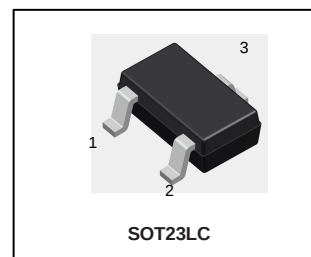


LPB2333LT1G

12V P-Channel Enhancement MOSFET

1. FEATURES

- Ultra Low RDS(on)
- ESD Diode Protected Gate
- This is a Pb-Free Device
- We declare that the material of product are Halogen Free and compliance with RoHS requirements.

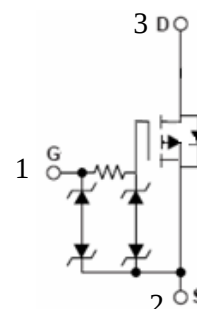


2. APPLICATIONS

- Battery Switch
- High Side Load Switch

3. ORDERING INFORMATION

Device	Marking	Shipping
LPB2333LT1G	P12	3000/Tape&Reel



4. MAXIMUM RATINGS(Ta = 25°C unless otherwise stated)

Parameter	Symbol	Limits	Unit
Drain-to-Source Voltage	VDSS	-12	V
Gate-to-Source Voltage	VGS	±8	V
Drain Current (Note 1)Steady State	ID	-6	A
Pulsed Drain Current (tp = 10 μs)	IDM	-21	A
Power Dissipation (Note 1)	PD	1.1	W
Steady State		1.8	
t < 7 s			
Thermal Resistance,Junction-to-Ambient	RθJA	140	°C/W
Operating Junction and Storage Temperature Range	TJ , TSTG	-55 ~ +150	°C

