

30V P-Channel Enhancement-Mode MOSFET

● APPLICATIONS

- 1)Advanced trench process technology
- 2)High Density Cell Design For Ultra Low On-Resistance.
- 3)We declare that the material of product compliant with RoHS requirements and Halogen Free.

● FEATURES

- 1) $V_{DS} = -30V$
- 2) $R_{DS(ON)} < 70m\Omega$ ($V_{GS} = -10V$)
- 3) $R_{DS(ON)} < 80m\Omega$ ($V_{GS} = -4.5V$)
- 4) $R_{DS(ON)} < 120m\Omega$ ($V_{GS} = -2.5V$)

● DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LP3401LT1G	A1	3000/Tape&Reel
LP3401LT1G	A1	10000/Tape&Reel

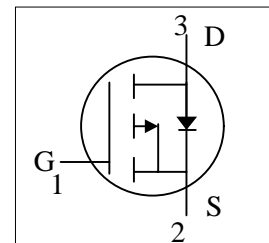
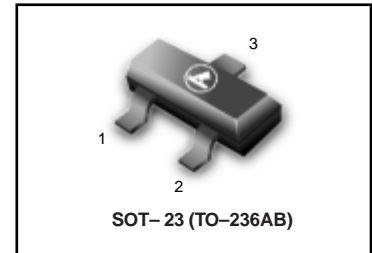
● MAXIMUM RATINGS($T_a = 25^\circ C$)

Parameter	Symbol	Limits	Unit
Drain-to-Source Voltage	V_{DSS}	-30	V
Gate-to-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	$T_A = 25^\circ C$	-4.2
		$T_A = 75^\circ C$	-3.5
Pulsed Drain Current	I_{DM}	-30	A
Maximum Power Dissipation	PD	$T_A = 25^\circ C$	1.4
		$T_A = 75^\circ C$	1.00
Junction and Storage Temperature Range	T_J, T_{stg}	-55 to +150	$^\circ C$

● THERMAL CHARACTERISTICS ($T_a = 25^\circ C$)

Parameter	Symbol	Typ.	Max.	Unit
Maximum Junction-to-Ambient	$R_{\theta JA}$	65	90	$^\circ C/W$
Maximum Junction-to-Ambient		Steady-State	85	125
Maximum Junction-to-Lead	$R_{\theta JL}$	43	60	$^\circ C/W$

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● ELECTRICAL CHARACTERISTICS (Ta= 25°C)

STATIC

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Voltage	BV_{DSS}	-30	-	-	V	$I_D=-250\mu A, V_{GS}=0V$
Zero Gate Voltage Drain Current	I_{DSS}	-		-5	V	$V_{DS}=-24V, V_{GS}=0V$
Gate-Body leakage current	I_{GSS}	-	-	± 100	nA	$V_{DS}=0V, V_{GS}=\pm 12V$
Gate Threshold Voltage	$V_{GS(th)}$	-0.7	-1	-1.3	V	$V_{DS}=V_{GS}, I_D=-250\mu A$
On state drain current	$I_{D(ON)}$	-25	-		A	$V_{GS}=-4.5V, V_{DS}=-5V$
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	-	70	m Ω	$V_{GS}=-10V, I_D=-4.2A$
		-	-	80	m Ω	$V_{GS}=-4.5V, I_D=-4A$
		-	-	120		$V_{GS}=-2.5V, I_D=-1A$
Forward Transconductance	g_{FS}	7	11		S	$V_{DS}=-5V, I_D=-5A$
Diode Forward Voltage	V_{SD}		-0.75	-1		$I_S=-1A, V_{GS}=0V$
Maximum Body-Diode Continuous Current	I_S			-2.2		

DYNAMIC PARAMETERS

Input Capacitance	C_{iss}		954		pF	$V_{GS}=0V, V_{DS}=-15V, f=1MHz$
Output Capacitance	C_{oss}		115		pF	
Reverse Transfer Capacitance	C_{rss}		77		pF	
Gate resistance	R_g		6		Ω	$V_{GS}=0V, V_{DS}=0V, f=1MHz$

SWITCHING PARAMETERS

Total Gate Charge	Q_G	-	9.4	-	nc	$V_{GS}=-4.5V, V_{DS}=-15V, I_D=-4A, I_D=-4.5A$
Gate-to-Source Gate Charge	Q_{GS}	-	2	-		
Gate-to-Drain Charge	Q_{GD}	-	3	-		
Turn-On Delay Time	$t_{d(on)}$	-	6.3	-	ns	$V_{GS}=-10V, V_{DS}=-15V, R_L=3.6\Omega, R_{GEN}=6\Omega$
Rise Time	t_r	-	3.2	-		
Turn-Off Delay Time	$t_{d(off)}$	-	38.2	-		
Fall Time	t_f	-	12	-		
Body Diode Reverse Recovery Time	t_{rr}	-	20.2	-	ns	$I_F=-4A, dI/dt=100A/\mu s$
Body Diode Reverse Recovery Charge	Q_{rr}		11.2		nc	$I_F=-4A, dI/dt=100A/\mu s$

