

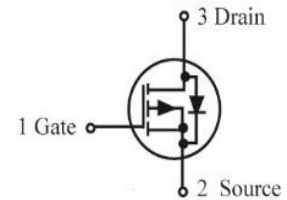
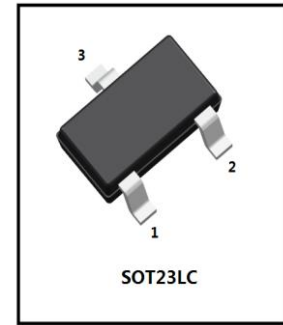
# LPB3407LT1G

## S-LPB3407LT1G

30V P-Channel Enhancement-Mode MOSFET

### 1. FEATURES

- $V_{DS} = -30V$
- $R_{DS(ON)} \leq 60m\Omega @ V_{GS} = -10V, I_D = -4.1A$
- $R_{DS(ON)} \leq 80m\Omega @ V_{GS} = -4.5V, I_D = -3A$
- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.



### 2. APPLICATIONS

- Advanced trench technology
- This device is suitable for use as a load switch or in PWM applications.

### 3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LPB3407LT1G	A07	3000/Tape&Reel
LPB3407LT3G	A07	10000/Tape&Reel

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

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	ID	$T_A = 25^\circ C$	-5
		$T_A = 70^\circ C$	-3.8
Pulsed Drain Current(Note 3)	IDM	-30	A
Power Dissipation(Note 2)	PD	$T_A = 25^\circ C$	1.4
		$T_A = 70^\circ C$	0.9
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55~+150	$^\circ C$

### 5. THERMAL CHARACTERISTICS

Parameter	Symbol	Typ.	Max	Unit
Maximum Junction-to-Ambient(Note 1)	$R_{\theta JA}$	$t \leq 10s$	70	$^\circ C/W$
Maximum Junction-to-Ambient(Note 1)		Steady-State	100	
Maximum Junction-to-Lead	$R_{\theta JL}$	63	80	

1. The value of  $R_{\theta JA}$  is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with  $T_A = 25^\circ C$ . The value in any given application depends on the user's specific board design.

The current rating is based on the  $t \leq 10s$  thermal resistance rating.

