



ON Semiconductor®

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5LN01SP

N-Channel Small Signal MOSFET 50V, 0.1A, 7.8Ω, Single SPA

Features

- Low ON-resistance
- Ultrahigh-speed switching
- 1.5V drive

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Value	Unit
Drain to Source Voltage	V _{DSS}		50	V
Gate to Source Voltage	V _{GSS}		±10	V
Drain Current (DC)	I _D		0.1	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	0.4	A
Power Dissipation	P _D		0.25	W
Junction Temperature	T _j		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

This product is designed to "ESD immunity < 200V**", so please take care when handling.

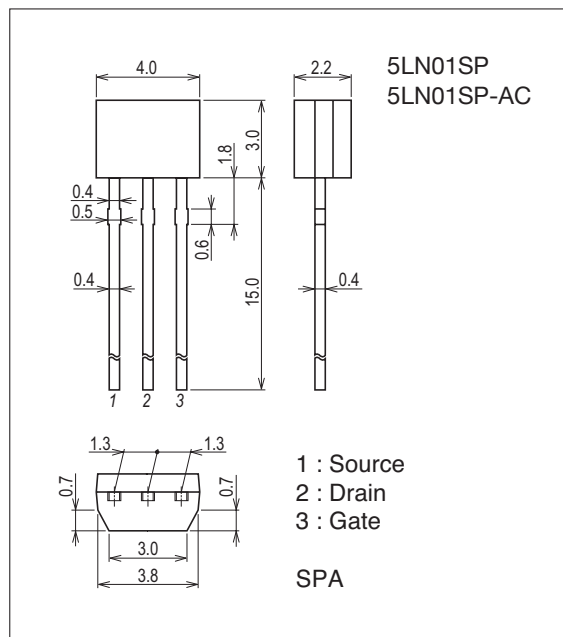
* Machine Model

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

Package Dimensions

unit : mm (typ)

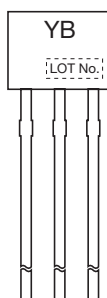
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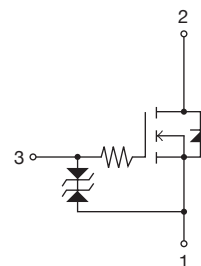
Ordering & Package Information

Device	Package	Shipping	memo
5LN01SP	SPA SC-72	500pcs./bag	Pb-Free
5LN01SP-AC	SPA SC-72	2,500pcs./box	