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ELECTRICAL CHARACTERISTIC CURVES

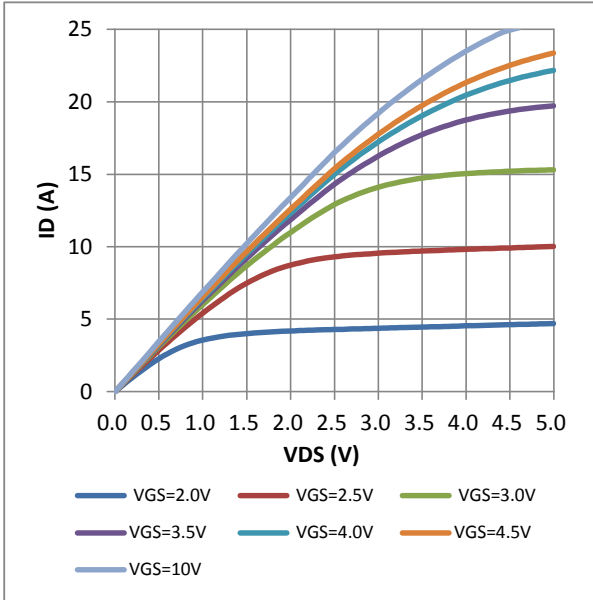


FIG.1 On-Region Characteristics

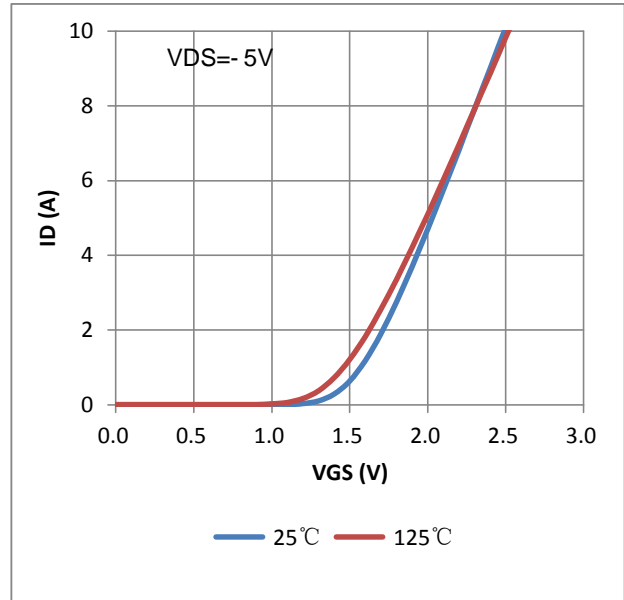


FIG.2 Transfer Characteristics

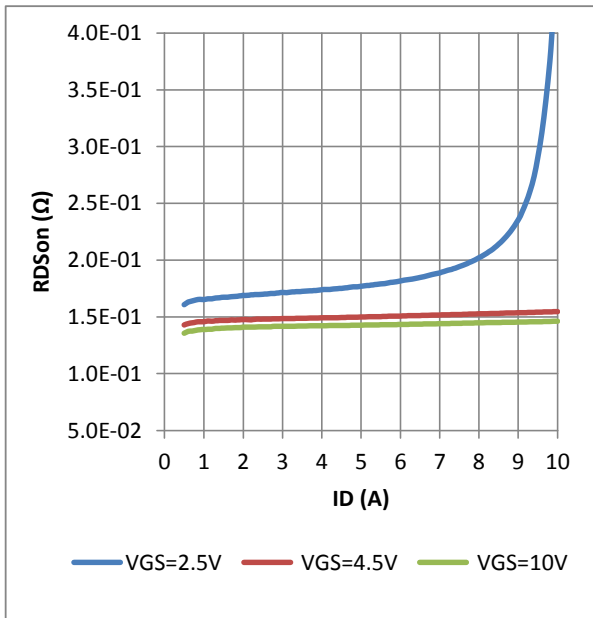


FIG.3 On-Resistance vs. Drain Current and Gate Voltage

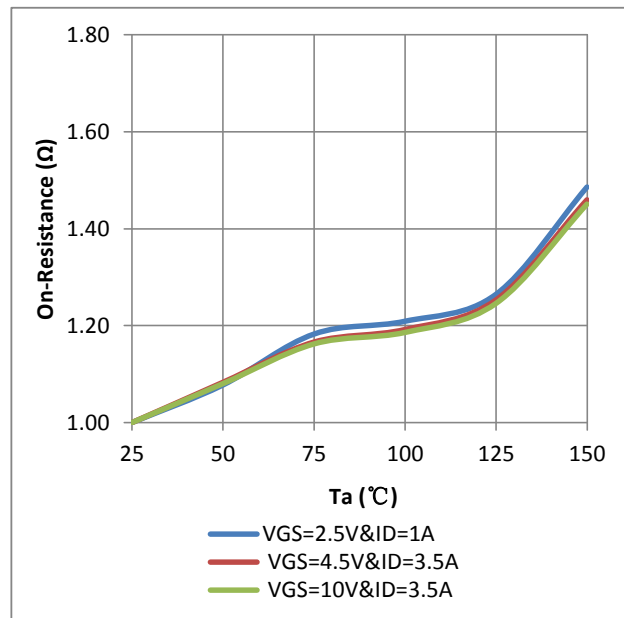


FIG.4 On-Resistance vs. Junction Temperature

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ELECTRICAL CHARACTERISTIC CURVES

