state-of-the-art multifunction alternator regulator. It includes the control section, the field power stage, fault diagnostic circuit which drives a warning lamp, and protection against short-circuiting. Load response control (LRC) function regulates soft-start (always activated at engine start) and soft-attack characteristics.

All devices are designed in **STMicroelectronics'** BCD proprietary technology, have been widely present on the market for 10 years, and provide maximum flexibility to suit the different regulation standards of each car manufacturer.

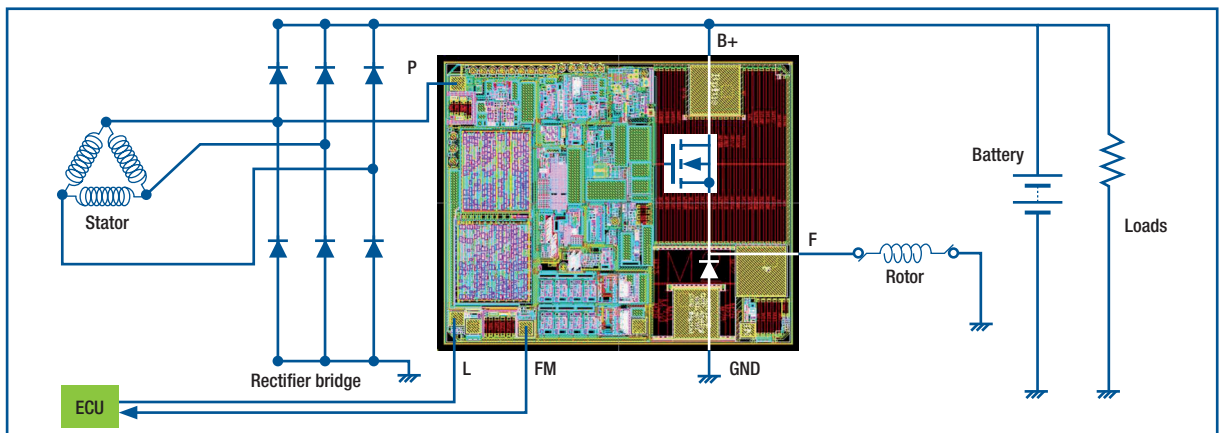
L9911 general features:

- Fully monolithic design
- High side field driver 0.13Ω worst case
- Fixed frequency regulation loop
- 1% accuracy in regulated voltage
- 16V p.p. ripple on supply line filtering/averaging
- LRC function
- Field monitor output
- Lamp and relay driver
- Complete diagnostic and protection
- No-battery operation
- $\pm 4\text{kV}$ ESD immunity
- Harsh EMC requirements

