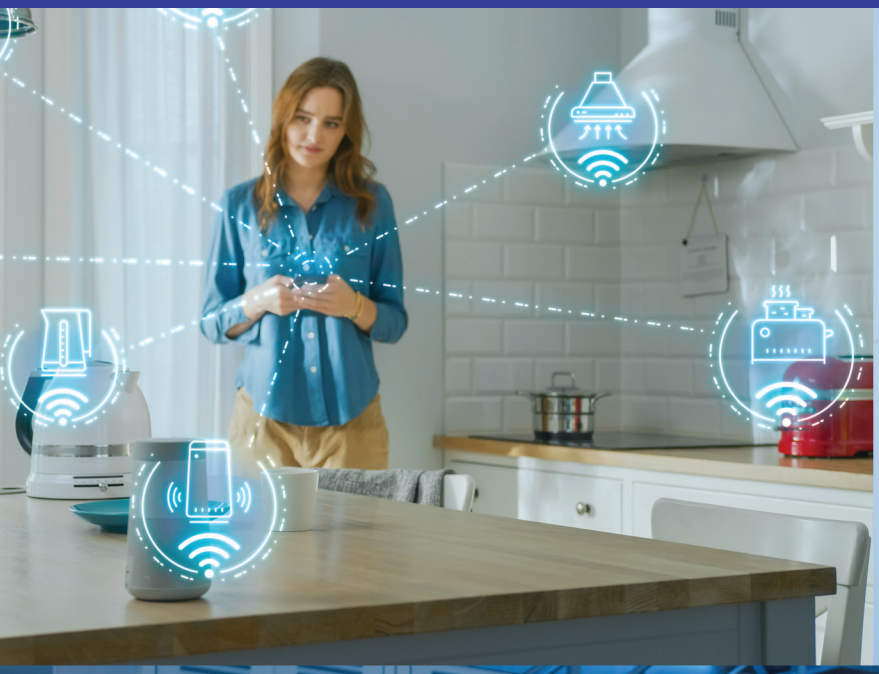
GreenFET

Product Selection Guide







renesas.com/loadswitches

GreenFET
ULTRA-LOW RDS_{ON} LOAD SWITCH SELECTION GUIDE

Renesas' GreenFET family of high-performance load switches are designed and optimized for all high-side power rail control applications from 0.25 V to 5.5 V where the load currents range from 1 A to 9 A. Using Renesas' proprietary MOSFET design, all GreenFET load switches achieve ultra-stable RDS_{ON} across wide input and supply voltage ranges. Combining Renesas' proprietary MOSFET IP and advanced assembly techniques, these advanced state-of-the-art products are available in ultra-small pcb footprints from 0.56 mm^2 to 4 mm^2 and exhibit low thermal resistances for high-current operation.

Compared to discrete GreenFET circuit implementations, Renesas' GreenFET products combine high-performance nFET or pFET structures, high-current handling capability, charge pumps, as well as multiple protection and control circuits into space-efficient single and dual channel products. The combination of all these advanced features directly results in BOM (bill-of-material) component and cost reductions as well as increasing system reliability and reduced board size.

All of Renesas' GreenFET low-voltage load switches are designed and fully characterized over the commercial (0 °C to 70 °C), extended commercial (-20 °C to 70 °C), industrial (-40 °C to 85 °C), or extended industrial (-40 °C to 125 °C) temperature range. Consistent with generating very low thermal gradients, Renesas integrated power control switches are available in low thermal resistance, STDFN/STQFN RoHS-compliant packaging or wafer-level chip scale packaging (WLCSP).

Key features in the GreenFET family of high-performance load switches products include:

- High-performance Low RDS_{ON} nFET & pFET MOSFETs
- From as low as 4 mΩ
- Internal protection features:
  - Built-in supply undervoltage lockout protection
  - Fixed and capacitor/resistor-adjustable inrush current control
  - Fixed and resistor-adjustable current limit protection
  - Built-in short-circuit current protection
  - Built-in thermal shutdown protection with auto restart
  - Reverse-current blocking using bulk wwitch or back-to-back FETs
  - Reverse-voltage detection (selected part numbers)
  - Fast V_{OUT} discharge (V_{OUT} discharge delete options available)
- Active HIGH ON-OFF control (Active-LOW ON-OFF control available)
- Open-drain signaling (selected part numbers)
- Open-drain power good signaling (selected part numbers)
- Wafer-level chip-scale packaging (selected part numbers)
- UL2367 certified (selected part numbers)

Applications:

- Smartphones and fitness bands
- Notebook and tablet PCs
- Enterprise networking
- Enterprise multifunction copiers/printers
- Enterprise computing
- Set-top boxes
- HDDs and SSDs
- PCIe/PCI adapter cards
- Portable consumer electronics
- General-purpose, high-side power-rail switching/control

