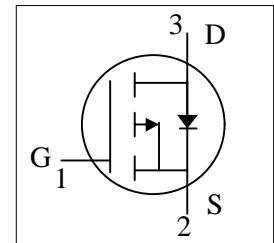
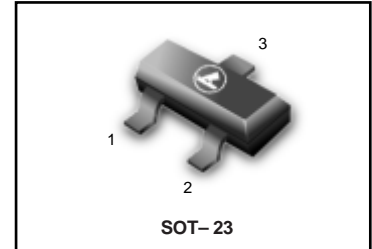


## 20V P-Channel Enhancement-Mode MOSFET

### ●FEATURES

- 1)  $V_{DS} = -20V$
- 2)  $R_{DS(ON)}, V_{GS}@-2.5V, I_{DS}@-2.0A=150m\Omega$
- 3)  $R_{DS(ON)}, V_{GS}@-4.5V, I_{DS}@-2.8A=100m\Omega$
- 4) Advanced trench process technology
- 5) High Density Cell Design For Ultra Low On-Resistance
- 6) Fully Characterized Avalanche Voltage and Current
- 7) Improved Shoot-Through FOM
- 8) Simple Drive Requirement
- 9) Small Package Outline
- 10) Surface Mount Device
- 11) We declare that the material of product compliant with RoHS requirements and Halogen Free .

### LP2301LT1G



### ●DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LP2301LT1G	01	3000/Tape&Reel
LP2301LT3G	01	10000/Tape&Reel

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

Parameter	Symbol	Limits	Unit
Drain-to-Source Voltage	$V_{DSS}$	-20	V
Gate-to-Source Voltage	$V_{GS}$	$\pm 8$	V
Continuous Drain Current	$I_D$	-2.3	A
Maximum Power Dissipation	$P_D$	$T_A = 25^\circ C$	0.9
		$T_A = 75^\circ C$	0.57
Pulsed Drain Current	$I_{DM}$	-8	A
Operating and Storage Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ C$
Thermal Resistance-Junction to Ambient(Note1)	$R_{\theta JA}$	175	$^\circ C/W$

1.The device mounted on  $1in^2$  FR4 board with 2 oz copper

## LP2301LT1G

### ● ELECTRICAL CHARACTERISTICS (Ta= 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Static						
Drain-to-Source Breakdown Voltage	V(BR)DSS	-20	-	-	V	VGS = 0 V, ID = -250 μA
Gate Threshold Voltage	VGS(TH)	-0.4	-	0.9	V	VGS = VDS, ID = -250 μA
Zero Gate Voltage Drain Current	IDSS	-	-	-1	μA	VDS=-9.6V, VGS=0V
Gate-to-Source Leakage Current	IGSS	-	-	±100	nA	VDS = 0 V, VGS = ±8 V
Drain-to-Source On Resistance (Note2)	RDS(on)	-	69	100	mΩ	VGS = -4.5 V, ID =-2.8 A
		-	83	150	mΩ	VGS = -2.5 V, ID = -2 A
Forward Transconductance	gfs	-	6.5	-	S	VDS = -5 V, ID = -4 A

### DYNAMIC

Total Gate Charge	Qg	-	15.23	-	nC	VGS =-4.5 V, VDS = -6 V ID = -2.8 A
Gate-to-Source Gate Charge	Qgs	-	5.49	-		
Gate-to-Drain Charge	Qgd	-	2.74	-		
Turn-On Delay Time	td(on)	-	17.28	-	ns	VDS=-6V, RL =6 Ω RGEN=6 Ω, VGS=- 4.5V
Rise Time	tr	-	3.73	-		
Turn-Off Delay Time	td(off)	-	36.05	-		
Fall Time	tf	-	6.19	-		
Input Capacitance	Ciss	-	882.5	-	pF	VGS = 0 V, f = 1.0 MHz, VDS= -6 V
Output Capacitance	Coss	-	145.5	-		
Reverse Transfer Capacitance	Crss	-	97.26	-		

### SOURCE-DRAIN DIODE

Max. Diode Forward Current	IS	-	-	-2.4	A	
Forward Diode Voltage	VSD	-	-0.8	-1.2	V	VGS = 0 V, IS = -0.75A