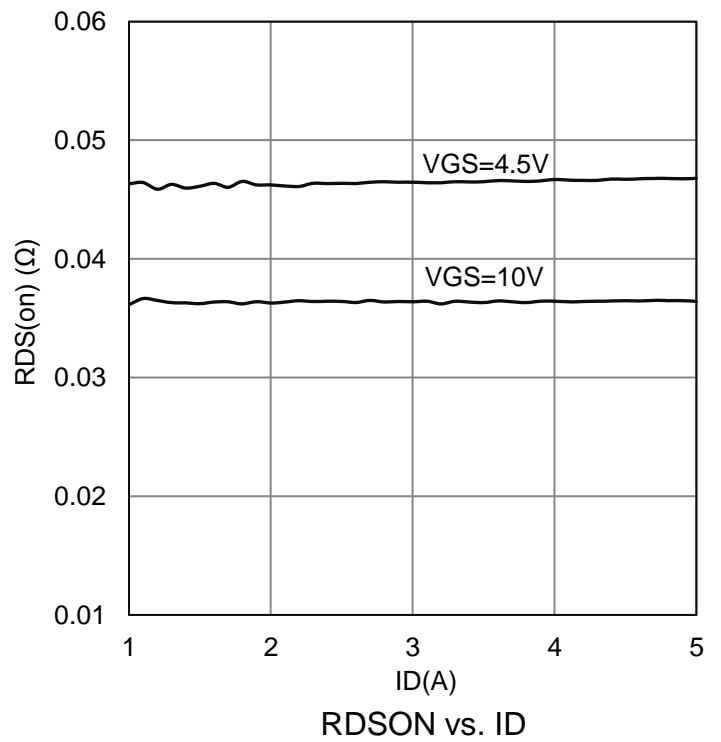
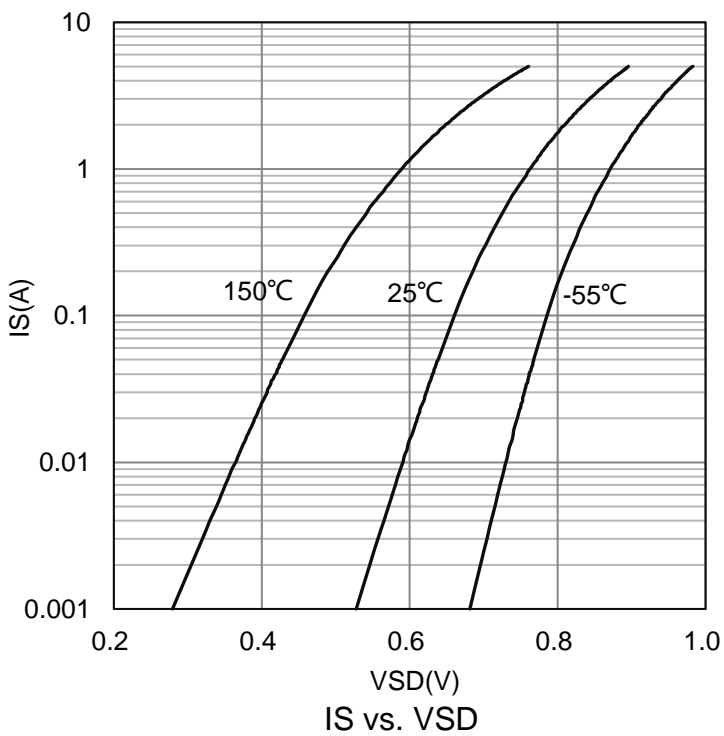
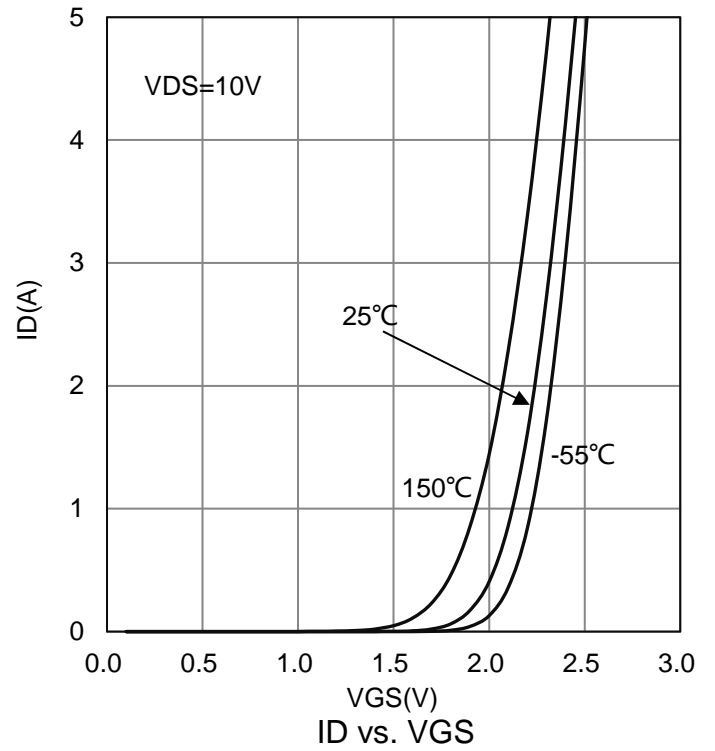
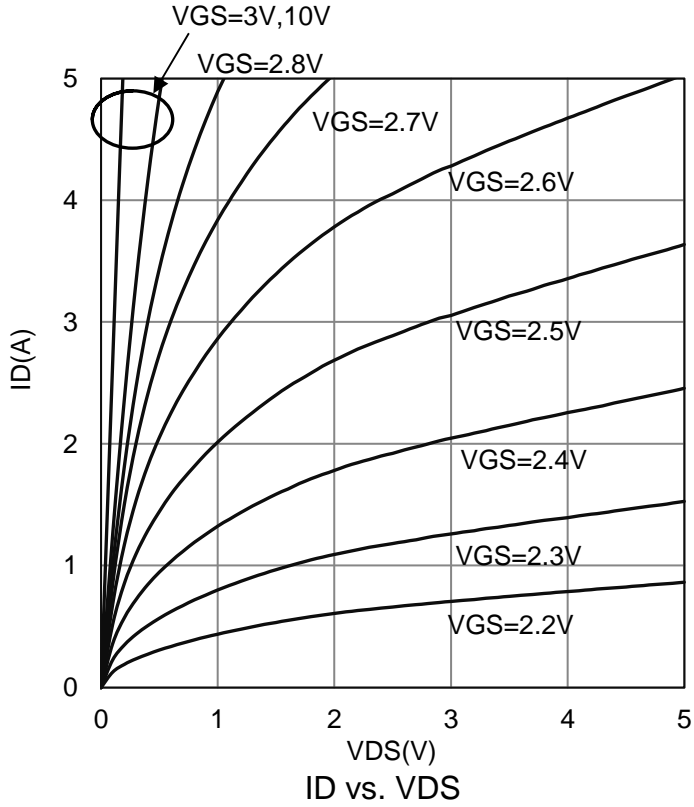
2. Repetitive rating, pulse width limited by junction temperature.