Marking



Electrical Connection



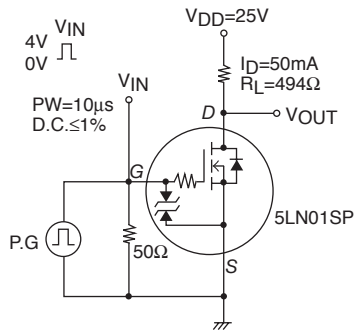
5LN01SP

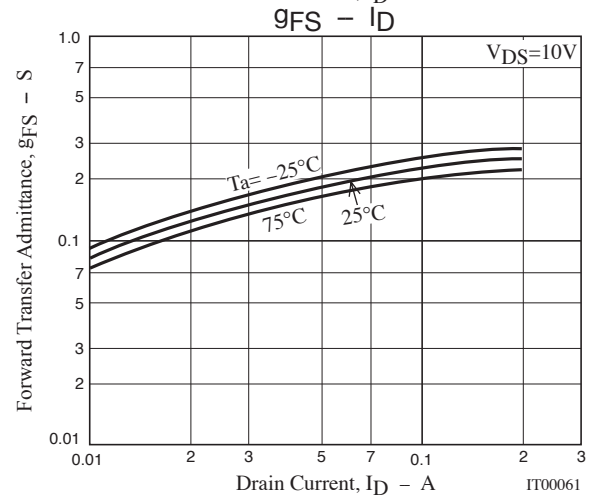
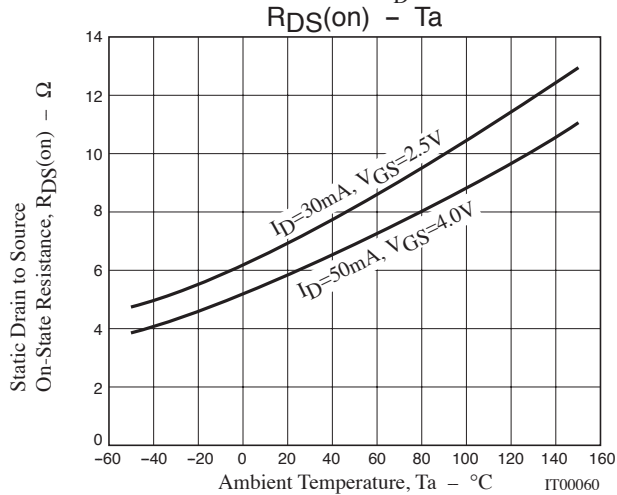
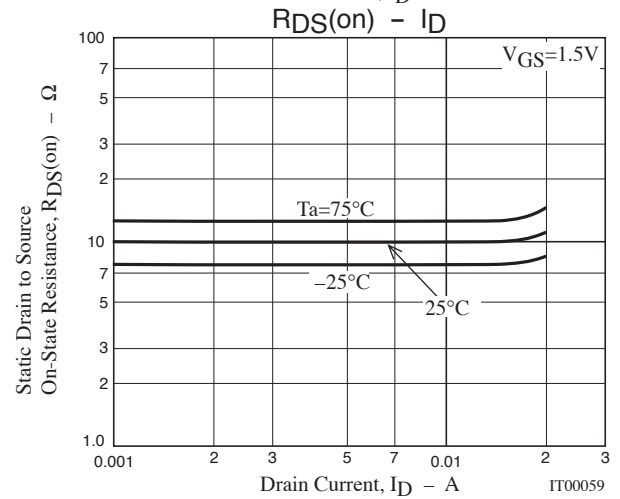