Single N-Channel Load Switches

Part Number	Description	Max I_{DS} (A)	RDS_{ON} (mΩ)	VD/VIN Min (V)	V_{IN}/V_{IN} Max (V)	Power Supply (V_{DD}) Voltage Range (V)	Output Voltage Slew Rate set by	Protection Features*	Current Monitor Output	Power Good, FAULT indicator	Output Discharge Circuit	Operating Temperature Range, (°C)	Package Size (mm)
SLG59M1717V	4 mm^2 load switch with charge pump, ramp control, output discharge, protection, and PG signal output	5	4	0	VDD	2.5 – 5.5	Capacitor	UVLO, ACL(R), SCL, TSD	No	PG	Yes	-40 to +85	STQFN-16 (1.6 x 2.5)
SLG59M1709V	4 mm^2 load switch with charge pump, ramp control, and protection	4	4	0	VDD	2.5 – 5.5	Capacitor	UVLO, ACL, SCL, TSD	No	No	No	-40 to +85	STQFN-16 (1.6 x 2.5)
SLG59M1713V	4 mm^2 load switch with charge pump, ramp control, output discharge, and protection	2	4	0	VDD	2.5 – 5.5	Capacitor	UVLO, ACL, SCL, TSD	No	No	Yes	-40 to +85	STQFN-16 (1.6 x 2.5)
SLG59M1568V	3 mm^2 load switch with charge pump, ramp control, output discharge, and protection	9	7	1	VDD	2.5 – 5.5	Capacitor	ACL, SCL, TSD	No	No	Yes	-40 to +85	STDFN-14 (1.0 x 3.0)
SLG59M1456V	3 mm^2 load switch with charge pump, ramp control, output discharge, and protection	5	8	1	VDD	2.5 – 5.5	Capacitor	ACL, SCL, TSD	No	No	Yes	-20 to +70	TDFN-8 (1.5 x 2.0)
SLG59M1457V	3 mm^2 load switch with charge pump, output discharge, and protection	6	8	0	VDD	2.5 – 5.5	Capacitor	ACL, SCL, TSD	No	No	Yes	-40 to +85	TDFN-8 (1.5 x 2.0)
SLG59M1496V	3 mm^2 load switch with charge pump, ramp control, output discharge, and protection	5	8	0	VDD	2.5 – 5.5	Capacitor	ACL, SCL, TSD	No	No	Yes	-40 to +85	TDFN-8 (1.5 x 2.0)
SLG59M1600V	3 mm^2 load switch with reverse-current blocking, charge pump, ramp control, output discharge, and protection	9	8	0	VDD	2.5 – 5.5	Capacitor	TSD, RCB	No	No	Yes	-40 to +85	STDFN-14 (1.0 x 3.0)
SLG59M1655V	3 mm^2 load switch with reverse-current blocking, charge pump, ramp control and protection	9	8	0	VDD	2.5 – 5.5	Capacitor	TSD, RCB	No	No	No	-40 to +85	STDFN-14 (1.0 x 3.0)

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ULTRA-LOW RDS_{ON} LOAD SWITCH SELECTION GUIDE

Single N-Channel Load Switches (continued)

Part Number	Description	Max I_{DS} (A)	RDS_{ON} (mΩ)	V_D/V_{IN} Min (V)	V_D/V_{IN} Max (V)	Power Supply (V_{DD}) Voltage Range (V)	Output Voltage Slew Rate set by	Protection Features*	Current Monitor Output	Power Good, FAULT indicator	Output Discharge Circuit	Operating Temperature Range, (°C)	Package Size (mm)
SLG59M301V	3 mm² load switch with charge pump, ramp control, output discharge, and protection	4	9	0	VDD	2.5 – 5.5	Capacitor	ACL, SCL, TSD	No	No	Yes	-40 to +85	STDFN-14 (1.0 x 3.0)
SLG59M307V	3 mm² load switch with charge pump, ramp control, and output discharge	4	8	0	VDD	1.5 – 5.5	Capacitor	No	No	No	Yes	-20 to +85	TDFN-8 (1.5 x 2.0)
SLG59M308V	3 mm² load switch with charge pump, ramp control, output discharge, and protection	3	8	1	VDD	2.5 – 5.5	Capacitor	ACL, SCL, TSD	No	No	Yes	-40 to +70	TDFN-8 (1.5 x 2.0)
SLG59M309V	3 mm² load switch with charge pump, ramp control, and protection	4	8	1	VDD	2.5 – 5.5	Capacitor	ACL, SCL, TSD	No	No	No	-40 to +85	TDFN-8 (1.5 x 2.0)
SLG59M1614V	3 mm² load switch with charge pump, ramp control, and output discharge	4	9	0	VDD	2.5 – 5.5	Capacitor	ACL, SCL, TSD	No	No	Yes	-40 to +85	TDFN-8 (1.5 x 2.0)
SLG59M1470V	3 mm² fast turn on, nano-power current consumption load switch	6	10	0	VDD – 1.5 V	3.0 – 5.25	No	No	No	No	Yes	-40 to +85	TDFN-9 (1.5 x 2.0)
SLG59M1707V	4 mm² load switch with charge pump, I_{DS} current monitor output, output discharge, and protection	4	13	0	VDD	2.5 – 5.5	Internally Fixed	UVLO, ACL(R), SCL, TSD	Yes	FAULT	Yes	-40 to +125	STQFN-16 (1.6 x 2.5)
SLG59M1571V	1 mm² low-voltage load switch with reverse-current blocking, charge pump, output discharge, protection, and 4-pin package	1	15	0	2	–	No	TSD, RCB	No	No	Yes	-40 to +85	STDFN-4 (1.0 x 1.0)
SLG59M1714V	4 mm² load switch with reverse-current blocking, charge pump, I_{DS} current monitor output, output discharge, and protection	4	15	0	VDD	2.5 – 5.5	Internally Fixed	UVLO, ACL(R), SCL, TSD, RCB	Yes	FAULT	Yes	-40 to +85	STQFN-16 (1.6 x 2.5)
SLG59M1551V	1 mm² low voltage load switch with charge pump, output discharge, protection, and 4-pin package	2	16	0	2	–	No	TSD	No	No	Yes	-40 to +85	STDFN-4 (1.0 x 1.0)
SLG59M1658V	1.6 mm² load switch with charge pump, ramp control, output discharge, and protection	3	17	0	VDD	2.5 – 5.5	Capacitor	UVLO, ACL, SCL, TSD	No	No	Yes	-40 to +125	STDFN-8 (1.0 x 1.6)
SLG59M1448V	1.6 mm² load switch with charge pump, ramp control, output discharge, and protection	3	17	0	VDD	2.5 – 5.5	Capacitor	ACL, SCL, TSD	No	No	Yes	-40 to +85	STDFN-8 (1.0 x 1.6)
SLG59M1545V	1.6 mm² load switch with charge pump, ramp control, and protection	3	17	0	VDD	2.5 – 5.5	Capacitor	ACL, SCL, TSD	No	No	No	-20 to +70	STDFN-8 (1.0 x 1.6)
SLG59M1598V	1.6 mm² load switch with charge pump, ramp control, output discharge, and protection	3	17	0	VDD	2.5 – 5.5	Capacitor	ACL, SCL, TSD	No	No	Yes	-40 to +85	STDFN-8 (1.0 x 1.6)
SLG59M1746C	0.82 mm² load switch with output discharge	1	18	0	2	2.7 – 3.6	Internally Fixed	No	No	No	Yes	-40 to +85	WLCSP-6L (0.71 x 1.16)
SLG59M1515V	1.6 mm² fast turn on load switch with ramp control, and output discharge	2	20	0	VDD – 1.5 V	2.5 – 5.5	Capacitor	TSD	No	No	Yes	-40 to +85	STDFN-8 (1.0 x 1.6)
SLG59M610V	3 mm² load switch with reverse-current blocking, charge pump, ramp control, output discharge, and protection	4	22	1	VDD	2.5 – 5.5	Capacitor	ACL, SCL, TSD, RCB	No	No	Yes	-40 to +85	TDFN-8 (1.5 x 2.0)
SLG59H1132V	4.8 mm² load switch with pin-selectable V_{IN} overvoltage protection, internal 25W nFET SOA protection, I_{DS} current monitor output, fault, and PG signaling	6	13	4.5	22	–	Capacitor	OVLO, UVLO, ACL(R) SCL, TSD	Yes	PG, FAULT	Yes	-40 to +85	STQN-18 (1.6 x 3.0)

