

Dialog's GFET3 family of high-performance integrated power 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 Dialog's proprietary MOSFET design, all GFET3 integrated power switches achieve ultra-stable R_{DS(on)} across wide input and supply voltage ranges. Combining Dialog's proprietary MOSFET IP and advanced assembly techniques, these advanced state-of-the-art products are available in ultra-small pcb footprints from 0.56 mm² to 4 mm² and exhibit low thermal resistances for high-current operation.

Compared to discrete FET circuit implementations, Dialog's GFET3 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 Dialog's GFET3 low-voltage integrated power 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, Dialog 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 GFET3 family of high-performance, integrated power control products include:

- High-performance Low R_{DS(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 Switch or Back-to-Back FETs
 - Reverse-voltage Detection (selected part numbers)
 - Fast VOUT Discharge (VOUT Discharge delete options available)
- Active HIGH ON-OFF Control (Active-LOW ON-OFF control available)
- Open-drain $\overline{\text{FAULT}}$ 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 Integrated Power Switches

Part Number	Description	Cont. IDS (A)	R _{DS(on)} (mΩ)	VDDI (V)	VDDh (V)	VD/VIN Min (V)	VD/VIN Max (V)	External Ramp Control	Protection Features*	Discharge Circuit	Package Size (mm)
SLG59M1717V	A 4 mm ² , 5 A nFET integrated power switch with 0.8 V to VDD input range, multiple protection features, fast VOUT discharge, and open-drain Power Good output signaling	5	4	2.5	5.5	0.8	VDD	Capacitor	CL (R), TSD, UVLO	Yes	1.6 x 2.5 x 0.55
SLG59M1709V	A 4 mm ² , 4 A nFET power control switch with 0.8 V to VDD input range and multiple protection features	4	4	2.5	5.5	0.8	VDD	Capacitor	Fixed CL, TSD, UVLO	No	1.6 x 2.5 x 0.55
SLG59M1710V	A 4 mm ² , 2 A nFET power control switch with 0.8 V to VDD input range and multiple protection features	2	4	2.5	5.5	0.8	VDD	Capacitor	Fixed CL, TSD, UVLO	No	1.6 x 2.5 x 0.55
SLG59M1713V	A 4 mm ² , 2 A nFET power control switch with 0.8 V to VDD input range, multiple protection features, and fast VOUT discharge	2	4	2.5	5.5	0.8	VDD	Capacitor	Fixed CL, TSD, UVLO	Yes	1.6 x 2.5 x 0.55
SLG59M1568V	A 3 mm ² , 9 A nFET power switch with charge pump, ramp control, output discharge, and protection	9	7.3	2.5	5.5	1.0	VDD	Capacitor	Fixed CL, TSD	Yes	1.0 x 3.0 x 0.55
SLG59M1456V	A 3 mm ² integrated power switch with charge pump, ramp control, output discharge, and protection	5	7.8	2.5	5.5	1.0	VDD	Capacitor	Fixed CL, TSD	Yes	1.5 x 2.0 x 0.75
SLG59M1457V	Ultra-small 7.8 mΩ, 6 A 3 mm ² power switch with 0.85 VD, discharge, and two-level current-limit	6	7.8	2.5	5.5	0.85	VDD	Capacitor	Fixed CL, TSD	Yes	1.5 x 2.0 x 0.75
SLG59M1496V	A 3 mm ² integrated power switch with charge pump, 0.85 VD, ramp control, output discharge, and protection	5.3	7.8	2.5	5.5	0.85	VDD	Capacitor	Fixed CL, TSD	Yes	1.5 x 2.0 x 0.75
SLG59M1600V	A 3 mm ² , 9 A reverse-current blocking nFET power switch with charge pump, 0.85 VD, ramp control, output discharge, and protection	9	7.8	2.5	5.5	0.85	VDD	Capacitor	RCB, TSD, UVLO	Yes	1.0 x 3.0 x 0.55
SLG59M1655V	A 3 mm ² , 9 A reverse-current blocking nFET power switch with charge pump, 0.85 VD, ramp control, and circuit protection	9	7.8	2.5	5.5	0.85	VDD	Capacitor	RCB, TSD	No	1.0 x 3.0 x 0.55
SLG59M301V	A 3 mm ² integrated power switch with charge pump, ramp control, output discharge, and protection	4	7.8	2.5	5.5	1.0	VDD	Capacitor	Fixed CL, TSD	Yes	1.5 x 2.0 x 0.75
SLG59M307V	A 3 mm ² integrated power switch with charge pump, 0.85 VD, ramp control, and output discharge	4	7.8	1.5	5.5	0.85	VDD	Capacitor	No	Yes	1.5 x 2.0 x 0.75
SLG59M308V	A 3 mm ² integrated power switch with charge pump, ramp control, output discharge, and protection	3	7.8	2.5	5.5	1.0	VDD	Capacitor	Fixed CL, TSD	Yes	1.5 x 2.0 x 0.75
SLG59M309V	A 3 mm ² integrated power switch with charge pump, ramp control, and protection	4	7.8	2.5	5.5	1.0	VDD	Capacitor	Fixed CL, TSD	No	1.5 x 2.0 x 0.75
SLG59M1657V	A 3 mm ² , 125 °C-rated, 4 A integrated power switch with 0.9 V to VDD input range, adjustable ramp control, and multiple protection features	4	8.4	2.5	5.5	0.9	VDD	Capacitor	CL, TSD	No	1.5 x 2.0 x 0.75
SLG59M1614V	A 3 mm ² integrated power switch with charge pump, 0.85 VD, ramp control, and output discharge	4	8.5	2.5	5.5	0.85	VDD	Capacitor	Fixed CL, TSD	Yes	1.5 x 2.0 x 0.75
SLG59M1470V	NanopowerFET™ : A 3 mm ² fast turn on, 0.85 VD nano-power consumption power switch	6	9.8	3.0	5.25	0.85	VDD - 1.5 V	No	No	Yes	1.5 x 2.0 x 0.75
SLG59M1685C	A Low Power, 10 mΩ, 2 A, 0.82 mm ² WLCSP Integrated Power Switch with Multiple Protection Features	2	10	1.3	3.6	1.3	VDD	Internally Fixed	Fixed CL, TSD, UVLO	Yes	0.71 x 1.16 x 0.4
SLG59M1735C	A 10.5 mΩ, 4 A nFET IPS with Soft-start and Protection Features in a 1.5 mm ² WLCSP	4	10.5	2.5	5.5	0.9	VDD	Capacitor	Fixed CL, TSD	No	0.96 x 1.56 x 0.4
SLG59M1707V	A 4 mm ² , 125 °C-rated, 4 A Integrated Power Switch with Analog Current Monitor Output, and open-drain FAULT signaling output	3.5	13	2.5	5.5	0.8	VDD	Internally Fixed	CL (R), TSD, UVLO, IOUT	Yes	1.6 x 2.5 x 0.55

