

# Switch & IPD & Multiplexer & Logic

## Automotive Standard Logic ICs — 22

Logic Gate (Single type) ..... 22

## Standard Logic ICs — 22

Analog Switch/Analog Switch (Single type) ..... 22

Multiplexer ..... 22

Logic Gates ..... 22

Logic Gates (Single type) ..... 22

Function Logic ..... 22

## Serial-in/Parallel-out Drivers — 23

Serial/Parallel 2-input Drivers ..... 23

Serial/Parallel 4-input Drivers ..... 23

## USB Switch ICs — 23

DPDT type (Double Pole Double Throw) ..... 23

Built-in OVP Micro USB Switch with  
USB2.0, MHL™ and Audio ..... 23

## IPD

### (Smart Low Side & High Side Switch ICs) — 23

High Side Switch ..... 23

Low Side Switch ..... 24

## Switch & IPD & Multiplexer & Logic

Automotive Standard Logic ICs	P.22	Standard Logic ICs	P.22
Serial-in/Parallel-out Drivers	P.23	USB Switch ICs	P.23
IPD (Smart Low Side & High Side Switch ICs)	P.23		

Click on the icon to access the product page on ROHM's website. Please check the website for the latest updates.

## Automotive Standard Logic ICs

### Logic Gate (Single type)

Type	Package/Part No.		Function	Supply Voltage (V)	H Input Voltage (Min) (V)	L Input Voltage (Min) (V)	Operating Temperature (°C)	Output Delay Time $V_{CC}=4.5V$ to $5.5V$ (Max) (ns)	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
	SSOP5	SSOP6								
BD7LS00	BD7LS00G-C	—	Single 2-input NAND gate	1.65 to 5.5	$V_{CC} \times 0.7$	$V_{CC} \times 0.3$	-40 to +125	10.0	FSs	YES
BD7LS02	BD7LS02G-C	—	Single 2-input NOR gate	1.65 to 5.5	$V_{CC} \times 0.7$	$V_{CC} \times 0.3$	-40 to +125	10.0	FSs	YES
BD7LS04	BD7LS04G-C	—	Single Inverter	1.65 to 5.5	$V_{CC} \times 0.7$	$V_{CC} \times 0.3$	-40 to +125	10.0	FSs	YES
BD7LS08	BD7LS08G-C	—	Single 2-input AND gate	1.65 to 5.5	$V_{CC} \times 0.7$	$V_{CC} \times 0.3$	-40 to +125	10.0	FSs	YES
BD7LS07	BD7LS07G-C	—	Single Buffer with Open-drain	1.65 to 5.5	$V_{CC} \times 0.7$	$V_{CC} \times 0.3$	-40 to +125	9.0	FSs	YES
BD7LS14	BD7LS14G-C	—	Single Schmitt Trigger Inverter	1.65 to 5.5	$V_{CC} \times 0.7$	$V_{CC} \times 0.3$	-40 to +125	11.0	FSs	YES
BD7LS17	BD7LS17G-C	—	Single Schmitt Trigger Buffer	1.65 to 5.5	$V_{CC} \times 0.7$	$V_{CC} \times 0.3$	-40 to +125	11.0	FSs	YES
BD7LS32	BD7LS32G-C	—	Single 2-input OR gate	1.65 to 5.5	$V_{CC} \times 0.7$	$V_{CC} \times 0.3$	-40 to +125	10.0	FSs	YES
BD7LS34	BD7LS34G-C	—	Single Buffer	1.65 to 5.5	$V_{CC} \times 0.7$	$V_{CC} \times 0.3$	-40 to +125	10.0	FSs	YES
BD7LS125	BD7LS125G-C	—	Single 3-state Buffer	1.65 to 5.5	$V_{CC} \times 0.7$	$V_{CC} \times 0.3$	-40 to +125	10.0	FSs	YES
BD7LS97	—	BD7LS97G-C	Configurable Function gate	1.65 to 5.5	$V_{CC} \times 0.7$	$V_{CC} \times 0.3$	-40 to +125	13.0	FSs	YES

© ComfySIL™ is a trademark or a registered trademark of ROHM Co., Ltd.

