



5LN01M

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

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.

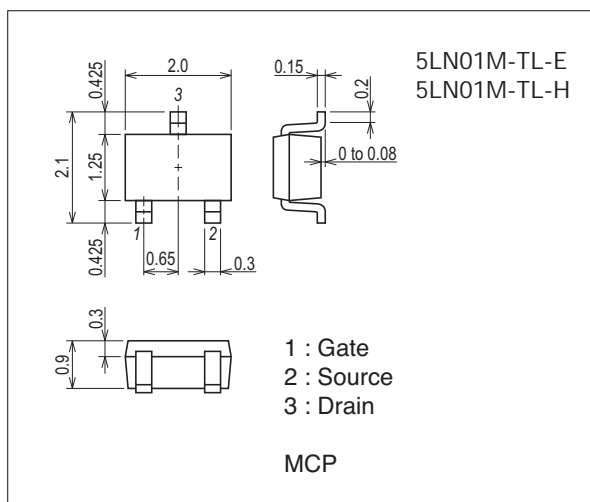
* Machine Model

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)

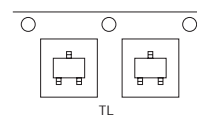
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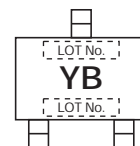
Ordering & Package Information

Device	Package	Shipping	memo
5LN01M-TL-E	MCP SC-70, SOT-323	3,000pcs./reel	Pb-Free
5LN01M-TL-H	MCP SC-70, SOT-323	3,000pcs./reel	Pb-Free and Halogen Free

