

3LN01M



ON Semiconductor®

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Small Signal MOSFET 30V, 3.7Ω, 0.15A, Single N-Channel

Features

- Low ON-Resistance
- Ultrahigh-Speed Switching
- 1.5V Drive
- Halogen Free Compliance

Specifications

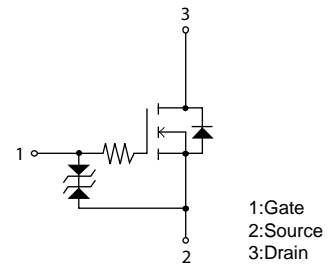
Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Value	Unit
Drain to Source Voltage	V_{DSS}	30	V
Gate to Source Voltage	V_{GSS}	± 10	V
Drain Current (DC)	I_D	0.15	A
Drain Current (Pulse) $PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	I_{DP}	0.6	A
Power Dissipation	P_D	0.15	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

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

* Machine Model

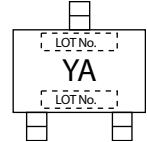
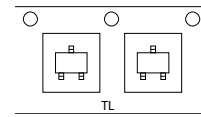
Electrical Connection N-Channel



1: Gate
2: Source
3: Drain

Packing Type: TL

Marking



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.

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

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 1\text{mA}$, $V_{GS} = 0\text{V}$	30			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 30\text{V}$, $V_{GS} = 0\text{V}$			1	μA
Gate to Source Leakage Current	I_{GSS}	$V_{GS} = \pm 8\text{V}$, $V_{DS} = 0\text{V}$			± 10	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = 10\text{V}$, $I_D = 100\mu\text{A}$	0.4		1.3	V
Forward Transconductance	g_{FS}	$V_{DS} = 10\text{V}$, $I_D = 80\text{mA}$	0.15	0.22		S

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ORDERING INFORMATION

See detailed ordering and shipping information on page 5 of this data sheet.