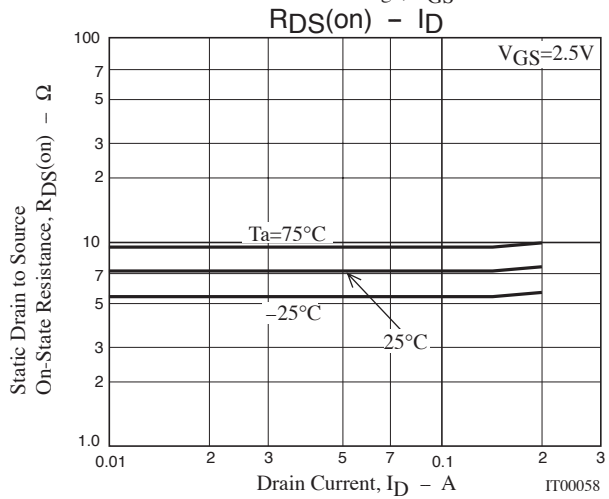
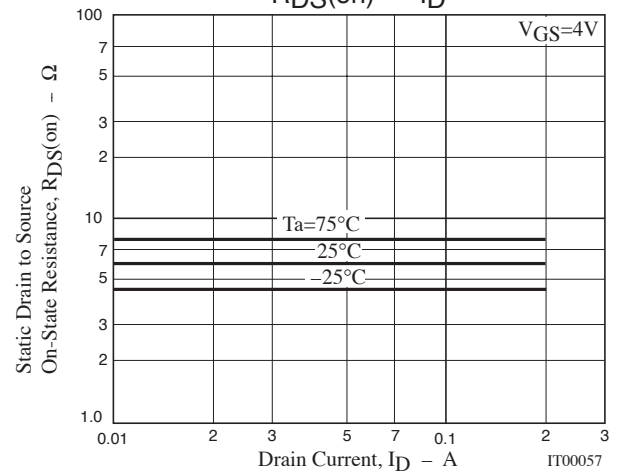
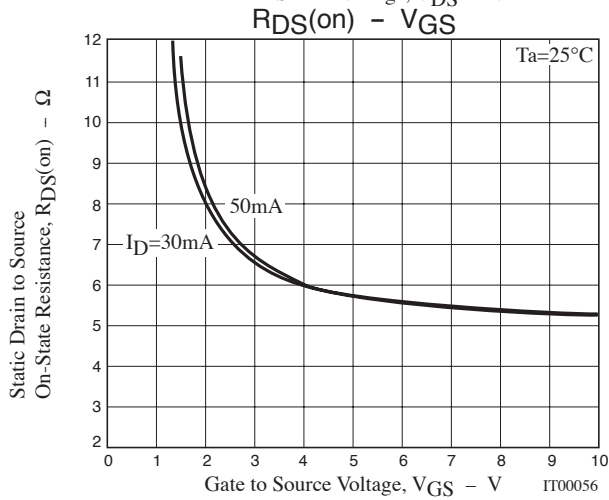
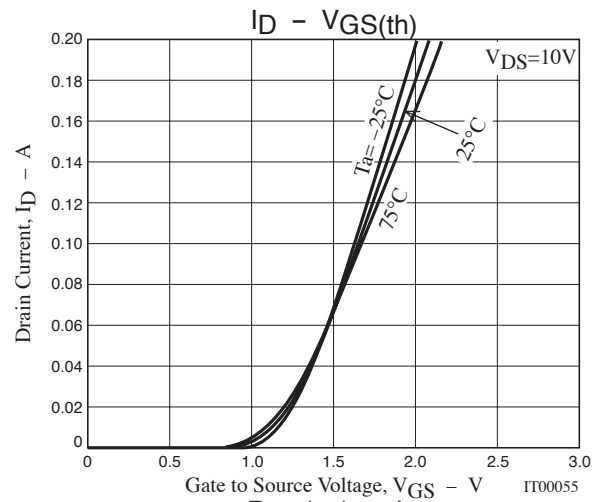
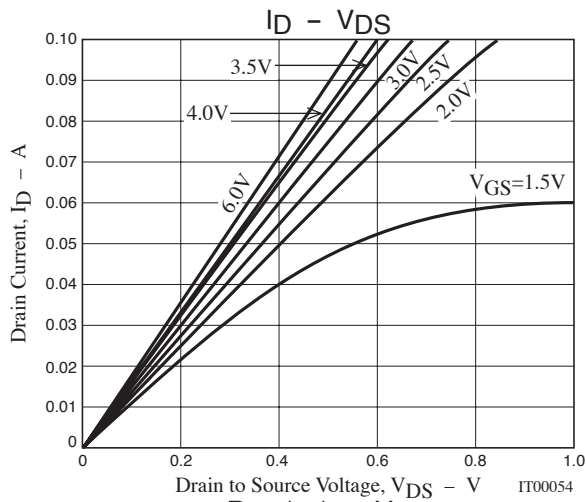
Electrical Characteristics at Ta=25°C

