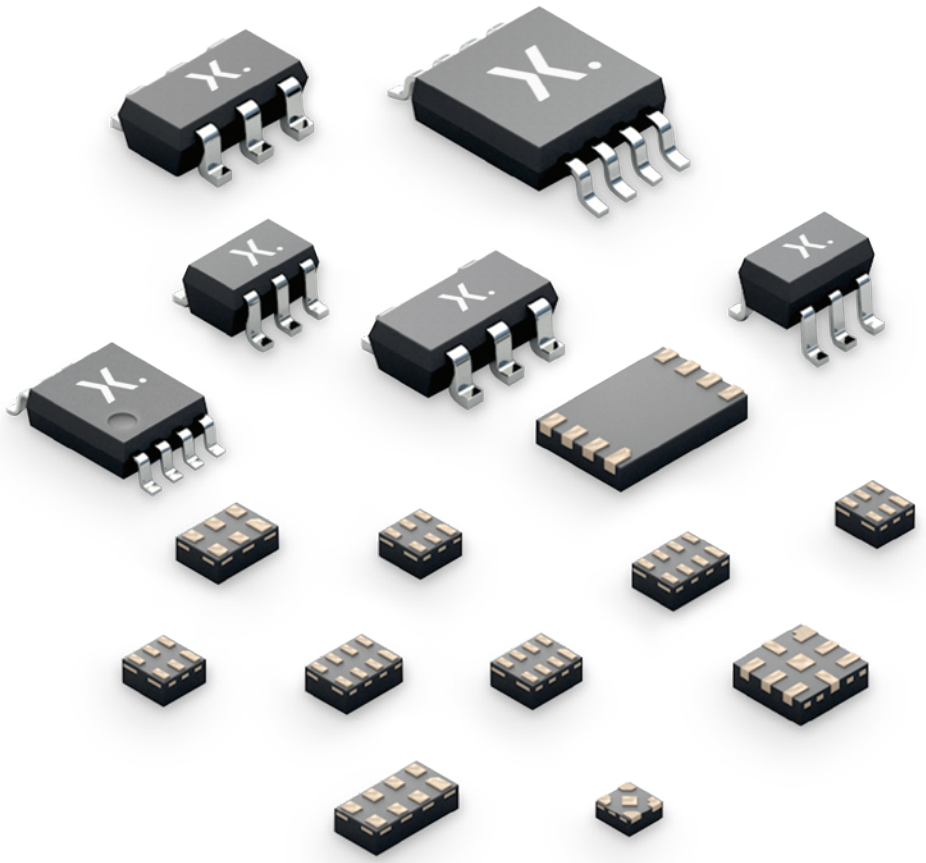
Q100 Logic portfolio

Continuing to lead the way in automotive logic

nexperia

EFFICIENCY WINS.



The operating environment of automobile semiconductor components is much more hostile than that of semiconductors used in home or portable applications.

A television set will generally spend its operating lifetime within an ambient temperature range of 0 ˚C to 40 ˚C. Due to internal heating, its semiconductor devices can be expected to operate between 20 ˚C and 60 ˚C.

By comparison, an automobile is expected to start at temperatures lower than -20 ˚C and, in some cases, operate within the engine compartment at temperatures approaching 150 ˚C.

To ensure the reliability of automotive electronics, the Automotive Electronics Council introduced its AEC-Q100 standard, which outlines procedures to be followed to ensure integrated circuits meet the quality and reliability levels required by automotive applications.

As the global number one supplier, the introduction of its Q100 logic portfolio shows Nexperia continuing to lead the way in automotive logic. Nexperia offers the feature rich Low Voltage CMOS (LVC) logic portfolio to enable the migration of electronic solutions from 5.5 V to lower power mixed 5.5 V / 3.3 V and beyond. The LVC family includes Standard Logic functions with supply range 1.65 V to 3.3 V, as well as Mini Logic functions with supply range 1.65 V to 5.5 V.

Key benefits of the Q100 logic portfolio

AEC-Q100 product qualification and reliability monitoring

Operating at elevated temperatures reduces the lifetime of a semiconductor and temperature cycling has a negative impact on the stability of a package. In cases where there is no history of a product's reliability within automotive applications, a series of stresses to simulate the life cycle within an automotive environment must be applied to guarantee conformance to the AEC-Q100 standard.

To ensure continued reliability, Nexperia logic maintains an extensive reliability monitoring program; the results of which are published half yearly. These QSUM reports are available upon request via your Nexperia sales representative.

Tightened manufacturing process controls

Q100 devices are:

- manufactured in TS16949 certified and VDA approved production facilities
- flagged as automotive lots
- subjected to additional process flow quality gates and stricter rules for lot dis-positioning and maverick lot handling

This ensures that automotive products:

- receive highest priority
- have greater traceability for improved quality analysis
- that become outlier lots, passing a quality gate but outside of the acceptable distribution, are assigned to the non-Q100 type

Six sigma design, zero defect test and inspection methodology

Six sigma design philosophy is applied to all Q100 devices. This ensures that an end user application designed to the datasheet limits can tolerate a shift as high as one and a half sigma in Nexperia's manufacturing processes. As the process control limits are much tighter than one and a half sigma, this virtually guarantees trouble free end user applications. During electrical test process, average test limits or statistical test limits are applied to screen outliers within automotive lots. Figure 1 shows the distribution of devices passing a test and the calculated statistical test limits in yellow. Although the outliers are within the upper and lower specification limits they are not delivered as Q100 products.

Dedicated website and datasheets

A summary of Nexperia logic's Q100 portfolio including a search by function and a parametric search within each function can be found at www.nexperia.com/products/automotive/logic, and unlike the standard types, each Q100 device has a dedicated datasheet confirming that it has been qualified in accordance with AEC-Q100 and is suitable for automotive applications.

Priority technical support

Nexperia's first and second tier technical support teams give Q100 product design-in assistance their highest priority and upon request AEC-Q100 production part approval process (PPAP) qualification data will be made available. Due to the stricter qualification requirements of automotive end user applications, a 180 day process change notification (PCN) approval cycle is applied for Q100 products instead of the 90 day PCN approval cycle for standard types. In the unlikely event of a quality issue, Nexperia logic guarantees a 10 day through put time with initial verification within 24 hours for its Q100 portfolio.

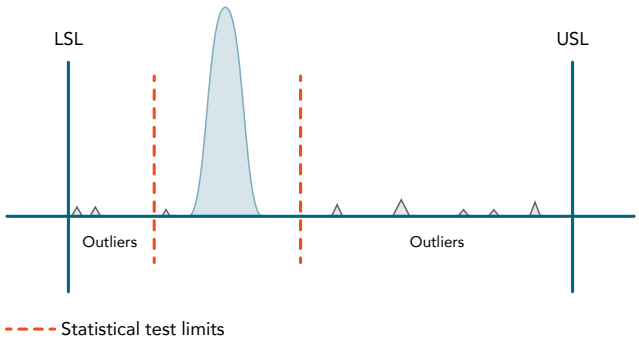
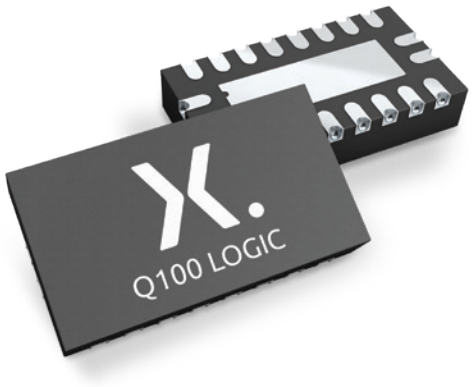


Figure 1. Application of statistical test limits.

Examples of Nexperia Q100 logic automotive application areas



I/O expansion

Large pin count controllers are expensive, so when possible to reduce the complexity and pin-count of control solutions, input/output expansion devices such as multiplexer/de-multiplexer devices are used. Figure 2 shows an example of an 8:1 multiplexer used to sequentially switch analog sensor signals to a single analog to digital pin of a micro-controller.

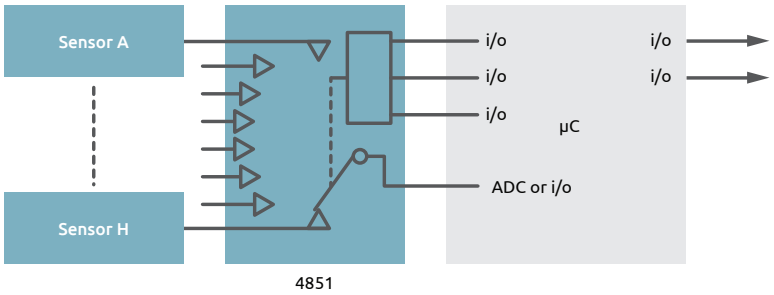


Figure 2. 74HC4851 as multiplexer in a remote sensing application

Interface logic

With high impedance inputs and low impedance outputs, interface logic such as registered or unregistered buffers and line drivers are used to interface between low drive outputs of a controller and higher loads of, for example, water pumps and window motors.

Control logic

Control applications such as engine control units and body control modules change settings based upon a combination of input signals. Control logic consists of simple Boolean functions, such as AND or NAND, to facilitate changing settings in simple sub-systems that don't require a microcontroller.

Display drivers

Display drivers integrate serial-in, parallel-out shift registers, which are common I/O expansion devices, with a number of MOSFET LED drivers. With 8-bit and 12-bit solutions, shift register based display drivers enable a controller to drive 8 or 12 LED's using 3 output lines. Cascading devices as shown in figure 3 increases the number of LED's controlled by the same 3 output lines. Display drivers reduce the size, complexity, pin count and ultimately cost of any micro-controller based solution.

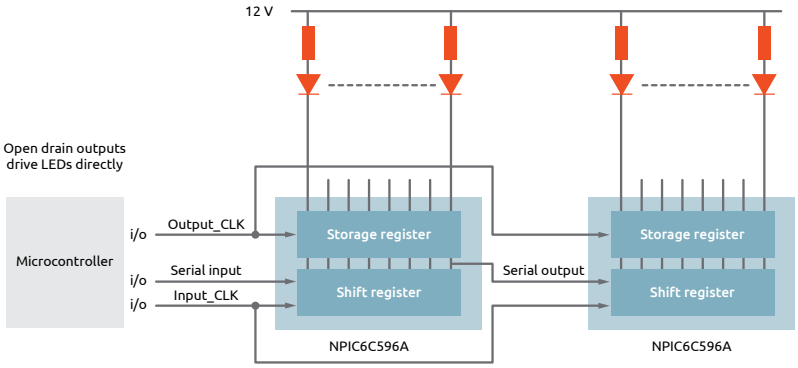


Figure 3. NPIC6C596A in cascaded display driver application

Q100 Standard logic functions and packages

Standard logic functions

Q100 standard logic functions include options suitable for use at supply voltage between 1.0 V and 15V. They provide a wide range of functions such as analog switches, buffers/inverters, bus switches, counters, decoders/de-multiplexers, multiplexers, flip-flops, gates, latches, level shifters, multivibrators, Schmitt-triggers, shift registers and transceivers. Q100 Standard logic is available in leaded SO and TSSOP packages as well as the innovative leadless DQFN package. Nexperia's DQFN packages include side-wettable flanks, making them suitable for automated optical inspection. The package suffixes used in the tables are for all logic families with the exception of HEF4000B. The suffixes for HEF4000B can be found under Standard Logic Packages.

