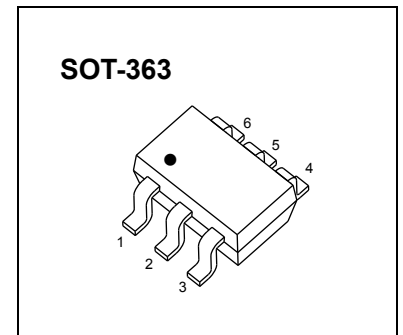


$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
30V	2Ω@10V	250mA
	3Ω@4.5V	



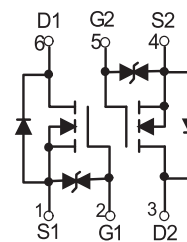
### FEATURE

- High density cell design for Low  $R_{DS(on)}$
- Voltage controlled small signal switch
- Rugged and reliable
- High saturation current capability
- ESD protected

### APPLICATION

- Load Switch for Portable Devices
- DC/DC Converter

### Equivalent Circuit



### Package Marking and Ordering Information

Device	Device Marking	Device Package	Reel Size	Tape width	Quantity
LM4001N	TE	SOT-363	-	-	3000 units

### Absolute Maximum Ratings (TC=25 °C unless otherwise noted)

Symbol	Parameter	Value	Unit
$V_{DS}$	Drain-Source voltage	30	V
$V_{GS}$	Gate-Source Voltage	±20	V
$I_D$	Continuous Drain Current	0.25	A
$P_D$	Power Dissipation	0.2	W
$T_J, T_{stg}$	Operation Junction and Storage Temperature Range	-55-150	°C
$R_{θJA}$	Thermal Resistance from Junction to Ambient	625	°C / W

## Electrical Characteristics (T<sub>J</sub>=25°C, unless otherwise noted)

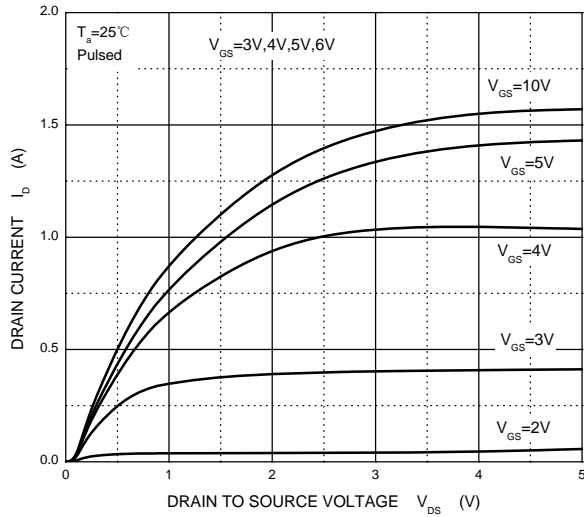
Parameter	Symbol	Test Condition	Min	Typ	Max	Units
<b>Off characteristics</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	30			V
Gate-body leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±20V			±100	nA
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = 50V, V <sub>GS</sub> = 0V			0.5	μA
		V <sub>DS</sub> = 30V, V <sub>GS</sub> = 0V			100	nA
<b>On characteristics</b>						
Gate-threshold voltage (note 1)	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 1mA	0.6	1.1	1.50	V
Static drain-source on-resistance (note 1)	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 0.22A		1.5	2	Ω
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 0.22A		2	3	
Forward transconductance (note 1)	g <sub>FS</sub>	V <sub>DS</sub> = 10V, I <sub>D</sub> = 0.22A	0.12			S
<b>Dynamic characteristics (note 2)</b>						
Input capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 25V, V <sub>GS</sub> = 0V, f = 1MHz		27		pF
Output capacitance	C <sub>oss</sub>			13		
Reverse transfer capacitance	C <sub>rss</sub>			6		
<b>Switching characteristics</b>						
Turn-on delay time (note 1,2)	t <sub>d(on)</sub>	V <sub>DD</sub> = 30V, V <sub>DS</sub> = 10V, I <sub>D</sub> = 0.29A, R <sub>GEN</sub> = 6Ω			5	ns
Rise time (note 1,2)	t <sub>r</sub>				18	
Turn-off delay time (note 1,2)	t <sub>d(off)</sub>				36	
Fall time (note 1,2)	t <sub>f</sub>				14	
<b>Drain-source body diode characteristics</b>						
Body diode forward voltage (note 1)	V <sub>SD</sub>	I <sub>S</sub> = 0.44A, V <sub>GS</sub> = 0V			1.4	V