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ULTRA-LOW RDS_{ON} LOAD SWITCH SELECTION GUIDE

Single N-Channel Load Switches (continued)

Part Number	Description	Max I_{DS} (A)	RDS_{ON} (mΩ)	V_D/V_{IN} Min (V)	V_D/V_{IN} Max (V)	Power Supply (V_{DD}) Voltage Range (V)	Output Voltage Slew Rate set by	Protection Features*	Current Monitor Output	Power Good, FAULT indicator	Output Discharge Circuit	Operating Temperature Range, (°C)	Package Size (mm)
SLG59M1563V	1.6 mm² load switch with reverse-current blocking, charge pump, and PG signal output	3	23	1	V_{DD}	1.5 – 5.5	Internally Fixed	TSD, RCB	No	PG	No	-40 to +85	STDFN-8 (1.0 x 1.6)
SLG59M1460V	1.6 mm² fast turn on and nano-power current consumption load switch	2	30	0	V_{DD} - 1.5 V	2.5 – 5.25	No	No	No	No	Yes	-20 to +70	STDFN-8 (1.0 x 1.6)
SLG59M1440V	1 mm² load switch with charge pump, ramp control, output discharge, protection, and 4-pin package	1	40	3	6	–	Resistor	TSD	No	No	Yes	-40 to +85	STDFN-4 (1.0 x 1.0)
SLG59M1495V	1 mm² load switch with charge pump, ramp control, output discharge, protection, and 4-pin package	1	80	3	6	–	Resistor	TSD	No	No	Yes	-20 to +70	STDFN-4 (1.0 x 1.0)
SLG59M1780V	4 mm² load switch with charge pump, ramp control, output discharge, and protection	4	4	0	VDD	2.5 – 5.5	Capacitor	UVLO, ACL, SCL, TSD	No	No	Yes	-40 to +85	STQFN-16 (1.6 x 2.5)