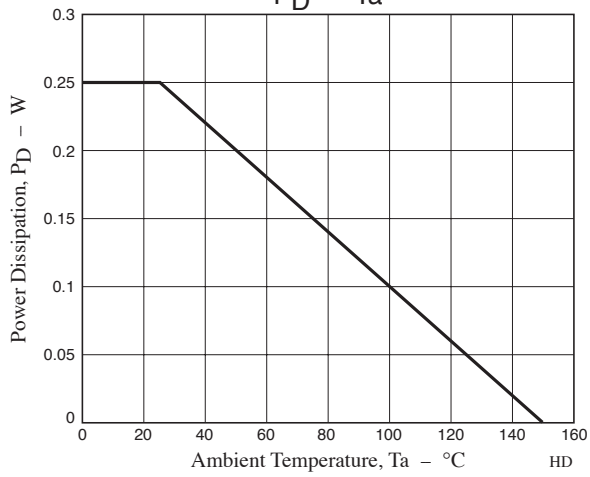
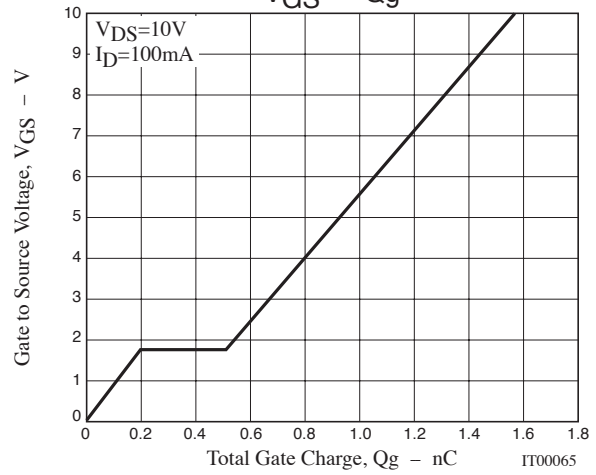
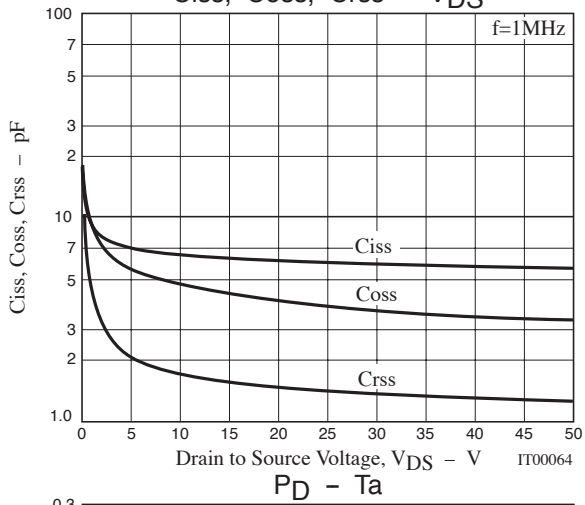
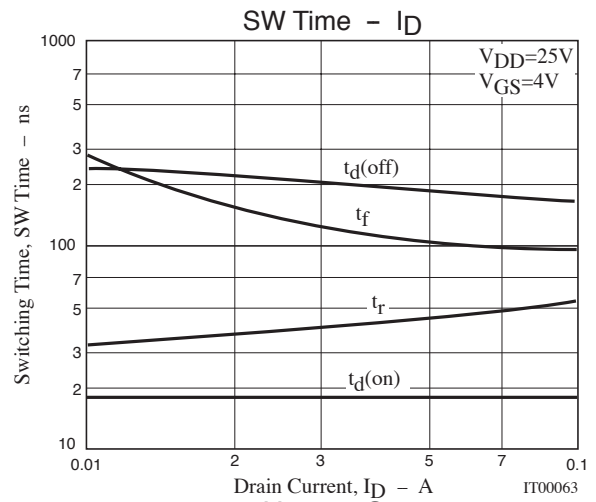
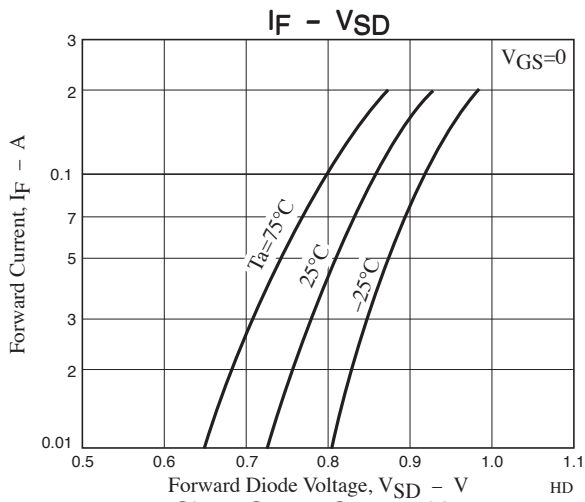
Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA, V_{GS}=0V$	50			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=50V, V_{GS}=0V$			10	μA
Gate to Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8V, V_{DS}=0V$			± 10	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=10V, I_D=100\mu A$	0.4		1.3	V
Forward Transconductance	g_{FS}	$V_{DS}=10V, I_D=50mA$	0.13	0.18		S
Static Drain to Source On-State Resistance	$R_{DS(on)1}$	$I_D=50mA, V_{GS}=4V$		6	7.8	Ω
	$R_{DS(on)2}$	$I_D=30mA, V_{GS}=2.5V$		7.1	9.9	Ω
	$R_{DS(on)3}$	$I_D=10mA, V_{GS}=1.5V$		10	20	Ω
Input Capacitance	C_{iss}	$V_{DS}=10V, f=1MHz$		6.6		pF
Output Capacitance	C_{oss}			4.7		pF
Reverse Transfer Capacitance	C_{rss}			1.7		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		18		ns
Rise Time	t_r			42		ns
Turn-OFF Delay Time	$t_{d(off)}$			190		ns
Fall Time	t_f			105		ns
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=10V, I_D=100mA$		1.57		nC
Gate to Source Charge	Q_{gs}			0.20		nC
Gate to Drain "Miller" Charge	Q_{gd}			0.32		nC
Forward Diode Voltage	V_{SD}	$I_S=100mA, V_{GS}=0V$		0.85	1.2	V