Single N-Channel Integrated Power Switches (continued)

Part Number	Description	Cont. IDS (A)	R _{DS(on)} (mΩ)	VDDI (V)	VDDh (V)	VD/VIN Min (V)	VD/VIN Max (V)	External Ramp Control	Protection Features	Discharge Circuit	Package Size (mm)
SLG59M1571V	A 1 mm ² , low-voltage, 0.85 VD, reverse-current blocking power switch with charge pump, output discharge and protection, and 4-pin package	1	14.6	-	-	0.85	1.9	No	RCB, TSD	Yes	1.0 x 1.0 x 0.55
SLG59M1714V	A 4 mm ² , 4 A back-to-back nFET reverse-current blocking power control switch with Analog current-monitor output, fast VOUT discharge, and open-drain FAULT signaling output	4	15	2.5	5.5	0.8	VDD	Internally Fixed	CL (R), TSD, RCB, UVLO, IOUT	Yes	1.6 x 2.5 x 0.55
SLG59M1551V	A 1 mm ² , low voltage power switch with charge pump, 0.85 VD, output discharge, protection, and 4-pin package	2	15.5	-	-	0.85	1.9	No	TSD	Yes	1.0 x 1.0 x 0.55
SLG59M1556V	A 1 mm ² , low voltage power switch with charge pump, 0.85 VD, protection, and 4-pin package	2	15.5	-	-	0.85	1.9	No	TSD	No	1.0 x 1.0 x 0.55
SLG59M1658V	A 1.6 mm ² , 125 °C-rated, 2.5 A integrated power switch 0.9 V to VDD input range, adjustable ramp control, fast VOUT discharge, and multiple protection features	2.5	17	2.5	5.5	0.9	VDD	Capacitor	Fixed CL, TSD, UVLO	Yes	1.0 x 1.6 x 0.55
SLG59M1448V	A 1.6 mm ² integrated power switch with charge pump, 0.9 VD, ramp control, output discharge, and protection	2.5	17	2.5	5.5	0.9	VDD	Capacitor	Fixed CL, TSD	Yes	1.0 x 1.6 x 0.55
SLG59M1545V	A 1.6 mm ² integrated power switch with charge pump, 0.85 VD, ramp control, and protection	2.5	17	2.5	5.5	0.85	VDD	Capacitor	Fixed CL, TSD	No	1.0 x 1.6 x 0.55
SLG59M1598V	A 1.6 mm ² integrated power switch with charge pump, 0.85 VD, ramp control, output discharge, and protection	2.5	17	2.5	5.5	0.85	VDD	Capacitor	Fixed CL, TSD	Yes	1.0 x 1.6 x 0.55
SLG59M1746C	A 0.82 mm ² WLCSP, 17.6 mΩ, 1 A Integrated Power Switch with Controlled Inrush Current and Fast VOUT Discharge	1	17.6	2.7	3.6	0.25	1.5	Internally Fixed	No	Yes	0.71 x 1.16 x 0.4
SLG59M1742C	A 0.82 mm ² WLCSP, 18 mΩ, 1 A Integrated Power Switch with 550 μs Total Turn-on Time	1	18	2.7	3.6	0.25	1.5	No	No	Yes	0.71 x 1.16 x 0.4
SLG59M1720V	A 1.4 mm ² , 18 mΩ, 2 A Integrated Power Switch with VS Slew-rate Control, Current-Limiting, and Thermal Protection	2	18	2.5	3.6	0.85	VDD	Capacitor	Fixed CL, TSD	Yes	1.0 x 1.4 x 0.55
SLG59M1721V	A 1.4 mm ² , 18 mΩ, 2 A Integrated Power Switch with VS Slew-rate Control, Current-Limiting, and Thermal Protection	2	18	2.5	3.6	0.85	VDD	Capacitor	Fixed CL, TSD	No	1.0 x 1.4 x 0.55
SLG59M1515V	A 1.6 mm ² fast turn on power switch with charge pump, 0.85 VD, ramp control, and output discharge	2	20	2.5	5.5	0.85	VDD - 1.5 V	Capacitor	TSD	Yes	1.0 x 1.6 x 0.55
SLG59M610V	Single 3 mm ² power switch with reverse-current blocking, charge pump, ramp control, output discharge, and protection	4	22	2.5	5.5	1.0	VDD	Capacitor	Fixed CL, TSD, RCB	Yes	1.5 x 2.0 x 0.75
SLG59M611V	Single 3 mm ² power switch with reverse-current blocking, charge pump, ramp control, and protection	4	22	2.5	5.5	1.0	VDD	Capacitor	Fixed CL, TSD, RCB	No	1.5 x 2.0 x 0.75
SLG59M1563V	Single 1.6 mm ² power switch with reverse-current blocking, charge pump, and PG signal output	2.5	22.5	1.5	5.5	1.0	VDD	No	TSD, RCB	No	1.0 x 1.6 x 0.55
SLG59M1460V	NanopowerFET™ : A 1.6 mm ² fast turn on and nano-power consumption power switch	2	30	2.5	5.25	0.85	VDD - 1.5 V	No	No	Yes	1.0 x 1.6 x 0.55
SLG59M1466V	A 1 mm ² power switch with charge pump, fixed ramp control, output discharge, and 4-pin package	1	40	-	-	2.5	5.5	Internally Fixed	No	Yes	1.0 x 1.0 x 0.55
SLG59M1442V	A 1 mm ² power switch with charge pump, ramp control, protection, and 4-pin package	1	40	-	-	2.5	5.5	Resistor	TSD	No	1.0 x 1.0 x 0.55

Single N-Channel Integrated Power Switches (continued)

Part Number	Description	Cont. IDS (A)	$R_{DS(on)}$ (mΩ)	VDDI (V)	VDDh (V)	VD/VIN Min (V)	VD/VIN Max (V)	External Ramp Control	Protection Features	Discharge Circuit	Package Size (mm)
SLG59M1440V	A 1 mm ² power switch with charge pump, ramp control, output discharge, protection, and 4-pin package	1	40	-	-	2.5	5.5	Resistor	TSD	Yes	1.0 x 1.0 x 0.55
SLG59M1495V	A 1 mm ² power switch with charge pump, ramp control, output discharge, protection, and 4-pin package	1	80	-	-	2.5	5.5	Resistor	TSD	Yes	1.0 x 1.0 x 0.55