Single P-Channel Load Switches

Part Number	Description	Max I_{DS} (A)	RDS_{ON} (mΩ)	V_D/V_{IN} Min (V)	V_D/V_{IN} Max (V)	Power Supply (V_{DD}) Voltage Range (V)	Output Voltage Slew Rate set by	Protection Features*	Current Monitor Output	Power Good, FAULT indicator	Output Discharge Circuit	Operating Temperature Range, (°C)	Package Size (mm)
SLG59M1649V	1.6 mm² load switch with reverse-current blocking, reverse-voltage detection, and output discharge	4	23	2	6	–	No	UVLO, RCB, RVD	No	FAULT	Yes	-40 to +85	STDFN 8 (1.0 x 1.6)
SLG59M1557V	1 mm² load switch with output discharge	1	29	2	6	–	Internally Fixed	No	No	No	Yes	-40 to +85	STDFN-4 (1.0 x 1.0)
SLG59M1558V	1 mm² load switch without output discharge	1	29	2	6	–	Internally Fixed	No	No	No	No	-40 to +85	STDFN-4 (1.0 x 1.0)
SLG59M1736C	0.64 mm² load switch with controlled inrush current, and output discharge	2	33	3	6	–	No	Fixed ICL	No	No	Yes	-40 to +85	WLCSP-4 (0.8 x 0.8)
SLG59M1730C	0.64 mm² load switch with controlled inrush current, and output discharge	1	33	3	6	–	No	Fixed ICL	No	No	Yes	-40 to +85	WLCSP-4 (0.8 x 0.8)
SLG59M1748C	0.64 mm² load switch with reverse-current blocking, reverse-voltage detection, and ramp control	2	36	2	5	–	Internally Fixed	RCB, RVD	No	No	No	-40 to +85	WLCSP-4 (0.8 x 0.8)

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ULTRA-LOW RDS_{ON} LOAD SWITCH SELECTION GUIDE

Dual N-Channel Load Switches

Part Number	Description	Max I_{DS} (A)	RDS_{ON} (mΩ)	V_D/V_{IN} Min (V)	V_D/V_{IN} Max (V)	Power Supply (V_{DD}) Voltage Range (V)	Output Voltage Slew Rate set by	Protection Features*	Current Monitor Output	Power Good, FAULT indicator	Output Discharge Circuit	Operating Temperature Range, (°C)	Package Size (mm)
SLG59M1804V	3 mm² UL2367-certified, dual-channel load switch with charge pump, ramp control, output discharge, and protection	5	15	0	VDD	2.5 – 5.0	Capacitor	ACL, SCL, TSD	No	No	Yes	-40 to +85	STDFN-14 (1.0 x 3.0)
SLG59M1527V	3 mm² dual-channel load switch with charge pump, ramp control, output discharge, and protection	5	15	0	VDD	2.5 – 5.5	Capacitor	ACL, SCL, TSD	No	No	Yes	-40 to +85	STDFN-14 (1.0 x 3.0)
SLG59M1603V	3 mm² dual-channel load switch with reverse-current blocking, charge pump, ramp control, output discharge, and protection	5	16	0	VDD	2.5 – 5.5	Capacitor	TSD, RCB	No	No	Yes	-40 to +85	STDFN-14 (1.0 x 3.0)
SLG59M1606V	3 mm² dual-channel load switch with reverse-current blocking, charge pump, ramp control, and protection	5	16	0	VDD	2.5 – 5.5	Capacitor	TSD, RCB	No	No	No	-40 to +85	STDFN-14 (1.0 x 3.0)
SLG59M1446V	1 mm² load switch with charge pump, ramp control, output discharge, and 4-pin package	1	40	0	VDD	2.5 – 5.5	Resistor	TSD	No	No	Yes	-40 to +85	STDFN 8 (1.0 x 1.6)
SLG59M1599V	1.6 mm² dual-channel load switch with charge pump, ramp control, and protection	1	40	0	VDD	2.5 – 5.5	Resistor	TSD	No	No	No	-40 to +85	STDFN 8 (1.0 x 1.6)
SLG59M1512V	1.6 mm² dual-channel load switch with charge pump, ramp control, output discharge, and protection	1	80	0	VDD	2.5 – 5.5	Resistor	TSD	No	No	Yes	-40 to +85	STDFN 8 (1.0 x 1.6)

Dual P-Channel Load Switches

Part Number	Description	Max I_{DS} (A)	RDS_{ON} (mΩ)	V_D/V_{IN} Min (V)	V_D/V_{IN} Max (V)	Power Supply (V_{DD}) Voltage Range (V)	Output Voltage Slew Rate set by	Protection Features*	Current Monitor Output	Power Good, FAULT indicator	Output Discharge Circuit	Operating Temperature Range, (°C)	Package Size (mm)
SLG59M1639V	1.6 mm² dual-channel load switch with reverse-current blocking, reverse-voltage detection, and active high ON-OFF control	2	45	2	6	–	No	UVLO, RCB, RVD	No	No	No	-40 to +85	STDFN 8 (1.0 x 1.6)
SLG59M1641V	1.6 mm² dual-channel load switch with reverse-current blocking, reverse-voltage detection, and active low ON-OFF control	2	45	2	6	–	No	UVLO, RCB, RVD	No	No	No	-40 to +85	STDFN 8 (1.0 x 1.6)