### Notes:

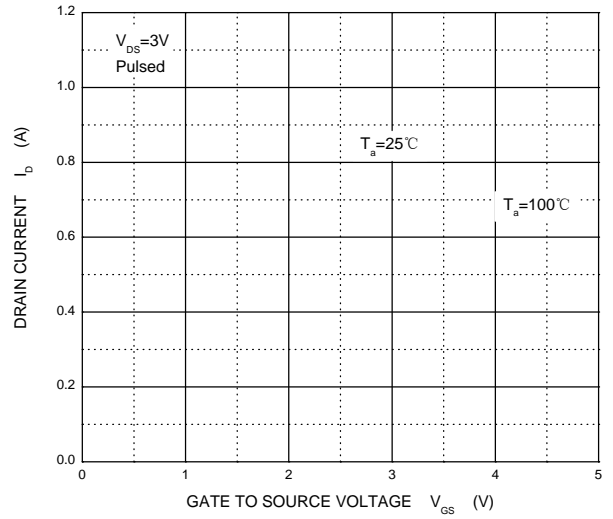
1. Pulse Test ; Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
2. These parameters have no way to verify.

## Typical Characteristics

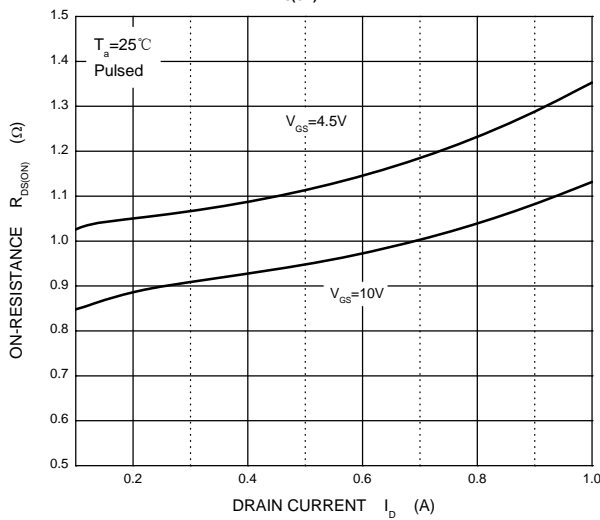
### Output Characteristics



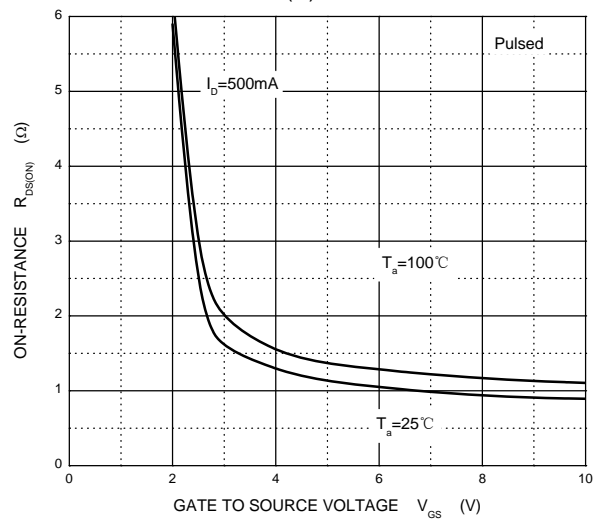
### Transfer Characteristics



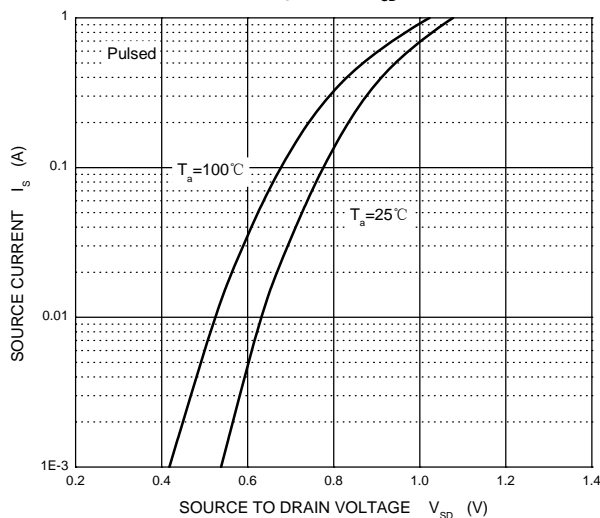
### $R_{DS(ON)}$ — $I_D$



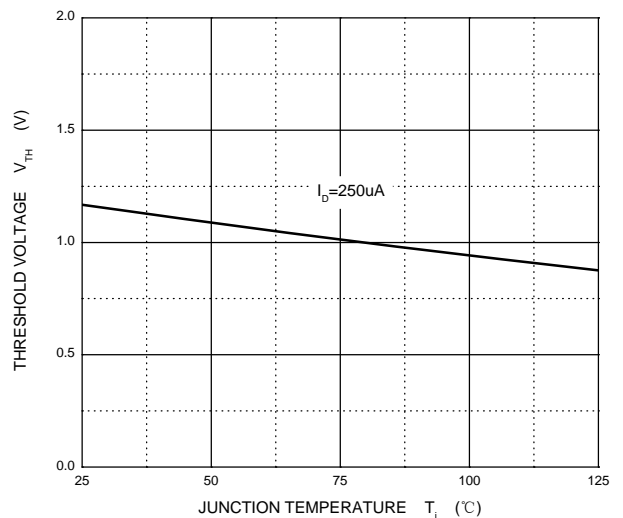