\*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

## Standard Logic ICs

### Analog Switch/Analog Switch (Single type)

Type	Function	Supply Voltage (V)	Input Voltage (V)		ON Resistance (Max) (Ω)	Control-Output Propagation Delay Time (Typ) (ns)	IN-Out Propagation Delay Time (Typ) (ns)	Max Propagation Frequency (Typ) (MHz)	Package/Part No.		
			H Level (Min)	L Level (Max)					SOP14	SSOP-B14	SSOP5
BU4066BC	Quad Analog Switch	3 to 18	3.5	1.5	950	60	20	—	BU4066BCF	BU4066BCFV	—
BU4S66	Single Analog Switch	3 to 16	3.5	1.5	950	80	15	—	—	—	BU4S66G2

### Multiplexer

Type	Function	Supply Voltage (V)	Input Voltage (V)		ON Resistance (Max) (Ω)	Control-Output Propagation Delay Time (Typ) (ns)	IN-Out Propagation Delay Time (Typ) (ns)	Max Propagation Frequency (Typ) (MHz)	Package/Part No.	
			H Level (Min)	L Level (Max)					SOP16	SSOP-B16
BU4051BC	Analog Multiplexer/Demultiplexer (8↔1)	3 to 18	3.5	1.5	950	170	15	20	BU4051BCF	BU4051BCFV
BU4052BC	Dual Analog Multiplexer/Demultiplexer (4↔1)	3 to 18	3.5	1.5	950	170	15	20	BU4052BCF	BU4052BCFV
BU4551B	Quad Analog Multiplexer/Demultiplexer (2↔1)	3 to 16	3.5	1.5	1,100	360	35	15	BU4551BF	BU4551BFV

### Logic Gates

Type	Function	Supply Voltage (V)	Input Voltage (V)		Hysteresis Voltage (V)	Output Voltage $I_{OUT}=1\mu A$ (V)		Propagation Delay Time (Typ) (ns)	Package/Part No.
			H Level (Min)	L Level (Max)		H Level (Min)	L Level (Max)		
BU4030B	Quad Exclusive OR Gate	3 to 16	3.5	1.5	—	4.95	0.05	90	BU4030BF

### Logic Gates (Single type)

Type	Function	Supply Voltage (V)	Input Voltage (V)		Hysteresis Voltage (V)	Output Voltage $I_{OUT}=1\mu A$ (V)		Propagation Delay Time (Typ) (ns)	Package/Part No.
			H Level (Min)	L Level (Max)		H Level (Min)	L Level (Max)		
BU4S01	Single NOR Gate	3 to 16	3.5	1.5	—	4.95	0.05	85	BU4S01G2
BU4S11	Single NAND Gate	3 to 16	3.5	1.5	—	4.95	0.05	85	BU4S11G2
BU4SU69	Single Unbuffer Inverter	3 to 16	4.0	1.0	—	4.95	0.05	55	BU4SU69G2
BU4S71	Single OR Gate	3 to 16	3.5	1.5	—	4.95	0.05	90	BU4S71G2
BU4S81	Single AND Gate	3 to 16	3.5	1.5	—	4.95	0.05	90	BU4S81G2
BU4S584	Single Schmitt Trigger	3 to 16	3.5	1.5	0.15 to 0.60	4.95	0.05	125	BU4S584G2

### Function Logic

Type	Function	Supply Voltage (V)	Input Voltage (V)		Output Voltage $I_{OUT}=1\mu A$ (V)		Propagation Delay Time (Typ) (ns)	Max Clock Frequency (Typ) (MHz)	Set up Time (Typ) (ns)	Hold Time (Typ) (ns)	Package/Part No.	
			H Level (Min)	L Level (Max)	H Level (Min)	L Level (Max)					SOP16	SSOP-B16
BU4094BC	8bit Static Shift/Store Register (3-State)	3 to 18	3.5	1.5	4.95	0.05	420	2.5	20	10	BU4094BCF	BU4094BCFV