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ULTRA-LOW RDS_{ON} LOAD SWITCH SELECTION GUIDE

Reverse-Current Blocking Load Switches

Part Number	Description	Max I_{DS} (A)	RDS_{ON} (mΩ)	V_D/V_{IN} Min (V)	V_D/V_{IN} Max (V)	Power Supply (V_{DD}) Voltage Range (V)	Output Voltage Slew Rate set by	Protection Features*	Current Monitor Output	Power Good, FAULT indicator	Output Discharge Circuit	Operating Temperature Range, (°C)	Package Size (mm)
SLG59M1600V	3 mm² load switch with reverse-current blocking, charge pump, ramp control, output discharge, and protection	9	8	0	VDD	2.5 – 5.5	Capacitor	TSD, RCB	No	No	Yes	-40 to +85	STDFN-14 (1.0 x 3.0)
SLG59M1655V	3 mm² load switch with reverse-current blocking, charge pump, ramp control and protection	9	8	0	VDD	2.5 – 5.5	Capacitor	TSD, RCB	No	No	No	-40 to +85	STDFN-14 (1.0 x 3.0)
SLG59M1571V	1 mm² low-voltage load switch with reverse-current blocking, charge pump, output discharge, protection, and 4-pin package	1	15	0	2	–	No	TSD, RCB	No	No	Yes	-40 to +85	STDFN-4 (1.0 x 1.0)
SLG59M1714V	4 mm² load switch with reverse-current blocking, charge pump, I_{DS} current monitor output, output discharge, and protection	4	15	0	VDD	2.5 – 5.5	Internally Fixed	UVLO, ACL(R), SCL, TSD, RCB	Yes	FAULT	Yes	-40 to +85	STQFN-16 (1.6 x 2.5)
SLG59M1603V	3 mm² dual-channel load switch with reverse-current blocking, charge pump, ramp control, output discharge, and protection	5	16	0	VDD	2.5 – 5.5	Capacitor	TSD, RCB	No	No	Yes	-40 to +85	STDFN-14 (1.0 x 3.0)
SLG59M1606V	3 mm² dual-channel load switch with reverse-current blocking, charge pump, ramp control, and protection	5	16	0	VDD	2.5 – 5.5	Capacitor	TSD, RCB	No	No	No	-40 to +85	STDFN-14 (1.0 x 3.0)
SLG59M610V	3 mm² load switch with reverse-current blocking, charge pump, ramp control, output discharge, and protection	4	22	1	VDD	2.5 – 5.5	Capacitor	ACL, SCL, TSD, RCB	No	No	Yes	-40 to +85	TDFN-8 (1.5 x 2.0)
SLG59M1563V	1.6 mm² load switch with reverse-current blocking, charge pump, and PG signal output	3	23	1	VDD	1.5 – 5.5	Internally Fixed	TSD, RCB	No	PG	No	-40 to +85	STDFN-8 (1.0 x 1.6)
SLG59M1649V	1.6 mm² load switch with reverse-current blocking, reverse-voltage detection, and output discharge	4	23	2	6	–	No	UVLO, RCB, RVD	No	FAULT	Yes	-40 to +85	STDFN 8 (1.0 x 1.6)
SLG59M1748C	0.64 mm² load switch with reverse-current blocking, reverse-voltage detection, and ramp control	2	36	2	5	–	Internally Fixed	RCB, RVD	No	No	No	-40 to +85	WLCSP-4 (0.8 x 0.8)
SLG59M1639V	1.6 mm² dual-channel load switch with reverse-current blocking, reverse-voltage detection, and active high ON-OFF control	2	45	2	6	–	No	UVLO, RCB, RVD	No	No	No	-40 to +85	STDFN 8 (1.0 x 1.6)
SLG59M1641V	1.6 mm² dual-channel load switch with reverse-current blocking, reverse-voltage detection, and active low ON-OFF control	2	45	2	6	–	No	UVLO, RCB, RVD	No	No	No	-40 to +85	STDFN 8 (1.0 x 1.6)

* Notes (Please consult product specifications for additional information):

1. ACL - Internally Fixed Active Current Limit
2. ACL(R) - External resistor-adjustable Active Current Limit
3. SCL - Internally Fixed Short-circuit Current Limit
4. Fixed ICL – Internally Fixed Inrush Current Limit
5. RVD – Reverse-voltage Detection
6. RCB – Reverse-current Blocking
7. TSD – Overtemperature protection (Thermal Shutdown)
8. UVLO – Undervoltage Protection
9. OVLO – Overvoltage protection
10. TVS – Internal Transient Voltage Suppressor

HIGH VOLTAGE GreenFET

HIGH VOLTAGE, HIGH CURRENT, ULTRA LOW RDS_{ON} LOAD SWITCHES SELECTION GUIDE

Renesas' family of high-performance load switches include high-voltage capability for all high-side, 4.5 V to 25.2 V power rail applications up to 6 A. Using Renesas' proprietary MOSFET design, this new family of power control switches achieves ultra-stable and low RDS_{ON} across a wide input voltage range. Combining Renesas' proprietary MOSFET IP and advanced assembly techniques, these products are available in very pcb space-efficient footprints and exhibit low thermal resistance for high-current operation. Compared to discrete FETs currently used in high-voltage applications, Renesas' High Voltage GreenFET products combine high-performance nFET structures, charge pumps, multiple protection, and control circuits into feature-rich products. For products rated to operate over the industrial (-40 °C to 85 °C) or extended industrial temperature (-40 °C to 125 °C) range, these high-voltage load switches are available in low thermal resistance, RoHS-compliant packaging or wafer level chip scale packaging (WLCSP).

