



5LN01SS

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

ON Semiconductor®

<http://onsemi.com>

Features

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

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	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
Allowable Power Dissipation	P _D		0.15	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

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

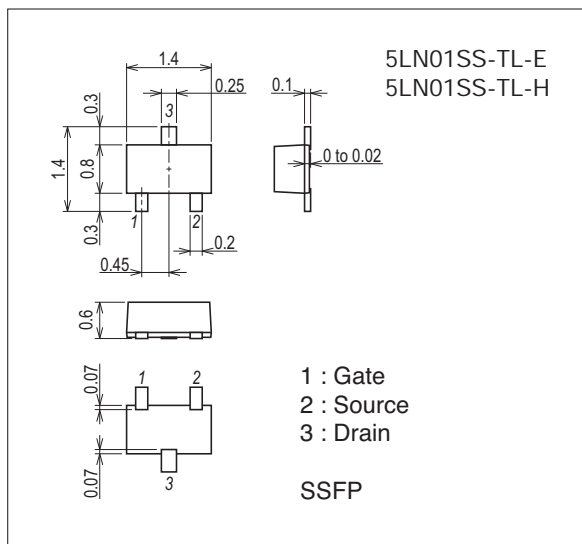
* Machine Model

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Package Dimensions

unit : mm (typ)

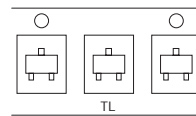
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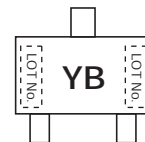
Ordering & Package Information

Device	Package	Shipping	memo
5LN01SS-TL-E	SSFP SC-81	8,000pcs./reel	Pb-Free
5LN01SS-TL-H	SSFP SC-81	8,000pcs./reel	Pb-Free and Halogen Free

