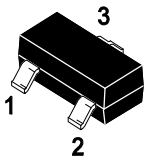
LP2301LT1G

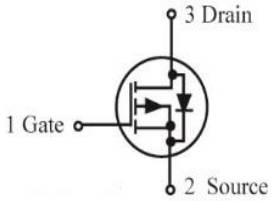
20V P-Channel Enhancement-Mode MOSFET



SOT23(TO-236AB)

1. FEATURES

- VDS =-20V
- RDS(ON),VGS@-2.5V,IDS@-2.0A=150mΩ
- RDS(ON),VGS@-4.5V,IDS@-2.8A=100mΩ
- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- Advanced trench process technology
- High density cell design for ultra low on-resistance
- Fully characterized avalanche voltage and current improved shoot-through FOM



2. APPLICATIONS

- Simple drive requirement
- Small package outline
- Surface mount device

3. DEVICE MARKING AND ORDERING INFORMATION

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

4. MAXIMUM RATINGS(Ta = 25ºC)

Parameter	Symbol	Limits	Unit
Drain–Source Voltage	VDSS	-20	V
Gate–to–Source Voltage – Continuous	VGS	±8	V
Drain Current – Continuous TA = 25°C – Pulsed(Note 1)	 ID IDM	 -2.3 -8	A

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Maximum Power Dissipation	PD	0.9	W
Thermal Resistance, Junction–to–Ambient(Note 2)	RΘJA	140	ºC/W
Junction and Storage temperature	TJ,Tstg	−55~+150	° C

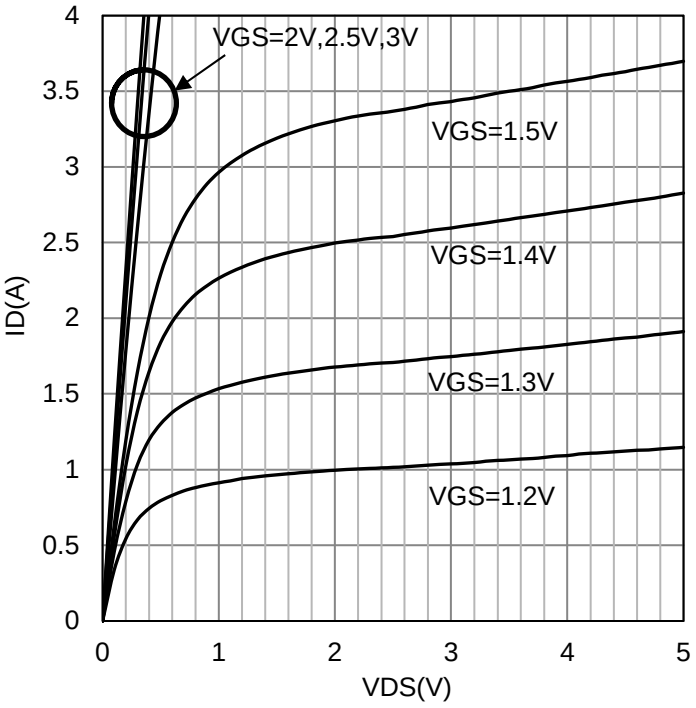
1. Repetitive Rating: Pulse width limited by the Maximum junction temperation.
2. 1-in² 2oz Cu PCB board.

