

N-Channel Depletion-Mode MOSFET

Ordering Information

BV _{DSX} /	R _{DS(ON)}	I _{DSS}	Order Number / Package		
BV _{DGX}	(max)	(min)	TO-236AB*		
500V	1.0KΩ	1.0mA	LND250K1		

Product marking for SOT-23:

NDE*

where * = 2-week alpha date code

Features

- ESD gate protection
- Free from secondary breakdown
- Low power drive requirement
- Ease of paralleling
- Excellent thermal stability
- Integral source-drain diode
- High input impedance and low C_{ISS}

Advanced DMOS Technology

The LND2 is a high voltage N-channel depletion mode (normally-on) transistor utilizing Supertex's lateral DMOS technology. The gate is ESD protected.

The LND2 is ideal for high voltage applications in the areas of normally-on switches, precision constant current sources, voltage ramp generation and amplification.

Applications

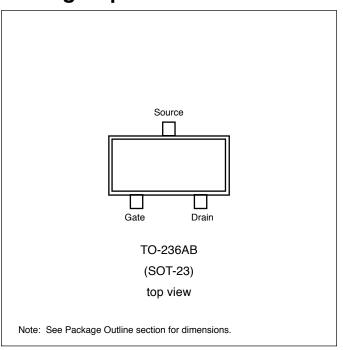
- Solid state relays
- Normally-on switches
- Converters
- Power supply circuits
- Constant current sources
- Input protection circuits

Absolute Maximum Ratings

Drain-to-Source Voltage	BV _{DSX}
Drain-to-Gate Voltage	BV _{DGX}
Gate-to-Source Voltage	±20V
Operating and Storage Temperature	-55°C to +150°C
Soldering Temperature*	300°C

^{*} Distance of 1.6 mm from case for 10 seconds.

Package Options



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^{*}Same as SOT-23. All units shipped on 3,000 piece carrier tape reels.

Thermal Characteristics

Package	I _D (continuous)*	I _D (pulsed)	Power Dissipation @T _A = 25°C	θ _{jc} °C/W	θ _{ja} °C/W	I _{DR}	I _{DRM} *
TO-236AB	13mA	30mA	0.36W	200	350	13mA	30mA

^{*} I_D (continuous) is limited by max rated T_f .

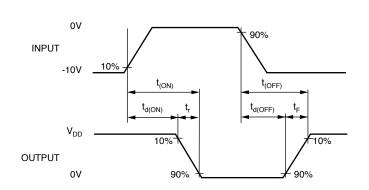
Electrical Characteristics (@ 25°C unless otherwise specified)

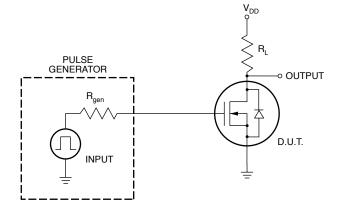
Symbol	Parameter	Min	Тур	Max	Unit	Conditions	
BV _{DSX}	Drain-to-Source Breakdown Voltage	500			V	$V_{GS} = -10V, I_D = 1.0mA$	
V _{GS(OFF)}	Gate-to-Source OFF Voltage	-1.0		-3.0	V	$V_{DS} = 25V, I_{D} = 100nA$	
$\Delta V_{GS(OFF)}$	Change in V _{GS(OFF)} with Temperature			5.0	mV/°C	$V_{DS} = 25V, I_{D} = 100nA$	
I _{GSS}	Gate Body Leakage Current			100	nA	$V_{GS} = \pm 20V, V_{DS} = 0V$	
I _{D(OFF)}	Drain-to-Source Leakage Current			100	nA	V _{GS} = -10V, V _{DS} = 450V	
				100	μА	V_{GS} = -10V, V_{DS} = 0.8V max rating T_A =125°C	
I _{DSS}	Saturated Drain-to-Source Current	1.0		3.0	mA	$V_{GS} = 0V, V_{DS} = 25V$	
R _{DS(ON)}	Static Drain-to-Source ON-State Resistance		850	1K	Ω	$V_{GS} = 0V$, $I_D = 0.5mA$	
$\Delta R_{DS(ON)}$	Change in R _{DS(ON)} with Temperature			1.2	%/°C	$V_{GS} = 0V$, $I_D = 0.5mA$	
G _{FS}	Forward Transconductance	1.0	2.0		m &	$V_{GS} = 0V$, $I_D = 1.0mA$	
C _{ISS}	Input Capacitance		7.5	10		V _{GS} = -10V, V _{DS} = 25V	
C _{OSS}	Output Capacitance		2.0	3.5	pF	f = 1MHz	
C _{RSS}	Reverse Transfer Capacitance		0.5	1.0			
t _{d(ON)}	Turn-ON Delay Time		0.09			$V_{DD} = 25V, I_D = 1.0mA,$	
tr	Rise Time		0.45			$R_{GEN} = 25\Omega$	
t _{d(OFF)}	Turn-OFF Delay Time		0.1		μs		
t _f	Fall Time		1.3				
V _{SD}	Diode Forward Voltage Drop			0.9	V	V _{GS} = -10V, I _{SD} = 1.0mA	
t _{rr}	Reverse Recovery Time		200		ns	$V_{GS} = -10V, I_{SD} = 1.0 mA$	

Notes:

- 1. All D.C. parameters 100% tested at 25°C unless otherwise stated. (Pulse test: 300µs pulse, 2% duty cycle.)
- 2. All A.C. parameters sample tested.

Switching Waveforms and Test Circuit





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