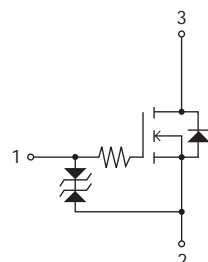
Packing Type: TL



Marking



Electrical Connection

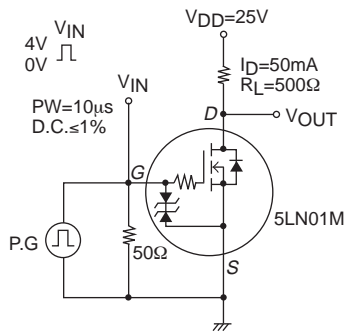


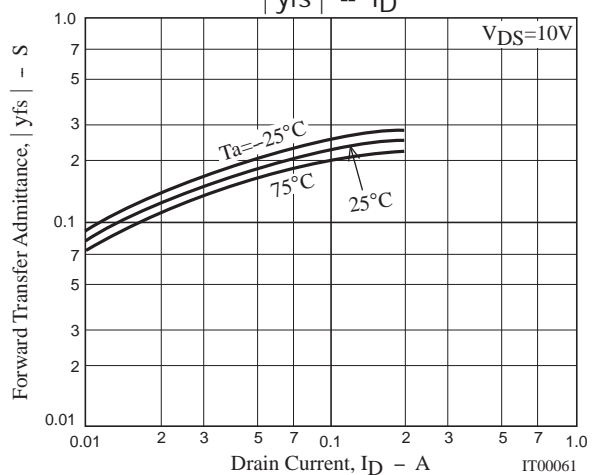
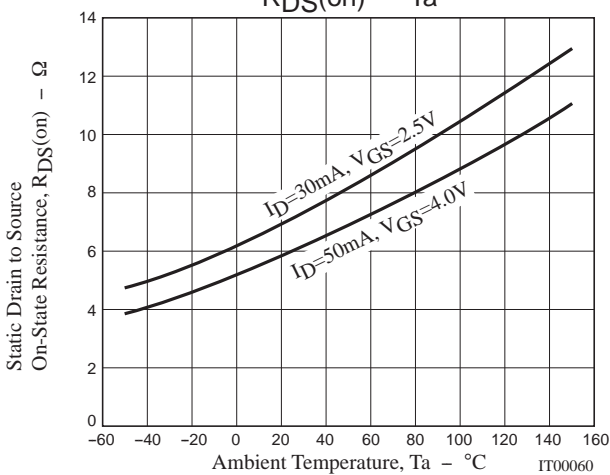
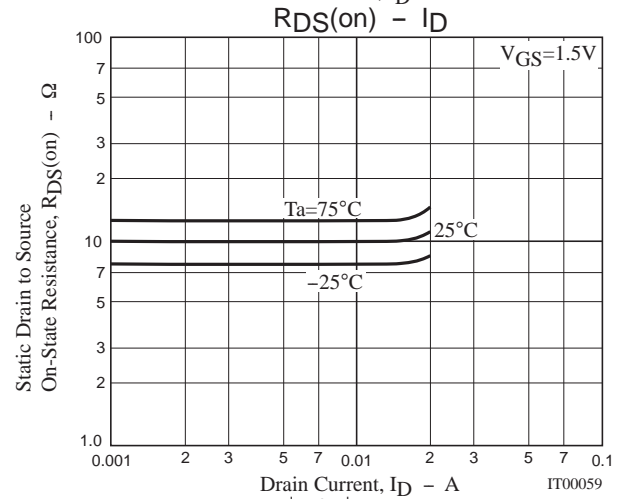
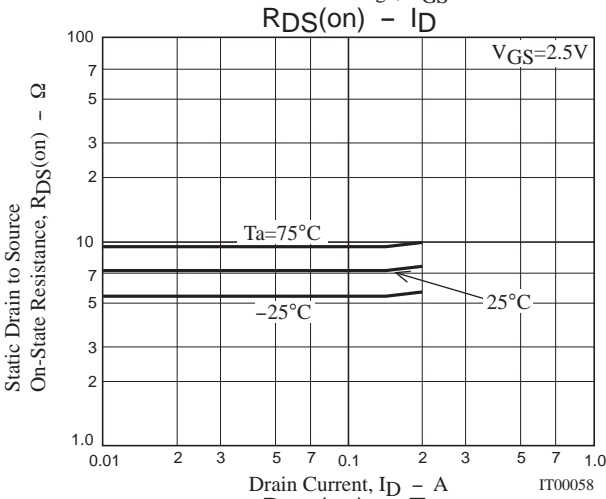
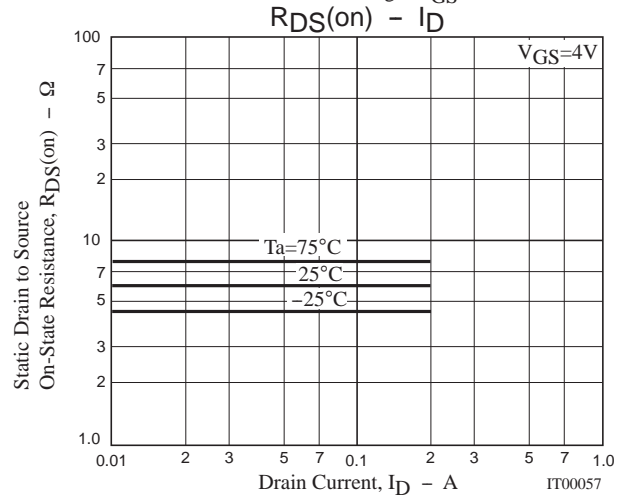
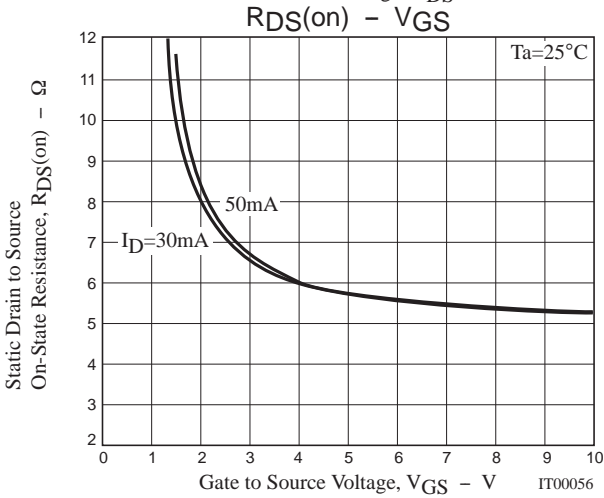
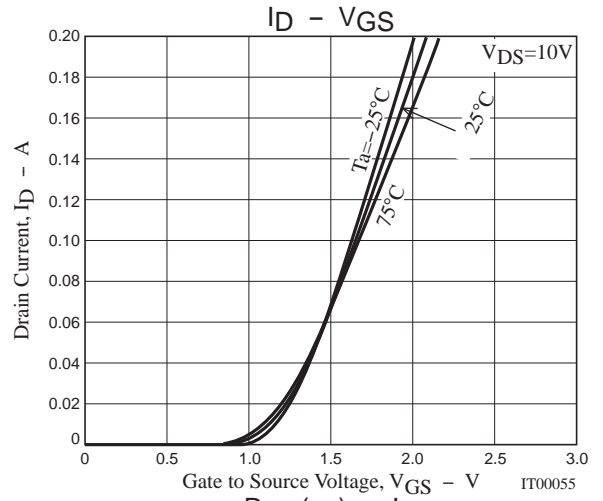
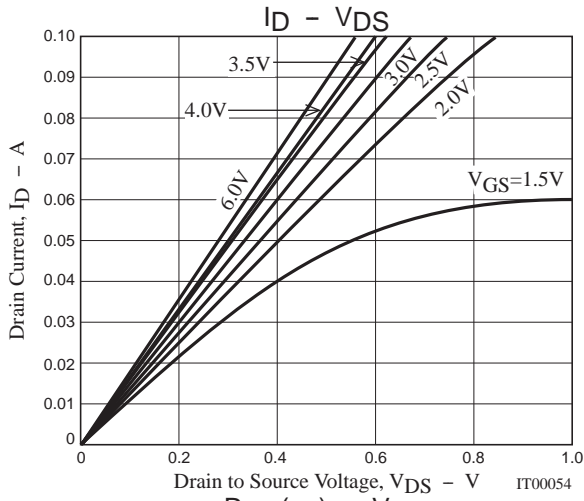
5LN01M