Analog switches

Type number	Description	Features					Package (suffix)								
		Configuration	V_{CC} (V)	R_{ON} (Ω)	R_{ON} (FLAT) (Ω)	T_{amb} (°C)	SOT108-1 (D)	SOT402-1 (PW)	SOT762-1 (BQ)	SOT109-1 (D)	SOT403-1 (PW)	SOT763-1 (BQ)	SOT137-1 (D)	SOT355-1 (PW)	SOT815-1 (BQ)
74HC4051-Q100	single-pole, octal-throw analog switch	SP8T-Z	2.0 - 10.0	200	20	-40~125				•	•	•			
74HCT4051-Q100	single-pole, octal-throw analog switch; TTL enabled	SP8T-Z	4.5 - 5.5	225	20	-40~125				•	•	•			
74HC4052-Q100	dual single-pole, quad-throw analog switch	SP4T-Z	2.0 - 10.0	200	20	-40~125				•	•	•			
74HCT4052-Q100	dual single-pole, quad-throw analog switch; TTL enabled	SP4T-Z	4.5 - 5.5	200	20	-40~125				•	•	•			
74HC4053-Q100	triple single-pole, double-throw analog switch	SP8T-Z	2.0 - 10.0	200	20	-40~125				•	•	•			
74HCT4053-Q100	triple single-pole, double-throw analog switch; TTL enabled	SP8T-Z	4.5 - 5.5	200	20	-40~125				•	•	•			
74HC4066-Q100	quad single-pole, single-throw analog switch	SPST-NO	2.0 - 10.0	105	23	-40~125	•	•	•						
74HCT4066-Q100	quad single-pole, single-throw analog switch; TTL enabled	SPST-NO	4.5 - 5.5	118	23	-40~125	•	•	•						
74HC4067-Q100	single-pole, 16-throw analog switch	SP16T-Z	2.0 - 10.0	200	25	-40~125							•	•	•
74HCT4067-Q100	single-pole, 16-throw analog switch; TTL-enabled	SP16T-Z	4.5 - 5.5	225	25	-40~125							•	•	•
74HC4851-Q100	single-pole, octal-throw analog switch	SP8T-Z	2.0 - 10.0	220	-	-40~125				•	•	•			
74HCT4851-Q100	single-pole, octal-throw analog switch; TTL enabled	SP8T-Z	4.5 - 5.5	240	-	-40~125				•	•	•			
74HC4852-Q100	dual single-pole, quad-throw analog switch	SP4T-Z	2.0 - 10.0	220	-	-40~125				•	•	•			
74HCT4852-Q100	dual single-pole, quad-throw analog switch; TTL enabled	SP4T-Z	4.5 - 5.5	240	-	-40~125				•	•	•			
74LV4052-Q100	dual single-pole, quad-throw analog switch	SP4T-Z	1.0 - 6.0	125	15	-40~125				•	•				
74LV4053-Q100	triple single-pole, double-throw analog switch	SPDT-Z	1.0 - 6.0	150	30	-40~125				•	•	•			
74LVC4066-Q100	quad single-pole, single-throw analog switch	SPST-NO	1.65 - 5.5	15	1.5	-40~125	•	•	•						
HEF4051B-Q100	single-pole, octal-throw analog switch	SP8T-Z	4.5 - 15.5	175	30	-40~85				•	•				
HEF4052B-Q100	dual single-pole, quad-throw analog switch	SP4T-Z	4.5 - 15.5	175	30	-40~85				•	•				
HEF4053B-Q100	triple single-pole, double-throw analog switch	SPDT-Z	4.5 - 15.5	175	30	-40~85				•	•				
HEF4066B-Q100	quad single-pole, single-throw analog switch	SPST-NO	4.5 - 15.5	175	20	-40~85	•								
HEF4067B-Q100	single-pole, 16-throw analog switch	SP16T-Z	4.5 - 15.5	175	20	-40~85							•		

For more information about automotive analog switches visit:
www.nexperia.com/products/logic/automotive-logic/switches-multiplexers-de-multiplexers/

Buffers/inverters

Type number	Description	Features				Package (suffix)								
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT108-1 (D)	SOT402-1 (PW)	SOT762-1 (BQ)	SOT109-1 (D)	SOT403-1 (PW)	SOT163-1 (D)	SOT360-1 (PW)	SOT764-1 (BQ)	SOT362-1 (DGG)
74AHC04-Q100	hex inverter	2.0 - 5.5	± 8	3.0	-40~125	•	•	•						
74AHCT04-Q100	hex inverter; TTL enabled	4.5 - 5.5	± 8	3.0	-40~125	•	•	•						
74AHC125-Q100	quad buffer/line driver (3-state)	2.0 - 5.5	± 8	3.0	-40~125	•	•	•						
74AHCT125-Q100	quad buffer/line driver; TTL enabled (3-state)	4.5 - 5.5	± 8	3.0	-40~125	•	•	•						
74AHC126-Q100	quad buffer/line driver (3-state)	2.0 - 5.5	± 8	3.3	-40~125	•	•	•						
74AHCT126-Q100	quad buffer/line driver; TTL enabled (3-state)	4.5 - 5.5	± 8	3.0	-40~125	•	•	•						
74AHC240-Q100	octal inverter/line driver (3-state)	2.0 - 5.5	± 8	2.8	-40~125						•	•	•	
74AHCT240-Q100	octal inverter/line driver; TTL enabled (3-state)	4.5 - 5.5	± 8	3.0	-40~125						•	•	•	
74AHC244-Q100	octal buffer/line driver (3-state)	2.0 - 5.5	± 8	3.5	-40~125						•	•	•	
74AHCT244-Q100	octal buffer/line driver; TTL enabled (3-state)	4.5 - 5.5	± 8	3.5	-40~125						•	•	•	
74AHC541-Q100	octal buffer/line driver (3-state)	2.0 - 5.5	± 8	3.5	-40~125						•	•	•	
74AHCT541-Q100	octal buffer/line driver; TTL enabled (3-state)	4.5 - 5.5	± 8	3.5	-40~125						•	•	•	
74AHCU04-Q100	hex inverter; unbuffered	2.0 - 5.5	± 8	2.4	-40~125	•	•	•						
74ALVC125-Q100	quad buffer/line driver (3-state)	1.65 - 3.6	± 24	1.8	-40~85	•	•	•						
74ALVC541-Q100	octal buffer/line driver (3-state)	1.65 - 3.6	± 24	2.3	-40~85						•	•	•	
74HC05-Q100	hex inverter; open-drain	2.0 - 6.0	5.2	11	-40~125	•	•	•						
74HC04-Q100	hex inverter	2.0 - 6.0	± 5.2	7.0	-40~125	•	•	•						
74HCT04-Q100	hex inverter; TTL enabled	4.5 - 5.5	± 4.0	8.0	-40~125	•	•	•						
74HC125-Q100	quad buffer/line driver (3-state)	2.0 - 6.0	± 7.8	9.0	-40~125	•	•							
74HCT125-Q100	quad buffer/line driver; TTL enabled (3-state)	4.5 - 5.5	± 6	12	-40~125	•	•							
74HC126-Q100	quad buffer/line driver (3-state)	2.0 - 6.0	± 7.8	9.0	-40~125	•	•							
74HCT126-Q100	quad buffer/line driver; TTL enabled (3-state)	4.5 - 5.5	± 6	11	-40~125	•	•							
74HC240-Q100	octal inverter/line driver (3-state)	2.0 - 6.0	± 7.8	9.0	-40~125						•	•	•	
74HCT240-Q100	octal inverter/line driver; TTL enabled (3-state)	4.5 - 5.5	± 6	9.0	-40~125						•	•	•	
74HC244-Q100	octal buffer/line driver (3-state)	2.0 - 6.0	± 7.8	9.0	-40~125						•	•	•	
74HCT244-Q100	octal buffer/line driver; TTL enabled (3-state)	4.5 - 5.5	± 6	11	-40~125						•	•	•	
74HC365-Q100	hex buffer/line driver (3-state)	2.0 - 6.0	± 7.8	9.0	-40~125				•	•				
74HCT365-Q100	hex buffer/line driver; TTL enabled (3-state)	4.5 - 5.5	± 6	11	-40~125				•	•				
74HC366-Q100	hex inverter/line driver (3-state)	2.0 - 6.0	± 7.8	10	-40~125				•	•				
74HCT366-Q100	hex inverter/line driver; TTL enabled (3-state)	4.5 - 5.5	± 6	11	-40~125				•	•				
74HC540-Q100	octal inverter/line driver (3-state)	2.0 - 6.0	± 7.8	9.0	-40~125						•			
74HCT540-Q100	octal inverter/line driver; TTL enabled (3-state)	4.5 - 5.5	± 6	11	-40~125						•			
74HC541-Q100	octal buffer/line driver (3-state)	2.0 - 6.0	± 7.8	10	-40~125						•	•		

Buffers/inverters (continued)

Type number	Description	Features				Package (suffix)								
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT108-1 (D)	SOT402-1 (PW)	SOT762-1 (BQ)	SOT109-1 (D)	SOT403-1 (PW)	SOT163-1 (D)	SOT360-1 (PW)	SOT764-1 (BQ)	SOT362-1 (DGG)
74HCT541-Q100	octal buffer/line driver; TTL enabled (3-state)	4.5 - 5.5	± 6	12	-40~125						•	•		
74HCU04-Q100	hex inverter; unbuffered	2.0 - 6.0	± 5.2	5.0	-40~125	•	•	•						
74LV244-Q100	octal buffer/line driver (3-state)	1.0 - 5.5	± 16	8.0	-40~125						•	•		
74LVC04A-Q100	hex inverter	1.65 - 5.5	± 24	2.0	-40~125	•	•	•						
74LVC06A-Q100	hex inverter; open-drain	1.65 - 5.5	32	2.2	-40~125	•	•	•						
74LVC07A-Q100	hex buffer; open-drain	1.65 - 5.5	32	2.2	-40~125	•	•	•						
74LVC125A-Q100	quad buffer/line driver (3-state)	1.2 - 3.6	± 24	2.4	-40~125	•	•	•						
74LVC126A-Q100	quad buffer/line driver (3-state)	1.2 - 3.6	± 24	2.4	-40~125	•	•	•						
74LVC541A-Q100	octal buffer/line driver (3-state)	1.2 - 3.6	± 24	3.3	-40~125						•	•	•	
74LVC16240A-Q100	16-bit inverter/line driver (3-state)	1.2 - 3.6	± 24	2.7	-40~125									•
74LVC244A-Q100	octal buffer/line driver (3-state)	1.2 - 3.6	± 24	2.8	-40~125						•	•	•	
74LVCH244A-Q100	octal buffer/line driver with bus hold (3-state)	1.2 - 3.6	± 24	2.8	-40~125						•	•	•	
74LVC16244A-Q100	16-bit buffer/line driver (3-state)	1.2 - 3.6	± 24	3.0	-40~125									•
74LVCH16244A-Q100	16-bit buffer/line driver with bus hold (3-state)	1.2 - 3.6	± 24	3.0	-40~125									•
74LVCU04A-Q100	hex inverter; unbuffered	1.2 - 3.6	± 24	2.0	-40~125	•	•							
74LVT04-Q100	hex inverter	2.7 - 3.6	-20 / +32	2.6	-40~85	•	•							
74LVT244A-Q100	octal buffer/line driver with bus hold (3-state)	2.7 - 3.6	-32 / +64	2.6	-40~85						•	•		
74LVTH244A-Q100	octal buffer/line driver with bus hold (3-state)	2.7 - 3.6	-32 / +64	2.6	-40~85						•	•		
74VHC126-Q100	quad buffer/line driver (3-state)	2.0 - 5.5	± 8	3.3	-40~125	•	•	•						
74VHCT126-Q100	quad buffer/line driver; TTL enabled (3-state)	4.5 - 5.5	± 8	3.0	-40~125	•	•	•						
74VHC541-Q100	octal buffer/line driver (3-state)	2.0 - 5.5	± 8	3.5	-40~125						•	•	•	
74VHCT541-Q100	octal buffer/line driver; TTL enabled (3-state)	4.5 - 5.5	± 8	3.5	-40~125						•	•	•	
HEF4049B-Q100	hex inverter/line driver	3.0 - 15.0	-3 / +20	20	-40~85				•					
HEF4050B-Q100	hex buffer/line driver	3.0 - 15.0	-3 / +20	40	-40~85				•					
HEF4069UB-Q100	hex inverter; unbuffered	3.0 - 15.0	± 3.4	15	-40~85	•	•							

For more information about automotive buffers/inverters/drivers visit:
www.nexperia.com/products/logic/automotive-logic/buffers-drivers-transceivers/