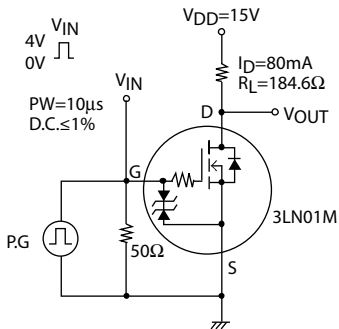
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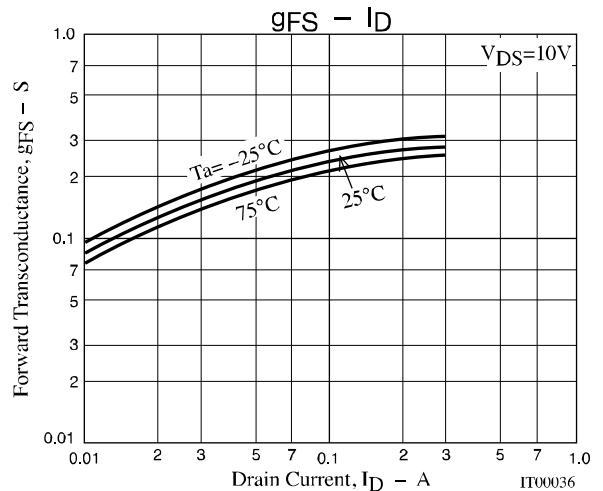
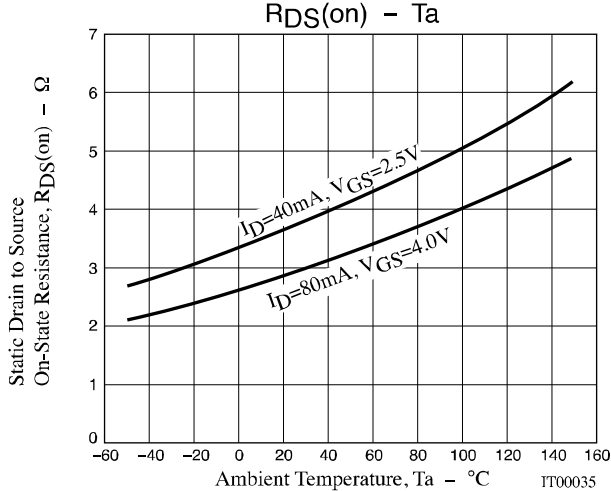
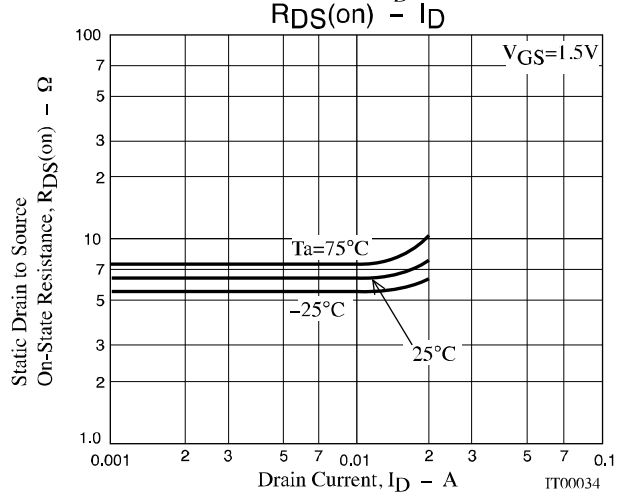
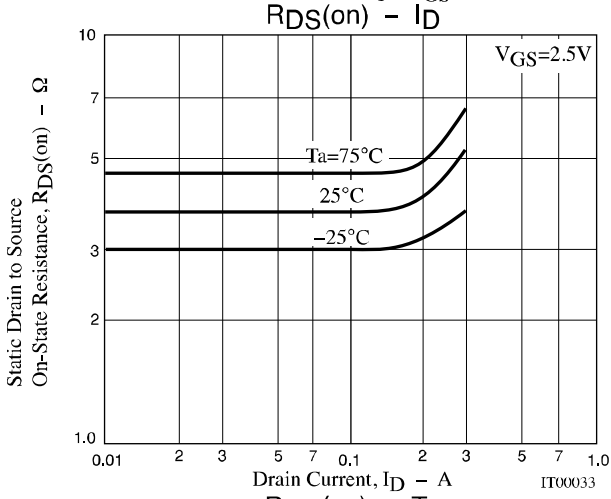
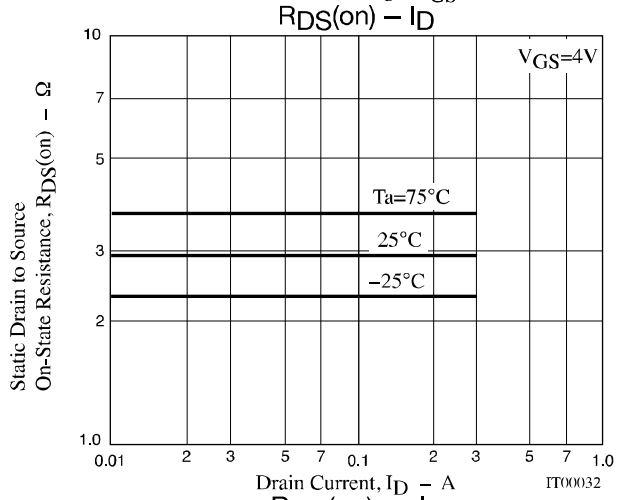
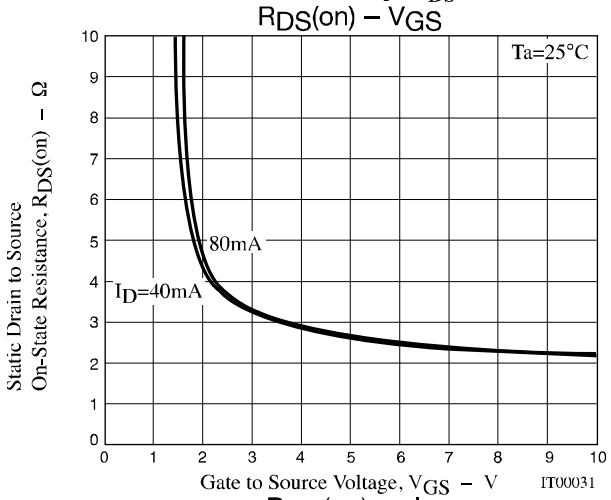
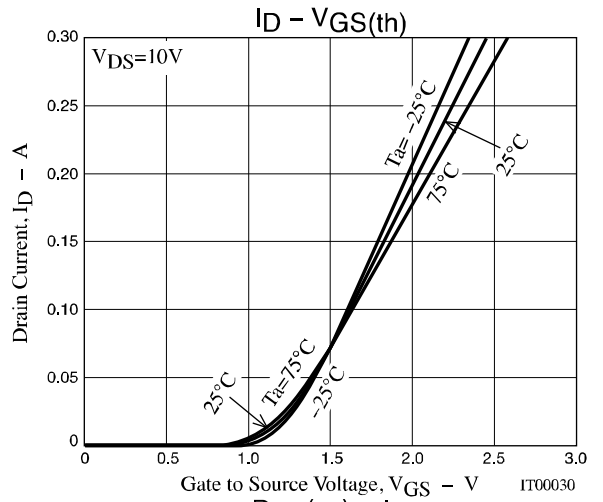
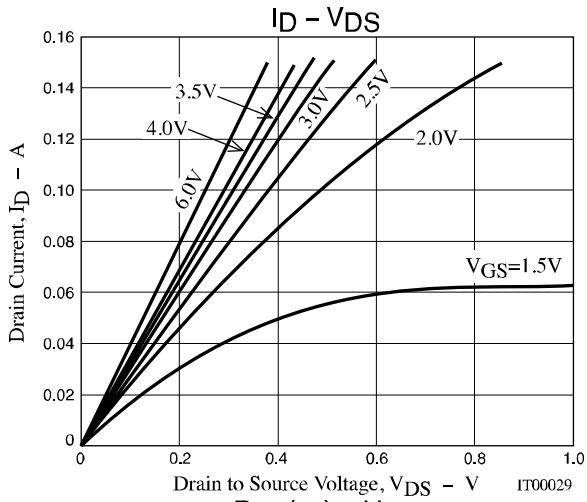
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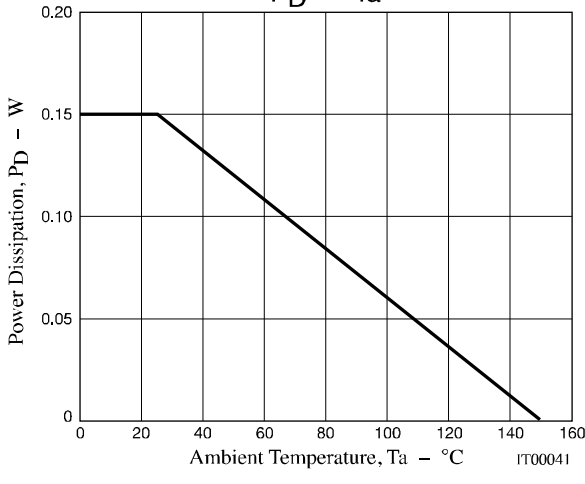
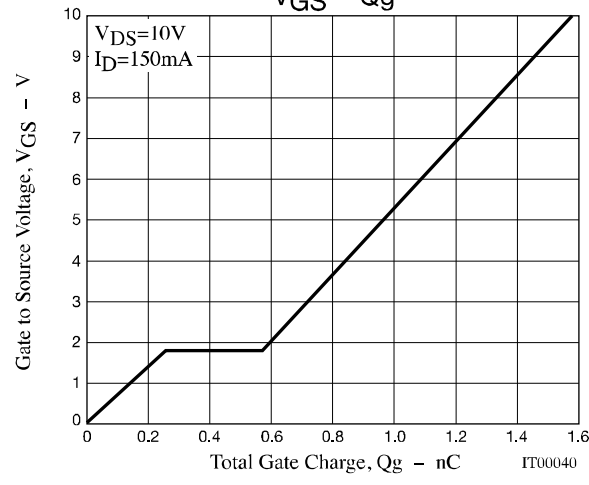
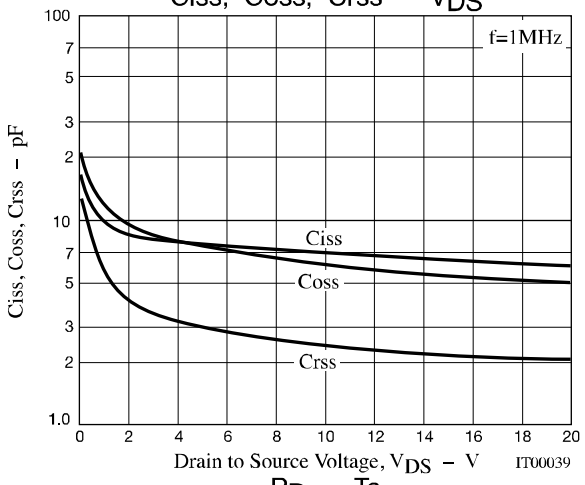
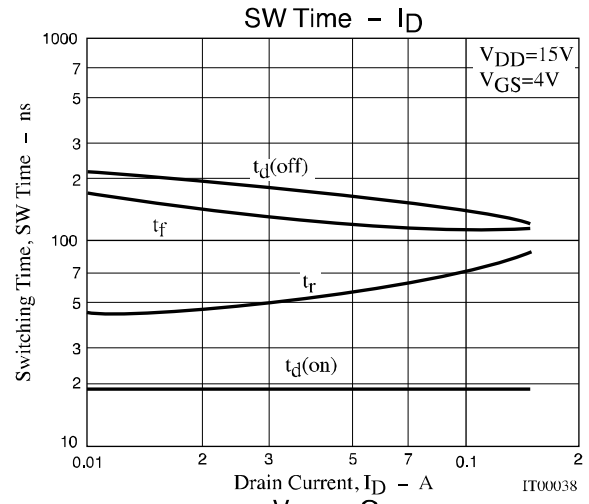
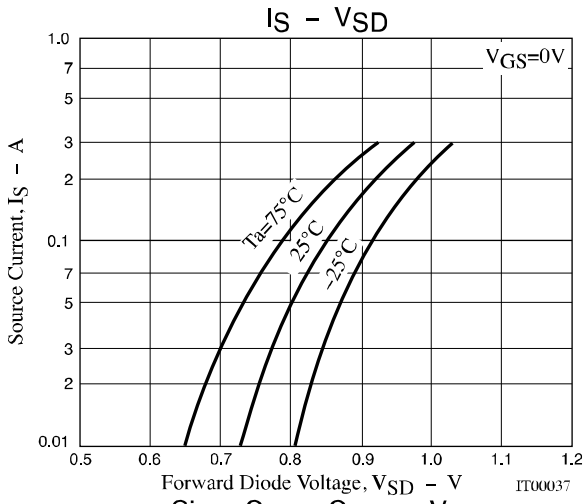
Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Static Drain to Source On-State Resistance	$R_{DS(on)1}$	$I_D=80mA, V_{GS}=4V$		2.9	3.7	Ω
	$R_{DS(on)2}$	$I_D=40mA, V_{GS}=2.5V$		3.7	5.2	Ω
	$R_{DS(on)3}$	$I_D=10mA, V_{GS}=1.5V$		6.4	12.8	Ω
Input Capacitance	C_{iss}	$V_{DS}=10V, f=1MHz$		7.0		pF
Output Capacitance	C_{oss}			5.9		pF
Reverse Transfer Capacitance	C_{rss}			2.3		pF
Turn-ON Delay Time	$t_d(on)$		See specified Test Circuit		19	
Rise Time	t_r			65		ns
Turn-OFF Delay Time	$t_d(off)$			155		ns
Fall Time	t_f			120		ns
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=10V, I_D=150mA$		1.58		nC
Gate to Source Charge	Q_{gs}			0.26		nC
Gate to Drain "Miller" Charge	Q_{gd}			0.31		nC
Forward Diode Voltage	V_{SD}	$I_S=150mA, V_{GS}=0V$		0.87	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