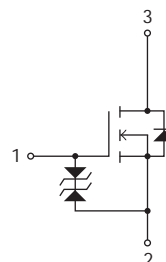
Packing Type: TL



Marking



Electrical Connection

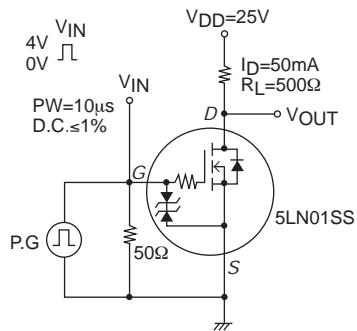


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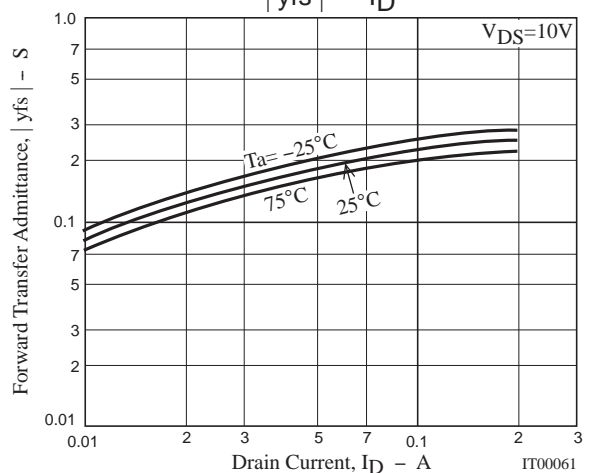
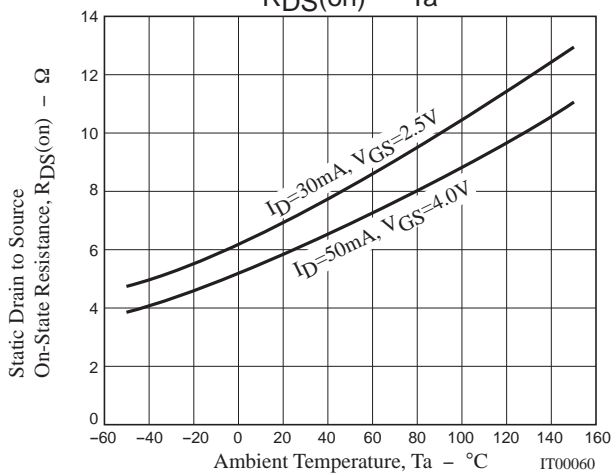
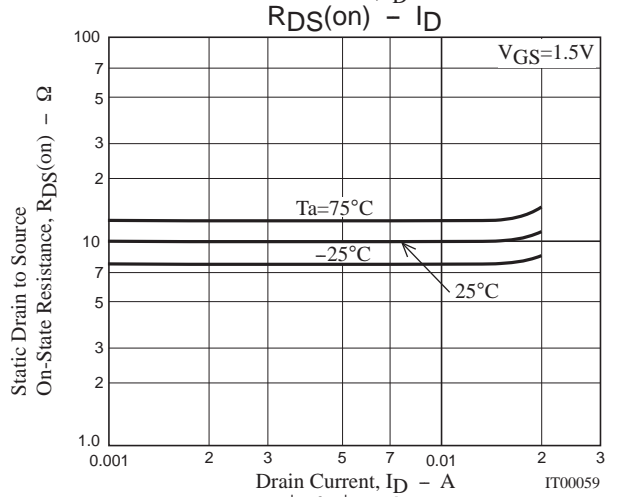
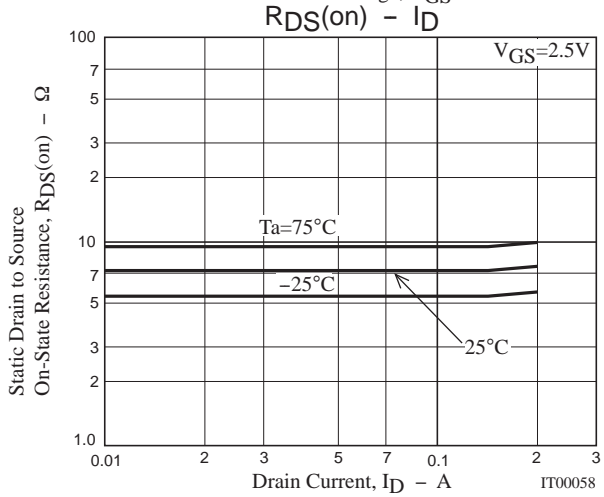
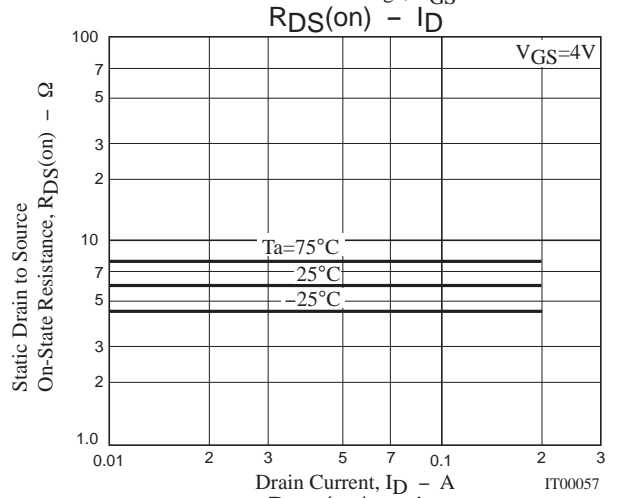
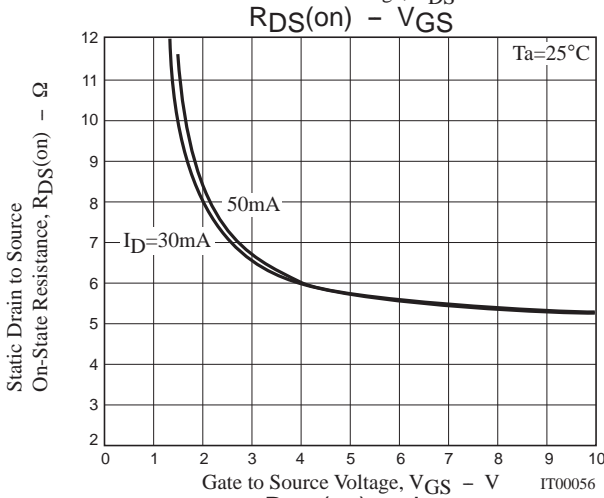
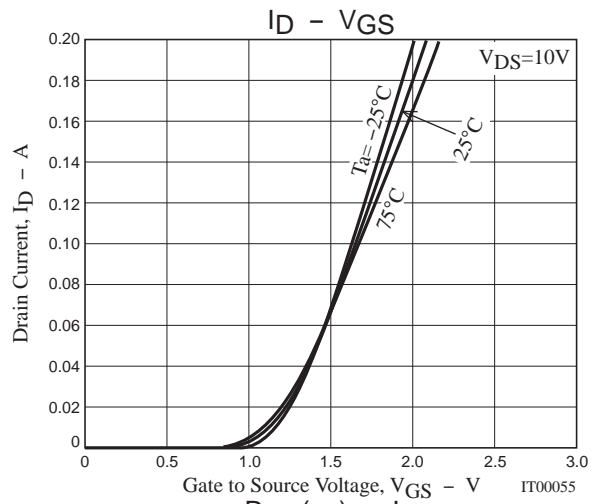
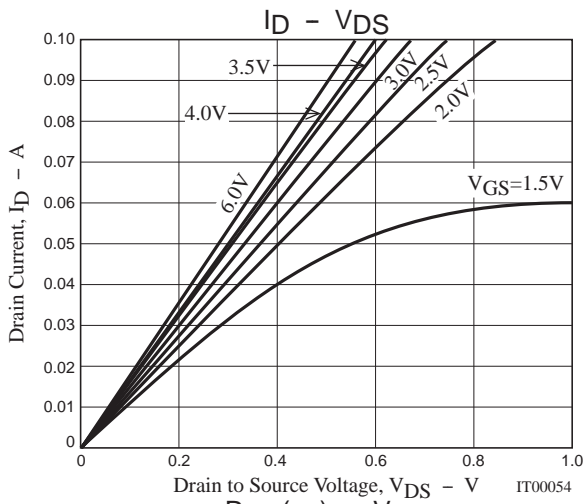
Electrical Characteristics at $T_a=25^\circ\text{C}$