Counters/frequency dividers

Type number	Description	Features				Package (suffix)					
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT108-1 (D)	SOT402-1 (PW)	SOT762-1 (BQ)	SOT109-1 (D)	SOT403-1 (PW)	SOT763-1 (BQ)
74HC161-Q100	presettable synchronous 4-bit binary counter; asynchronous reset	2.0 - 6.0	± 5.2	19	-40~125				•	•	
74HC163-Q100	presettable synchronous 4-bit binary counter; synchronous reset	2.0 - 6.0	± 5.2	17	-40~125				•	•	
74HCT163-Q100	presettable synchronous 4-bit binary counter; synchronous reset; TTL enabled	4.5 - 5.5	± 4.0	20	-40~125				•	•	
74HC193-Q100	presettable synchronous 4-bit binary up/down counter	2.0 - 6.0	± 5.2	20	-40~125				•	•	
74HCT193-Q100	presettable synchronous 4-bit binary up/down counter; TTL enabled	4.5 - 5.5	± 4.0	20	-40~125				•	•	
74HC393-Q100	dual 4-bit binary ripple counter	2.0 - 6.0	± 5.2	12	-40~125	•	•	•			
74HCT393-Q100	dual 4-bit binary ripple counter; TTL enabled	4.5 - 5.5	± 4.0	20	-40~125	•	•	•			
74HC4017-Q100	Johnson decade counter with 10 decoded outputs	2.0 - 6.0	± 5.2	18	-40~125				•	•	•
74HCT4017-Q100	Johnson decade counter with 10 decoded outputs; TTL enabled	4.5 - 5.5	± 4.0	21	-40~125				•		•
74HC4020-Q100	14-stage binary ripple counter	2.0 - 6.0	± 5.2	11	-40~125				•	•	•
74HCT4020-Q100	14-stage binary ripple counter; TTL enabled	4.5 - 5.5	± 4.0	15	-40~125				•	•	•
74HC4024-Q100	7-stage binary ripple counter	2.0 - 6.0	± 5.2	14	-40~125	•	•				
74HC4040-Q100	12-stage binary ripple counter	2.0 - 6.0	± 5.2	14	-40~125				•	•	•
74HCT4040-Q100	12-stage binary ripple counter; TTL enabled	4.5 - 5.5	± 4.0	16	-40~125				•	•	•
74HC4060-Q100	14-stage binary ripple counter with oscillator	2.0 - 6.0	± 5.2	31	-40~125				•	•	•
74HCT4060-Q100	14-stage binary ripple counter with oscillator; TTL enabled	4.5 - 5.5	± 4.0	31	-40~125				•		•
74HC4520-Q100	dual 4-bit synchronous binary counter	2.0 - 6.0	± 5.2	24	-40~125				•		
74HCT4520-Q100	dual 4-bit synchronous binary counter; TTL enabled	4.5 - 5.5	± 4.0	24	-40~125				•		
74LV393-Q100	dual 4-bit binary ripple counter	1.0 - 3.6	± 6	12	-40~125	•	•				
HEF4017B-Q100	5-stage Johnson decade counter	4.5 - 15.5	± 2.4	40	-40~85				•		
HEF4020B-Q100	14-stage binary ripple counter	4.5 - 15.5	± 2.4	30	-40~85				•		
HEF4040B-Q100	12-stage binary ripple counter	4.5 - 15.5	± 2.4	35	-40~85				•		
HEF4060B-Q100	14-stage binary ripple counter with oscillator	4.5 - 15.5	± 2.4	50	-40~85				•		
HEF4541B-Q100	programmable timer	4.5 - 15.5	- 4/ + 2.7	38	-40~85	•					
HEF4520B-Q100	dual 4-bit synchronous binary counter	4.5 - 15.5	± 2.4	15	-40~85				•		

For more information about automotive counters/frequency dividers visit
www.nexperia.com/products/logic/automotive-logic/counters-frequency-dividers/

Bus switches

Type number	Description	Features				Package (suffix)							
		V_{CC} (V)	V_{PASS} (V)	R_{ON} (Ω)	T_{amb} (°C)	SOT402-1 (PW)	SOT762-1 (BQ)	SOT109-1 (D)	SOT403-1 (PW)	SOT763-1 (BQ)	SOT163-1 (D)	SOT360-1 (PW)	SOT764-1 (BQ)
74CBTLV3125-Q100	quad bus switch	2.3 - 3.6	3.3	7	-40~125	•							
74CBTLV3126-Q100	quad bus switch	2.3 - 3.6	3.3	7	-40~125	•	•						
74CBTLV3253-Q100	dual 4:1 mux/demux	2.3 - 3.6	3.3	7	-40~125			•	•	•			
74CBTLV3257-Q100	quad 2:1 mux/demux	2.3 - 3.6	3.3	7	-40~125			•	•	•			
74CBTLV3245-Q100	octal bus switch	2.3 - 3.6	3.3	7	-40~125							•	•
74CBTLVD3245-Q100	octal bus switch level translator	3.0 - 3.6	1.8	7	-40~125							•	•
CBT3245A-Q100	octal bus switch	4.5 - 5.5	3.9	7	-40~85						•	•	•

For more information about automotive bus switches visit
www.nexperia.com/products/logic/automotive-logic/switches-multiplexers-de-multiplexers/

Digital decoders/demultiplexers

Type number	Description	Features				Package (suffix)		
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT109-1 (D)	SOT403-1 (PW)	SOT763-1 (BQ)
74AHC138-Q100	3-to-8 line decoder/demultiplexer; inverting	2.0 - 5.5	± 8	4.4	-40~125	•	•	•
74AHCT138-Q100	3-to-8 line decoder/demultiplexer; inverting; TTL enabled	4.5 - 5.5	± 8	4.4	-40~125	•	•	•
74AHC139-Q100	dual 2-to-4 line decoder/demultiplexer	2.0 - 5.5	± 8	3.9	-40~125	•	•	
74AHCT139-Q100	dual 2-to-4 line decoder/demultiplexer; TTL enabled	4.5 - 5.5	± 8	3.6	-40~125	•	•	
74HC237-Q100	3-to-8 decoder/demultiplexer with address latches	2.0 - 6.0	± 5.2	18	-40~125	•		
74HC138-Q100	3-to-8 line decoder/demultiplexer; inverting	2.0 - 6.0	± 5.2	12	-40~125	•	•	•
74HCT138-Q100	3-to-8 line decoder/demultiplexer; inverting; TTL enabled	4.5 - 5.5	± 4	19	-40~125	•	•	•
74HC139-Q100	dual 2-to-4 line decoder/demultiplexer	2.0 - 6.0	± 5.2	14	-40~125	•	•	
74HCT139-Q100	dual 2-to-4 line decoder/demultiplexer; TTL enabled	4.5 - 5.5	± 4	16	-40~125	•	•	
74HC238-Q100	3-to-8 decoder/demultiplexer	2.0 - 6.0	± 5.2	14	-40~125	•	•	•
74HCT238-Q100	3-to-8 decoder/demultiplexer; TTL enabled	4.5 - 5.5	± 4	18	-40~125	•	•	•
74LVC138A-Q100	3-to-8 line decoder/demultiplexer; inverting	1.2 - 3.6	± 24	2.7	-40~125	•	•	•
HEF4555B-Q100	dual 1-to-4 line decoder/demultiplexer	4.5 - 15	± 2.4	30	-40~85	•		

For more information about automotive decoders/demultiplexers visit
www.nexperia.com/products/logic/automotive-logic/switches-multiplexers-de-multiplexers/

Digital multiplexers

Type number	Description	Features				Package (suffix)		
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT109-1 (D)	SOT403-1 (PW)	SOT763-1 (BQ)
74AHC157-Q100	quad 2-input multiplexer	2.0 - 5.5	± 8	3.2	-40~125	•	•	•
74AHCT157-Q100	quad 2-input multiplexer; TTL enabled	4.5 - 5.5	± 8	3.2	-40~125	•	•	•
74AHC257-Q100	quad 2-input multiplexer (3-State)	2.0 - 5.5	± 8	2.9	-40~125	•	•	
74AHCT257-Q100	quad 2-input multiplexer; TTL enabled (3-State)	4.5 - 5.5	± 8	3.7	-40~125	•	•	
74HC151-Q100	8-input multiplexer	2.0 - 6.0	± 5.2	17	-40~125	•	•	
74HCT151-Q100	8-input multiplexer; TTL enabled	4.5 - 5.5	± 4	19	-40~125	•	•	
74HC153-Q100	dual 4-input multiplexer	2.0 - 6.0	± 5.2	17	-40~125	•	•	
74HCT153-Q100	dual 4-input multiplexer; TTL enabled	4.5 - 5.5	± 4	19	-40~125	•	•	
74HC157-Q100	quad 2-input multiplexer	2.0 - 6.0	± 5.2	11	-40~125	•	•	•
74HCT157-Q100	quad 2-input multiplexer; TTL enabled	4.5 - 5.5	± 4	13	-40~125	•	•	•
74HC251-Q100	8-input multiplexer (3-State)	2.0 - 6.0	± 5.2	18	-40~125	•	•	
74HCT251-Q100	8-input multiplexer; TTL enabled (3-State)	4.5 - 5.5	± 4	22	-40~125	•	•	
74HC253-Q100	dual 4-input multiplexer (3-State)	2.0 - 6.0	± 7.8	17	-40~125	•		
74HCT253-Q100	dual 4-input multiplexer; TTL enabled (3-State)	4.5 - 5.5	± 6	17	-40~125	•		
74HC257-Q100	quad 2-input multiplexer (3-State)	2.0 - 6.0	± 7.8	11	-40~125	•	•	
74HCT257-Q100	quad 2-input multiplexer; TTL-enabled (3-State)	4.5 - 5.5	± 6	13	-40~125	•	•	
74LVC157A-Q100	quad 2-input multiplexer	1.2 - 3.6	± 24	2.5	-40~125	•	•	•

For more information about automotive digital multiplexers visit
www.nexperia.com/products/logic/automotive-logic/switches-multiplexers-de-multiplexers/

Flip-flops

Type number	Description	Features				Package (suffix)									
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT108-1 (D)	SOT402-1 (PW)	SOT762-1 (BQ)	SOT109-1 (D)	SOT403-1 (PW)	SOT163-1 (D)	SOT360-1 (PW)	SOT764-1 (BQ)	SOT815-1 (BQ)	SOT362-1 (DGG)
74AHC74-Q100	dual D-type flip-flop with set and reset; positive-edge trigger	2.0 - 5.5	± 8	3.7	-40~125	•	•	•							
74AHCT74-Q100	dual D-type flip-flop with set and reset; positive-edge trigger; TTL enabled	4.5 - 5.5	± 8	3.3	-40~125	•	•	•							
74AHC273-Q100	octal D-type flip-flop with reset; positive-edge trigger	2.0 - 5.5	± 8	4.2	-40~125						•	•	•		
74AHCT273-Q100	octal D-type flip-flop with reset; positive-edge trigger; TTL enabled	4.5 - 5.5	± 8	4.0	-40~125						•	•	•		
74AHC374-Q100	octal D-type flip-flop; positive-edge trigger	2.0 - 5.5	± 8	4.4	-40~125						•	•			
74AHCT374-Q100	octal D-type flip-flop; positive-edge trigger (3-state); TTL enabled (3-state)	4.5 - 5.5	± 8	4.3	-40~125						•	•			
74AHC377-Q100	octal D-type flip-flop with data enable; positive-edge trigger	2.0 - 5.5	± 8	3.9	-40~125							•			
74AHCT377-Q100	octal D-type flip-flop with data enable; positive-edge trigger; TTL enabled	4.5 - 5.5	± 8	4.0	-40~125						•	•			
74AVC16374-Q100	16-bit D-type flip-flop; positive-edge trigger (3-state)	1.2 - 3.6	± 12	1.5	-40~85										•

Flip/flops (continued)