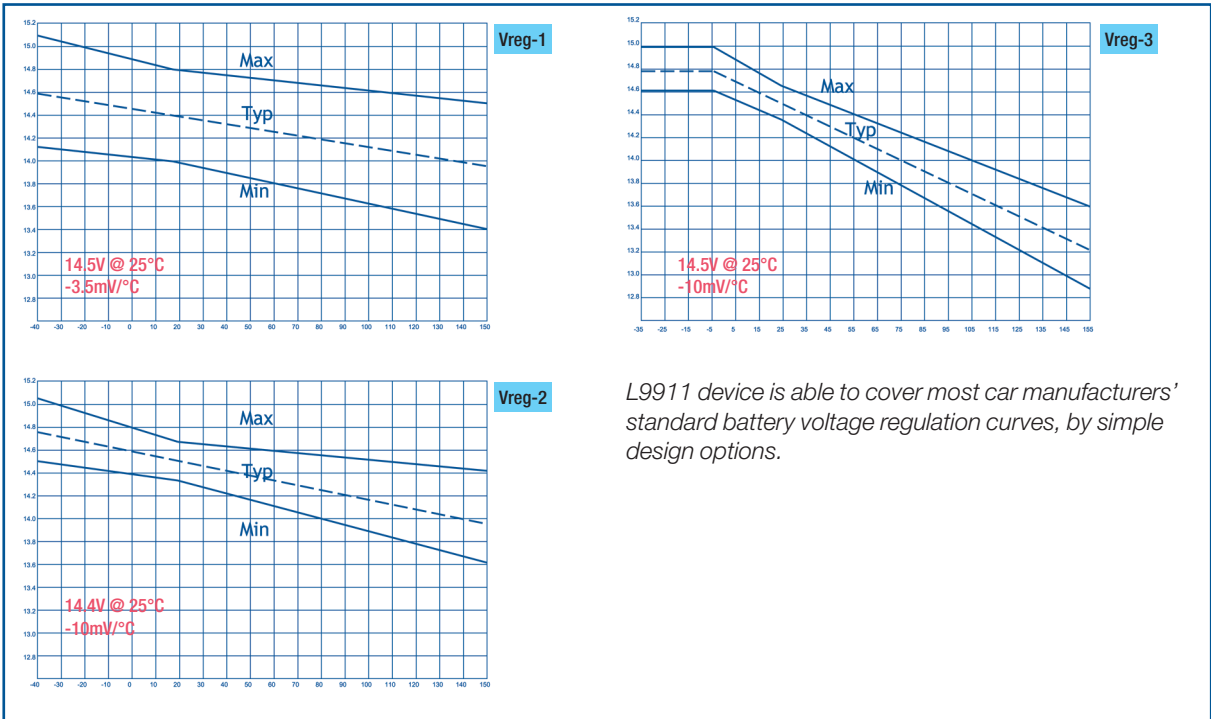
Selectable features by metal option:

- Three standards for regulation curve
- Four combinations of LRC timings
- Four combinations of soft-start enable and LRC disable frequency ranges
- 12-16 poles compatibility

Application diagram



L9911 regulation curves: three standard options



LRC: four timing combinations

	Soft-start time = 2.5s	Soft-start time = 9s
Soft-start delay time = 0s	LRC-A	LRC-D
Soft-start delay time = 2s	LRC-C	LRC-B

LRC enable/disable: frequencies vs. applications

Alternator revolution speed (rpm)			6 pole pairs	8 pole pairs
Typical configuration A (Config-A)	Initiate regulation	1200rpm	120Hz	160Hz
	LRC cut	3000rpm	300Hz	408Hz
Typical configuration B (Config-B)	Initiate regulation	1450rpm	145Hz	193Hz
	LRC cut	3000rpm	300Hz	408Hz
Typical configuration C (Config-C)	Initiate regulation	1450rpm	145Hz	193Hz
	LRC cut	3500rpm	350Hz	466Hz

L9911 versions: complete selection table

	Vreg-1/Config-A		Vreg-1/Config-B		Vreg-2/Config-B		Vreg-2/Config-C		Vreg-3/Config-C	
LRC timing options	6 pole pairs	8 pole pairs	6 pole pairs	8 pole pairs	6 pole pairs	8 pole pairs	6 pole pairs	8 pole pairs	6 pole pairs	8 pole pairs
LRC-A	L9911P	nya	nya	nya	L9911V	nya	nya	nya	nya	nya
LRC-B	nya	nya	L9911F	nya	L9911I	nya	nya	nya	nya	nya
LRC-C	nya	nya	nya	nya	nya	nya	nya	nya	nya	nya
LRC-D	nya	nya	nya	nya	nya	nya	nya	nya	nya	nya

All not yet available ('nya') versions can be generated with a simple design modification: please check with your local ST sales office.



© STMicroelectronics - November 2006 - Printed in Italy - All rights reserved

The STMicroelectronics corporate logo is a registered trademark of the STMicroelectronics group of companies. All other names are the property of their respective owners.

For selected STMicroelectronics sales offices fax:

China +86 21 52574820; France +33 1 55489569; Germany +49 89 4605454; Italy +39 02 8250449; Japan +81 3 57838216; Singapore +65 6481 5124; Sweden +46 8 58774411; Switzerland +41 22 9292900; United Kingdom and Eire +44 1628 890391; USA +1 781 861 2678

Full product information at www.st.com