2. Pulse Test: Pulse width ≤ 300μs, duty cycle ≤ 2%.

# LP2301LT1G

## ELECTRICAL CHARACTERISTIC CURVES

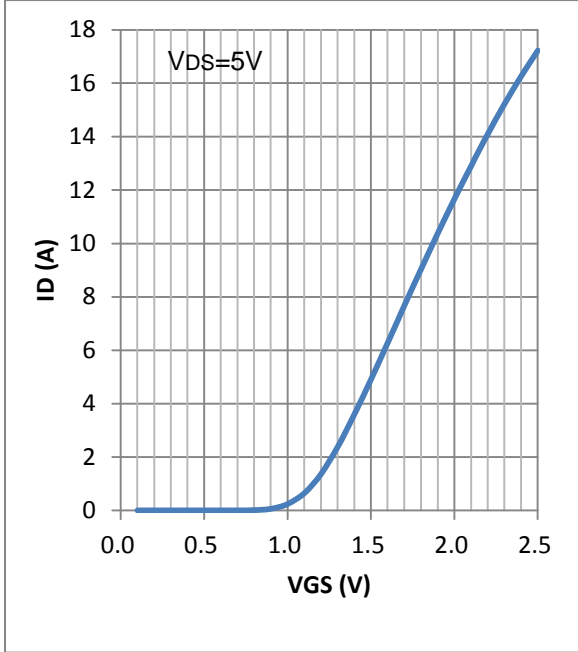


FIG.1 Transfer Characteristics

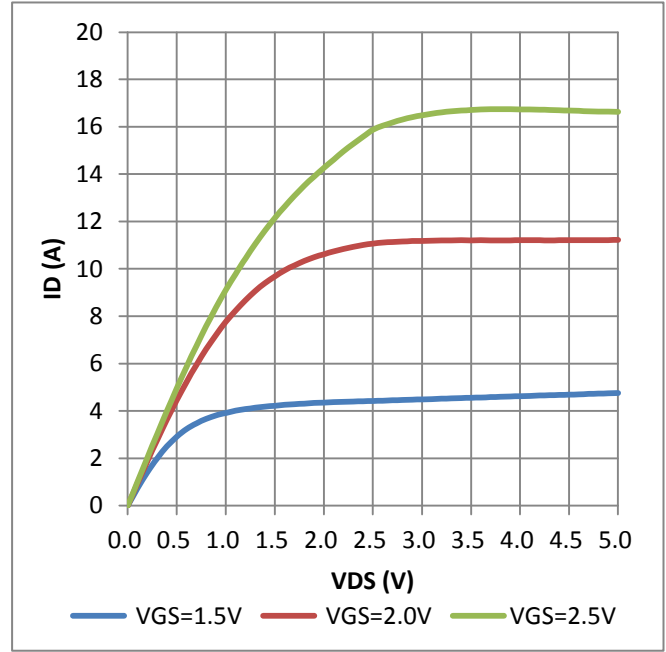


FIG.2 On-Region Characteristics

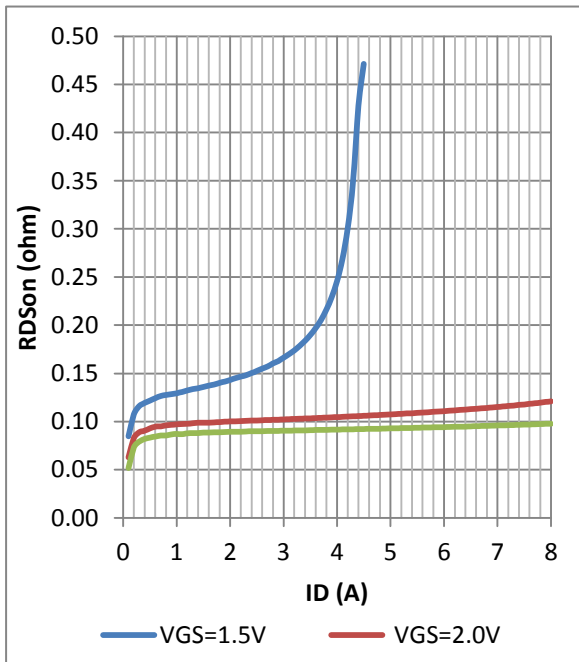


FIG.3 On-Resistance versus Drain Current

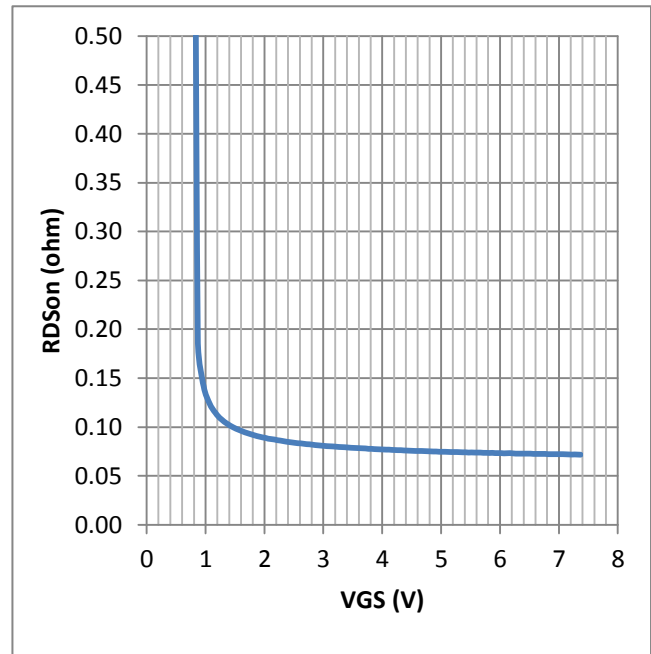


FIG.4 On-Resistance vs. Gate-to-Source Voltage