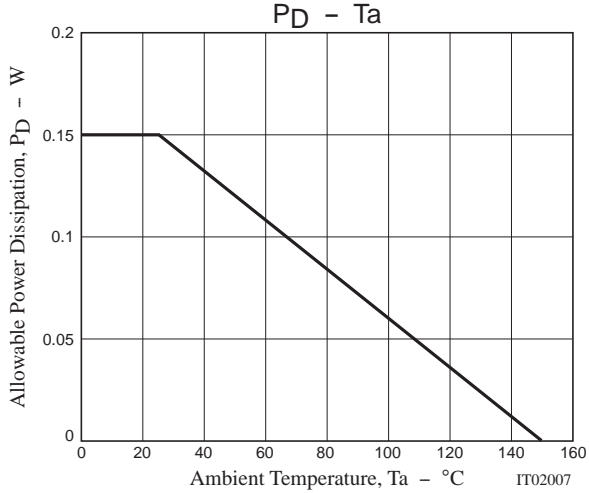
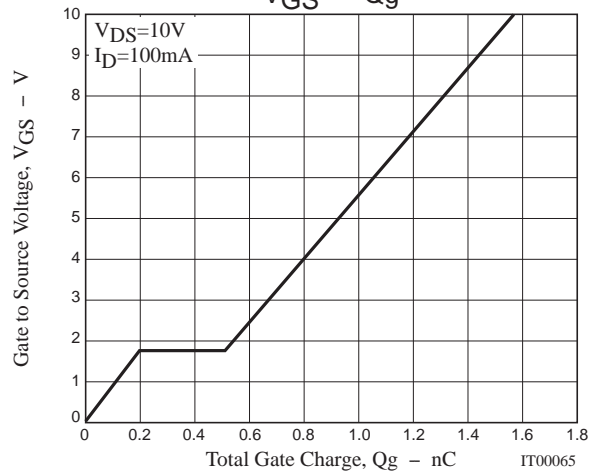
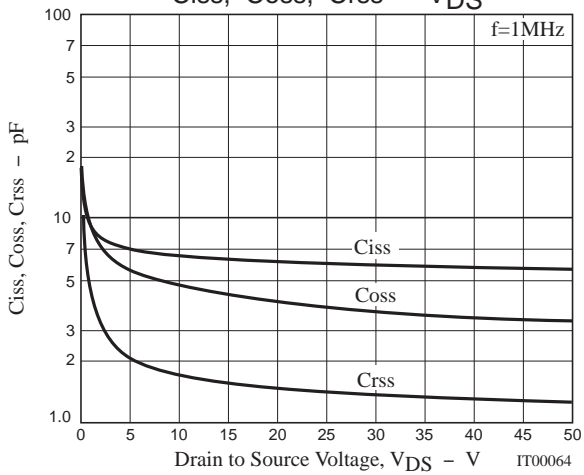
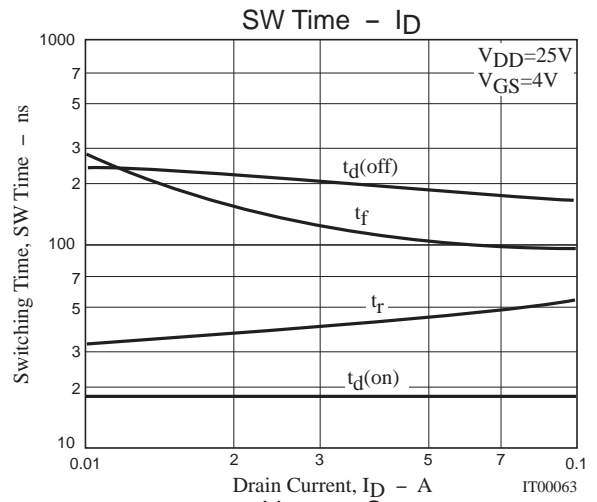
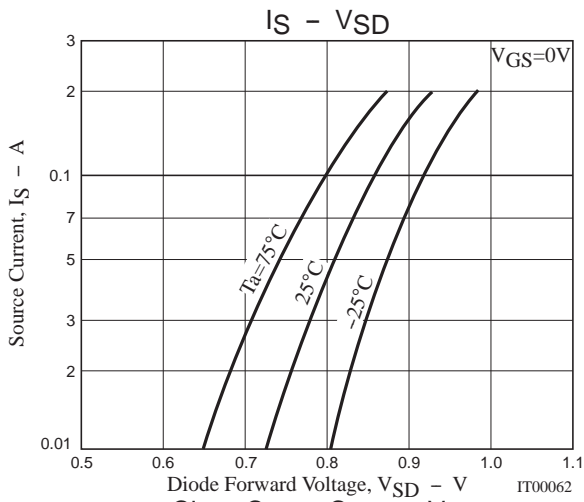
Parameter	Symbol	Conditions	Ratings			Unit	
			min	typ	max		
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}, V_{GS}=0\text{V}$	50			V	
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=50\text{V}, V_{GS}=0\text{V}$			1	μA	
Gate to Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8\text{V}, V_{DS}=0\text{V}$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