6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

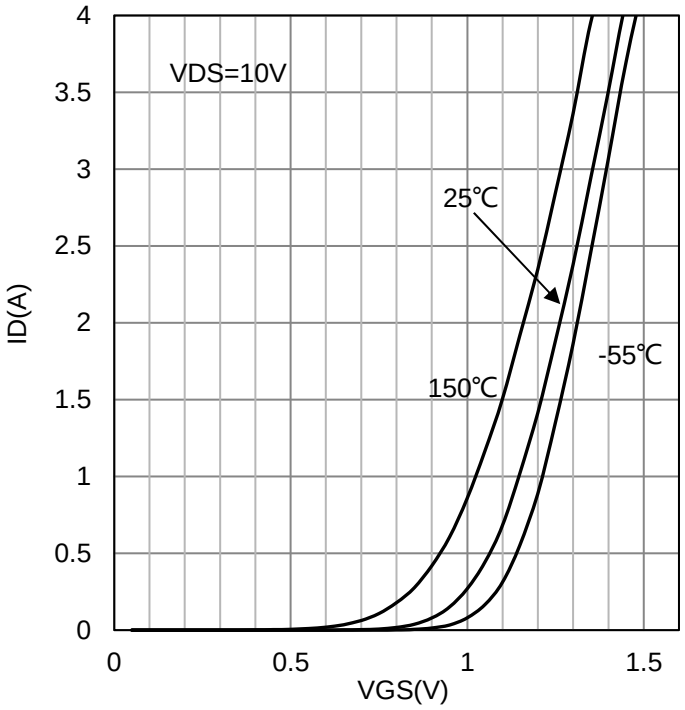
Characteristic		Symbol	Min.	Typ.	Max.	Unit
Static						
Drain–Source Breakdown Voltage (VGS = 0V, ID = -250 μA)		VBRDSS	-20	-	-	V
Zero Gate Voltage Drain Current (VGS = 0V, VDS = -20 V)		IDSS	-	-	-1	μA
Gate–Body Leakage Current, Forward (VGS = 8 V)		IGSSF	-	-	100	nA
Gate–Body Leakage Current, Reverse (VGS = - 8 V)		IGSSR	-	-	-100	nA
Gate Threshold Voltage (VDS = VGS, ID = -250 μA)		VGS(th)	-0.4	-	-0.9	V
Static Drain–Source On–State Resistance (VGS = -4.5 V, ID = -2.8 A) (VGS = -2.5 V, ID = -2 A)		RDS(on)	- -	69 83	100 150	mΩ
Dynamic						
Total Gate Charge	(VDS = -10 V, VGS = -4.5 V,ID = -2 A)	Qg	-	6	-	nC
Gate-Source Charge		Qgs	-	0.8	-	
Gate-Drain Charge		Qgd	-	1.6	-	
Input Capacitance (VGS = 0 V, f = 1.0MHz,VDS= -6 V)		Ciss	-	514	-	pF
Output Capacitance (VGS = 0 V, f = 1.0MHz,VDS= -6 V)		Coss	-	68	-	pF
Reverse Transfer Capacitance (VGS = 0 V, f = 1.0MHz,VDS= -6 V)		Crss	-	59	-	pF
Turn-On Delay Time	(VDD = -6 V, RL = 6 Ω ID = −1 A, VGEN = -4.5 V RG = 6 Ω)	td(on)	-	4	-	ns
Rise Time		tr	-	5	-	
Turn-Off Delay Time		td(off)	-	91	-	
Fall Time		tf	-	43	-	
Forward Voltage (VGS = 0 V, ISD = -0.75 A)		VSD	-	-0.8	-1.2	V

3.Pulse Test: Pulse Width ≤300 μs, Duty Cycle ≤2.0%.