Type number	Description	Features				Package (suffix)									
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT108-1 (D)	SOT402-1 (PW)	SOT762-1 (BQ)	SOT109-1 (D)	SOT403-1 (PW)	SOT163-1 (D)	SOT360-1 (PW)	SOT764-1 (BQ)	SOT815-1 (BQ)	SOT362-1 (DGG)
74HC74-Q100	dual D-type flip-flop with set and reset; positive-edge trigger	2.0 - 6.0	± 5.2	14	-40~125	•	•	•							
74HCT74-Q100	dual D-type flip-flop with set and reset; positive-edge trigger; TTL enabled	4.5 - 5.5	± 4	15	-40~125	•	•	•							
74HC107-Q100	dual J-K flip-flop with reset; negative-edge trigger	2.0 - 6.0	± 5.2	16	-40~125	•	•								
74HCT107-Q100	dual J-K flip-flop with reset; negative-edge trigger; TTL enabled	4.5 - 5.5	± 4	16	-40~125	•									
74HC109-Q100	dual J-K flip-flop with set and reset; positive-edge trigger	2.0 - 6.0	± 5.2	15	-40~125				•						
74HCT109-Q100	dual J-K flip-flop with set and reset; positive-edge trigger; TTL-enabled	4.5 - 5.5	± 4	17	-40~125				•						
74HC174-Q100	hex D-type flip-flop with reset; positive-edge trigger	2.0 - 6.0	± 5.2	17	-40~125				•	•					
74HCT174-Q100	hex D-type flip-flop with reset; positive-edge trigger; TTL enabled	4.5 - 5.5	± 4	18	-40~125				•	•					
74HC175-Q100	quad D-type flip-flop with reset; positive-edge trigger	2.0 - 6.0	± 5.2	17	-40~125				•	•					
74HCT175-Q100	quad D-type flip-flop with reset; positive-edge trigger; TTL enabled	4.5 - 5.5	± 4	16	-40~125				•	•					
74HC273-Q100	octal D-type flip-flop with reset; positive-edge trigger	2.0 - 6.0	± 5.2	15	-40~125						•	•	•		
74HCT273-Q100	octal D-type flip-flop with reset; positive-edge trigger; TTL enabled	4.5 - 5.5	± 4	15	-40~125						•	•	•		
74HC377-Q100	octal D-type flip-flop with data enable; positive-edge trigger	2.0 - 6.0	± 7.8	13	-40~125						•	•			
74HCT377-Q100	octal D-type flip-flop with data enable; positive-edge trigger; TTL enabled	4.5 - 5.5	± 6	14	-40~125						•	•			
74HC574-Q100	octal D-type flip-flop; positive-edge trigger (3-state)	2.0 - 6.0	± 7.8	14	-40~125						•	•			
74HCT574-Q100	octal D-type flip-flop; positive-edge trigger; TTL enabled (3-state)	4.5 - 5.5	± 6	15	-40~125						•	•			
74LV74-Q100	dual D-type flip-flop with set and reset; positive-edge trigger	1.0 - 5.5	± 12	11	-40~125	•	•								
74LVC74A-Q100	dual D-type flip-flop with set and reset; positive-edge trigger	1.2 - 3.6	± 24	2.5	-40~125	•	•	•							
74LVC273-Q100	octal D-type flip-flop with reset; positive-edge trigger	1.2 - 3.6	± 24	6.0	-40~125						•	•	•		
74LVC374A-Q100	octal D-type flip-flop; positive-edge trigger (3-state)	1.2 - 3.6	± 24	2.7	-40~125						•	•	•		

Flip/flops (continued)

Type number	Description	Features				Package (suffix)									
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT108-1 (D)	SOT402-1 (PW)	SOT762-1 (BQ)	SOT109-1 (D)	SOT403-1 (PW)	SOT163-1 (D)	SOT360-1 (PW)	SOT764-1 (BQ)	SOT815-1 (BQ)	SOT362-1 (DGG)
74LVC573A-Q100	octal D-type transparent latch (3-state)	1.2 - 3.6	± 24	3.4	-40~125						•	•	•		
74LVC823A-Q100	9-bit D-type flip-flop; positive-edge trigger (3-state)	1.2 - 3.6	± 24	5.4	-40~125									•	
74LVC16374A-Q100	16-bit D-type flip-flop; positive-edge trigger (3-state)	1.2 - 3.6	± 24	3.8	-40~125										•
74LVCH16374A-Q100	16-bit D-type flip-flop with bus hold; positive-edge trigger (3-state)	1.2 - 3.6	± 24	3.8	-40~125										•
HEF4013B-Q100	dual D-type flip-flop with set and reset; positive-edge trigger	4.5 - 15.5	± 2.4	30	-40~85	•	•								
HEF4027B-Q100	dual J-K flip-flop	4.5 - 15.5	± 2.4	30	-40~85				•						

For more information about automotive flip-flops visit
www.nexperia.com/products/logic/automotive-logic/flip-flops-latches-registers/

Gates

Type number	Description	Features				Package (suffix)		
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT108-1 (D)	SOT402-1 (PW)	SOT762-1 (BQ)
74AHC00-Q100	quad 2-input NAND gate	2.0 - 5.5	± 8	3.2	-40~125	•	•	•
74AHCT00-Q100	quad 2-input NAND gate; TTL enabled	4.5 - 5.5	± 8	3.3	-40~125	•	•	•
74AHC02-Q100	quad 2-input NOR gate	2.0 - 5.5	± 8	2.9	-40~125	•	•	•
74AHCT02-Q100	quad 2-input NOR gate; TTL enabled	4.5 - 5.5	± 8	3.8	-40~125	•	•	•
74AHC08-Q100	quad 2-input AND gate	2.0 - 5.5	± 8	3.5	-40~125	•	•	•
74AHCT08-Q100	quad 2-input AND gate; TTL enabled	4.5 - 5.5	± 8	5.0	-40~125	•	•	•
74AHC30-Q100	8-input NAND gate	2.0 - 5.5	± 8	3.6	-40~125	•	•	•
74AHCT30-Q100	8-input NAND gate; TTL enabled	4.5 - 5.5	± 8	3.3	-40~125	•	•	•
74AHC32-Q100	quad 2-input OR gate	2.0 - 5.5	± 8	3.5	-40~125	•	•	•
74AHCT32-Q100	quad 2-input OR gate; TTL enabled	4.5 - 5.5	± 8	5.0	-40~125	•	•	•
74AHC86-Q100	quad 2-input EXCLUSIVE-OR gate	2.0 - 5.5	± 8	3.4	-40~125	•	•	•
74AHCT86-Q100	quad 2-input EXCLUSIVE-OR gate; TTL enabled	4.5 - 5.5	± 8	3.4	-40~125	•	•	•
74ALVC00-Q100	quad 2-input NAND gate	1.65 - 3.6	± 24	2.1	-40~85	•	•	•

Gates (continued)

Type number	Description	Features				Package (suffix)		
		V_{cc} (V)	I_o (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT108-1 (D)	SOT402-1 (PW)	SOT762-1 (BQ)
74ALVC32-Q100	quad 2-input OR gate	1.65 - 3.6	± 24	2.0	-40~125	•	•	•
74HC00-Q100	quad 2-input NAND gate	2.0 - 6.0	± 5.2	7.0	-40~125	•	•	•
74HCT00-Q100	quad 2-input NAND gate; TTL enabled	4.5 - 5.5	± 4	10	-40~125	•	•	•
74HC02-Q100	quad 2-input NOR gate	2.0 - 6.0	± 5.2	7.0	-40~125	•	•	•
74HCT02-Q100	quad 2-input NOR gate; TTL enabled	4.5 - 5.5	± 4	9.0	-40~125	•	•	•
74HC03-Q100	quad 2-input NAND gate; open-drain	2.0 - 6.0	5.2	8.0	-40~125	•	•	
74HCT03-Q100	quad 2-input NAND gate; open-drain; TTL enabled	4.5 - 5.5	± 4	10	-40~125	•	•	
74HC08-Q100	quad 2-input AND gate	2.0 - 6.0	± 5.2	7.0	-40~125	•	•	•
74HCT08-Q100	quad 2-input AND gate; TTL enabled	4.5 - 5.5	± 4	11	-40~125	•	•	•
74HC10-Q100	triple 3-input NAND gate	2.0 - 6.0	± 5.2	9.0	-40~125	•	•	
74HCT10-Q100	triple 3-input NAND gate; TTL enabled	4.5 - 5.5	± 4	11	-40~125	•	•	
74HC11-Q100	triple 3-input AND gate	2.0 - 6.0	± 5.2	10	-40~125	•	•	
74HCT11-Q100	triple 3-input AND gate; TTL enabled	4.5 - 5.5	± 4	11	-40~125	•	•	
74HC20-Q100	dual 4-input NAND gate	2.0 - 6.0	± 5.2	8.0	-40~125	•	•	
74HCT20-Q100	dual 4-input NAND gate; TTL enabled	4.5 - 5.5	± 4	13	-40~125	•		•
74HC27-Q100	triple 3-input NOR gate	2.0 - 6.0	± 5.2	8.0	-40~125	•	•	•
74HCT27-Q100	triple 3-input NOR gate; TTL enabled	4.5 - 5.5	± 4	10	-40~125	•	•	•
74HC30-Q100	8-input NAND gate	2.0 - 6.0	± 5.2	12	-40~125	•	•	
74HCT30-Q100	8-input NAND gate; TTL enabled	4.5 - 5.5	± 4	12	-40~125	•	•	
74HC32-Q100	quad 2-input OR gate	2.0 - 6.0	± 5.2	6.0	-40~125	•	•	•
74HCT32-Q100	quad 2-input OR gate; TTL enabled	4.5 - 5.5	± 4.0	9.0	-40~125	•	•	•
74HC86-Q100	quad 2-input EXCLUSIVE-OR gate	2.0 - 6.0	± 5.2	11	-40~125	•	•	
74HCT86-Q100	quad 2-input EXCLUSIVE-OR gate; TTL enabled	4.5 - 5.5	± 4	14	-40~125	•	•	
74HC4002-Q100	dual 4-input NOR gate	2.0 - 6.0	± 5.2	9.0	-40~125	•	•	
74HC4075-Q100	triple 3-input OR gate	2.0 - 6.0	± 5.2	8.0	-40~125	•	•	
74HCT4075-Q100	triple 3-input OR gate; TTL enabled	4.5 - 5.5	± 4	10	-40~125	•	•	
74LV08-Q100	quad 2-input AND gate	1.0 - 5.5	± 12	7.0	-40~125	•	•	
74LVC00A-Q100	quad 2-input NAND gate	1.2 - 3.6	± 24	2.1	-40~125	•	•	•
74LVC02A-Q100	quad 2-input NOR gate	1.2 - 3.6	± 24	2.1	-40~125	•	•	•
74LVC08A-Q100	quad 2-input AND gate	1.2 - 3.6	± 24	2.1	-40~125	•	•	•
74LVC32A-Q100	quad 2-input OR gate	1.2 - 3.6	± 24	2.1	-40~125	•	•	•
74VHC02-Q100	quad 2-input NOR gate	2.0 - 5.5	± 8	2.9	-40~125	•	•	•
74VHCT02-Q100	quad 2-input NOR gate; TTL enabled	4.5 - 5.5	± 8	3.8	-40~125	•	•	•
74VHC08-Q100	quad 2-input AND gate	2.0 - 5.5	± 8	3.5	-40~125	•	•	
74VHCT08-Q100	quad 2-input AND gate; TTL enabled	4.5 - 5.5	± 8	5.0	-40~125	•	•	•
74VHC32-Q100	quad 2-input OR gate	2.0 - 5.5	± 8	3.5	-40~125	•	•	

Gates (continued)

Type number	Description	Features				Package (suffix)		
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT108-1 (D)	SOT402-1 (PW)	SOT762-1 (BQ)
74VHCT32-Q100	quad 2-input OR gate; TTL enabled	4.5 - 5.5	± 8	5.0	-40~125	•	•	•
HEF4001B-Q100	quad 2-input NOR gate	4.5 - 15.5	± 2.4	20	-40~85	•		
HEF4011B-Q100	quad 2-input NAND gate	4.5 - 15.5	± 2.4	20	-40~85	•		
HEF4030B-Q100	quad 2-input EXCLUSIVE-OR gate	4.5 - 15.5	± 2.4	30	-40~85	•		
HEF4070B-Q100	quad 2-input EXCLUSIVE-OR gate	4.5 - 15.5	± 2.4	30	-40~85	•		
HEF4081B-Q100	quad 2-input AND gate	4.5 - 15.5	± 2.4	20	-40~85	•		
HEF4082B-Q100	dual 4-input AND gate	4.5 - 15.5	± 2.4	25	-40~85	•		