Switching Time Test Circuit



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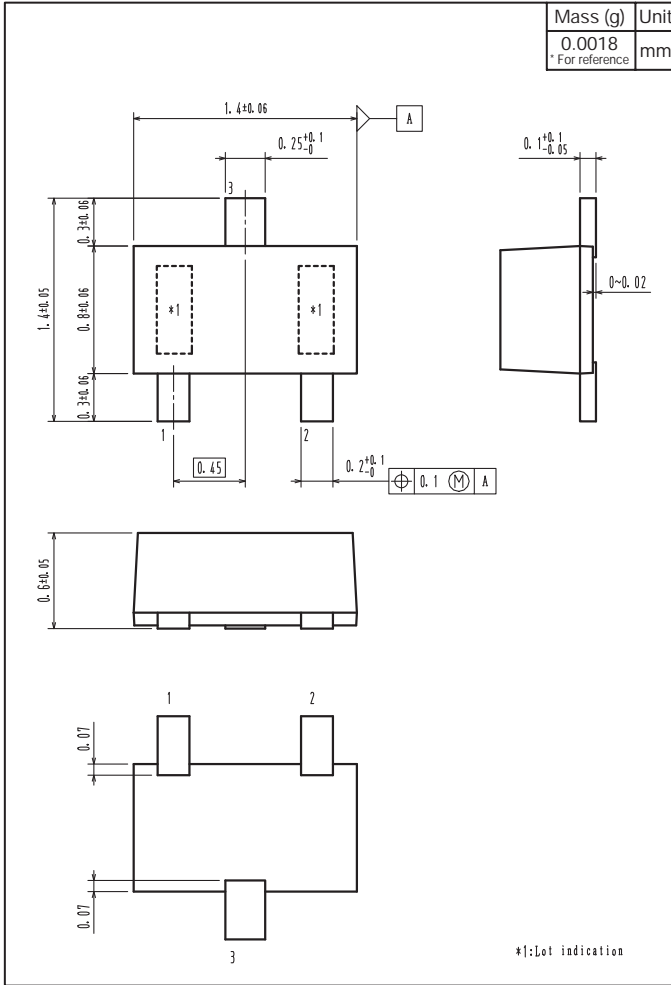




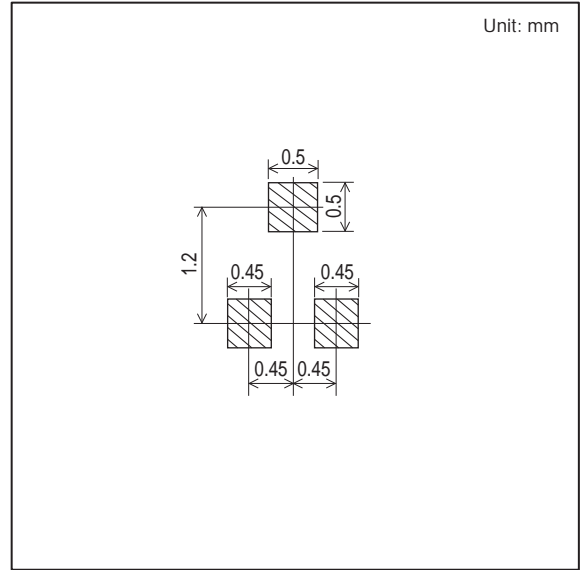
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Outline Drawing

5LN01SS-TL-E, 5LN01SS-TL-H



Land Pattern Example



Note on usage : Since the 5LN01SS is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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