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

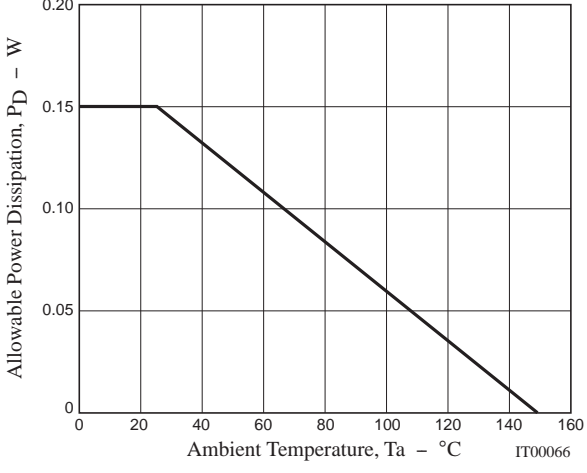
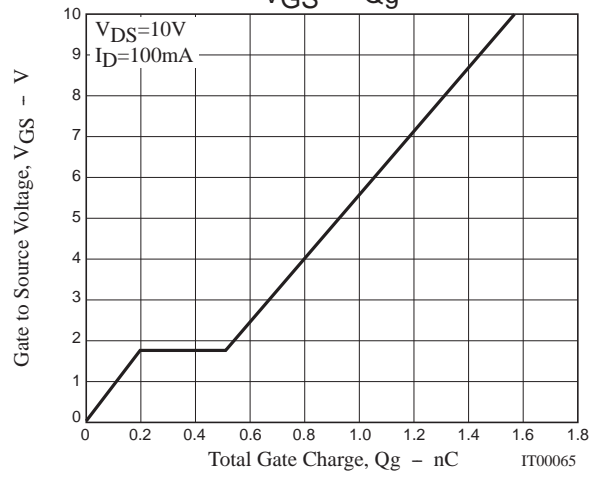
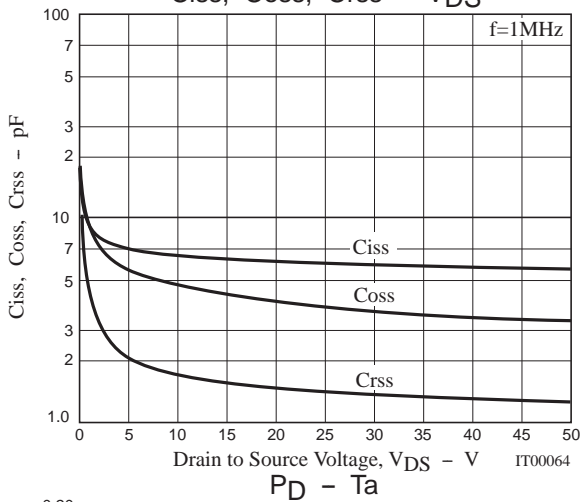
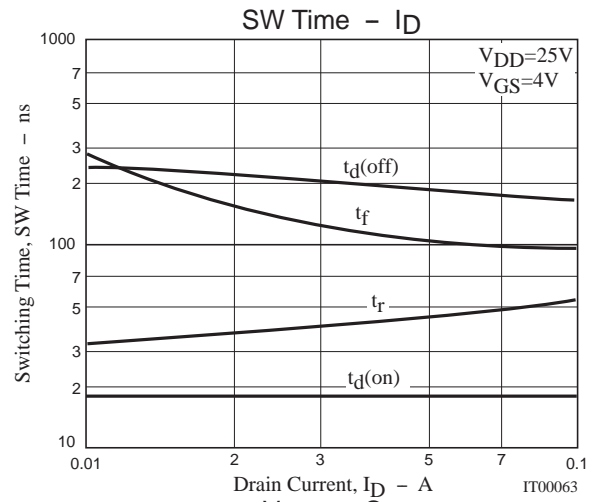
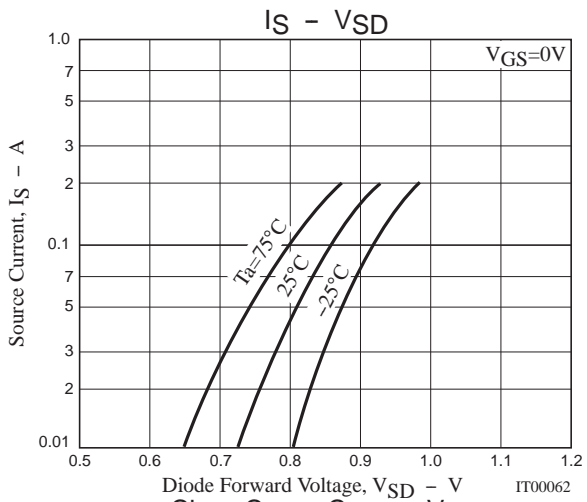
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}, V_{GS}=0\text{V}$	50			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=50\text{V}, V_{GS}=0\text{V}$			1	μA
Gate to Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8\text{V}, V_{DS}=0\text{V}$			± 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}			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	$t_{d(on)}$		See specified Test Circuit.		18	
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	
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