Single P-Channel Integrated Power Switches

Part Number	Description	Cont. IDS (A)	$R_{DS(on)}$ (mΩ)	VDDI (V)	VDDh (V)	VD/VIN Min (V)	VD/VIN Max (V)	External Ramp Control	Protection Features	Discharge Circuit	Package Size (mm)
SLG59M1693C	An ultra-low power, 2 V, 15.8 mΩ, 1.0 A pFET Integrated Power Switch with Discharge in a 0.56 mm ² WLCSP	1.0	17.4	-	-	0.8	2.0	Internally Fixed	-	Yes	0.75 x 0.75 x 0.4
SLG59M1649V	A 1.6 mm ² , 23 mΩ, 4 A Power Switch with reverse-current blocking, reverse-voltage detection, VOUT discharge, and Active HIGH ON-OFF Control	4	23	-	-	1.5	5.5	No	RCB, RVD, UVLO	Yes	1.0 x 1.6 x 0.55
SLG59M1557V	A 1 mm ² power switch with output discharge	1	28.5	-	-	1.5	5.5	Internally Fixed	No	Yes	1.0 x 1.0 x 0.55
SLG59M1558V	A 1 mm ² power switch without output discharge	1	28.5	-	-	1.5	5.5	Internally Fixed	No	No	1.0 x 1.0 x 0.55
SLG59M1736C	A 33 mΩ, 2.2 A pFET IPS with Controlled Inrush Current in a 0.64 mm ² WLCSP	2.2	33	-	-	2.5	5.5	No	Fixed IIN	Yes	0.8 x 0.8 x 0.4
SLG59M1730C	A 33 mΩ, 1 A pFET IPS with Controlled Inrush Current in a 0.64 mm ² WLCSP	1	33	-	-	2.5	5.5	No	Fixed IIN	Yes	0.8 x 0.8 x 0.4
SLG59M1748C	A reverse-current blocking, reverse-voltage detection, 35-mΩ, 2.2-A pFET IPS in a 0.64 mm ² WLCSP	2.2	36	-	-	1.6	5	Internally Fixed	RCB, RVD	Yes	0.8 x 0.8 x 0.4

Dual N-Channel Integrated Power Switches

Part Number	Description	Cont. IDS (A)	$R_{DS(on)}$ (mΩ)	VDDI (V)	VDDh (V)	VD/VIN Min (V)	VD/VIN Max (V)	External Ramp Control	Protection Features	Discharge Circuit	Package Size (mm)
SLG59M1804V	A single 3 mm ² , 8.5 mΩ A dual-channel power switch with charge pump, ramp control, output discharge, and protection, UL2367 Certified	4.5	14.5	2.5	5.0	0.9	VDD	Capacitor	Fixed CL, TSD	Yes	1.0 x 3.0 x 0.55
SLG59M1527V	In a single 3 mm ² package, a 9 A dual-channel power switch with charge pump, ramp control, output discharge, and protection	4.5	14.5	2.5	5.5	0.9	VDD	Capacitor	Fixed CL, TSD	Yes	1.0 x 3.0 x 0.55
SLG59M1603V	In a single 3 mm ² package, a 9 A dual-channel reverse-current blocking power switch with charge pump, 0.85 VD, ramp control, output discharge, and protection	4.5	16	2.5	5.5	0.85	VDD	Capacitor	RCB, TSD	Yes	1.0 x 3.0 x 0.55
SLG59M1606V	In a single 3 mm ² package, a 9 A dual-channel reverse-current blocking power switch with charge pump, ramp control, and protection	4.5	16	2.5	5.5	0.85	VDD	Capacitor	RCB, TSD	No	1.0 x 3.0 x 0.55

Dual N-Channel Integrated Power Switches (continued)

Part Number	Description	Cont. IDS (A)	$R_{DS(on)}$ (mΩ)	VDDI (V)	VDDh (V)	VD/VIN Min (V)	VD/VIN Max (V)	External Ramp Control	Protection Features	Discharge Circuit	Package Size (mm)
SLG59M1612V	In a single 3 mm ² package, a 9 A dual-channel reverse-current blocking power switch with charge pump, ramp control, one-channel output discharge, and protection	4.5	16	2.5	5.5	1.0	VDD	Capacitor	RCB, TSD	CH1: Yes CH2: No	1.0 x 3.0 x 0.55
SLG59M1446V	In a single 1.6 mm ² package, a 2 A dual-channel power switch with charge pump, 0.85 VD, ramp control, output discharge, and protection	1	40	2.5	5.5	0.85	VDD	Resistor	TSD	Yes	1.0 x 1.6 x 0.55
SLG59M1599V	In a single 1.6 mm ² package, a 2 A dual-channel power switch with charge pump, ramp control, and protection	1	40	2.5	5.5	0.85	VDD	Resistor	TSD	No	1.0 x 1.6 x 0.55
SLG59M1512V	In a single 1.6 mm ² package, a 2 A dual-channel power switch with charge pump, 0.85 VD, ramp control, output discharge, and protection	1	80	2.5	5.5	0.85	VDD	Resistor	TSD	Yes	1.0 x 1.6 x 0.55

