



# STi<sup>2</sup>Fuse SERIES

## Single, dual, and quad-channel automotive electronic fuses



**Fully programmable smart circuit breakers with customizable protections for enhanced safety in power distribution systems**

The STi<sup>2</sup>Fuse series includes automotive smart high-side switch controllers, monolithic drivers, and system-in-package devices with controllers and power MOSFETs in the same package.

These resettable, electronic fuses feature a fully programmable I<sup>2</sup>t protection mechanism that ensures exceptional system flexibility and active power management.

Designed to maintain vehicle power network stability and protect wires, traces, and connectors, STi<sup>2</sup>Fuse devices are essential for autonomous protection, predictive maintenance, and enhanced resilience. These features collectively contribute to a significant reduction in harness weight.

### KEY FEATURE

- AEC-Q100 qualified
- Full-programmable I<sup>2</sup>t mechanism
- Integrated ST-SPI and 10-bit ADC
- Integrated self-tests

### MAIN BENEFITS

- Exceptional overcurrent protection
- Full diagnostics and digital current sense feedback
- Compliance to ASIL safety requirements

### KEY APPLICATIONS

- Power distribution systems for new automotive E/E zonal architectures at 12 V, 24 V, 48 V
- Automotive ECU main switch for ADAS, body control module

## Tools and resources for an efficient design process

The core of the development environment, the SPC582B evaluation board (**EV SPC582B**), serves as a versatile motherboard equipped with specialized connectors for STi<sup>2</sup>Fuse Easyboards and offers seamless Arduino compatibility. This board is complemented by a user-friendly graphical user interface, which allows users to easily set and test device parameters for STi<sup>2</sup>Fuse evaluation boards.

The **Easyboard** concept offers a cost-effective solution, enabling product evaluation without the need for significant investment in expenses, time, and resources typically required for designing a customized circuit board.



Motherboard





Easyboard



To further streamline the design process, the **TwisterSIM electro-thermal simulator** provides powerful simulation capabilities, ensuring a comprehensive and efficient development experience.

## STi<sup>2</sup>Fuse series portfolio

Configuration	Product	Channels	Package	Current limitation (A)	Shutdown peak current (A)	On-resistance per channel (mΩ)	Operating voltage (V)
Gate controller	VNF1048F	1	 QFN 5x5	Internally limited	-	External MOSFET	6 to 70
	VNF1248F*	1		Internally limited	-	External MOSFET	6 to 70
Integrated solution	VNF9D5F	2	 QFN 6x6	75.0	-	5.9	4 to 28
	VNF9Q20F	4		34.5	-	21.5	4 to 28
	VNF9S0M7Q*	1	 PQFN 7x8.5	-	180	0.7	4 to 28
	VNF9S1M5Q*	1		-	120	1.5	4 to 28
	VNF9D1M2Q*	2		-	145	1.2	4 to 28
	VNF9D1M5Q*	2		-	120	1.5	4 to 28
	VNF9D3Q*	2		-	70.0	3.0	4 to 28

Note: \* In development



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