X2SON – the smallest Logic leadless packages for use without step-down mask

Ultra-small 4, 5, 6 & 8-pin MicroPak packages with ≥ 0.4 mm pitch

Nexperia has developed the X2SON packages, part of MicroPak packages, to provide the smallest footprint for logic functions while ensuring pad pitch remains 0.4mm or over, making step-down masks unnecessary. Our X2SON packages are available in low-power AUP, AXP, LV and LVC technology families covering over one hundred logic functions. Additional types are continuously added and the miniaturization process continues with the recent introduction of X2SON4. This new 4-pin package option reduces footprint by 44% compared to the 5-pin X2SON5.

Key features

- Smaller footprint (up to -36% vs. GF & -25% vs. GN packages)
- High contact area-to-chip ratio and enhanced durability
- RoHS & dark-green compliant with NiPdAu leadframe finish
- Low profile height (0.35mm) and low width (0.8mm)

Benefits

- Lower PCB costs, easier placement and miniaturization
- No step-down stencil, lowering cost & facilitating assembly
- Future-proof, part of Nexperia's recommended packages

Applications

- Mobile devices
- Portable computing
- IoT & wearables
- Consumer electronics

Most Mini Logic functions from the Nexperia portfolio are now offered in X2SON, our smallest-footprint logic plastic packages. The innovative X2SON package with GX/GX4 suffix was introduced in 2012 with X2SON5, followed by X2SON6 in 2015, X2SON8 in 2016 and X2SON4 in 2018. Nexperia has been leading package innovation in logic and driving the trend toward smaller packages and more power-efficient technologies and will continue to do so.

Package name	Package version	L (mm)	W (mm)	H (mm)	P (mm)	Suffix
X2SON4	SOT1269	0.6	0.6	0.32	≥ 0.4	GX4
X2SON5	SOT1226	0.8	0.8	0.35	≥ 0.4	GX
X2SON6	SOT1255	1.0	0.8	0.35	≥ 0.4	GX
X2SON8	SOT1233	1.35	0.8	0.35	≥ 0.4	GX

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EFFICIENCY WINS.

1G Single-Gates	Description	X2SON4	X2SON5	X2SON6	X2SON8
74AUP1G00	2-input NAND gate		•		
74AUP1G02	2-input NOR gate		•		
74AUP1G04	Inverter	•	•		
74AUP1G06	Inverter; open-drain		•		
74AUP1G07	Buffer; open-drain	•	•		
74AUP1G08	2-input AND gate		•		
74AUP1G09	2-input AND gate; open-drain		•		
74AUP1G125	Buffer/line driver (3-state)		•		
74AUP1G126	Buffer/line driver (3-state)		•		
74AUP1G132	2-input NAND gate; Schmitt-trigger		•		
74AUP1G14	Inverter; Schmitt-trigger	•	•		
74AUP1G157	2-input multiplexer			•	
74AUP1G17	Buffer; Schmitt-trigger	•	•		
74AUP1G240	Inverter/line driver (3-state)		•		
74AUP1G32	2-input OR gate		•		
74AUP1G3208	3-input OR-AND gate			•	
74AUP1G34	Buffer	•	•		
74AUP1G38	2-input NAND gate; open-drain		•		
74AUP1G57	Configurable gate; Schmitt trigger			•	
74AUP1G58	Configurable gate; Schmitt trigger			•	
74AUP1G74	D-type flip-flop with set and reset				•
74AUP1G79	D-type flip-flop; positive-edge trigger		•		
74AUP1G80	D-type flip-flop; positive-edge trigger		•		
74AUP1G86	2-input XOR gate		•		
74AUP1G97	Configurable gate; Schmitt trigger			•	
74AUP1G98	Configurable gate; Schmitt trigger			•	
74AUP1GU04	Unbuffered inverter		•		
74AXP1G00	2-input NAND gate		•		
74AXP1G02	2-input NOR gate		•		
74AXP1G04	Inverter		•		
74AXP1G06	Inverter; open-drain		•		
74AXP1G07	Buffer; open-drain		•		
74AXP1G08	2-input AND gate		•		
74AXP1G09	2-input AND gate; open-drain		•		
74AXP1G125	Buffer/line driver (3-state)		•		
74AXP1G14	Inverter; Schmitt-trigger		•		
74AXP1G17	Buffer; Schmitt trigger		•		
74AXP1G32	2-input OR gate		•		
74AXP1G57	Configurable gate; Schmitt trigger			•	
74AXP1G58	Configurable gate; Schmitt trigger			•	
74AXP1G86	2-input XOR gate		•		
74AXP1G97	Configurable gate; Schmitt trigger			•	
74LVC1G00	2-input NAND gate		•		
74LVC1G02	2-input NOR gate		•		
74LVC1G04	Inverter	•	•		
74LVC1G06	Inverter; open-drain		•		
74LVC1G07	Buffer; open-drain	•	•		
74LVC1G08	2-input AND gate		•		
74LVC1G11	3-input AND gate			•	
74LVC1G125	Buffer/line driver (3-state)		•		
74LVC1G126	Buffer/line driver (3-state)		•		
74LVC1G14	Inverter; Schmitt-trigger	•	•		
74LVC1G17	Buffer; Schmitt-trigger	•	•		
74LVC1G3157	SPDT analog switch			•	
74LVC1G32	2-input OR gate		•		
74LVC1G332	3-input OR gate			•	
74LVC1G34	Buffer	•	•		
74LVC1G38	2-input NAND gate; open-drain		•		
74LVC1G384	SPDT analog switch		•		
74LVC1G79	D-type flip-flop; positive-edge trigger		•		
74LVC1G80	D-type flip-flop; positive-edge trigger		•		
74LVC1G86	2-input XOR gate		•		
74LVC1G97	Configurable gate; Schmitt trigger			•	
74LVC1GU04	Unbuffered inverter		•		