3. The  $R_{\theta JA}$  is the sum of the thermal impedance from junction to lead  $R_{\theta JL}$  and lead to ambient.

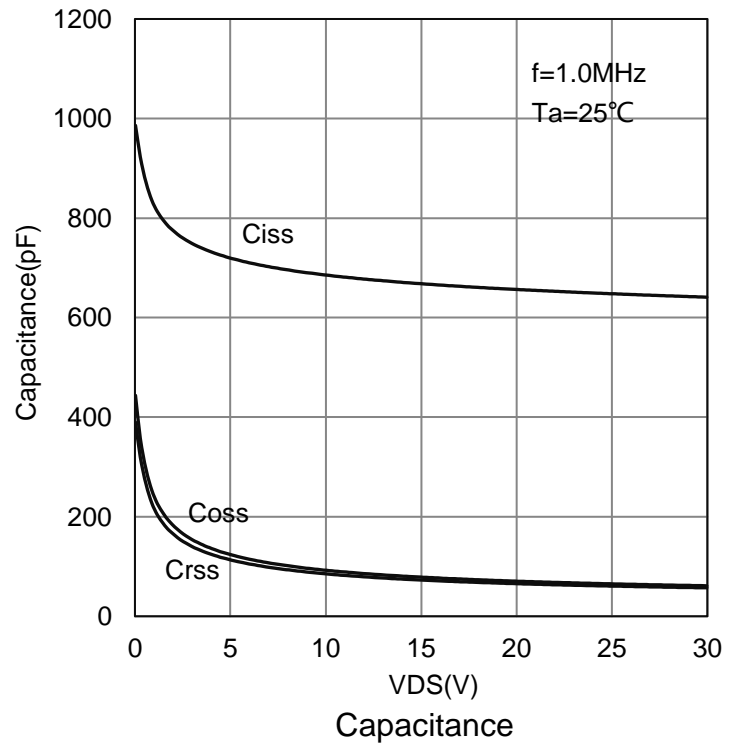
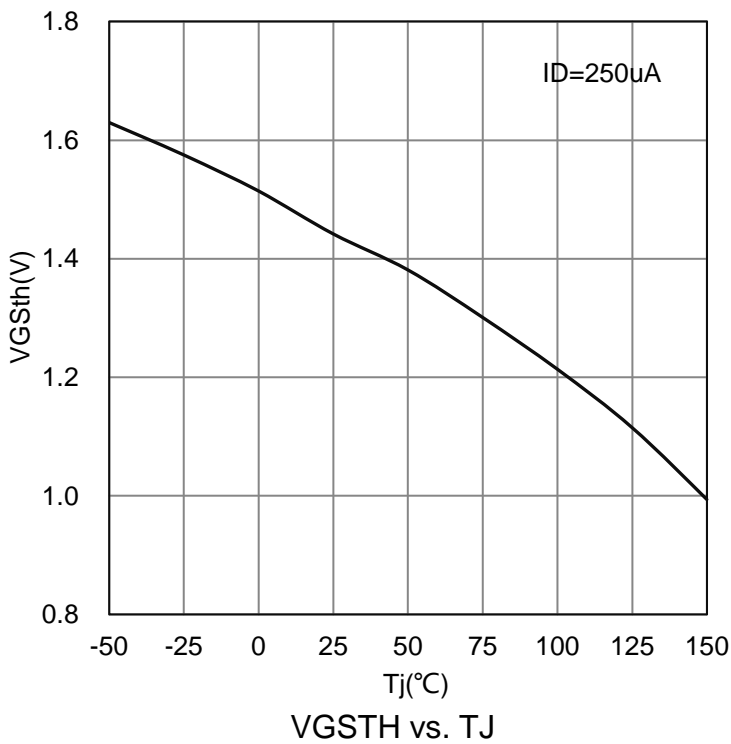
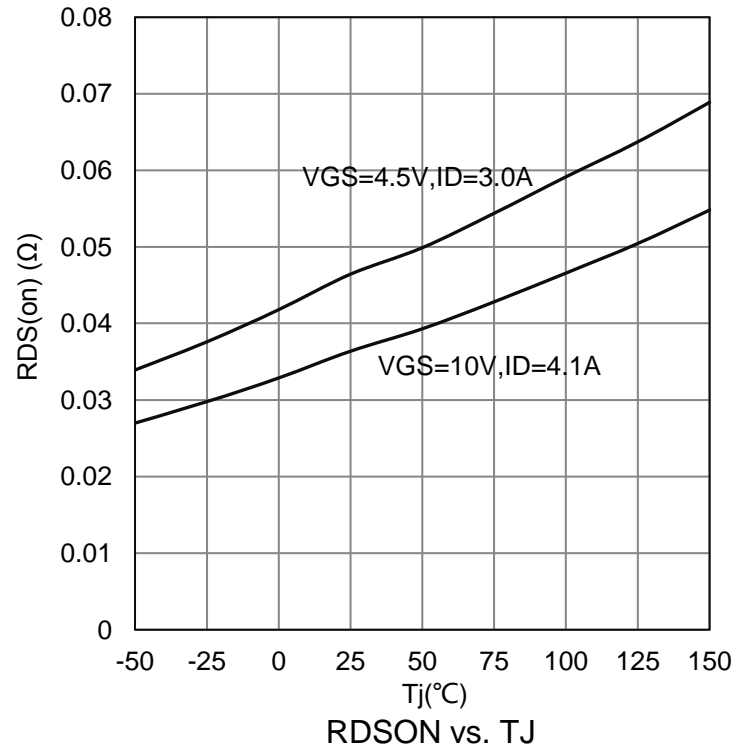
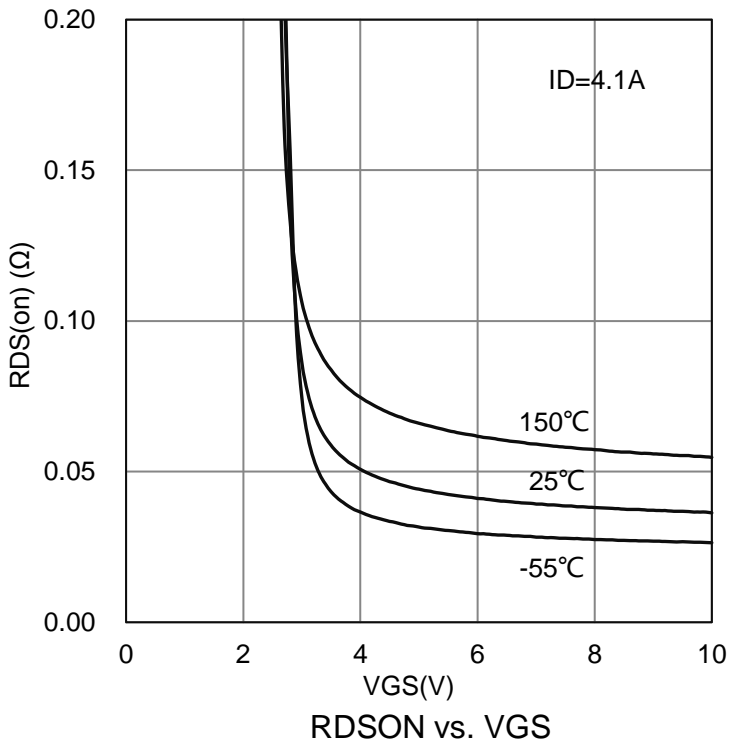
**6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)**

