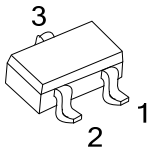
3LN01M

Preliminary | ***Power MOSFET***

N CHANNEL SILICON MOSFET GENERAL-PURPOSE SWITCHING DEVICE APPLICATIONS



SOT-323

Lead-free: 3LN01ML
Halogen-free: 3LN01MG

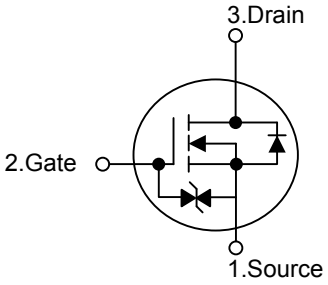
■ DESCRIPTION

The **3LN01M** uses UTC advanced technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with low gate voltages. This device's general purpose is for switching device applications.

■ FEATURES

* $R_{DS(ON)}$ = 3.7Ω @V_{GS} = 4 V
* Ultra low gate charge (typical 1.58 nC)
* Low reverse transfer capacitance (C_{RSS} = typical 2.3 pF)
* Fast switching capability
* Avalanche energy specified
* Improved dv/dt capability, high ruggedness

■ SYMBOL

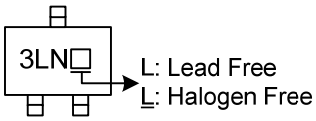


■ ORDERING INFORMATION

Ordering Number			Package	Pin Assignment			Packing
Normal	Lead Free	Halogen-Free		1	2	3	
3LN01M-AL3-R	3LN01ML-AL3-R	3LN01MG-AL3-R	SOT-323	S	G	D	Tape Reel

3LN01ML-AL3-R (1)Packing Type (2)Package Type (3)Lead Plating	(1) R: Tape Reel (2) AL3: SOT-323 (3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_a = 25°C)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V_{GSS}	±10	V
Drain Current	DC	I_D	0.15	A
	Pulse(Note 2)		0.6	
Power Dissipation		P_D	0.15	W
Storage Temperature		T_{STG}	-55 ~ +150	℃

Note: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.
2. Pulse width≦10μs, Duty cycle≦1%

■ ELECTRICAL CHARACTERISTICS (T_a=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=1mA	30			V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=30V,V_{GS}=0V			1	μA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V			±10	μA
ON CHARACTERISTICS						
Cutoff Threshold Voltage	$V_{GS(OFF)}$	V_{DS}=10V, I_D=100μA	0.4		1.3	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=4V, I_D=80mA		2.9	3.7	Ω
		V_{GS}=2.5V, I_D=40mA		3.7	5.2	
		V_{GS}=1.5V, I_D=10mA		6.4	12.8	
Forward Transconductance	g_{FS}	V_{DS}=10V, I_D=80mA	0.15	0.22		S
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	V_{DS}=10V, V_{GS}=0 V, f=1.0MHz		7.0		pF
Output Capacitance	C_{OSS}			5.9		pF
Reverse Transfer Capacitance	C_{RSS}			2.3		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q_G	V_{DS}=10V, V_{GS}=10V, I_D=150mA		1.58		nC
Gate Source Charge	Q_{GS}			0.26		nC
Gate Drain Charge	Q_{GD}			0.31		nC
Turn-ON Delay Time	$t_{D(ON)}$	See specified Test Circuit		19		ns
Turn-ON Rise Time	t_R			65		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			155		ns
Turn-OFF Fall-Time	t_F			120		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V_{SD}	I_S=150mA, V_{GS}=0V		0.87	1.2	V

■ Switching Time Test Circuit