1. Surface-mounted on FR4 board using 1 in sq pad size (Cu area = 1.127 in sq [1 oz] including traces)

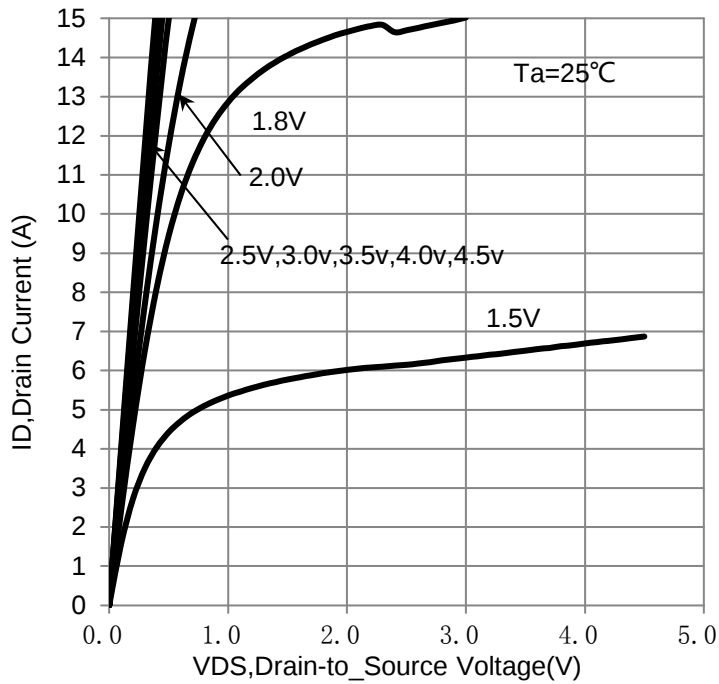
5. ELECTRICAL CHARACTERISTICS

Characteristic		Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage (VGS = 0 V, ID = -250 μA)		V(BR)DSS	-12	-	-	V
Zero Gate Voltage Drain Current (VGS = 0 V,VDS = -12 V,TJ = 25°C)		IDSS	-	-	-1	μA
Gate-to-Source Leakage Current (VDS = 0 V, VGS = ± 8 V)		IGSS	-	-	±10	μA
Gate Threshold Voltage(Note 2) (VDS =VGS , ID =-250μA)		VGS(th)	-	-	-1	V
Drain-Source On-Resistance(Note 2) (VGS = -4.5 V, ID = -1 A) (VGS = -2.5 V, ID = -1 A) (VGS = -1.8 V, ID = -1 A)		RDS(ON)	- - -	27 32 45	32 40 71	mΩ
Forward Transconductance(Note 2) (VDS = -5 V, ID = -3A)		gfs	-	11	-	S
Input Capacitance	(VDS = -15 V, VGS = 0 V, f = 1 MHz)	Ciss	-	1571	-	pF
Output Capacitance		Coss	-	214	-	
Reverse Transfer Capacitance		Crss	-	230	-	
Threshold Gate Charge (VDS=-15V,VGS=-0.7V,ID=-4.0A)		Qg(TH)	-	1.2	-	nC
Total Gate Charge	(VGS = -4.5 V, VDS = -15 V,ID = -4A)	Qg(TOT)	-	19.2	-	
Gate-Source Charge		Qgs	-	2.5	-	
Gate-Drain Charge		Qgd	-	7.1	-	
Turn-On Delay Time	(VGS = -4.5 V, VDD = -15 V,ID = -4A, RG = 1Ω)	td(on)	-	8.6	-	ns
Rise Time		tr	-	15	-	
Turn-Off Delay Time		td(off)	-	150	-	
Fall Time		tf	-	88	-	
Diode Forward Voltage (IS = -1 A, VGS = 0 V,TJ = 25°C)		VSD	-	-	-1.5	V

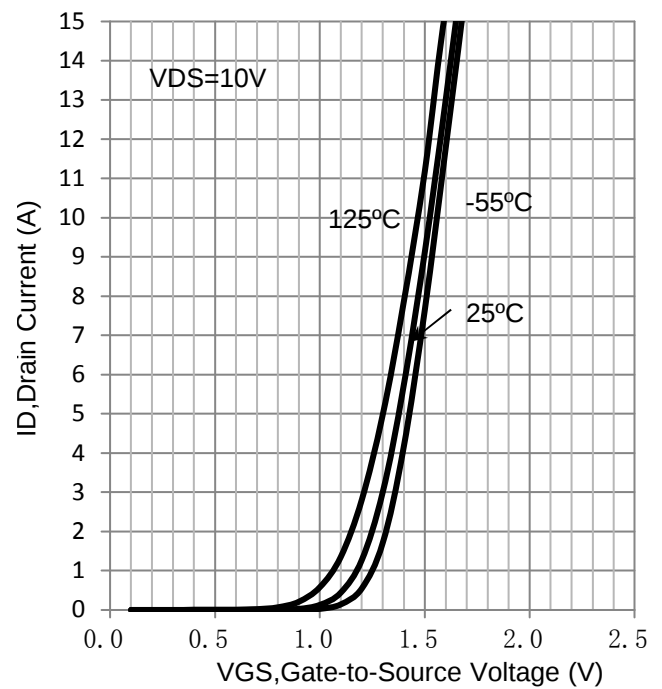
2. Pulse Test: pulse width $\leq$ 300 μ s, duty cycle $\leq$ 2%