For more information about automotive gates visit
www.nexperia.com/products/logic/automotive-logic/gates/

Latches/registered drivers

Type number	Description	Features				Package (suffix)						
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT109-1 (D)	SOT403-1 (PW)	SOT763-1 (BQ)	SOT163-1 (D)	SOT360-1 (PW)	SOT764-1 (BQ)	SOT362-1 (DGG)
74AHC573-Q100	octal D-type transparent latch (3-state)	2.0 - 5.5	± 8	4.2	-40~125				•	•	•	
74AHCT573-Q100	octal D-type transparent latch; TTL enabled (3-state)	4.5 - 5.5	± 8	3.9	-40~125				•	•	•	
74HC259-Q100	8 bit addressable latch	2.0 - 6.0	± 5.2	18	-40~125	•	•	•				
74HCT259-Q100	8 bit addressable latch; TTL enabled	4.5 - 5.5	± 4	20	-40~125	•	•	•				
74HC373-Q100	octal D-type transparent latch (3-state)	2.0 - 6.0	± 7.8	12	-40~125				•	•	•	
74HCT373-Q100	octal D-type transparent latch; TTL enabled (3-state)	4.5 - 5.5	± 6	14	-40~125				•	•	•	
74HC573-Q100	octal D-type transparent latch (3-state)	2.0 - 6.0	± 7.8	14	-40~125				•	•	•	
74HCT573-Q100	octal D-type transparent latch; TTL enabled (3-state)	4.5 - 5.5	± 6	17	-40~125				•	•	•	
74LVC373A-Q100	octal D-type transparent latch (3-state)	1.2 - 3.6	± 24	3.0	-40~125				•	•	•	
74LVC16373A-Q100	16-bit D-type transparent latch (3-state)	1.2 - 3.6	± 24	2.4	-40~125							•
74LVCH16373A-Q100	16-bit D-type transparent latch with bushold (3-state)	1.2 - 3.6	± 24	2.4	-40~125							•
HEF4043B-Q100	quad R/S latch with set and reset (3-state)	4.5 - 15	± 2.4	25	-40~85	•						

For more information about automotive latches and registered drivers visit
www.nexperia.com/products/automotive-qualified-products-q100-q101/automotive-logic/logic-voltage-translators/

Level shifters/translators

Type number	Description	Features				Package (suffix)									
		V_{CC}(A) (V)	V_{CC}(B) (V)	I_O (mA)	T_{amb} (°C)	SOT402-1 (PW)	SOT109-1 (D)	SOT403-1 (PW)	SOT763-1 (BQ)	SOT137-1 (D)	SOT355-1 (PW)	SOT815-1 (BQ)	SOT362-1 (DGG)	SOT480-1 (DGV)	SOT364-1 (DGG)
74ALVC164245-Q100	16-bit dual-supply voltage level translating transceiver (3-state)	1.5 - 3.6	1.5 - 5.5	± 24	-40~125								•		
74AVC4T245-Q100	4-bit dual-supply voltage level translating transceiver (3-state)	0.8 - 3.6	0.8 - 3.6	± 12	-40~125		•	•	•						
74AVC8T245-Q100	8-bit dual-supply voltage level translating transceiver (3-state)	0.8 - 3.6	0.8 - 3.6	± 12	-40~125						•	•			
74AVC16T245-Q100	16-bit dual-supply voltage level translating transceiver (3-state)	0.8 - 3.6	0.8 - 3.6	± 12	-40~125									•	
74AVC20T245-Q100	20-bit dual-supply voltage-translating transceiver (3-state)	0.8 - 3.6	0.8 - 3.6	± 12	-40~125										•
74AVCH4T245-Q100	4-bit dual-supply voltage translating transceiver with bus hold (3-state)	0.8 - 3.6	0.8 - 3.6	± 12	-40~125		•	•	•						
74HC4050-Q100	hex buffer with 15V tolerant inputs	2.0 - 6.0	n.a	± 5.2	-40~125		•	•							
74LVC4T3144-Q100	4-bit dual supply buffer/line driver; 3-state	1.2 to 5.5	1.2 to 5.5	± 24	-40~125	•									
74LVC4245A-Q100	8-bit dual-supply voltage translating transceiver (3-state)	1.5 - 5.5	1.5 - 3.6	± 24	-40~125					•	•	•			
74LVC8T245-Q100	8-bit dual-supply voltage translating transceiver (3-state)	1.2 - 5.5	1.2 - 5.5	± 24	-40~125						•	•			
74LVCH8T245-Q100	8-bit dual-supply voltage translating transceiver with bus hold (3-state)	1.2 - 5.5	1.2 - 5.5	± 24	-40~125						•	•			
HEF4104B-Q100	quad low-to-high voltage translator (3-state)	3.0 - 15.0	3.0 - 15.0	± 2.4	-40~85		•								

For more information about automotive level shifters/translators visit
www.nexperia.com/products/automotive-qualified-products-q100-q101/automotive-logic/logic-voltage-translators/

Multivibrators

Type number	Description	Features				Package (suffix)		
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT109-1 (D)	SOT403-1 (PW)	SOT763-1 (BQ)
74AHC123A-Q100	dual retriggerable monostable multivibrator with reset	2.0 - 5.5	± 8	5.1	-40~125	•	•	•
74AHCT123A-Q100	dual retriggerable monostable multivibrator with reset; TTL enabled	4.5 - 5.5	± 8	5.0	-40~125	•	•	•
74HC123-Q100	dual retriggerable monostable multivibrator with reset	2.0 - 6.0	± 7.8	9.0	-40~125	•	•	•
74HCT123-Q100	dual retriggerable monostable multivibrator with reset; TTL enabled	4.5 - 5.5	± 4	26	-40~125	•	•	•
74HC4538-Q100	dual retriggerable precision monostable multivibrator	2.0 - 6.0	± 5.2	27	-40~125	•	•	
74HCT4538-Q100	dual retriggerable precision monostable multivibrator; TTL enabled	4.5 - 5.5	± 4	30	-40~125	•	•	
HEF4528B-Q100	dual retriggerable monostable multivibrator with reset	4.5 - 15.5	± 2.4	40	-40~85	•		
HEF4538B-Q100	dual retriggerable precision monostable multivibrator	4.5 - 15.5	± 2.4	60	-40~85	•		

For more information about automotive multivibrators visit
www.nexperia.com/products/automotive-qualified-products-q100-q101/automotive-logic/specialty-logic/

Schmitt-triggers

Type number	Description	Features				Package (suffix)				
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT108-1 (D)	SOT402-1 (PW)	SOT762-1 (BQ)	SOT163-1 (D)	SOT360-1 (PW)
74AHC14-Q100	hex inverter Schmitt-trigger	2.0 - 5.5	± 8	3.2	-40~125	•	•	•		
74AHCT14-Q100	hex inverter Schmitt-trigger; TTL enabled	4.5 - 5.5	± 8	4.0	-40~125	•	•	•		
74AHC132-Q100	quad 2-input NAND gate Schmitt-trigger	2.0 - 5.5	± 8	3.3	-40~125	•	•	•		
74AHCT132-Q100	quad 2-input NAND gate Schmitt-trigger; TTL enabled	4.5 - 5.5	± 8	3.5	-40~125	•	•	•		
74HC7014-Q100	hex buffer precision Schmitt-trigger	2.0 - 6.0	± 5.2	27	-40~125	•				
74HC14-Q100	hex inverter Schmitt-trigger	2.0 - 6.0	± 5.2	12	-40~125	•	•	•		
74HCT14-Q100	hex inverter Schmitt-trigger; TTL enabled	4.5 - 5.5	± 4	17	-40~125	•	•	•		
74HC132-Q100	quad 2-input NAND gate Schmitt-trigger	2.0 - 6.0	± 5.2	11	-40~125	•	•			
74HCT132-Q100	quad 2-input NAND gate Schmitt-trigger; TTL enabled	4.5 - 5.5	± 4	17	-40~125	•	•			
74HC7541-Q100	octal buffer/line driver Schmitt-trigger (3-State)	2.0 - 6.0	± 7.8	11	-40~125				•	•
74HCT7541-Q100	octal buffer/line driver Schmitt-trigger; TTL enabled (3-State)	4.5 - 5.5	± 6	16	-40~125				•	•
74LV132-Q100	quad 2-input NAND gate Schmitt-trigger	1.0 - 5.5	± 12	10	-40~125	•	•	•		
74LVC14A-Q100	hex inverter Schmitt-trigger	1.2 - 3.6	± 24	3.2	-40~125	•	•	•		
74LVC132A-Q100	quad 2-input NAND gate Schmitt-trigger	1.2 - 3.6	± 24	3.4	-40~125	•	•	•		
HEF40106B-Q100	hex inverter Schmitt-trigger	4.5 - 15.5	± 2.4	30	-40~85	•	•			

For more information about automotive Schmitt-triggers visit
www.nexperia.com/products/automotive-qualified-products-q100-q101/automotive-logic/buffers-drivers-transceivers/

Shift registers

Type number	Description	Features				Package (suffix)							
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT108-1 (D)	SOT402-1 (PW)	SOT762-1 (BQ)	SOT109-1 (D)	SOT403-1 (PW)	SOT763-1 (BQ)	SOT163-1 (D)	SOT360-1 (PW)
74AHC164-Q100	8-bit serial-in/parallel-out shift register	2.0 - 5.5	± 8	4.5	-40~125	•	•	•					
74AHCT164-Q100	8-bit serial-in/parallel-out shift register; TTL enabled	4.5 - 5.5	± 8	3.4	-40~125	•	•	•					
74AHC594-Q100	8-bit serial-in/parallel-out shift register with output register	2.0 - 5.5	± 8	4.1	-40~125				•	•	•		
74AHCT594-Q100	8-bit serial-in/parallel-out shift register with output register; TTL enabled	4.5 - 5.5	± 8	3.8	-40~125				•	•	•		
74AHC595-Q100	8-bit serial-in/parallel-out shift register with output register (3-state)	2.0 - 5.5	± 8	4.0	-40~125				•	•	•		
74AHCT595-Q100	8-bit serial-in/parallel-out shift register with output storage; TTL enabled (3-state)	4.5 - 5.5	± 8	3.8	-40~125				•	•	•		
74HC164-Q100	8-bit serial-in/parallel-out shift register	2.0 - 6.0	± 5.2	12	-40~125	•	•	•					
74HCT164-Q100	8-bit serial-in/parallel-out shift register; TTL enabled	4.5 - 5.5	± 4	12	-40~125	•	•	•					
74HC165-Q100	8-bit parallel or serial-in/serial-out shift register	2.0 - 6.0	± 5.2	16	-40~125				•	•	•		
74HCT165-Q100	8-bit parallel or serial-in/serial-out shift register; TTL enabled	4.5 - 5.5	± 4	14	-40~125				•	•	•		
74HC166-Q100	8-bit parallel or serial-in/serial-out shift register	2.0 - 6.0	± 5.2	15	-40~125				•	•			
74HCT166-Q100	8-bit parallel or serial-in/serial-out shift register; TTL enabled	4.5 - 5.5	± 4	23	-40~125				•				
74HC594-Q100	8-bit serial-in/parallel-out shift register with output storage register	2.0 - 6.0	± 7.8	14	-40~125			•					
74HCT594-Q100	8-bit serial-in/parallel-out shift register with output storage register; TTL enabled	4.5 - 5.5	± 6	15	-40~125				•				
74HC595-Q100	8-bit serial-in/parallel-out shift register with output storage register (3-state)	2.0 - 6.0	± 7.8	16	-40~125				•	•	•		
74HCT595-Q100	8-bit serial-in/parallel-out shift register with output storage register; TTL enabled (3-state)	4.5 - 5.5	± 6	25	-40~125				•	•	•		
74HC597-Q100	8-bit parallel or serial-in/parallel-out shift register with parallel input register	2.0 - 6.0	± 5.2	16	-40~125				•	•			
74HCT597-Q100	8-bit parallel or serial-in/parallel-out shift register with parallel input register; TTL enabled	4.5 - 5.5	± 4	20	-40~125				•				
74HC4094-Q100	8-bit serial-in/serial or parallel-out shift register with output register (3-state)	2.0 - 6.0	± 5.2	15	-40~125				•	•			
74HCT4094-Q100	8-bit serial-in/serial or parallel-out shift register with output register; TTL enabled (3-state)	4.5 - 5.5	± 4	19	-40~125				•				
74LV164-Q100	8-bit serial-in/parallel-out shift register	1.0 - 5.5	± 12	12	-40~125	•	•	•					
74LV165-Q100	8-bit parallel or serial-in/serial-out shift register	1.0 - 5.5	± 12	18	-40~125				•	•			
74LV165A-Q100	8-bit parallel or serial-in/serial-out shift register	1.0 - 5.5	± 12	7.5	-40~125				•	•			