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

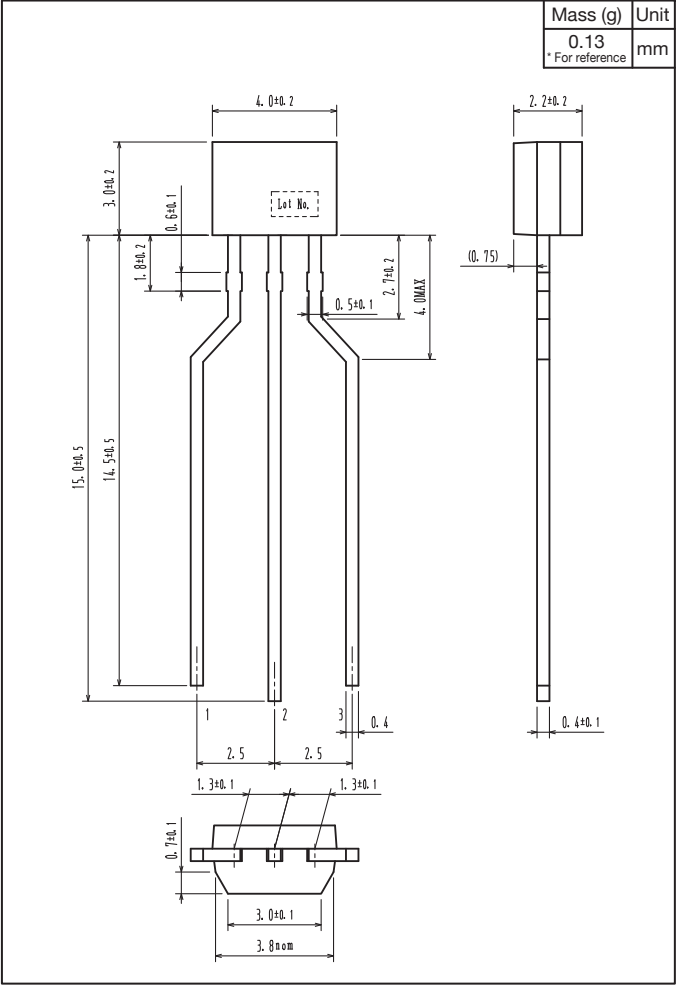
Switching Time Test Circuit





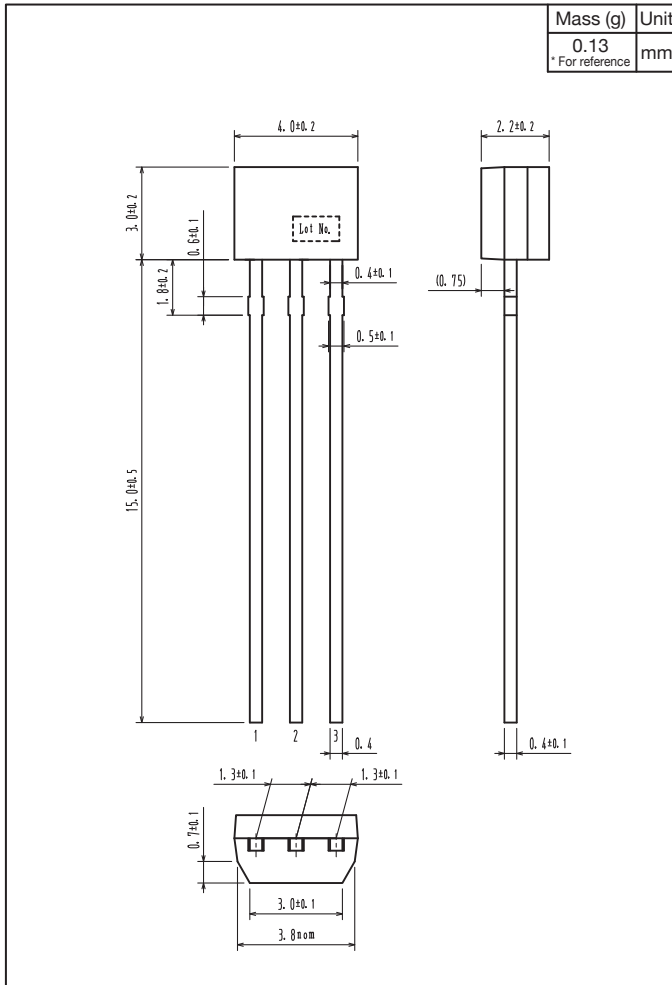


Outline Drawing
5LN01SP-AC



Outline Drawing

5LN01SP



Note on usage : Since the 5LN01SP is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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