3. Switching characteristics are independent of operating junction temperatures

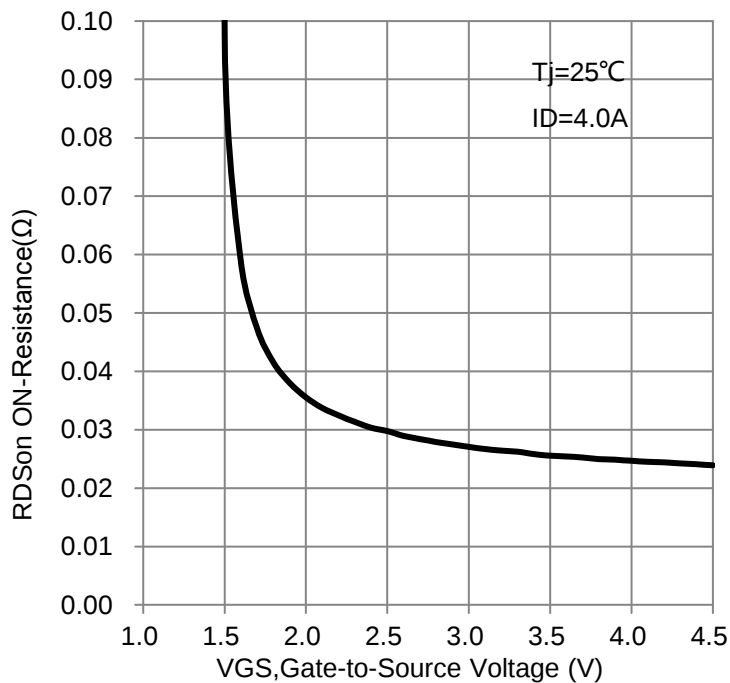
6. ELECTRICAL CHARACTERISTICS CURVES



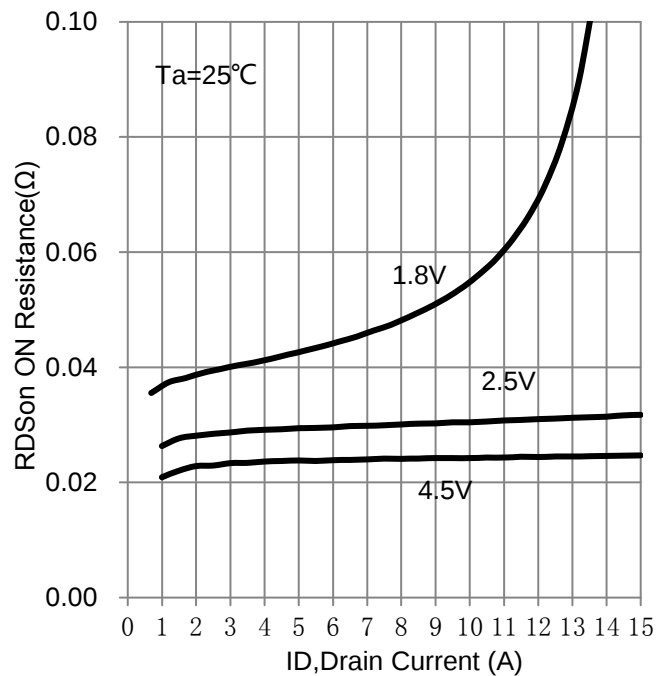
On-Region Characteristics



Transfer Characteristics

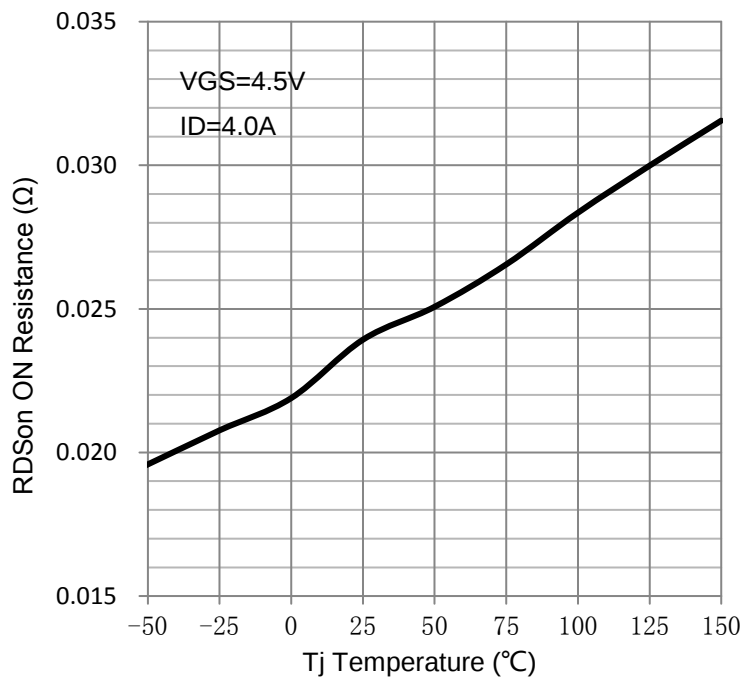