Shift registers (continued)

Type number	Description	Features				Package (suffix)							
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT108-1 (D)	SOT402-1 (PW)	SOT762-1 (BQ)	SOT109-1 (D)	SOT403-1 (PW)	SOT763-1 (BQ)	SOT163-1 (D)	SOT360-1 (PW)
74LV4060-Q100	14-stage binary ripple counter with oscillator	1.0 - 5.5	± 6	29	-40~125				•	•			
74LVC594A-Q100	8-bit serial-in/parallel-out shift register with output storage register	1.2 - 5.5	± 24	3.1	-40~125				•	•	•		
74VHC595-Q100	8-bit serial-in/parallel-out shift register with output storage register (3-state)	2.0 - 5.5	± 8	4.0	-40~125				•	•	•		
74VHCT595-Q100	8-bit serial-in/parallel-out shift register with output storage register; TTL enabled (3-state)	4.5 - 5.5	± 8	3.8	-40~125				•	•	•		
HEF4014B-Q100	8-bit shift register with synchronous parallel enable	4.5 - 15	± 2.4	40	-40~85				•				
HEF4021B-Q100	8-bit shift register with asynchronous parallel load	4.5 - 15	± 2.4	40	-40~85				•	•			
HEF4094B-Q100	8-bit serial-in/serial or parallel-out shift register with output register (3-state)	4.5 - 15	± 2.4	50	-40~85				•	•			
HEF4794B-Q100	8-bit serial-in/serial or parallel-out shift register with output register LED driver (3-state)	4.5 - 15	-20	45	-40~85				•				
HEF4894B-Q100	12-bit serial-in/serial or parallel-out shift register with output register LED driver (3-state)	4.5 - 15	-20	45	-40~85							•	•
NPIC6C595-Q100	8-bit serial-in/parallel-out shift register with output storage register (3-state)	4.5 - 5.5	-100	90	-40~125				•	•	•		
NPIC6C596-Q100	8-bit serial-in/serial or parallel-out shift register with output register LED driver (3-state)	4.5 - 5.5	-100	90	-40~125				•	•	•		
NPIC6C596A-Q100	8-bit serial-in/serial or parallel-out shift register with output register LED driver (3-state)	2.3 - 5.5	-100	90	-40~125				•	•	•		
NPIC6C4894-Q100	12-bit serial-in/serial or parallel-out shift register with output register LED driver (3-state)	4.5 - 5.5	-100	105	-40~125							•	•

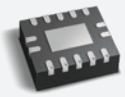
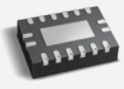
For more information about automotive Shift registers visit
www.nexperia.com/products/automotive-qualified-products-q100-q101/automotive-logic/flip-flops-latches-registers/

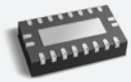
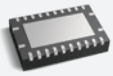
Transceivers

Type number	Description	Features				Package (suffix)			
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT163-1 (D)	SOT360-1 (PW)	SOT764-1 (BQ)	SOT362-1 (DGG)
74AHC245-Q100	octal transceiver (3-state)	2.0 - 5.5	± 8	3.5	-40~125	•	•	•	
74AHCT245-Q100	octal transceiver; TTL enabled (3-state)	4.5 - 5.5	± 8	5.0	-40~125	•	•	•	
74AVC16245-Q100	16-bit transceiver (3-state)	1.2 - 3.6	± 12	2.0	-40~85				•
74HC245-Q100	octal transceiver (3-state)	2.0 - 6.0	± 7.8	7.0	-40~125	•	•	•	
74HCT245-Q100	octal transceiver; TTL enabled (3-state)	4.5 - 5.5	± 6	10	-40~125	•	•	•	
74LVC245A-Q100	octal transceiver (3-state)	1.2 - 3.6	± 24	2.9	-40~125	•	•	•	
74LVCH245A-Q100	octal transceiver with bus hold (3-state)	1.2 - 3.6	± 24	2.9	-40~125	•	•	•	
74LVC162245A-Q100	16-bit transceiver with 30 Ω termination resistors (3-state)	1.2 - 3.6	± 12	3.3	-40~125				•

For more information about automotive transceivers visit
www.nexperia.com/products/automotive-qualified-products-q100-q101/automotive-logic/buffers-drivers-transceivers/

Standard logic packages

Package suffix	D	PW	BQ	D	PW	BQ	D
	14-pin	14-pin	14-pin	16-pin	16-pin	16-pin	20-pin
							
Package	SOT108-1	SOT402-1	SOT762-1	SOT109-1	SOT403-1	SOT763-1	SOT163-1
Width (mm)	6.00	6.40	2.50	6.00	6.40	2.50	10.30
Length (mm)	8.65	5.00	3.00	9.90	5.00	3.50	12.80
Height (mm)	1.75	1.10	1.00	1.75	1.10	1.00	2.65
Pitch (mm)	1.27	0.65	0.50	1.27	0.65	0.50	1.27

Package suffix	PW	BQ	D	PW	BQ	DGG	DGV
	20-pin	20-pin	24-pin	24-pin	24-pin	48-pin	48-pin
							
Package	SOT360-1	SOT764-1	SOT137-1	SOT355-1	SOT815-1	SOT362-1	SOT480-1
Width (mm)	6.40	2.50	10.30	6.40	3.50	8.10	6.40
Length (mm)	6.50	4.50	15.40	7.80	5.50	12.50	9.70
Height (mm)	1.10	1.00	2.65	1.10	1.00	1.20	1.10
Pitch (mm)	0.65	0.50	1.27	0.65	0.50	0.50	0.40

Note: The HEF4000B family uses different package suffixes than the other families. Package suffix D corresponds to HEF4000B package suffix T and PW to TT.

Q100 mini logic functions and packages

Mini-Logic functions

Mini logic functions are small footprint logic devices with 10 pins or less suitable for use at supply voltage between 1.1 V to 6.0 V. They provide a wide range of functions including analog switches, buffers/inverters, bus switches, decoders/de-multiplexers, multiplexers, flip-flops, gates, configurable logic and level shifters. Q100 Mini logic functions are available in leaded TSSOP and VSSOP packages as well as innovative leadless XSON packages.

Analog switches

Type number	Description	Features					Package (suffix)					
		Configuration	V_{CC} (V)	R_{ON} (Ω)	R_{ON}(FLAT) (Ω)	T_{amb} (°C)	SOT353-1 (GW)	SOT753 (GV)	SOT363 (GW)	SOT457 (GV)	SOT505-2 (DP)	SOT765-1 (DC)
74AHC1G66-Q100	single-pole, single-throw analog switch	SPST-NO	2.0 - 5.5	40	5	-40~125	•	•				
74AHCT1G66-Q100	single-pole, single-throw analog switch; TTL enabled	SPST-NO	4.5 - 5.5	40	5	-40~125	•	•				
74HC1G66-Q100	single-pole, single-throw analog switch	SPST-NO	2.0 - 9.0	105	23	-40~125	•	•				
74HCT1G66-Q100	single-pole, single-throw analog switch; TTL enabled	SPST-NO	4.5 - 5.5	118	23	-40~125	•	•				
74HC2G66-Q100	dual single-pole, single-throw analog switch	SPST-NO	2.0 - 9.0	105	23	-40~125					•	•
74HCT2G66-Q100	dual single-pole, single-throw analog switch; TTL enabled	SPST-NO	4.5 - 5.5	118	23	-40~125					•	•
74LVC1G53-Q100	single-pole, double-throw analog switch	SPDT-Z	1.65 - 5.5	15	1.5	-40~125					•	•
74LVC1G66-Q100	single-pole, single-throw analog switch	SPST-NO	1.65 - 5.5	15	1.5	-40~125	•	•				
74LVC1G384-Q100	single-pole, single-throw analog switch	SPST-NC	1.65 - 5.5	15	1.5	-40~125	•	•				
74LVC1G3157-Q100	single-pole, double-throw analog switch	SPDT	1.65 - 5.5	15	1.5	-40~125			•	•		
74LVC2G66-Q100	dual single-pole, single-throw analog switch	SPST-NO	1.65 - 5.5	15	1.5	-40~125					•	•

For more information about automotive analog switches visit
www.nexperia.com/products/logic/automotive-logic/switches-multiplexers-de-multiplexers/

Bus switches

Type number	Description	Features				Package (suffix)	
		V_{CC} (V)	V_{PASS} (V)	R_{ON} (Ω)	T_{amb} (°C)	SOT96-1 (D)	SOT530-1 (PW)
CBT3306-Q100	dual bus switch	4.5 - 5.5	3.9	7	-40~85	•	•

For more information about automotive bus switches visit
www.nexperia.com/products/logic/automotive-logic/switches-multiplexers-de-multiplexers/

Buffers/inverters

Type number	Description	Features				Package (suffix)					
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT353-1 (GW)	SOT753 (GV)	SOT363 (GW)	SOT457 (GV)	SOT505-2 (DP)	SOT765-1 (DC)
74AHC1GU04-Q100	single inverter; unbuffered	2.0 - 5.5	± 8	2.6	-40~125	•	•				
74AHC3GU04-Q100	triple inverter; unbuffered	2.0 - 5.5	± 8	2.5	-40~125					•	•
74AHC1G04-Q100	single inverter	2.0 - 5.5	± 8	3.1	-40~125	•	•				
74AHCT1G04-Q100	single inverter; TTL enabled	4.5 - 5.5	± 8	3.4	-40~125	•	•				
74AHC1G07-Q100	single buffer; open-drain	2.0 - 5.5	8	4.2	-40~125	•	•				
74AHC1G17-Q100	single buffer with Schmitt-trigger inputs	2.0 - 5.5	± 8	3.2	-40~125	•					
74AHCT1G17-Q100	single buffer with Schmitt-trigger inputs; TTL-enabled	4.5 - 5.5	± 8	4.1	-40~125	•					
74AHC1G125-Q100	single buffer/line driver (3-state)	2.0 - 5.5	± 8	3.4	-40~125	•	•				
74AHCT1G125-Q100	single buffer/line driver; TTL enabled (3-state)	4.5 - 5.5	± 8	3.4	-40~125	•	•				
74AHC1G126-Q100	single buffer/line driver (3-state)	2.0 - 5.5	± 8	3.4	-40~125	•	•				
74AHCT1G126-Q100	single buffer/line driver; TTL enabled (3-state)	4.5 - 5.5	± 8	3.4	-40~125	•	•				
74AHC2G125-Q100	dual buffer/line driver (3-state)	2.0 - 5.5	± 8	3.4	-40~125					•	•
74AHCT2G125-Q100	dual buffer/line driver; TTL enabled (3-state)	4.5 - 5.5	± 8	3.4	-40~125					•	•
74AHC2G126-Q100	dual buffer/line driver (3-state)	2.0 - 5.5	± 8	3.4	-40~125					•	•
74AHCT2G126-Q100	dual buffer/line driver; TTL enabled (3-state)	4.5 - 5.5	± 8	3.4	-40~125					•	•
74AHC2G241-Q100	dual buffer/line driver (3-state)	2.0 - 5.5	± 8	3.4	-40~125					•	•
74AHCT2G241-Q100	dual buffer/line driver; TTL enabled (3-state)	4.5 - 5.5	± 8	3.4	-40~125					•	•
74AHC3G04-Q100	triple inverter	2.0 - 5.5	± 8	3.1	-40~125					•	•
74AHCT3G04-Q100	triple inverter; TTL enabled	4.5 - 5.5	± 8	3.0	-40~125					•	•
74AUP1G04-Q100	single inverter	1.1 - 3.6	± 1.9	4.0	-40~125	•	•				
74AUP1G06-Q100	single inverter; open-drain	1.1 - 3.6	1.9	4.5	-40~125	•					
74AUP1G34-Q100	single buffer	1.1 - 3.6	± 1.9	3.9	-40~125	•					
74AUP1G125-Q100	single buffer/line driver (3-state)	1.1 - 3.6	± 1.9	4.3	-40~125	•					
74AUP2G04-Q100	dual inverter	1.1 - 3.6	± 1.9	4.0	-40~125			•			
74AUP2GU04-Q100	dual inverter; unbuffered	1.1 - 3.6	± 1.9	2.3	-40~125			•			
74HC1GU04-Q100	single inverter; unbuffered	2.0 - 6.0	± 2.6	5.0	-40~125	•	•				
74HC2GU04-Q100	dual inverter; unbuffered	2.0 - 6.0	± 5.2	5.0	-40~125			•	•		
74HC3GU04-Q100	triple inverter; unbuffered	2.0 - 6.0	± 5.2	6.0	-40~125					•	•
74HC1G04-Q100	single inverter	2.0 - 6.0	± 2.6	7.0	-40~125	•	•				
74HCT1G04-Q100	single inverter; TTL enabled	4.5 - 5.5	± 2.0	8.0	-40~125	•	•				
74HC1G125-Q100	single buffer/line driver (3-state)	2.0 - 6.0	± 2.6	9.0	-40~125	•	•				
74HCT1G125-Q100	single buffer/line driver; TTL enabled (3-state)	4.5 - 5.5	± 2.0	10	-40~125	•	•				
74HC2G04-Q100	dual inverter	2.0 - 6.0	± 5.2	8.0	-40~125			•	•		