# Serial-in/Parallel-out Drivers

Serial/Parallel 2-input Drivers							
Part No.	Serial Number of Input	Parallel Number of Output	Supply Voltage (V)	Max Output Current (mA)	Max Output Voltage (V)	Output type	Package
BU2098F	2	8	2.7 to 5.5	25	15	Open drain	SOP16
BU2090F		12	2.7 to 5.5	25	25	Open drain	SOP16
BU2090FS		12	2.7 to 5.5	25	25	Open drain	SSOP-A16
Serial/Parallel 4-input Drivers							
Part No.	Serial Number of Input	Parallel Number of Output	Supply Voltage (V)	Max Output Current (mA)	Max Output Voltage (V)	Output type	Package
BU2050F	4	8	4.5 to 5.5	25	5.5	CMOS	SOP14
BU2092F		12	2.7 to 5.5	25	25	Open drain	SOP18
BU2092FV		12	2.7 to 5.5	25	25	Open drain	SSOP-B20
BU2099FV		12	2.7 to 5.5	25	25	Open drain	SSOP-B20
BU2152FS		24	2.7 to 5.5	25	5.5	CMOS	SSOP-A32

Serial/Parallel 2-input Drivers: 2-wires Interface CLOCK, DATA  
 Serial/Parallel 4-input Drivers: 4-wires Interface CLOCK, DATA, LATCH, ENABLE

# USB Switch ICs

DPDT type (Double Pole Double Throw)													
Part No.	Supply Voltage (V)			USB Switch (ch)	UART Switch (ch)	Circuit Current (μA)	USB Switch ON Resistance (Ω)	USB Switch ON Capacitance (pF)	Package				
	USB	VBAT	VDDIO										
BD11600NUX	2.5 to 5.5	—	—	1	—	18	3	6	VSON010X3020				
BD11603MWX	2.5 to 5.5	—	—	2	—	18	3	7	USON016X3315				
BD11601NUX	2.5 to 5.5	—	—	1	—	18	2.5	6	VSON008X2020				
BD11670GWL	3.8 to 28.0	—	—	1	—	26	5	6	UCSP50L1C				
Built-in OVP Micro USB Switch with USB2.0, MHL™ and Audio													
Part No.	Supply Voltage (V)			USB/MHL Switch (ch)	MIC Switch (ch)	HP Switch (ch)	VBUS Signal Path (ch)	ID-CBUS Path (ch)	OTG-VBUS Voltage Path (ch)	Stand by Current (μA)	USB/MHL Switch ON Resistance (Ω)	USB/MHL Switch ON Capacitance (pF)	Package
	VBUS	VBAT	VDDIO										
BD91411GW	3.8 to 28.0	2.9 to 4.6	1.7 to 3.0	2	1 (mono)	1	1	1	1	6	5	6	UCSP75M3

©MHL™ is a trademark or a registered trademark of MHL, LCC.