Dual P-Channel Integrated Power Switches

Part Number	Description	Cont. IDS (A)	$R_{DS(on)}$ (mΩ)	VDDI (V)	VDDh (V)	VD/VIN Min (V)	VD/VIN Max (V)	External Ramp Control	Protection Features	Discharge Circuit	Package Size (mm)
SLG59M1638V	A 1.6 mm ² , Dual-channel 45 mΩ, 2 A Power Switch with reverse-current blocking, reverse-voltage detection, VOUT discharge, and Active HIGH ON-OFF Control	2	45	-	-	1.5	5.5	No	RCB, RVD, UVLO	Yes	1.0 x 1.6 x 0.55
SLG59M1639V	A 1.6 mm ² , Dual-channel 45 mΩ, 2 A Power Switch with reverse-current blocking, reverse-voltage detection and Active HIGH ON-OFF Control	2	45	-	-	1.5	5.5	No	RCB, RVD, UVLO	No	1.0 x 1.6 x 0.55
SLG59M1640V	A 1.6 mm ² , Dual-channel 45 mΩ, 2 A Power Switch with reverse-current blocking, reverse-voltage detection, VOUT discharge, and Active LOW ON-OFF Control	2	45	-	-	1.5	5.5	No	RCB, RVD, UVLO	Yes	1.0 x 1.6 x 0.55
SLG59M1641V	A 1.6 mm ² , Dual-channel 45 mΩ, 2 A Power Switch with reverse-current blocking, reverse-voltage detection and Active LOW ON-OFF Control	2	45	-	-	1.5	5.5	No	RCB, RVD, UVLO	No	1.0 x 1.6 x 0.55

Reverse-Current Blocking Integrated Power Switches

Part Number	Description	Cont. IDS (A)	$R_{DS(on)}$ (mΩ)	VDDI (V)	VDDh (V)	VD/VIN Min (V)	VD/VIN Max (V)	External Ramp Control	Protection Features	Discharge Circuit	Package Size (mm)
SLG59M1600V	A 3 mm ² , 9 A reverse-current blocking nFET power switch with charge pump, 0.85 VD, ramp control, output discharge, and protection	9	7.8	2.5	5.5	0.85	VDD	Capacitor	RCB, TSD	Yes	1.0 x 3.0 x 0.55
SLG59M1655V	A 3 mm ² , 9 A reverse-current blocking nFET power switch with charge pump, 0.85 VD, ramp control, and circuit protection	9	7.8	2.5	5.5	0.85	VDD	Capacitor	RCB, TSD	No	1.0 x 3.0 x 0.55

Reverse-Current Blocking Integrated Power Switches (continued)