Buffers/inverters (continued)

Type number	Description	Features				Package (suffix)					
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT353-1 (GW)	SOT753 (GV)	SOT363 (GW)	SOT457 (GV)	SOT505-2 (DP)	SOT765-1 (DC)
74HCT2G04-Q100	dual inverter; TTL enabled	4.5 - 5.5	± 4.0	10	-40~125			•	•		
74HC2G34-Q100	dual buffer	2.0 - 6.0	± 5.2	9.0	-40~125			•	•		
74HCT2G34-Q100	dual buffer; TTL enabled	4.5 - 5.5	± 4.0	10	-40~125			•	•		
74HC2G125-Q100	dual buffer/line driver (3-state)	2.0 - 6.0	± 5.2	10	-40~125					•	•
74HCT2G125-Q100	dual buffer/line driver; TTL enabled (3-state)	4.5 - 5.5	± 4.0	12	-40~125					•	•
74HC3G04-Q100	triple inverter	2.0 - 6.0	± 5.2	8.0	-40~125					•	•
74HCT3G04-Q100	triple inverter; TTL enabled	4.5 - 5.5	± 4.0	10	-40~125					•	•
74HC3G07-Q100	triple buffer; open-drain	2.0 - 6.0	5.2	9.0	-40~125					•	•
74HCT3G07-Q100	triple buffer; open-drain; TTL enabled	4.5 - 5.5	4	9.0	-40~125					•	•
74HC3G34-Q100	triple buffer	2.0 - 6.0	± 5.2	9.0	-40~125					•	•
74HCT3G34-Q100	triple buffer; TTL enabled	4.5 - 5.5	± 4.0	10	-40~125						•
74LVC1G04-Q100	single inverter	1.65 - 5.5	± 32	2.0	-40~125	•	•				
74LVC1G06-Q100	single inverter; open-drain	1.65 - 5.5	32	2.3	-40~125	•	•				
74LVC1G07-Q100	single buffer; open-drain	1.65 - 5.5	32	2.2	-40~125	•	•				
74LVC1G34-Q100	single buffer	1.65 - 5.5	± 32	2.0	-40~125	•	•				
74LVC1G125-Q100	single buffer/line driver (3-state)	1.65 - 5.5	± 32	2.1	-40~125	•	•				
74LVC1G126-Q100	single buffer/line driver (3-state)	1.65 - 5.5	± 32	2.0	-40~125	•	•				
74LVC1GU04-Q100	single inverter; unbuffered	1.65 - 5.5	± 32	1.6	-40~125	•	•				
74LVC2G04-Q100	dual inverter	1.65 - 5.5	± 32	2.7	-40~125			•	•		
74LVC2G06-Q100	dual inverter; open-drain	1.65 - 5.5	32	2.3	-40~125			•	•		
74LVC2G07-Q100	dual buffer; open-drain	1.65 - 5.5	32	2.6	-40~125			•	•		
74LVC2G125-Q100	dual buffer/line driver (3-state)	1.65 - 5.5	± 32	2.3	-40~125					•	•
74LVC2G126-Q100	dual buffer/line driver (3-state)	1.65 - 5.5	± 32	2.4	-40~125					•	•
74LVC2G240-Q100	dual inverter/line driver (3-state)	1.65 - 5.5	± 32	2.5	-40~125					•	•
74LVC2G241-Q100	dual buffer/line driver (3-state)	1.65 - 5.5	± 32	2.6	-40~125					•	•
74LVC2GU04-Q100	dual inverter; unbuffered	1.65 - 5.5	± 32	2.3	-40~125			•	•		
74LVC3G04-Q100	triple inverter	1.65 - 5.5	± 32	2.7	-40~125					•	•
74LVC3G07-Q100	triple buffer; open-drain	1.65 - 5.5	32	2.1	-40~125					•	•
74LVC3G34-Q100	triple buffer	1.65 - 5.5	± 32	2.2	-40~125					•	•

For more information about automotive buffers/inverters visit:
www.nexperia.com/products/automotive-qualified-products-q100-q101/automotive-logic/buffers-drivers-transceivers/

Digital decoders/demultiplexers

Type number	Description	Features				Package (suffix)	
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT363 (GW)	SOT457 (GV)
74LVC1G18-Q100	1-to-2 demultiplexer (3-state)	1.65 - 5.5	± 32	2.3	-40~125	•	•
74LVC1G19-Q100	1-to-2 demultiplexer	1.65 - 5.5	± 32	1.8	-40~125	•	

For more information about automotive digital decoders/demultiplexers visit:
www.nexperia.com/products/logic/automotive-logic/switches-multiplexers-de-multiplexers/

Digital multiplexers

Type number	Description	Features				Package (suffix)	
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT363 (GW)	SOT457 (GV)
74LVC1G157-Q100	single 2-input multiplexer	1.65 - 5.5	± 32	2.2	-40~125	•	•

For more information about automotive digital multiplexers visit:
www.nexperia.com/products/logic/automotive-logic/switches-multiplexers-de-multiplexers/

Flip-flops

Type number	Description	Features				Package (suffix)					
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT353-1 (GW)	SOT753 (GV)	SOT363 (GW)	SOT457 (GV)	SOT505-2 (DP)	SOT765-1 (DC)
74AHC1G79-Q100	single D-type flip-flop; positive-edge trigger	2.0 - 5.5	± 8	3.5	-40~125	•	•				
74AHCT1G79-Q100	single D-type flip-flop; positive-edge trigger; TTL enabled	4.5 - 5.5	± 8	3.5	-40~125	•	•				
74AUP1G74-Q100	single D-type flip-flop with set and reset; positive-edge trigger	1.1 - 3.6	± 1.9	8.1	-40~125						•
74AUP1G175-Q100	single D flip-flop with reset; positive-edge trigger	1.1 - 3.6	± 1.9	7.4	-40~125			•			
74AUP1G374-Q100	single D-type flip-flop; positive-edge trigger (3-state)	1.1 - 3.6	± 1.9	7.9	-40~125			•			
74AUP2G79-Q100	dual D-type flip-flop; positive-edge trigger	1.1 - 3.6	± 1.9	8.5	-40~125						•
74LVC1G74-Q100	single D-type flip-flop with set and reset; positive-edge trigger	1.65 - 5.5	± 32	3.5	-40~125					•	•
74LVC1G79-Q100	single D-type flip-flop; positive-edge trigger	1.65 - 5.5	± 32	2.2	-40~125	•	•				
74LVC1G80-Q100	single D-type flip-flop; positive-edge trigger	1.65 - 5.5	± 32	2.4	-40~125	•	•				
74LVC1G175-Q100	single D flip-flop with reset; positive-edge trigger	1.65 - 5.5	± 32	3.1	-40~125			•	•		
74LVC2G74-Q100	single D-type flip-flop with set and reset; positive-edge trigger	1.65 - 5.5	± 32	3.5	-40~125					•	•

For more information about automotive flip-flops visit:
www.nexperia.com/products/automotive-qualified-products-q100-q101/automotive-logic/flip-flops-latches-registers/

Gates

Type number	Description	Features				Package (suffix)					
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT353-1 (GW)	SOT753 (GV)	SOT363 (GW)	SOT457 (GV)	SOT505-2 (DP)	SOT765-1 (DC)
74AHC1G09-Q100	single 2-input AND gate; open-drain	2.0 - 5.5	± 8	3.2	-40~125	•	•				
74AHC1G00-Q100	single 2-input NAND gate	2.0 - 5.5	± 8	3.5	-40~125	•	•				
74AHCT1G00-Q100	single 2-input NAND gate; TTL enabled	4.5 - 5.5	± 8	3.6	-40~125	•	•				
74AHC1G02-Q100	single 2-input NOR gate	2.0 - 5.5	± 8	3.2	-40~125	•	•				
74AHCT1G02-Q100	single 2-input NOR gate; TTL enabled	4.5 - 5.5	± 8	3.5	-40~125	•	•				
74AHC1G08-Q100	single 2-input AND gate	2.0 - 5.5	± 8	3.2	-40~125	•	•				
74AHCT1G08-Q100	single 2-input AND gate; TTL enabled	4.5 - 5.5	± 8	3.6	-40~125	•	•				
74AHC1G32-Q100	single 2-input OR gate	2.0 - 5.5	± 8	3.2	-40~125	•	•				
74AHCT1G32-Q100	single 2-input OR gate; TTL enabled	4.5 - 5.5	± 8	3.3	-40~125	•	•				
74AHC1G86-Q100	2-input EXCLUSIVE-OR gate	2.0 - 5.5	± 8	3.4	-40~125	•	•				
74AHCT1G86-Q100	2-input EXCLUSIVE-OR gate; TTL enabled	4.5 - 5.5	± 8	3.5	-40~125	•	•				
74AHC2G00-Q100	dual 2-input NAND gate	2.0 - 5.5	± 8	3.5	-40~125					•	•
74AHCT2G00-Q100	dual 2-input NAND gate; TTL enabled	4.5 - 5.5	± 8	3.6	-40~125					•	•
74AHC2G08-Q100	dual 2-input AND gate	2.0 - 5.5	± 8	3.2	-40~125					•	•
74AHCT2G08-Q100	dual 2-Input AND gate; TTL enabled	4.5 - 5.5	± 8	3.6	-40~125					•	•
74AHC2G32-Q100	dual 2-input OR gate	2.0 - 5.5	± 8	3.2	-40~125					•	•
74AHCT2G32-Q100	dual 2-input OR gate; TTL enabled	4.5 - 5.5	± 8	3.3	-40~125					•	•
74AUP1G02-Q100	single 2-input NOR gate	1.1 - 3.6	± 1.9	8.2	-40~125	•					
74AUP1G08-Q100	single 2-input AND gate	1.1 - 3.6	± 1.9	8.2	-40~125	•					
74AUP1G32-Q100	single 2-input OR gate	1.1 - 3.6	±1.9	7.9	-40~125	•					
74AUP1G86-Q100	single 2-input EXCLUSIVE-OR gate	1.1 - 3.6	± 1.9	3.3	-40~125	•					
74AUP1T98-Q100	configurable gate with voltage level translation	2.3-3.6 V	±1.9	8.7	-40~125			•			
74HC1G86-Q100	single 2-input EXCLUSIVE-OR gate	2.0 - 6.0	± 2.6	9.0	-40~125	•	•				
74HC1G00-Q100	single 2-input NAND gate	2.0 - 6.0	± 2.6	7.0	-40~125	•					
74HCT1G00-Q100	single 2-input NAND gate; TTL enabled	4.5 - 5.5	± 2	10	-40~125	•	•				
74HC1G02-Q100	single 2-input NOR gate	2.0 - 6.0	± 2.6	7.0	-40~125	•	•				
74HCT1G02-Q100	single 2-input NOR gate; TTL enabled	4.5 - 5.5	± 2.0	9.0	-40~125	•	•				
74HC1G08-Q100	single 2-input AND gate	2.0 - 6.0	± 5.2	7.0	-40~125	•	•				
74HCT1G08-Q100	single 2-input AND gate; TTL enabled	4.5 - 5.5	± 2	11	-40~125	•	•				
74HC1G32-Q100	single 2-input OR gate	2.0 - 6.0	± 2.6	8.0	-40~125	•	•				
74HCT1G32-Q100	single 2-input OR gate; TTL enabled	4.5 - 5.5	± 2.0	10	-40~125	•	•				
74HC2G00-Q100	dual 2-input NAND gate	2.0 - 6.0	± 5.6	9.0	-40~125					•	•
74HCT2G00-Q100	dual 2-input NAND gate; TTL enabled	4.5 - 5.5	± 4	12	-40~125					•	•
74HC2G02-Q100	dual 2-input NOR gate	2.0 - 6.0	± 5.2	9.0	-40~125					•	•
74HCT2G02-Q100	dual 2-input NOR gate; TTL enabled	4.5 - 5.5	± 4	12	-40~125					•	•
74HC2G08-Q100	dual 2-input AND gate	2.0 - 6.0	± 5.2	9.0	-40~125					•	•