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Static					
Drain–Source Breakdown Voltage (VGS = 0, ID = -250μA)	VBRDSS	-30	-	-	V
Zero Gate Voltage Drain Current (VGS = 0, VDS = -24 V) (VGS = 0, VDS = -24 V, TJ = 55°C)	IDSS	-	-	-1 -5	μA
Gate–Body Leakage Current (VDS = 0V, VGS = ±20V)	IGSS	-	-	±100	nA
Gate Threshold Voltage (VDS = VGS, ID = -250μA)	VGS(th)	-1	-2	-3	V
Static Drain–Source On–State Resistance (VGS = -10V, ID = -4.1A) (VGS = -4.5V, ID = -3A)	RDS(on)	-	48 68	60 80	mΩ
Diode Forward Voltage (IS = -1A, VGS = 0V)	VSD	-	-0.7	-1	V
Dynamic					
Input Capacitance	Ciss (VGS = 0V, VDS = -15V, f = 1MHz)	-	670	-	pF
Output Capacitance		-	78	-	
Reverse Transfer Capacitance		-	74	-	
Total Gate Charge (Vgs=10V)	Qg (VDS = -15V, ID = -4A)	-	14	-	nC
Total Gate Charge (Vgs=4.5V)		-	7.2	-	
Gate Source Charge		-	1.2	-	
Gate Drain Charge		-	3.6	-	
Turn-On Delay Time	(VGS = -10V, VDS = -15V, RL = 3.6Ω, RGEN = 3Ω)	-	7.5	-	ns
Turn-On Rise Time		-	5.5	-	
Turn-Off Delay Time		-	19	-	
Turn-Off Fall Time		-	7	-	
Body Diode Reverse Recovery Time (IF = -4A, dI/dt = 100A/μs)	trr	8.8	11	13	ns
Body Diode Reverse Recovery Charge (IF = -4A, dI/dt = 100A/μs)	Qrr	4	5.3	6.4	nC
Gate resistance (VGS = 0V, VDS = 0V, f = 1MHz)	Rg	-	6	-	Ω