Featured Products

Part Number	Description	Max IDS (A)	RDSON (mΩ)	V_D/V_{IN} Min (V)	V_D/V_{IN} Max (V)	Power Supply Voltage Range (V)	Output Voltage Slew Rate set by	Protection Features	Over Current Protection Setting Range (A)	Current Monitor Output	Power Good, FAULT indicator	Output Discharge Circuit	Operating Temperature Range, (°C)	Package Size (mm)
SLG59H1132V	4.8 mm² load switch with pin-selectable V_{IN} overvoltage protection, internal 25W nFET SOA protection, IDS current monitor output, fault and PG signaling	6	13	4.5	22	–	Capacitor	OVLO, UVLO, ACL(R), SCL, TSD	1 – 7	Yes	PG, FAULT	Yes	-40 to +85	STQFN-18 (1.6 x 3.0)
SLG59H1302C	5.04 mm² surge-protected, 28V tolerant USB Type C Power Splitter/Switch with charge pump, LDO and PG signal output	OUT: 6 SYS: 6	OUT: 12 SYS: 24	2.7	13.3	–	No	OVLO, UVLO, TVS, SYS: RCB	–	No	OUT: no SYS: PG	No	-40 to +85	WLCSP-28 (2.98 x 1.69)
SLG59H1313C	2.34 mm² surge-protected, 29V tolerant nFET load switch with Internal 100V TVS and Adjustable OVP in WLCSP	4.5	23	2.5	20	–	No	OVLO, ACL, SCL, TSD, TVS	7	No	PG	No	-40 to +85	WLCSP-12 (1.3 x 1.8)
SLG59H1341C	1.46 mm² load switch with V_{IN} undervoltage protection, V_{OUT} overvoltage protection, reverse-current blocking, reverse-voltage detection, and FLT Output	1.3	70	2.5	5.5	–	No	OVLO, UVLO, RCB, RVD, ACL(R), TSD	0.16 – 1.62	No	FLT	No	-40 to +85	WLCSP-9 (1.21 x 1.21)
SLG59H1342C	1.46 mm² load switch with V_{IN} undervoltage and overvoltage protection, reverse-current blocking, reverse-voltage detection, and FLT Output	1.5	70	2.7	5.5	–	No	OVLO, UVLO, RCB, RVD, ACL(R), TSD	0.16 – 1.81	No	FLT	No	-40 to +85	WLCSP-9 (1.21 x 1.21)
SLG59H1343C	1.46 mm² load switch with V_{IN} undervoltage and overvoltage protection, reverse-current blocking, reverse-voltage detection, and FLT Output	1.5	70	2.7	5.5	–	No	OVLO, UVLO, RCB, RVD, ACL(R), TSD	0.16 – 1.81	No	FLT	No	-40 to +85	WLCSP-9 (1.21 x 1.21)

For PowerMUX Applications

Part Number	Description	Max I_{DS} (A)	RDS_{ON} (mΩ)	V_D/V_{IN} Min (V)	V_D/V_{IN} Max (V)	Power Supply Voltage Range (V)	Output Voltage Slew Rate set by	Protection Features	Over Current Protection Setting Range (A)	Current Monitor Output	Power Good, FAULT indicator	Output Discharge Circuit	Operating Temperature Range, (°C)	Package Size (mm)
SLG59H1401C	3.15 mm² power multiplexer with V_{IN}(1,2) undervoltage protection, resistor-adjustable overvoltage protection, true reverse-current blocking, and channel status indication	3	52	2.8	6	–	Capacitor	OVLO, UVLO, RCB, RVD, ACL(R), SCL, TSD	1.3 – 3.5	No	No	No	-40 to +85	WLCSP-20 (1.585 x 1.985)
SLG59H1403C	3.15 mm² power multiplexer with V_{IN}(1,2) undervoltage protection, resistor-adjustable overvoltage protection, true reverse-current blocking, and channel status indication	3	52	2.8	22	–	Capacitor	OVLO, UVLO, RCB, RVD, ACL(R), SCL, TSD	1.3 – 3.5	No	No	No	-40 to +85	WLCSP-20 (1.585 x 1.985)
SLG59H1405V	5 mm² power multiplexer with V_{IN}(1,2)] undervoltage and overvoltage protection, Channel 1 true reverse-current blocking, and FLAG Output	Channel 1: 3 Channel 2: 1.25	Channel 1: 40 Channel 2: 67	4	Channel 1: 5.5 Channel 2: 13.2	–	Internally Fixed	OVLO, UVLO, RCB, RVD, ACL(R), SCL, TSD	Channel 1: 0.7 – 4.1 Channel 2: 0.5 – 1.9	No	FLAG	Yes	-20 to +85	FC-QFN-12 (2.0 x 2.5)

* Notes (Please consult product specifications for additional information):
1. ACL - Internally Fixed Active Current Limit
2. ACL(R) - External resistor-adjustable Active Current Limit
3. SCL - Internally Fixed Short-circuit Current Limit
4. Fixed ICL – Internally Fixed Inrush Current Limit
5. RVD – Reverse-voltage Detection6. RCB – Reverse-current Blocking
7. TSD – Overtemperature protection (Thermal Shutdown)
8. UVLO – Undervoltage Protection
9. OVLO – Overvoltage protection
10. TVS – Internal Transient Voltage Suppressor