Gates (continued)

Type number	Description	Features				Package (suffix)					
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT353-1 (GW)	SOT753 (GV)	SOT363 (GW)	SOT457 (GV)	SOT505-2 (DP)	SOT765-1 (DC)
74HCT2G08-Q100	dual 2-Input AND gate; TTL enabled	4.5 - 5.5	± 4	14	-40~125					•	•
74HC2G32-Q100	dual 2-input OR gate	2.0 - 6.0	± 5.2	9.0	-40~125					•	•
74HCT2G32-Q100	dual 2-input OR gate; TTL enabled	4.5 - 5.5	± 4.0	13	-40~125					•	•
74HC2G86-Q100	dual 2-input EXCLUSIVE-OR gate	2.0 - 6.0	± 5.2	9.0	-40~125					•	•
74HCT2G86-Q100	dual 2-input EXCLUSIVE-OR gate; TTL enabled	4.5 - 5.5	± 4.0	11	-40~125					•	•
74HCT1G86-Q100	single 2-input EXCLUSIVE-OR gate; TTL enabled	4.5 - 5.5	± 2.0	10	-40~125	•	•				
74LVC1G00-Q100	single 2-input NAND gate	1.65 - 5.5	± 32	2.2	-40~125	•	•				
74LVC1G02-Q100	single 2-input NOR gate	1.65 - 5.5	± 32	2.1	-40~125	•	•				
74LVC1G08-Q100	single 2-input AND gate	1.65 - 5.5	± 32	2.1	-40~125	•	•				
74LVC1G10-Q100	single 3-input NAND gate	1.65 - 5.5	± 32	2.6	-40~125			•			
74LVC1G11-Q100	single 3-input AND gate	1.65 - 5.5	± 32	2.6	-40~125			•	•		
74LVC1G32-Q100	single 2-input OR gate	1.65 - 5.5	± 32	2.1	-40~125	•	•				
74LVC1G38-Q100	single 2-input NAND gate; open-drain	1.65 - 5.5	32	2.3	-40~125	•	•				
74LVC1G57-Q100	configurable gate; Schmitt trigger	1.65 - 5.5	± 32	3.8	-40~125			•	•		
74LVC1G58-Q100	configurable gate; Schmitt trigger	1.65 - 5.5	± 32	3.8	-40~125			•	•		
74LVC1G86-Q100	single 2-input EXCLUSIVE-OR gate	1.65 - 5.5	± 32	2.4	-40~125	•	•				
74LVC1G332-Q100	single 3-input OR gate	1.65 - 5.5	± 32	2.6	-40~125			•	•		
74LVC1GX04-Q100	crystal driver	1.65 - 5.5	± 24	2.8	-40~125			•	•		
74LVC2G00-Q100	dual 2-input NAND gate	1.65 - 5.5	± 32	2.2	-40~125						•
74LVC2G02-Q100	dual 2-input NOR gate	1.65 - 5.5	± 32	2.4	-40~125					•	•
74LVC2G08-Q100	dual 2-input AND gate	1.65 - 5.5	± 24	2.1	-40~125					•	•
74LVC2G32-Q100	dual 2-input OR gate	1.65 - 5.5	± 32	2.2	-40~125					•	•
74LVC2G34-Q100	dual buffer	1.65 - 5.5	± 32	2.2	-40~125			•	•		
74LVC2G86-Q100	dual 2-input EXCLUSIVE-OR gate	1.65 - 5.5	± 32	2.3	-40~125					•	•

For more information about automotive gates visit:
www.nexperia.com/products/automotive-qualified-products-q100-q101/automotive-logic/gates/

Latches/registered drivers

Type number	Description	Features				Package (suffix)
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT363 (GW)
74AUP1G373-Q100	single D-type transparent latch (3-state)	1.1 - 3.6	±1.9	8.5	-40~125	•

For more information about automotive latches/registered drivers visit:
www.nexperia.com/products/automotive-qualified-products-q100-q101/automotive-logic/flip-flops-latches-registers/

Multivibrators

Type number	Description	Features				Package (suffix)	
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT505-2 (DP)	SOT765-1 (DC)
74LVC1G123-Q100	single retriggerable monostable multivibrator	1.65 - 5.5	± 32	3.5	-40~125	•	•

For more information about automotive multivibrators visit:
www.nexperia.com/products/automotive-qualified-products-q100-q101/automotive-logic/specialty-logic/

Schmitt-triggers

Type number	Description	Features				Package (suffix)					
		V_{CC} (V)	I_O (mA)	t_{pd} (ns)	T_{amb} (°C)	SOT353-1 (GW)	SOT753 (GV)	SOT363 (GW)	SOT457 (GV)	SOT505-2 (DP)	SOT765-1 (DC)
74AHC1G14-Q100	single inverter Schmitt-trigger	2.0 - 5.5	± 8	3.2	-40~125	•	•				
74AHCT1G14-Q100	single inverter Schmitt-trigger; TTL enabled	4.5 - 5.5	± 8	4.1	-40~125	•	•				
74AHC3G14-Q100	triple inverter Schmitt-trigger	2.0 - 5.5	± 8	3.2	-40~125					•	•
74AHCT3G14-Q100	triple inverter Schmitt-trigger; TTL enabled	4.5 - 5.5	± 8	4.1	-40~125					•	•
74HC1G14-Q100	single inverter Schmitt-trigger	2.0 - 6.0	± 2.6	10	-40~125	•	•				
74HCT1G14-Q100	single inverter Schmitt-trigger; TTL enabled	4.5 - 5.5	± 2.0	15	-40~125	•	•				
74HC2G14-Q100	dual inverter Schmitt-trigger	2.0 - 6.0	± 5.2	16	-40~125			•	•		
74HCT2G14-Q100	dual inverter Schmitt-trigger; TTL enabled	4.5 - 5.5	± 4.0	21	-40~125			•	•		
74HC2G17-Q100	dual buffer Schmitt-trigger	2.0 - 6.0	± 5.2	12	-40~125			•	•		
74HCT2G17-Q100	dual buffer Schmitt-trigger; TTL enabled	4.5 - 5.5	± 4.0	21	-40~125			•	•		
74HC3G14-Q100	triple inverter Schmitt-trigger	2.0 - 6.0	± 5.2	16	-40~125					•	•
74HCT3G14-Q100	triple inverter Schmitt-trigger; TTL enabled	4.5 - 5.5	± 4.0	21	-40~125					•	•
74LVC1G14-Q100	single inverter Schmitt-trigger	1.65 - 5.5	± 32	3.0	-40~125	•	•				
74LVC1G17-Q100	single buffer Schmitt-trigger	1.65 - 5.5	± 32	3.0	-40~125	•	•				
74LVC2G14-Q100	dual inverter Schmitt-trigger	1.65 - 5.5	± 32	3.9	-40~125			•	•		
74LVC2G17-Q100	dual buffer Schmitt-trigger	1.65 - 5.5	± 32	3.6	-40~125			•	•		
74LVC3G17-Q100	triple buffer Schmitt-trigger	1.65 - 5.5	± 32	3.6	-40~125					•	•

For more information about automotive Schmitt-triggers visit:
www.nexperia.com/products/automotive-qualified-products-q100-q101/automotive-logic/buffers-drivers-transceivers/

Level shifters/translators

Type number	Description	Features				Package (suffix)				
		V_{CC}(A) (V)	V_{CC}(B) (V)	I_O (mA)	T_{amb} (°C)	SOT353-1 (GW)	SOT363 (GW)	SOT505-2 (DP)	SOT765-1 (DC)	SOT552-1 (DP)
74AUP1T34-Q100	single dual supply translating buffer	1.1 - 3.6	1.1 - 3.6	± 1.9	-40~125	•				
74AVC1T45-Q100	single dual-supply voltage level translating transceiver (3-state)	0.8 - 3.6	0.8 - 3.6	± 12	-40~125		•			
74AVC2T45-Q100	dual-bit dual-supply voltage level translating transceiver (3-state)	0.8 - 3.6	0.8 - 3.6	± 12	-40~125			•	•	
74AVCH1T45-Q100	single dual-supply voltage translating transceiver with bus hold (3-state)	0.8 - 3.6	0.8 - 3.6	± 12	-40~125		•			
74AXP1T57-Q100	dual-supply translating configurable multiple function gate, Schmitt-trigger inputs	0.7 - 2.75	1.2 - 5.5	± 12	-40~125				•	
74AXP2T08-Q100	dual-supply 2-input AND gate	0.7 - 2.75	1.2 - 5.5	± 12	-40~125					•
74LVC1T45-Q100	single dual-supply voltage level translating transceiver (3-state)	1.2 - 5.5	1.2 - 5.5	± 24	-40~125		•			
74LVCH1T45-Q100	single dual-supply voltage translating transceiver with bus hold (3-state)	1.2 - 5.5	1.2 - 5.5	± 24	-40~125		•			
74LVC2T45-Q100	dual-bit dual-supply voltage level translating transceiver (3-state)	1.2 - 5.5	1.2 - 5.5	± 24	-40~125				•	
74LVCH2T45-Q100	dual-bit dual-supply voltage level translating transceiver with bus hold (3-state)	1.2 - 5.5	1.2 - 5.5	± 24	-40~125				•	

For more information about automotive level shifters/translators visit:
www.nexperia.com/products/automotive-qualified-products-q100-q101/automotive-logic/logic-voltage-translators/

Mini Logic packages

Package suffix	GW	GV	GW	GV	D	DP	PW	DC	DP
	5-pin	5-pin	6-pin	6-pin	8-pin	8-pin	8-pin	8-pin	10-pin
									
Package	SOT353-1	SOT753	SOT363	SOT457	SOT96-1	SOT505-2	SOT530-1	SOT765-1	SOT552-1
Width (mm)	2.10	2.75	2.10	2.75	6.00	4.00	6.40	3.10	4.90
Length (mm)	2.00	2.90	2.00	2.90	4.90	3.00	3.0	2.00	3.00
Height (mm)	1.10	1.10	1.10	1.10	1.75	1.10	1.10	1.00	1.10
Pitch (mm)	0.65	0.95	0.65	0.95	1.27	0.65	0.65	0.50	0.50

Notes

Notes

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