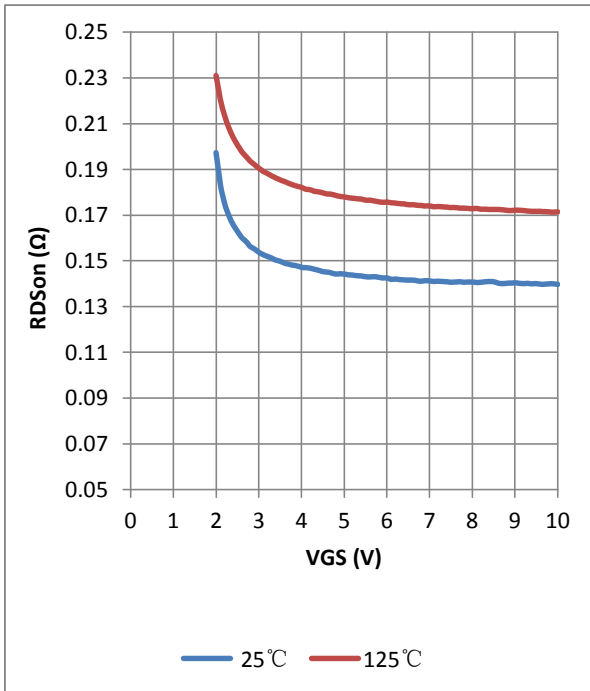


FIG.5 On-Resistance vs. Gate-Source Voltage

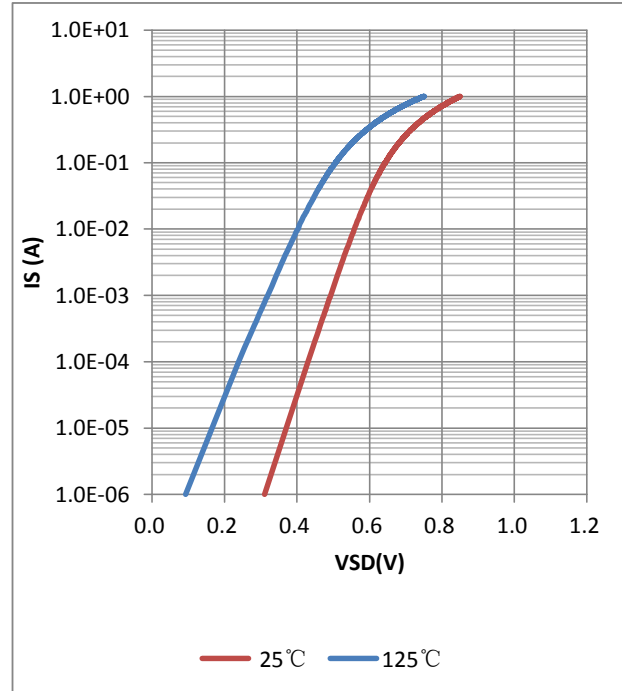


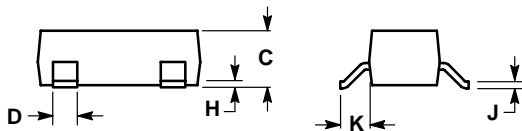
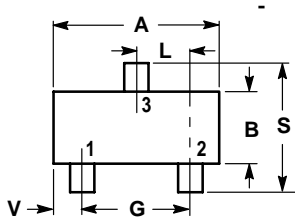
FIG.6 Body-Diode Characteristics

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NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M,1982
2. CONTROLLING DIMENSION: INCH.



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