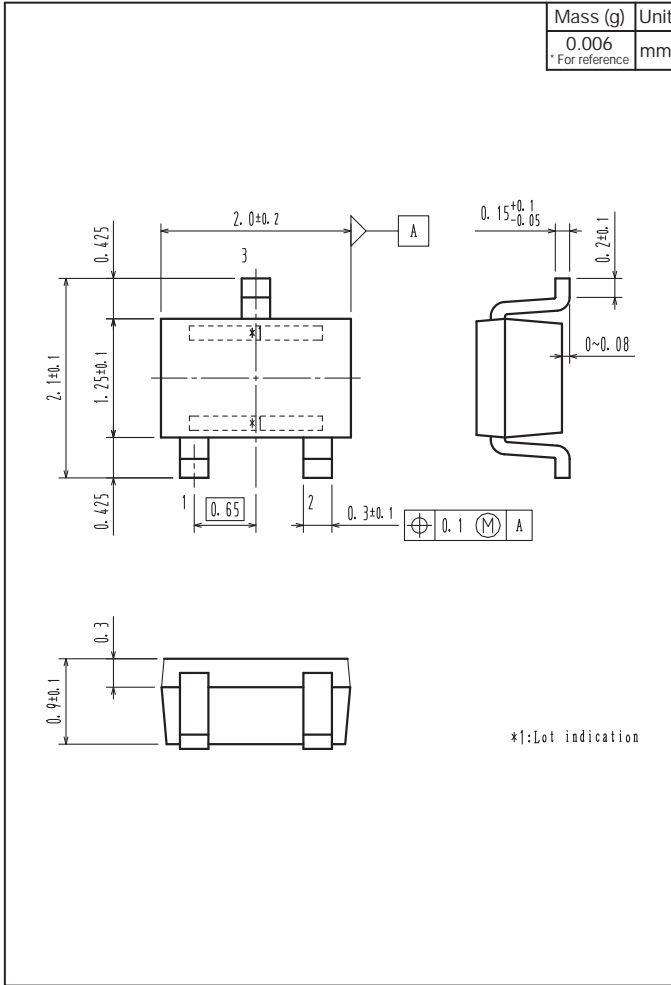
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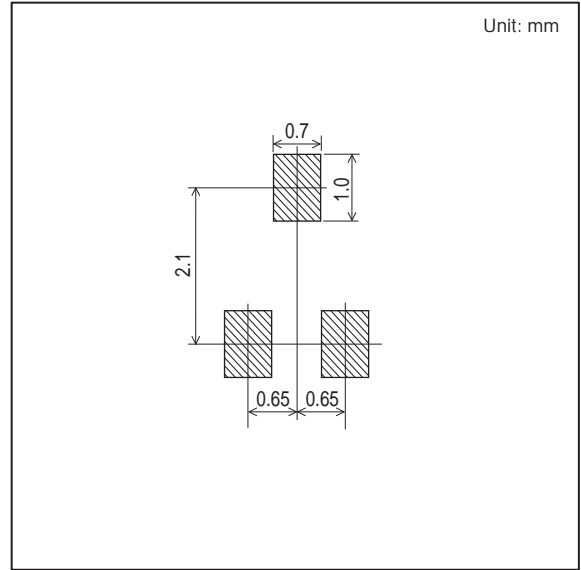
5LN01M

Outline Drawing

5LN01M-TL-E, 5LN01M-TL-H



Land Pattern Example





Note on usage : Since the 5LN01M is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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