

NX2301P

20 V, 2 A P-channel Trench MOSFET

Rev. 1 — 26 October 2010

Product data sheet

1. Product profile

1.1 General description

P-channel enhancement mode Field-Effect Transistor (FET) in a small SOT23 (TO-236AB) Surface-Mounted Device (SMD) plastic package using Trench MOSFET technology.

1.2 Features and benefits

- 1.8 V R_{DSon} rated for Low Voltage Gate Drive
- Very fast switching
- Trench MOSFET technology
- AEC-Q101 qualified

1.3 Applications

- Relay driver
- High-speed line driver
- High-side loadswitch
- Switching circuits

1.4 Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit	
V_{DS}	drain-source voltage	$T_{amb} = 25\text{ °C}$	-	-	-20	V	
V_{GS}	gate-source voltage	$T_{amb} = 25\text{ °C}$	-	-	±8	V	
I_D	drain current	$T_{amb} = 25\text{ °C};$ $V_{GS} = -4.5\text{ V}$	[1]	-	-2	A	
R_{DSon}	drain-source on-state resistance	$T_j = 25\text{ °C};$ $V_{GS} = -4.5\text{ V};$ $I_D = -1\text{ A}$	[2]	-	100	120	mΩ

[1] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for drain 6 cm², $t \leq 5\text{ s}$.

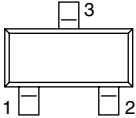
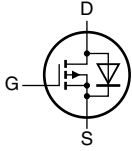
[2] Pulse test: $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.01$.

NX2301P

20 V, 2 A P-channel Trench MOSFET

2. Pinning information

Table 2. Pinning

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	G	gate		
2	S	source		
3	D	drain		

017aaa094

3. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
NX2301P	TO-236AB	plastic surface-mounted package; 3 leads	SOT23

4. Marking

Table 4. Marking codes

Type number	Marking code ^[1]
NX2301P	MG*

[1] * = placeholder for manufacturing site code

5. Limiting values

Table 5. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	drain-source voltage	$T_{amb} = 25\text{ °C}$	-	-20	V
V_{GS}	gate-source voltage	$T_{amb} = 25\text{ °C}$	-	±8	V
I_D	drain current	$V_{GS} = -4.5\text{ V}$	[1]		
		$T_{amb} = 25\text{ °C}$	-	-2	A
		$T_{amb} = 100\text{ °C}$	-	-1.2	A
I_{DM}	peak drain current	$T_{amb} = 25\text{ °C}$; single pulse; $t_p \leq 10\text{ }\mu\text{s}$	-	-6	A

NX2301P

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Table 5. Limiting values ...continued*In accordance with the Absolute Maximum Rating System (IEC 60134).*

Symbol	Parameter	Conditions	Min	Max	Unit
P_{tot}	total power dissipation	$T_{\text{amb}} = 25\text{ °C}$	[2] -	400	mW
			[1] -	710	mW
		$T_{\text{sp}} = 25\text{ °C}$	-	2.8	W
T_{j}	junction temperature			150	°C
T_{amb}	ambient temperature		-55	+150	°C
T_{stg}	storage temperature		-65	+150	°C
Source-drain diode					
I_{S}	source current	$T_{\text{amb}} = 25\text{ °C}$	[1] -	-0.7	A

[1] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for drain 6 cm², $t \leq 5$ s.

[2] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.