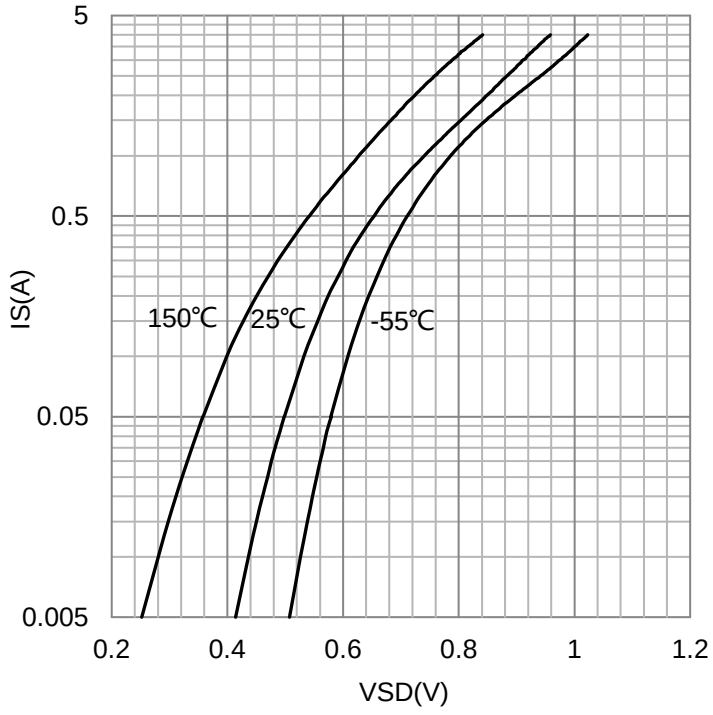
7. ELECTRICAL CHARACTERISTICS CURVES



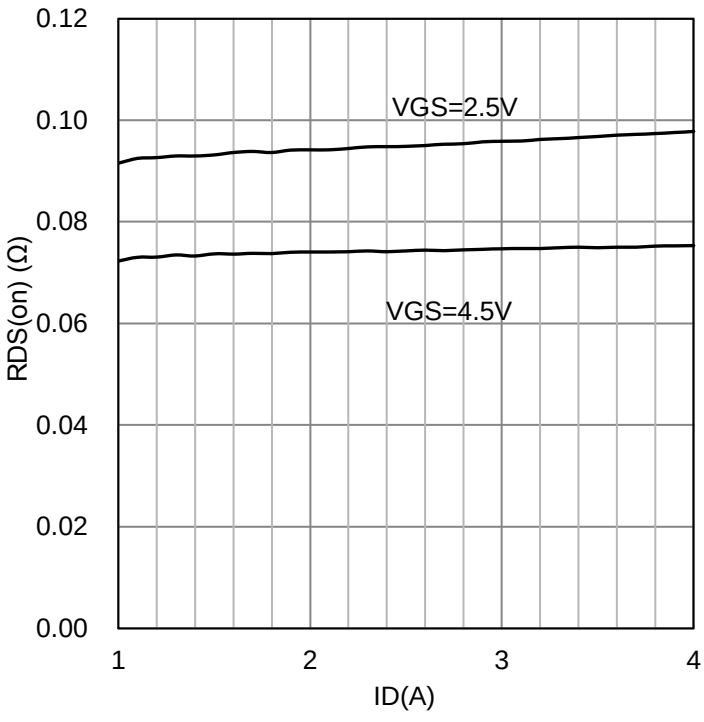
ID vs. VDS



ID vs. VGS

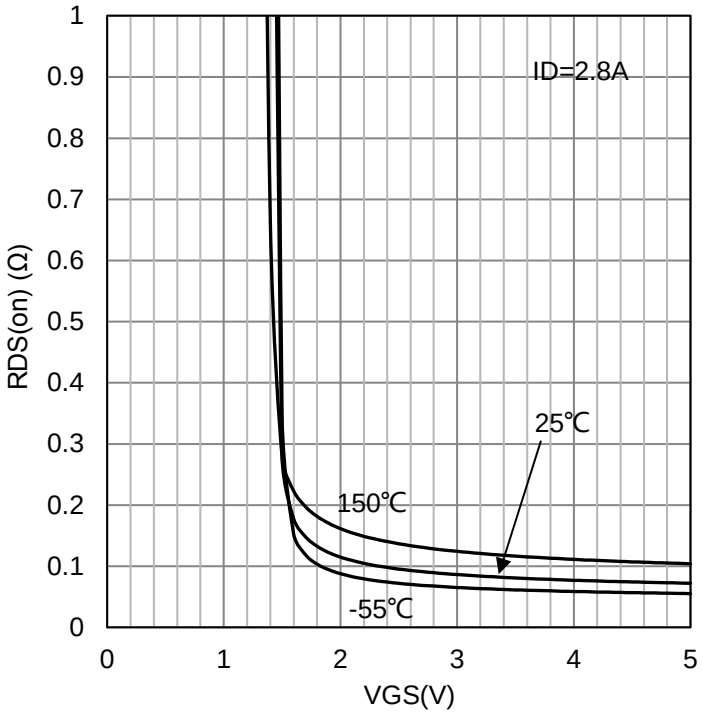