# IPD (Smart Low Side & High Side Switch ICs)

## High Side Switch

L-shaped Protection Smart High Side Switch											
Part No.	Supply Voltage (V)	V <sub>DS</sub> (Max) (V)	ch	I <sub>ocp</sub> (Min) (A)	ON Resistance (Typ) (mΩ)	Thermal Shut Down	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100		
BV1HD045EFJ-C	6.0 to 28.0	41.0	2	21	45	Self-restart	HTSOP-J8	FSs	YES		
BV2HC045EFU-C	6.0 to 19.0	41.0		21	45	Off-latch	HSSOP-C16	FSs	YES		
BV2HD045EFU-C	6.0 to 28.0	41.0		21	45	Self-restart	HSSOP-C16	FSs	YES		
BV2HD070EFU-C	6.0 to 28.0	41.0		10	70	Self-restart	HSSOP-C16	FSs	YES		
Smart High Side Switch											
Part No.	Supply Voltage (V)	V <sub>DS</sub> (Max) (V)	ch	I <sub>ocp</sub> (Min) (A)	ON Resistance (Typ) (mΩ)	Thermal Shut Down	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100		
BV1HJC45EFJ-C	6.0 to 28.0	45.0	1	5.0	45	Self-restart	HTSOP-J8	FSs	YES		
BV1HLC45EFJ-C	6.0 to 28.0	45.0		2.5	45	Self-restart	HTSOP-J8	FSs	YES		
<b>New</b> BV1HV050FJ-C	4.5 to 28.0	45.0		3.0	50	Self-restart	SOP-J8	FSs	YES		
BV1HD090FJ-C	4.5 to 36.0	45.0		2.7	90	Self-restart	SOP-J8	FSs	YES		
BV1HJ180EFJ-C	4.0 to 28.0	45.0		2.0	180	Self-restart	HTSOP-J8	FSs	YES		
BD1HCU50EFJ-C	4.0 to 18.0	44.5		0.8	500	Off-latch	HTSOP-J8	FSs	YES		
BD1HC500FVM-C	4.0 to 18.0	44.5		0.8	500	Off-latch	MSOP8	FSs	YES		
BD1HC500HFN-C	4.0 to 18.0	44.5		0.8	500	Off-latch	HSON8	FSs	YES		
BD1H DU50EFJ-C	4.0 to 18.0	44.5		0.8	500	Self-restart	HTSOP-J8	FSs	YES		
BD1HD500FVM-C	4.0 to 18.0	44.5		0.8	500	Self-restart	MSOP8	FSs	YES		
BD1HD500HFN-C	4.0 to 18.0	44.5		0.8	500	Self-restart	HSON8	FSs	YES		
BV2HM050EFV-C	6.0 to 28.0	45.0		2	5.0	50	Self-restart	HTSSOP-B20	FSs	YES	
Built-in current sensing function High Side Switch											
Part No.	Supply Voltage (V)	V <sub>DS</sub> (Max) (V)		ch	I <sub>ocp</sub> (Min) (A)	ON Resistance (Typ) (mΩ)	Thermal Shut Down	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100	
BV1HB045EFJ-C	6.0 to 28.0	45		1	21	45	Self-restart	HTSOP-J8	FSs	YES	

©ComfySIL™ is a trademark or a registered trademark of ROHM Co., Ltd.  
 \*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