Part Number	Description	Cont. IDS (A)	R _{DS(on)} (mΩ)	VDDI (V)	VDDh (V)	VD/IN Min (V)	VD/IN Max (V)	External Ramp Control	Protection Features	Discharge Circuit	Package Size (mm)
SLG59M1571V	A 1 mm ² , low-voltage, 0.85 VD, reverse-current blocking power switch with charge pump, output discharge, protection, and 4-pin package	1	14.6	-	-	0.85	1.9	No	RCB, TSD	Yes	1.0 x 1.0 x 0.55
SLG59M1714V	A 4 mm ² , 4 A back-to-back nFET reverse-current blocking power control switch with Analog current-monitor output, fast VOUT discharge, and open-drain FAULT signaling output	4	15	2.5	5.5	0.8	VDD	Internally Fixed	CL (R), RCB, TSD, UVLO, IOU	Yes	1.6 x 2.5 x 0.55
SLG59M1603V	In a single 3 mm ² package, a 9 A dual-channel reverse-current blocking power switch with charge pump, 0.85 VD, ramp control, output discharge, and protection	4.5	16	2.5	5.5	0.85	VDD	Capacitor	RCB, TSD	Yes	1.0 x 3.0 x 0.55
SLG59M1606V	In a single 3 mm ² package, a 9 A dual-channel reverse-current blocking power switch with charge pump, ramp control, and protection	4.5	16	2.5	5.5	0.85	VDD	Capacitor	RCB, TSD	No	1.0 x 3.0 x 0.55
SLG59M1612V	In a single 3 mm ² package, a 9 A dual-channel reverse-current blocking power switch with charge pump, ramp control, one-channel output discharge, and protection	4.5	16	2.5	5.5	1.0	VDD	Capacitor	RCB, TSD	CH1: Yes CH2: No	1.0 x 3.0 x 0.55
SLG59M610V	Single 3 mm ² power switch with reverse-current blocking, charge pump, ramp control, output discharge, and protection	4	22	2.5	5.5	1.0	VDD	Capacitor	Fixed CL, RCB, TSD	Yes	1.5 x 2.0 x 0.75
SLG59M611V	Single 3 mm ² power switch with reverse-current blocking, charge pump, ramp control, and protection	4	22	2.5	5.5	1.0	VDD	Capacitor	Fixed CL, RCB, TSD	No	1.5 x 2.0 x 0.75
SLG59M1563V	Single 1.6 mm ² power switch with reverse-current blocking, charge pump, and PG signal output	2.5	22.5	1.5	5.5	1.0	VDD	No	RCB, TSD	No	1.0 x 1.6 x 0.55
SLG59M1649V	A 1.6 mm ² , 23 mΩ, 4 A Power Switch with reverse-current blocking, reverse-voltage detection, VOUT discharge, and Active HIGH ON-OFF Control	4	23	-	-	1.5	5.5	No	RCB, RVD, UVLO	Yes	1.0 x 1.6 x 0.55
SLG59M1748C	A reverse-current blocking, reverse-voltage detection, 35-mΩ, 2.2-A pFET IPS in a 0.64 mm ² WLCSP	2.2	35	-	-	1.6	5	Internally Fixed	RCB, RVD	Yes	0.8 x 0.8 x 0.4
SLG59M1639V	A 1.6 mm ² , Dual-channel 45 mΩ, 2 A Power Switch with reverse-current blocking, reverse-voltage detection and Active HIGH ON-OFF Control	2	45	-	-	1.5	5.5	No	RCB, RVD, UVLO	No	1.0 x 1.6 x 0.55
SLG59M1641V	A 1.6 mm ² , Dual-channel 45 mΩ, 2 A Power Switch with reverse-current blocking, reverse-voltage detection and Active LOW ON-OFF Control	2	45	-	-	1.5	5.5	No	RCB, RVD, UVLO	No	1.0 x 1.6 x 0.55