IS vs. VSD

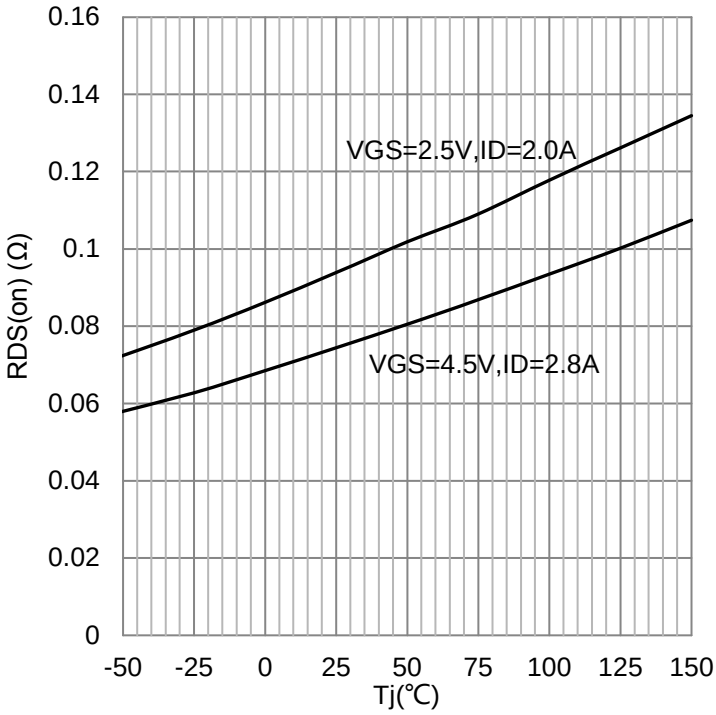


RDS(on) vs. ID

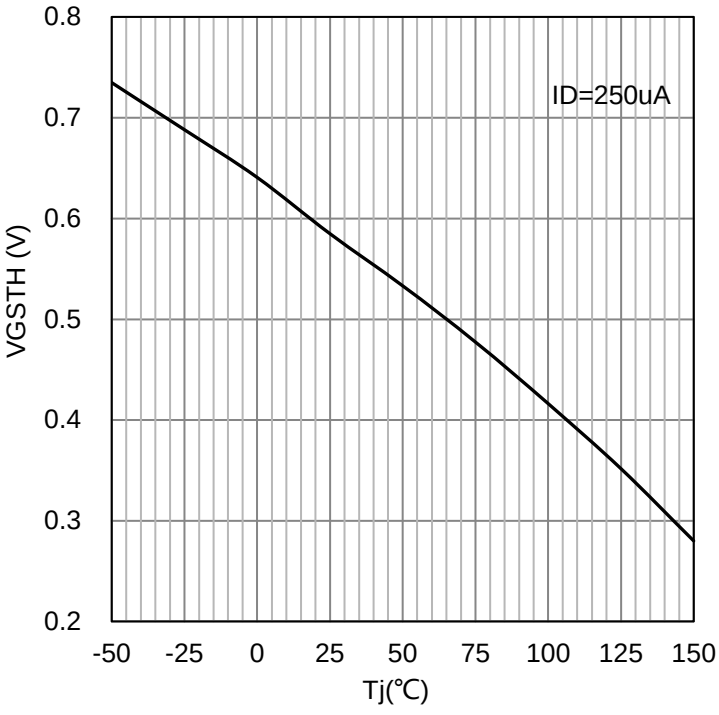
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