## Low Side Switch

Smart Low Side Switch												
Part No.	Supply Voltage (V)	V <sub>DS</sub> (Max) (V)	ch	I <sub>ocp</sub> (Min) (A)	ON Resistance (Typ) (mΩ)	Thermal Shut Down	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100			
BV1LA025EFJ-C	3.5 to 5.5	42	1	9.0	25	Self-restart	HTSOP-J8	FSs	YES			
BV1LB025EFJ-C				35.0	25		HTSOP-J8	FSs	YES			
BV1LB028FPJ-C	3.0 to 5.5			30.0	28		TO252-J3	FSs	YES			
BV1LB045FPJ-C				18.0	45		TO252-J3	FSs	YES			
BV1LB085FJ-C				13.0	85		SOP-J8	FSs	YES			
BV1LB150FJ-C				6.5	150		SOP-J8	FSs	YES			
BV1LB300FJ-C				1.7	300		SOP-J8	FSs	YES			
BM2LB150FJ-C				2	6.5		150	SOP-J8	FSs	YES		
BM2LB300FJ-C					1.7		300	SOP-J8	FSs	YES		
Smart Low Side Switch with Error Flag												
Part No.	Supply Voltage (V)	V <sub>DS</sub> (Max) (V)	ch	I <sub>ocp</sub> (Min) (A)	ON Resistance (Typ) (mΩ)	Thermal Shut Down	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100			
<b>New</b> BV1LD040EFJ-C	3.0 to 5.5	40	1	5.5	40	Self-restart	HTSOP-J8	FSs	YES			
BV1LE040EFJ-C				17.5	40		HTSOP-J8	FSs	YES			
<b>New</b> BV1LD080EFJ-C				42	3.8		80	HTSOP-J8	FSs	YES		
BV1LE080EFJ-C					9.0		80	HTSOP-J8	FSs	YES		
BV1LC085EFJ-C		4.0			85		HTSOP-J8	FSs	YES			
BV1LC105FJ-C		3.0			105		SOP-J8	FSs	YES			
BV1LC150EFJ-C		3.5			150		HTSOP-J8	FSs	YES			
BV1LE160EFJ-C		40			5.0		160	HTSOP-J8	FSs	YES		
BV1LE250EFJ-C					3.0		250	HTSOP-J8	FSs	YES		
<b>New</b> BV1LD250EFJ-C					1.3		250	HTSOP-J8	FSs	YES		
BV1LC300EFJ-C				1.7	350		HTSOP-J8	FSs	YES			
BV1LC300FJ-C		42		1.7	350		SOP-J8	FSs	YES			
<b>New</b> BD1LBU50EFJ-C				3.5 to 5.5	0.8		350	HTSOP-J8	FSs	YES		
BD1LB500FVM-C					0.8		350	MSOP8	FSs	YES		
BM2LE040FJ-C				3.0 to 5.5	40		2	17.5	40	SOP-J8	FSs	YES
<b>New</b> BM2LD080FJ-C		3.8						80	SOP-J8	FSs	YES	
BM2LE080FJ-C	9.0	80	SOP-J8			FSs		YES				
BM2LC105FJ-C	42	3.0	105			SOP-J8		FSs	YES			
BM2LC120FJ-C		3.0	120		SOP-J8	FSs		YES				
BM2LE160FJ-C		40	5.0		160	SOP-J8		FSs	YES			
BM2LE250FJ-C			3.0		250	SOP-J8		FSs	YES			
BM2LC300FJ-C			42		1.7	350		SOP-J8	FSs	YES		
					1.7	350		SOP-J8	FSs	YES		
Smart Low Side Switch Variable Slew Rate												
Part No.		Supply Voltage (V)	V <sub>DS</sub> (Max) (V)		ch	I <sub>ocp</sub> (Min) (A)		ON Resistance (Typ) (mΩ)	Thermal Shut Down	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BV1LF080EFJ-C	3.5 to 6.5	42	1		5.0	80		Self-restart	HTSOP-J8	FSs	YES	
Multi Channel Smart Low Side Switch												
Part No.	Supply Voltage (V)	V <sub>DS</sub> (Max) (V)	ch	I <sub>ocp</sub> (Min) (A)	ON Resistance (Typ) (mΩ)	Thermal Shut Down	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100			
<b>New</b> BD4LB650EFV-C	4.0 to 5.5	37	4	0.5 or 1.0	650	Self-restart	HTSSOP-B20	FSs	YES			
<b>New</b> BD4LD650EFV-C	4.0 to 5.5/ 3.0 to 5.5 (IO)			0.5 or 1.0	650		HTSSOP-B20	FSs	YES			
<b>New</b> BD5LL20AEFV-C	6.0 to 8.0 (Vs)/ 6.0 to 18 (Vx)	30	5	2.0 (OUT 1 to 3)/ 0.5 (OUT 4, 5)	200 (OUT 1 to 3) 540 (OUT 4, 5)		HTSSOP-B20	FSs	YES			
<b>New</b> BD8LB65AEFV-C	4.0 to 5.5	37	8	0.5 or 1.0	650		HTSSOP-B20	FSs	YES			
<b>New</b> BD8LD650EFV-C	4.0 to 5.5/ 3.0 to 5.5 (IO)			0.5 or 1.0	650		HTSSOP-B20	FSs	YES			
BD8LB600FS-C	3.0 to 5.5 (Digital)/ 4.0 to 5.5 (Analog)	45		1.0	600		SSOP-A24	FSs	YES			
BD8LA700EFV-C				0.5	700	Off-latch	HTSSOP-B24	FSs	YES			

© ComfySIL™ is a trademark or a registered trademark of ROHM Co., Ltd.  
 \*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.