### $R_{DS(ON)}$ — $V_{GS}$



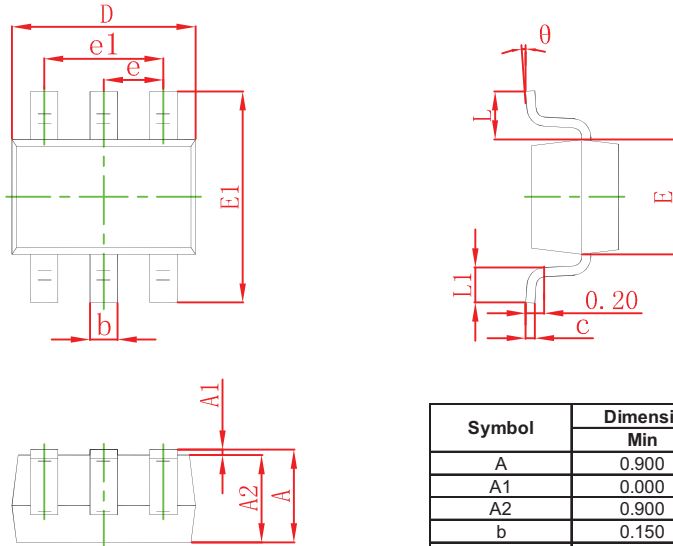
### $I_S$ — $V_{SD}$



### Threshold Voltage

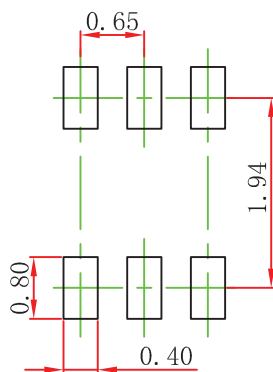


## SOT-363 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.100	0.150	0.004	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.400	0.085	0.094
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
theta	0°	8°	0°	8°

## SOT-363 Suggested Pad Layout



**Note:**

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.