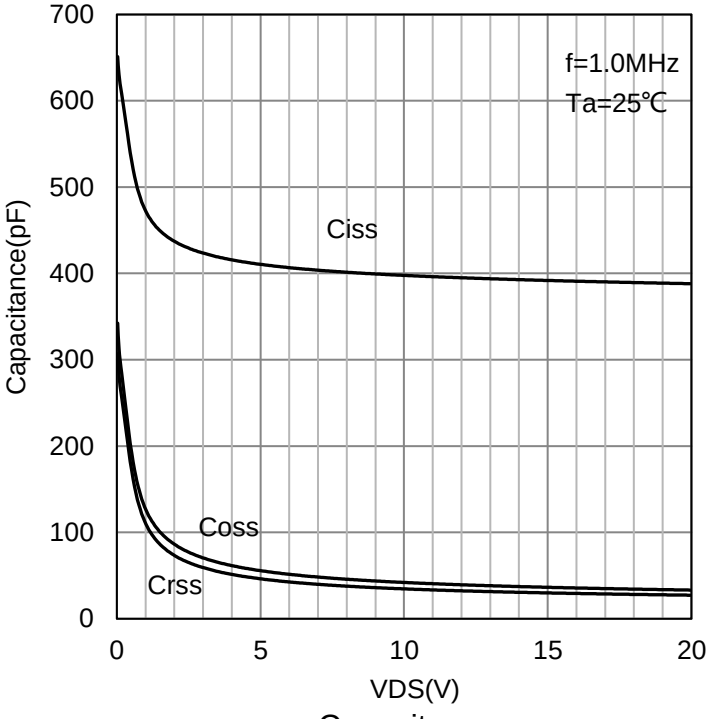
RDS(on) vs. VGS



RDS(on) vs. Tj

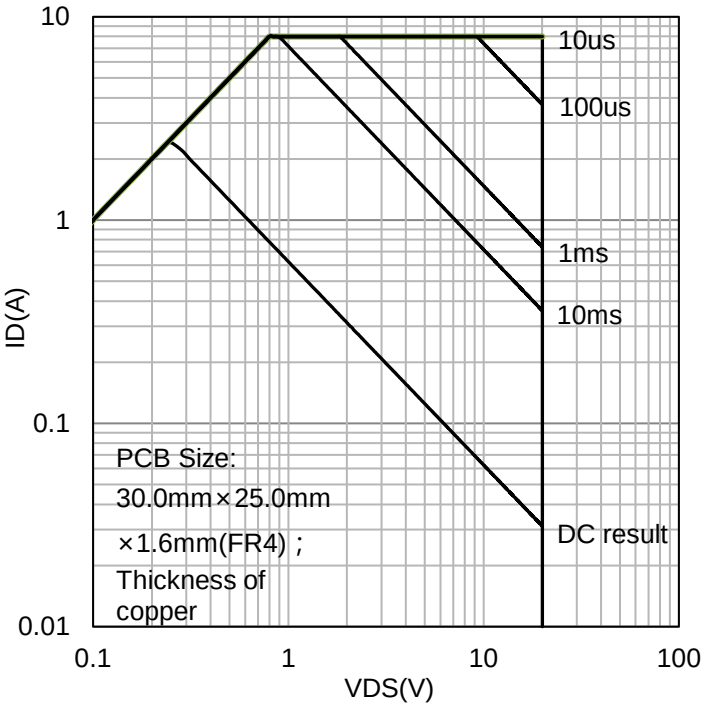


VGSTH vs. Tj



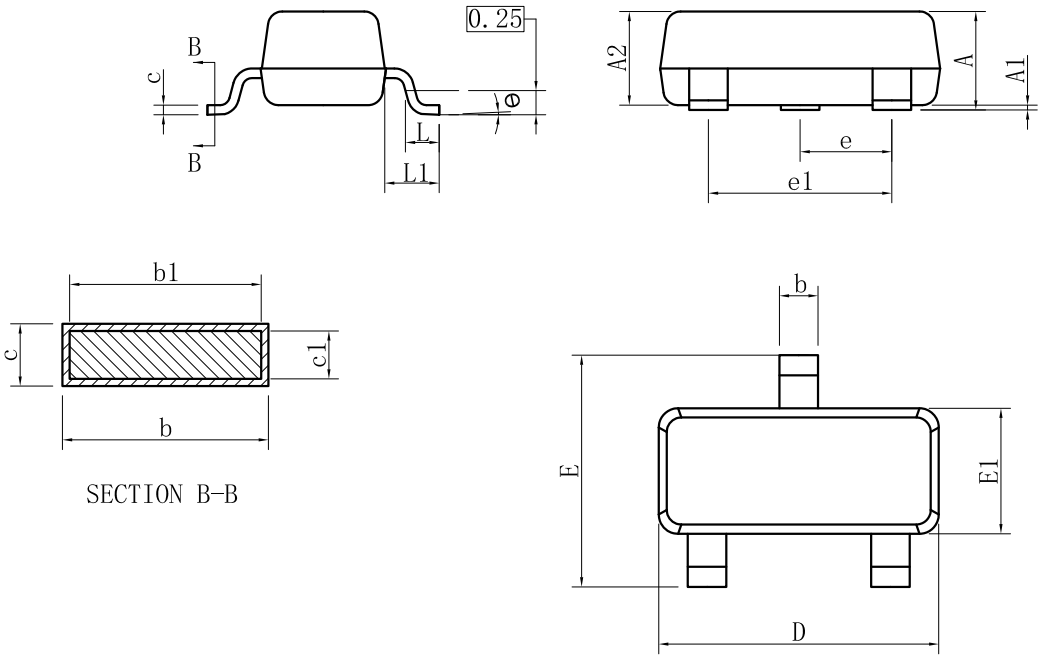
Capacitance

7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



Safe Operating Area

8.OUTLINE AND DIMENSIONS

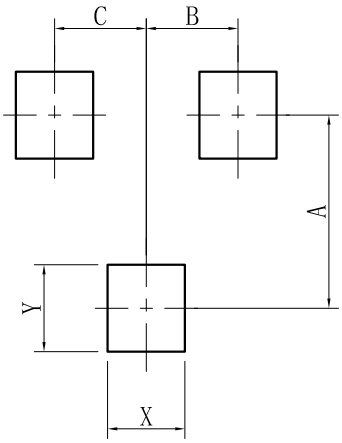


SOT23			
DIM	MIN	NOR	MAX
A	0.89	-	1.12
A1	0.01	-	0.10
A2	0.88	0.95	1.02
b	0.30	-	0.50
b1	0.30	0.40	0.45
c	0.08	-	0.20
c1	0.08	0.10	0.16
D	2.80	2.90	3.04
E	2.10	-	2.64
E1	1.20	1.30	1.40
e	0.95BSC		
e1	1.90BSC		
L	0.40	0.46	0.60
L1	0.54REF		
θ	0°	-	8°
All Dimensions in mm			

GENERAL NOTES

1. Top package surface finish Ra0.4±0.2um
2. Bottom package surface finish Ra0.7±0.2um
3. Side package surface finish Ra0.4±0.2um

9.SOLDERING FOOTPRINT



SOT23	
DIM	(mm)
X	0.80
Y	0.90
A	2.00
B	0.95
C	0.95

DISCLAIMER

- Curve guarantee in the specification. The curve of test items with electric parameter is used as quality guarantee. The curve of test items without electric parameter is used as reference only.

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