For Applications up to 13.2 V

Part Number	Description	Max I_{DS} (A)	RDS_{ON} (mΩ)	V_D/V_{IN} Min (V)	V_D/V_{IN} Max (V)	Power Supply (V_{DD}) Voltage Range (V)	Output Voltage Slew Rate set by	Protection Features*	Current Monitor Output	Power Good, FAULT indicator	Output Discharge Circuit	Operating Temperature Range, (°C)	Package Size (mm)
SLG59H1127V	4.8 mm² load switch with pin-selectable V_{IN} overvoltage protection, internal 5W nFET SOA protection, and Power Good Output	4	15	5	13	–	Capacitor	OVLO, UVLO, ACL(R), SCL, TSD	No	PG, FAULT	Yes	-40 to +85	STQFN-18 (1.6 x 3.0)
SLG59H1120V	4.8 mm² load switch with pin-selectable V_{IN} overvoltage protection, internal 5W nFET SOA protection, and DS current monitor output	5	18	5	13	–	Capacitor	OVLO, UVLO, ACL(R), SCL, TSD	Yes	FAULT	Yes	-40 to +85	STQFN-18 (1.6 x 3.0)
SLG59H1126V	4.8 mm² load switch with pin-selectable V_{IN} overvoltage protection, internal 5W nFET SOA protection, and I_{DS} current monitor output	6	18	5	13	–	Capacitor	OVLO, UVLO, ACL(R), SCL, TSD	Yes	FAULT	Yes	-40 to +85	STQFN-18 (1.6 x 3.0)

HIGH VOLTAGE GreenFET

HIGH VOLTAGE, HIGH CURRENT, ULTRA LOW RDS_{ON} LOAD SWITCHES SELECTION GUIDE

For Applications up to 25.2 V

Part Number	Description	Max I_{DS} (A)	RDS_{ON} (mΩ)	V_D/V_{IN} Min (V)	V_D/V_{IN} Max (V)	Power Supply (V_{DD}) Voltage Range (V)	Output Voltage Slew Rate set by	Protection Features*	Current Monitor Output	Power Good, FAULT indicator	Output Discharge Circuit	Operating Temperature Range, (°C)	Package Size (mm)
SLG59H1013V	4.8 mm² load switch with pin-selectable VIN lockout protection, internal 5W nFET SOA protection, and I_{DS} current monitor output for enterprise printer/copier applications	4	13	11	25	–	Capacitor	OVLO, UVLO, ACL(R), SCL, TSD	Yes	FAULT	Yes	-40 to +125	STQFN-18 (1.6 x 3.0)
SLG59H1017V	4.8 mm² load switch with pin-selectable VIN lockout protection, internal 10W nFET SOA protection, and I_{DS} current monitor output for enterprise printer/copier applications	4	13	11	25	–	Capacitor	OVLO, UVLO, ACL(R), SCL, TSD	Yes	FAULT	Yes	-40 to +85	STQFN-18 (1.6 x 3.0)
SLG59H1008V	4.8 mm² load switch with pin-selectable VIN lockout protection, internal 5W nFET SOA protection, and I_{DS} current monitor output for enterprise printer/copier applications	4	13	11	25	–	Capacitor	OVLO, UVLO, ACL(R), SCL, TSD	Yes	FAULT	Yes	-40 to +85	STQFN-18 (1.6 x 3.0)
SLG59H1010V	4.8 mm² load switch with pin-selectable VIN lockout protection, internal 5W nFET SOA protection, and I_{DS} current monitor output for enterprise printer/copier applications	5	13	11	25	–	Capacitor	OVLO, UVLO, ACL(R), SCL, TSD	Yes	FAULT	Yes	-40 to +85	STQFN-18 (1.6 x 3.0)
SLG59H1019V	4.8 mm² load switch with VIN OVLO disabled, internal 10W nFET SOA protection, and I_{DS} current monitor output	5	13	5	25	–	Capacitor	UVLO, ACL(R), SCL, TSD	Yes	FAULT	Yes	-40 to +85	STQFN-18 (1.6 x 3.0)
SLG59H1016V	4.8 mm² load switch with pin-selectable VIN overvoltage protection, internal 5W nFET SOA protection, and I_{DS} current monitor output	4	13	5	22	–	Capacitor	OVLO, UVLO, ACL(R), SCL, TSD	Yes	FAULT	Yes	-40 to +125	STQFN-18 (1.6 x 3.0)
SLG59H1009V	4.8 mm² load switch with pin-selectable VIN overvoltage protection, internal 5W nFET SOA protection, and I_{DS} current monitor output	4	13	5	22	–	Capacitor	OVLO, UVLO, ACL(R), SCL, TSD	Yes	FAULT	Yes	-40 to +85	STQFN-18 (1.6 x 3.0)
SLG59H1128V	4.8 mm² load switch with pin-selectable VIN overvoltage protection, internal 10W nFET SOA protection, and I_{DS} current monitor output	5	13	5	22	–	Capacitor	OVLO, UVLO, ACL(R), SCL, TSD	Yes	FAULT	Yes	-40 to +85	STQFN-18 (1.6 x 3.0)
SLG59H1006V	4.8 mm² load switch with pin-selectable VIN overvoltage protection, internal 5W nFET SOA protection, and I_{DS} current monitor output	5	13	5	22	–	Capacitor	OVLO, UVLO, ACL(R), SCL, TSD	Yes	FAULT	Yes	-40 to +85	STQFN-18 (1.6 x 3.0)
SLG59H1012V	4.8 mm² load switch with pin-selectable VIN overvoltage protection, internal 5W nFET SOA protection, and I_{DS} current monitor output	6	13	5	22	–	Capacitor	OVLO, UVLO, ACL(R), SCL, TSD	Yes	FAULT	Yes	-40 to +85	STQFN-18 (1.6 x 3.0)
SLG59H1005V	4.8 mm² back-to-back reverse-current blocking load switch with pin-selectable VIN overvoltage protection, internal 5W nFET SOA protection, and I_{DS} current monitor output	3	50	5	22	–	Capacitor	OVLO, UVLO, ACL(R), SCL, TSD, RCB	Yes	FAULT	No	-40 to +85	STQFN-18 (1.6 x 3.0)
SLG59H1020V	4.8 mm² back-to-back reverse-current blocking load switch with pin-selectable VIN overvoltage protection, internal 5W nFET SOA protection, and I_{DS} current monitor output	3	50	5	20	–	Capacitor	OVLO, ACL(R), SCL, TSD, RCB	Yes	FAULT	No	-40 to +85	STQFN-18 (1.6 x 3.0)