On-Resistance vs. Gate-to-Source Voltage

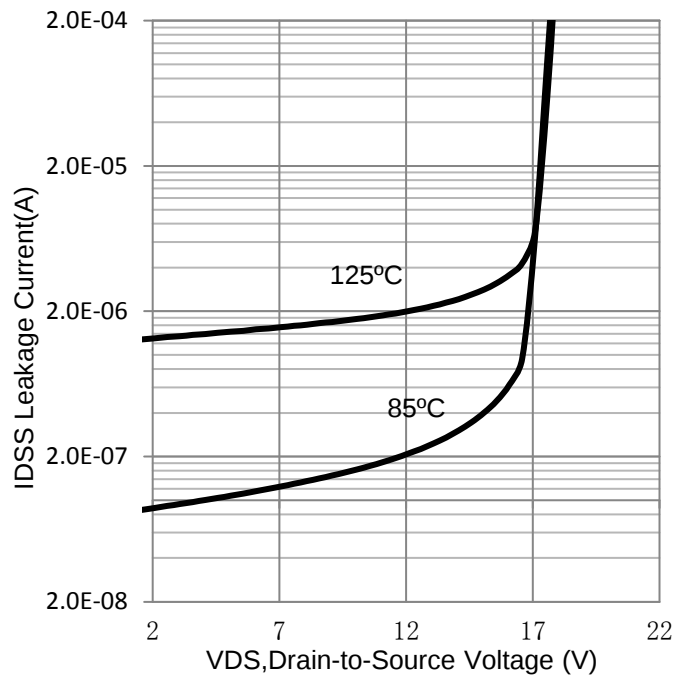


On-Resistance vs. Drain Current and Gate Voltage

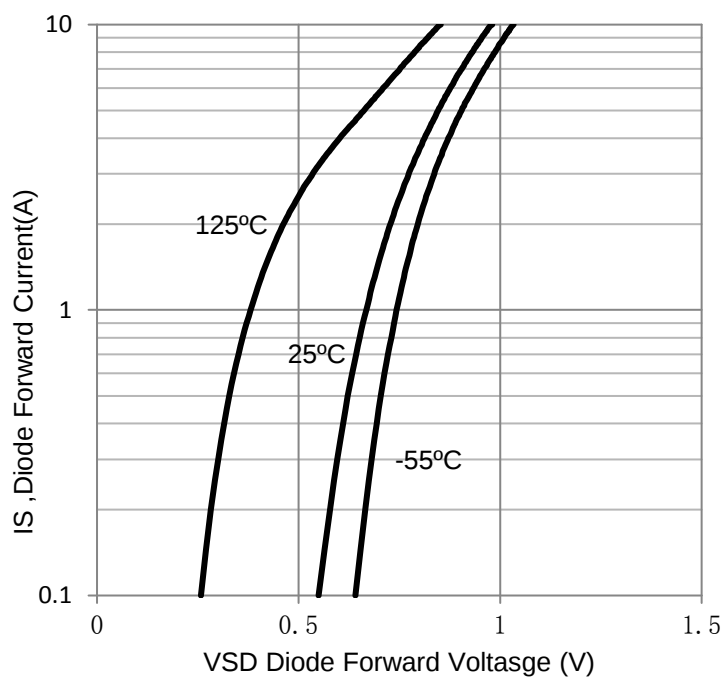
6. ELECTRICAL CHARACTERISTICS CURVES (Con.)



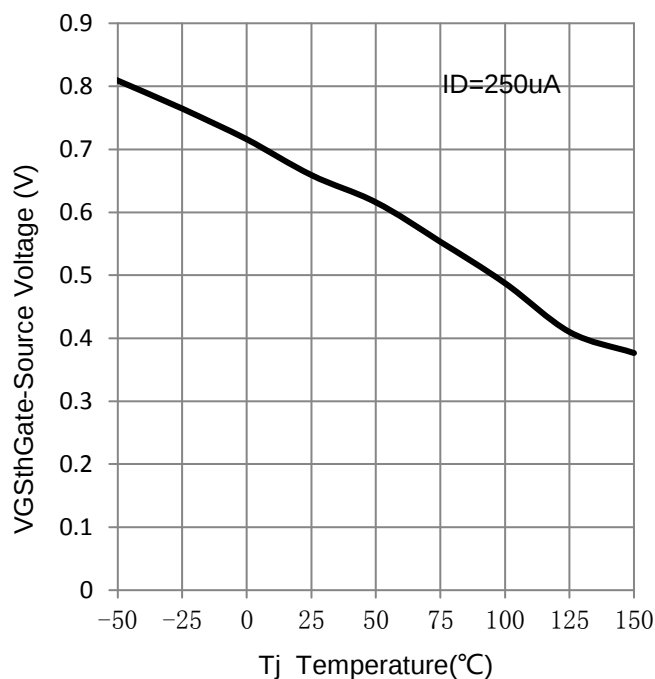
On-Resistance Variation with Temperature