# LP2301LT1G

## ELECTRICAL CHARACTERISTIC CURVES

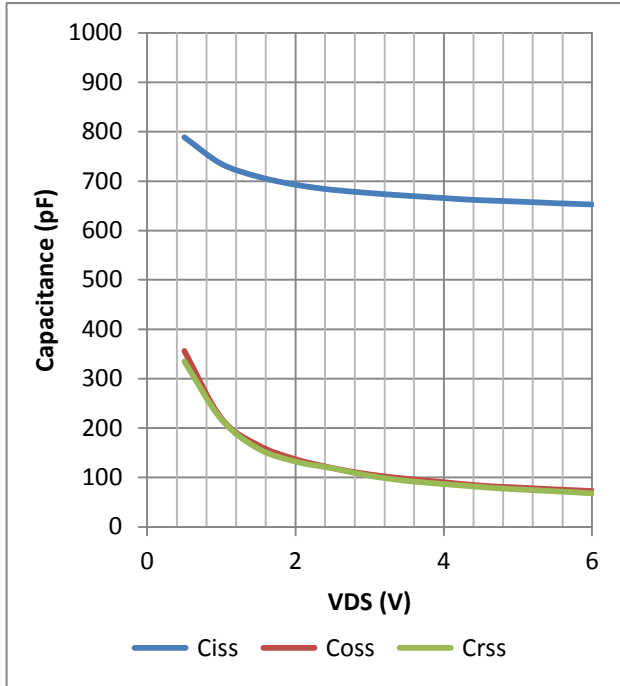


FIG.6 Capacitance

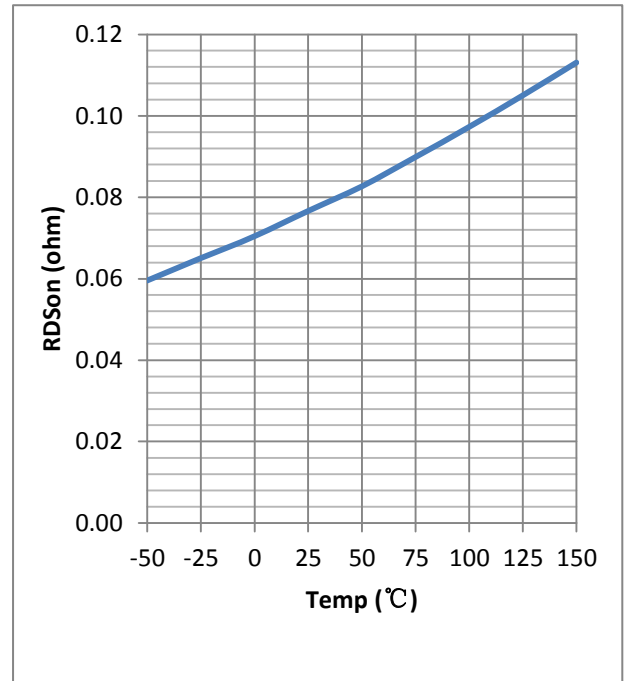


FIG.7 On-Resistance vs. Junction Temperature

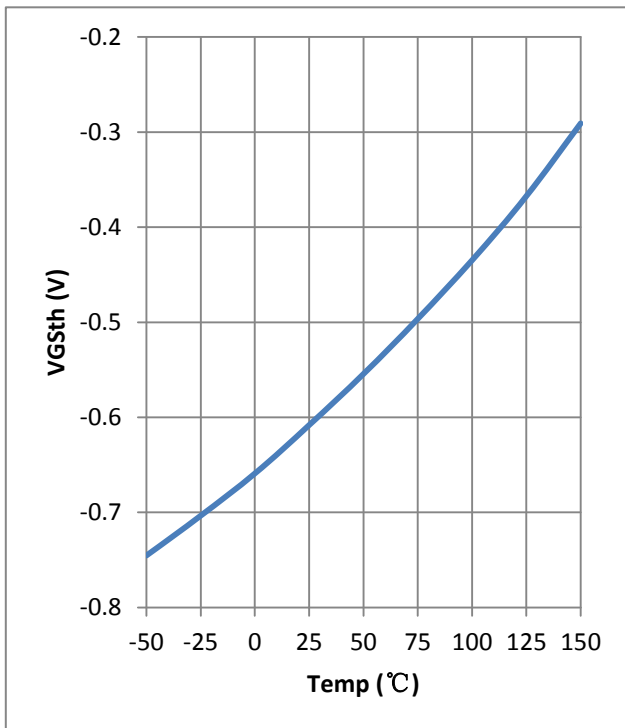


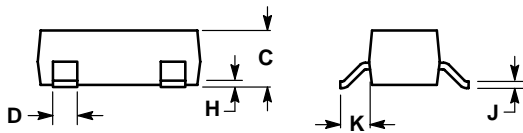
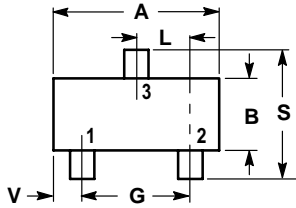
FIG.8 Vth vs. Junction Temperature

# LP2301LT1G

## SOT-23

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