SLG59M1638V	A 1.6 mm ² , Dual-channel 45 mΩ, 2 A Power Switch with reverse-current blocking, reverse-voltage detection, VOUT discharge, and Active HIGH ON-OFF Control	2	45	-	-	1.5	5.5	No	RCB, RVD, UVLO	Yes	1.0 x 1.6 x 0.55
SLG59M1640V	A 1.6 mm ² , Dual-channel 45 mΩ, 2 A Power Switch with reverse-current blocking, reverse-voltage detection, VOUT discharge, and Active LOW ON-OFF Control	2	45	-	-	1.5	5.5	No	RCB, RVD, UVLO	Yes	1.0 x 1.6 x 0.55

Notebook PC Reference Design Integrated Power Switches

Part Number	Description	Cont. IDS (A)	$R_{DS(ON)}$ (m Ω)	VDDI (V)	VDDh (V)	VD/VIN Min (V)	VD/VIN Max (V)	External Ramp Control	Protection Features	Discharge Circuit	Package Size (mm)
SLG5NT1533V	A 1.6 mm ² fast turn on power switch with charge pump, 0.85 VD, ramp control, and output discharge for 1 V processor power control	2	20	2.5	5.25	0.85	VDD - 1.5V	Capacitor	No	Yes	1.0 x 1.6 x 0.55
SLG5NT1477V	NanopowerFET™: A 3 mm ² fast turn on, 0.85 VD nano-power consumption power switch	6	9.8	3.0	5.25	0.85	VDD - 1.5V	No	No	Yes	1.5 x 2.0 x 0.75

* Notes:

1 Fixed CL – Two-stage Current-limit:

- a) Internally Fixed Active Current Limit and
- b) Internally Fixed Short-circuit Current Protection

2. CL(R)-Two-stage Current-limit:

- a) External resistor-adjustable Active Current Limit and
- b) Internally Fixed Short-circuit Current Protection

 3. Fixed I_{IN} – Fixed V_{IN} Inrush Current

4. RVD – Reverse-voltage Detection

5. RCB – Reverse-current Blocking

6. TSD – For those 85 °C-rated products with thermal shutdown protection, the threshold is set at 125 °C with 25 °C hysteresis. For 125 °C-rated products, thermal shutdown threshold is set at 150 °C with 20 °C hysteresis. All products automatically attempt a restart operation when die temperature cools.

7. UVLO - Undervoltage Lockout Protection

8. OVP - Overvoltage Lockout Protection

9. IOUT - Analog MOSFET Current Monitor Output

10. TVS - Internal Transient Voltage Suppressor



High-voltage, High-current, Ultra Low R_{DS(on)} Integrated Power Control Switches Selector Guide

Dialog's family of high-performance integrated power switches include high-voltage capability for all high-side, 4.5 V to 24 V power rail applications up to 6 A. Using Dialog's proprietary MOSFET design, this new family of power control switches achieves ultra-stable and low R_{DS(on)} across a wide input voltage range. Combining Dialog's 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, Dialog's HFET1 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 integrated power control switches are available in low thermal resistance, RoHS-compliant packaging or wafer level chip scale packaging (WLCSP).