Drain-to-Source Leakage Current vs. Voltage

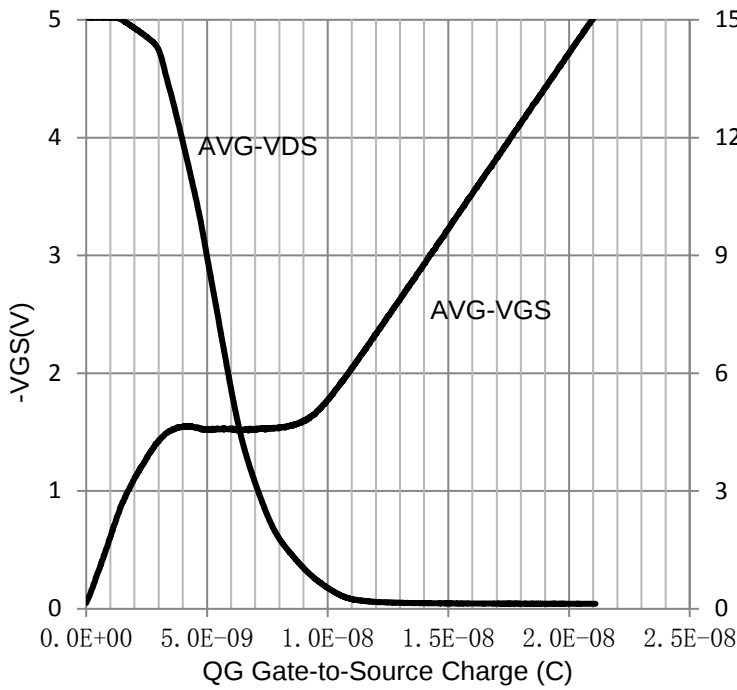


Diode Forward Voltage vs. Current

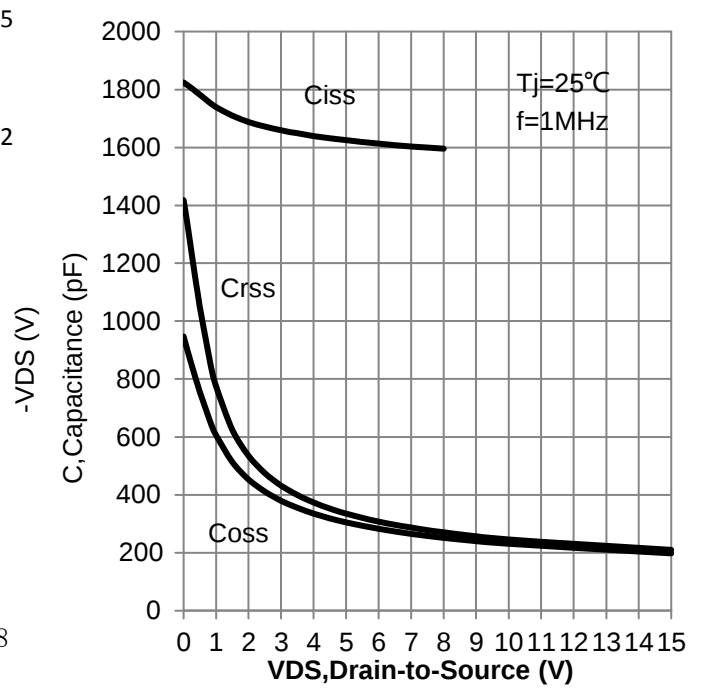


Threshold Voltage

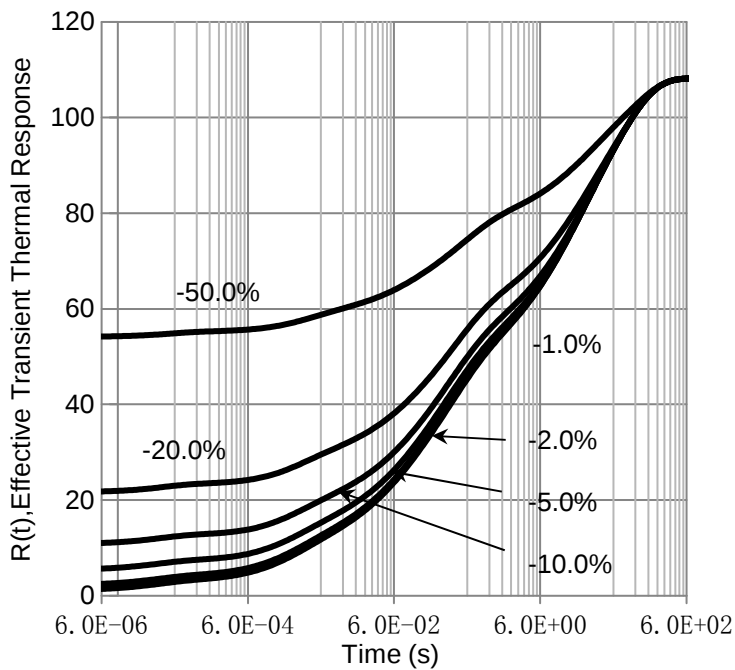
6.ELECTRICAL CHARACTERISTICS CURVES (Con.)



Gate-to-Source and Drain-to-Source Voltage vs. Total Charge

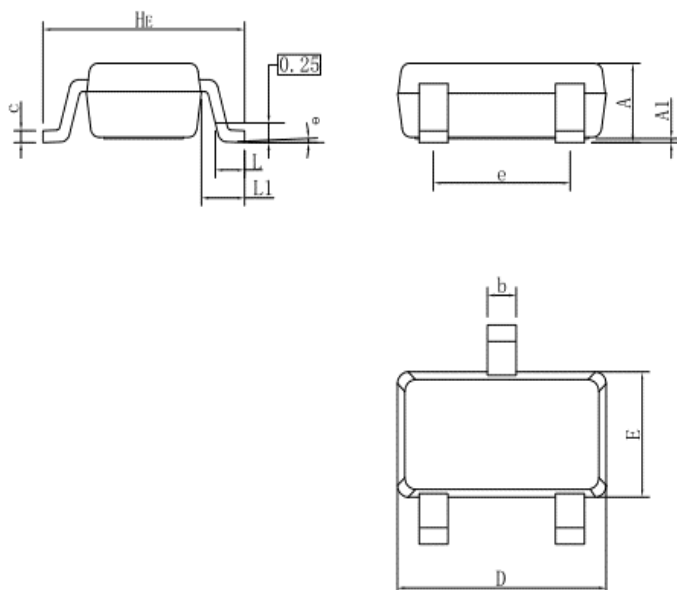


Capacitance variation



FET Thermal Response

7.OUTLINE AND DIMENSIONS

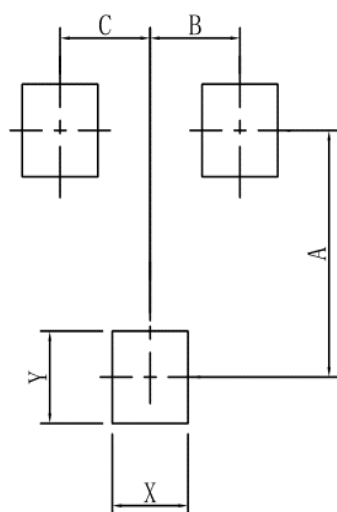


SOT23LC			
DIM	MIN	NOR	MAX
A	0.90	1.00	1.10
A1	0.01	0.06	0.10
b	0.30	0.40	0.50
c	0.10	0.17	0.20
D	2.80	2.90	3.00
E	1.50	1.60	1.70
e	1.80	1.90	2.00
L	0.20	0.40	0.60
L1	0.60REF		
HE	2.60	2.80	3.00
θ	0°	-	10°
All Dimensions in mm			

GENERAL NOTES

- 1.Top package surface finish $Ra0.4\pm0.2\mu m$
- 2.Bottom package surface finish $Ra0.7\pm0.2\mu m$
- 3.Side package surface finish $Ra0.4\pm0.2\mu m$

8.SOLDERING FOOTPRINT



SOT23LC	
DIM	(mm)
X	0.80
Y	0.90
A	2.40
B	0.95
C	0.95