* Notes (Please consult product specifications for additional information):

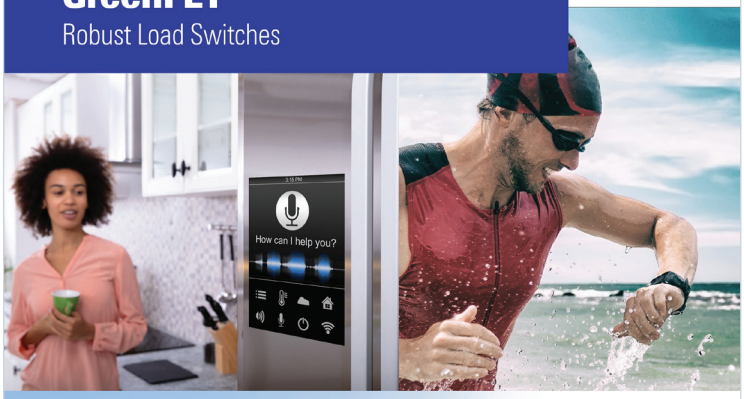
1. ACL - Internally Fixed Active Current Limit
2. ACL(R) - External resistor-adjustable Active Current Limit
3. SCL - Internally Fixed Short-circuit Current Limit
4. Fixed ICL – Internally Fixed Inrush Current Limit
5. RVD – Reverse-voltage Detection
6. RCB – Reverse-current Blocking
7. TSD – Overtemperature protection (Thermal Shutdown)
8. UVLO – Undervoltage Protection
9. OVLO – Overvoltage protection
10. TVS – Internal Transient Voltage Suppressor

GreenFET SELECTION GUIDE

Visit **renesas.com/load-switches** for more details on the complete portfolio of products, including the product guide, eval boards and samples.

RENESAS

GreenFET
Robust Load Switches

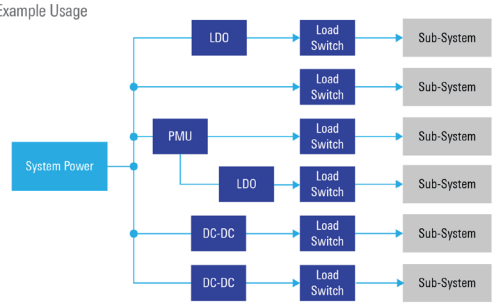




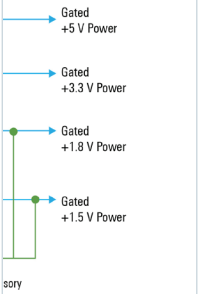
04–05

GreenFET LOAD SWITCH USAGE EXAMPLES

Power Distribution Application
Load Switch Example Usage



Power Control Application



02–03

GreenFET Load Switch Portfolio

GreenFET

- Single-channel nFET & pFET in STDFN & STQFN (1 mm² to 4 mm²)
- Single-channel in WLCSP (1 A to 4 A, 0.56 mm² to 1.5 mm²)
- Dual-channel nFET and pFET in STDFNs (3 mm²)

Operating input voltage range

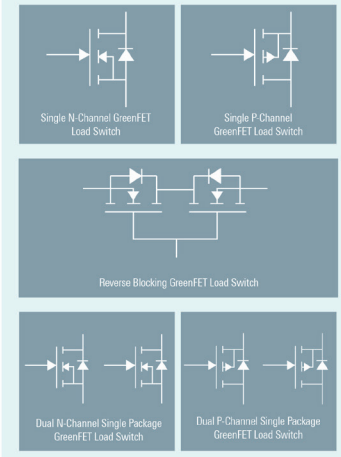
- Maximum V_{DD} Voltage Ranges: 2 V, 3.6 V & 5.5 V
- FET V_{IN} Range: 0.25 V to V_{DD}
- RD_{SON} Range: 4 mΩ to 45 mΩ
- I_{DS} Current Range: 1 A to 9 A
- UL2367 Current-Limiter Certified (select parts)

High voltage GreenFET

- Single-channel (2.3 mm² to 5 mm²)
- Power-supply/FET Input Voltage Ranges: 4.5 V to 25.2 V
- RD_{SON} Range: 13.3 mΩ to 50 mΩ
- IDS Current Range: 3 A to 6 A
- WLCSP for Space-Constrained Applications
- UL2367 Current-Limiter Certified (select parts)

High Side Gate Drivers

- N-Channel MOSFET Drivers



GreenFET products combine high-performance nFET or pFET structures, high current handling capability, charge pumps, as well as multiple protection and control circuits into space-efficient single- and dual-channel products.

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