Featured Products

Part Number	Description	Configuration In:Out	Max I _{DS} (A)	R _{DS(on)} (mΩ)	VBUS Min (V)	VBUS Max (V)	Protection Features*	Package Size (mm)
SLG59H1302C	A surge-protected, 28V tolerant USB Type C Power Splitter/Switch in WLCSP	1:2 In: VBUS Out1: VOUT Out2: VSYS	VOUT: 6 VSYS: 6	VOUT: 12 VSYS: 24	2.5	13.3	TVS, UVLO, OVP, TSD, RCB (VSYS)	WLCSP-28 (2.98 x 1.69 mm)
SLG59H1313C	A surge-protected, 29V tolerant nFET Integrated Power Switch with Internal 100V TVS and Adjustable OVP in WLCSP	1:1	4.5	23	2.5	20	TVS, OVP, OCP, TSD	WLCSP-12 (1.3 x 1.8 mm)

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

1. CL – Two-stage Current-limit:
 - a) External resistor-programmable Active Current Limit and
 - b) Fixed Internal Short-circuit Current Protection
2. TVS - Internal Transient Voltage Suppressor
3. UVLO - Undervoltage Lockout Protection
4. OVP - Overvoltage Lockout Protection
5. OCP - Overcurrent Protection
6. RCB - Reverse-current blocking
7. TSD - Thermal shutdown protection

For Applications up to 13.2 V

Part Number	Description	Max I _{DS} (A)	R _{DS(on)} (mΩ)	VIN Min (V)	VIN Max (V)	VOUT Slew-rate Control	Protection Features ¹	VOUT Discharge Circuit	Package Type
SLG59H1120V	A 4.8 mm ² power control switch with pin-selectable VIN overvoltage protection, internal 5W nFET SOA protection, and I _{DS} Current-Monitor Output	5	18	4.5	13.2	Capacitor	CL, TSD, UVLO, OVP, IOU	Yes	STQFN-18 (1.6 x 3.0 mm)
SLG59H1126V	A 4.8 mm ² power control switch with pin-selectable VIN overvoltage protection, internal 5W nFET SOA protection, open-drain FAULT signaling, and I _{DS} Current-Monitor Output	6	18	4.5	13.2	Capacitor	CL, TSD, UVLO, OVP, IOU	Yes	STQFN-18 (1.6 x 3.0 mm)

High-voltage, High-current, Ultra Low $R_{DS(on)}$ Integrated Power Control Switches Selector Guide

For Applications up to 13.2 V (continued)

Part Number	Description	Max I_{DS} (A)	$R_{DS(on)}$ (m Ω)	VIN Min (V)	VIN Max (V)	VOUT Slew-rate Control	Protection Features ¹	VOUT Discharge Circuit	Package Type
SLG59H1127V	A 4.8 mm ² power control switch with pin-selectable VIN overvoltage protection, internal 5W nFET SOA protection, and Power Good Output	4	15	4.5	13.2	Capacitor	CL, TSD, UVLO, OVP	Yes	STQFN-18 (1.6 x 3.0 mm)