1T Single Translators	Description	X2SON4	X2SON5	X2SON6	X2SON8
74AUP1T00	Translating 2-input NAND gate		•		
74AUP1T02	Translating 2-input NOR gate		•		
74AUP1T04	Translating inverter		•		
74AUP1T08	Translating 2-input AND gate		•		
74AUP1T14	Translating Schmitt-Trigger Inverter		•		
74AUP1T17	Translating Schmitt-Trigger Buffer		•		
74AUP1T32	Translating 2-input OR gate		•		
74AUP1T34	Dual supply translating buffer		•		
74AUP1T50	Translating Schmitt-Trigger Buffer		•		
74AUP1T86	Translating 2-input X-OR gate		•		
74AUP1T87	Translating 2-input X-NOR gate		•		
74AUP1T97	Translating configurable gate			•	
74AVC1T45	Dual supply translating transceiver			•	
74AXP1T14	Dual supply translating inverter; Schmitt-trigger		•		
74AXP1T32	Dual supply 2-input OR gate			•	
74AXP1T34	Dual supply translating buffer		•		
74AXP1T57	Dual supply translating configurable gate; Schmitt-trigger				•
74LV1T00	Translating 2-input NAND gate		•		
74LV1T02	Translating 2-input NOR gate		•		
74LV1T04	Translating inverter		•		
74LV1T08	Translating 2-input AND gate		•		
74LV1T32	Translating 2-input OR gate		•		
74LV1T34	Translating buffer		•		
74LV1T86	Translating 2-input X-OR gate		•		
74LV1T87	Translating 2-input X-NOR gate		•		
74LV1T125	Translating buffer; 3-state		•		
74LV1T126	Translating buffer; 3-state		•		

2G & 3G Dual- & Triple-Gates	Description	X2SON4	X2SON5	X2SON6	X2SON8
74AUP2G00	2-input NAND gate				•
74AUP2G04	Inverter			•	
74AUP2G07	Buffer; open-drain			•	
74AUP2G08	2-input AND gate				•
74AUP2G125	Buffer/line driver (3-state)				•
74AUP2G126	Buffer/line driver (3-state)				•
74AUP2G132	2-input NAND gate; Schmitt-trigger				•
74AUP2G14	Inverter; Schmitt-trigger			•	
74AUP2G32	2-input OR gate				•
74AUP2G34	Buffer			•	
74AUP3G34	Buffer				•
74AXP2G07	Buffer; open-drain			•	
74AXP2G14	Inverter; Schmitt trigger			•	
74LVC2G00	2-input NAND gate				•
74LVC2G04	Inverter			•	
74LVC2G06	Inverter; open-drain			•	
74LVC2G07	Buffer; open-drain			•	
74LVC2G08	2-input AND gate				•
74LVC2G32	2-input OR gate				•
74LVC2G34	Buffer			•	
74LVC2G38	2-input NAND gate; open-drain				•
74LVC2G86	2-input XOR gate				•

Available functions

- Buffers & Inverters
- Gates (AND, NAND, OR, NOR, XOR, XNOR)
- Schmitt-Triggers
- Flip-Flops
- Configurable Gates
- Translators
- Analog Switches

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