3LN01M

Package Dimensions

3LN01M-TL-E/ 3LN01M-TL-H

SC-70/MCP3

CASE 419AJ

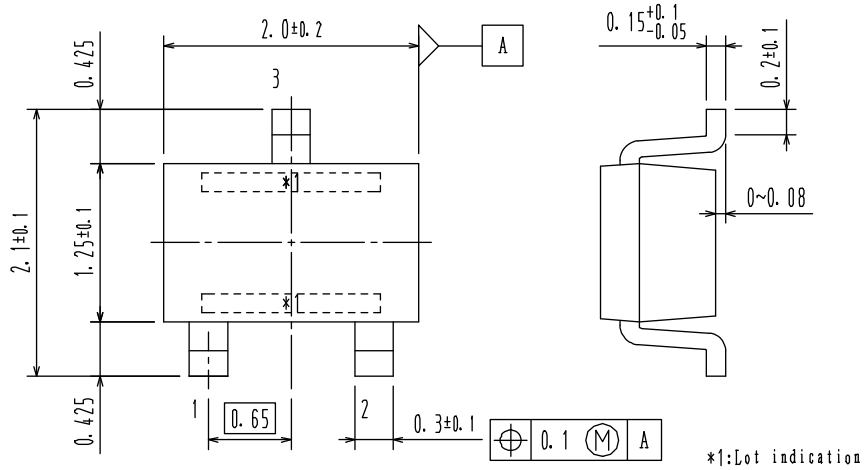
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Unit : mm

1 : Gate

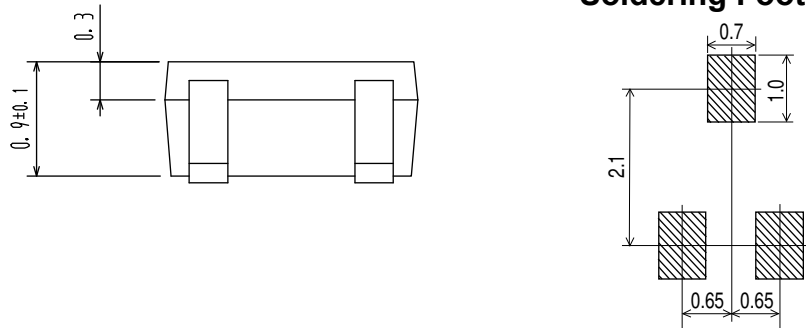
2 : Source

3 : Drain



*1: Lot indication

Recommended Soldering Footprint



ORDERING INFORMATION

Device	Package	Shipping	Note
3LN01M-TL-E	MCP3 SC-70,SOT-323	3,000 pcs. / reel	Pb-Free
3LN01M-TL-H			Pb-Free and Halogen Free

Note on usage : Since the 3LN01M is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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