For Applications up to 25.2 V

Part Number	Description	Max I_{DS} (A)	$R_{DS(on)}$ (m Ω)	VIN Min (V)	VIN Max (V)	VOUT Slew-rate Control	Protection Features ¹	VOUT Discharge Circuit	Package Type	UL Certified
SLG59H1005V	A 4.8 mm ² back-to-back reverse-current blocking power control switch with pin-selectable VIN overvoltage protection, internal 5W nFET SOA protection, and I_{DS} Current Monitor Output	3	50	4.5	22	Capacitor	RCB, CL, TSD, UVLO, OVP, IOU	No	STQFN-18 (1.6 x 3.0 mm)	
SLG59H1006V	A 4.8 mm ² power control switch with pin-selectable VIN overvoltage protection, internal 5W nFET SOA protection, and I_{DS} Current Monitor Output	5	13.1	4.5	22	Capacitor	CL, TSD, UVLO, OVP, IOU	Yes	STQFN-18 (1.6 x 3.0 mm)	
SLG59H1007V	A 4.8 mm ² power control switch with pin-selectable VIN overvoltage protection, internal 5W nFET SOA protection, and load-power monitor output	5	13.3	4.5	22	Capacitor	CL, TSD, UVLO, OVP, POUT	Yes	STQFN-18 (1.6 x 3.0 mm)	
SLG59H1008V	A 4.8 mm ² power control switch with pin-selectable VIN lockout protection, internal 5W nFET SOA protection, and I_{DS} Current Monitor Output for enterprise printer/copier applications	4	13.3	10.8	25.2	Capacitor	CL, TSD, UVLO, OVP, IOU	Yes	STQFN-18 (1.6 x 3.0 mm)	Pending
SLG59H1009V	A 4.8 mm ² power control switch with pin-selectable VIN overvoltage protection, internal 5W nFET SOA protection, and I_{DS} Current Monitor Output	4	13.1	4.5	22	Capacitor	CL, TSD, UVLO, OVP, IOU	Yes	STQFN-18 (1.6 x 3.0 mm)	UL2367
SLG59H1010V	A 4.8 mm ² power control switch with pin-selectable VIN lockout protection, internal 5W nFET SOA protection, and I_{DS} Current Monitor Output for enterprise printer/copier applications	5	13.3	10.8	25.2	Capacitor	CL, TSD, UVLO, OVP, IOU	Yes	STQFN-18 (1.6 x 3.0 mm)	
SLG59H1012V	A 4.8 mm ² power control switch with pin-selectable VIN overvoltage protection, internal 5W nFET SOA protection, and I_{DS} Current Monitor Output	6	13.1	4.5	22	Capacitor	CL, TSD, UVLO, OVP, IOU	Yes	STQFN-18 (1.6 x 3.0 mm)	
SLG59H1013V	A 125 °C-rated, 4.8 mm ² power control switch with pin-selectable VIN lockout protection, internal 5W nFET SOA protection, and I_{DS} Current Monitor Output for enterprise printer/copier applications	3.5	13.3	10.8	25.2	Capacitor	CL, TSD, UVLO, OVP, IOU	Yes	STQFN-18 (1.6 x 3.0 mm)	Pending
SLG59H1016V	A 125 °C-rated, 4.8 mm ² power control switch with pin-selectable VIN overvoltage protection, internal 5W nFET SOA protection, and I_{DS} Current Monitor Output	3.5	13.1	4.5	22	Capacitor	CL, TSD, UVLO, OVP, IOU	Yes	STQFN-18 (1.6 x 3.0 mm)	

High-voltage, High-current, Ultra Low $R_{DS(on)}$ Integrated Power Control Switches Selector Guide

For Applications up to 25.2 V (continued)

Part Number	Description	Max I_{DS} (A)	$R_{DS(on)}$ (m Ω)	VIN Min (V)	VIN Max (V)	VOUT Slew-rate Control	Protection Features ¹	VOUT Discharge Circuit	Package Type	UL Certified
SLG59H1017V	A 4.8 mm ² power control switch with pin-selectable VIN lockout protection, internal 10W nFET SOA protection, and I_{DS} Current Monitor Output for enterprise printer/copier applications	4	13.3	10.8	25.2	Capacitor	CL, TSD, UVLO, OVP, IOU	Yes	STQFN-18 (1.6 x 3.0 mm)	
SLG59H1019V	A 4.8 mm ² power control switch with VIN OVLO disabled, internal 10W nFET SOA protection, and I_{DS} current-monitor output	5	13	4.5	25.2	Capacitor	CL, TSD, UVLO, IOU	Yes	STQFN-18 (1.6 x 3.0 mm)	
SLG59H1020V	A 4.8 mm ² back-to-back reverse-current blocking power control switch with pin-selectable VIN overvoltage protection, internal 5W nFET SOA protection, and I_{DS} Current Monitor Output	3	50	4.5	20	Capacitor	RCB, CL, TSD, OVP, IOU	No	STQFN-18 (1.6 x 3.0 mm)	
SLG59H1128V	A 4.8 mm ² power control switch with pin-selectable VIN overvoltage protection, internal 10W nFET SOA protection, and I_{DS} Current Monitor Output	5	13.1	4.5	22	Capacitor	CL, TSD, UVLO, OVP, IOU	Yes	STQFN-18 (1.6 x 3.0 mm)	

* Notes:

1. CL – Current-limit, external resistor-adjustable, RCB - Reverse-current blocking
2. TSD – For 85 °C-rated products, thermal shutdown threshold is typically set at 125 °C for 5W SOA parts or 145 °C for 10W SOA parts with 25 °C hysteresis. For 125 °C-rated products, thermal shutdown threshold is set at 150 °C with 25 °C hysteresis. All products automatically attempt a restart operation when die temperature cools
3. UVLO - Undervoltage Lockout Protection
4. OVP - Overvoltage Lockout Protection
5. IOU - Analog MOSFET Current Monitor Output
6. POU - Analog MOSFET Power Monitor Output
7. TVS - Internal Transient Voltage Suppressor