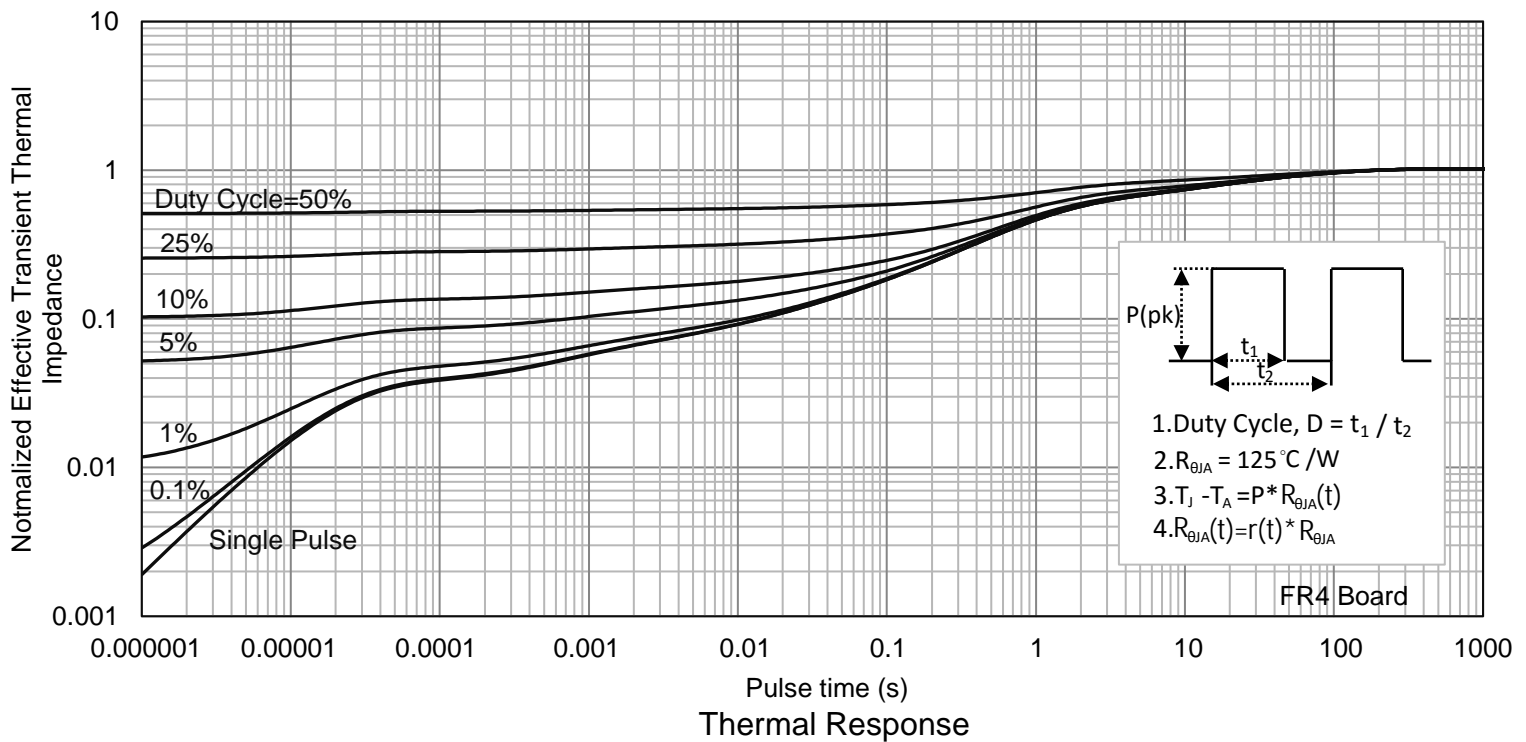
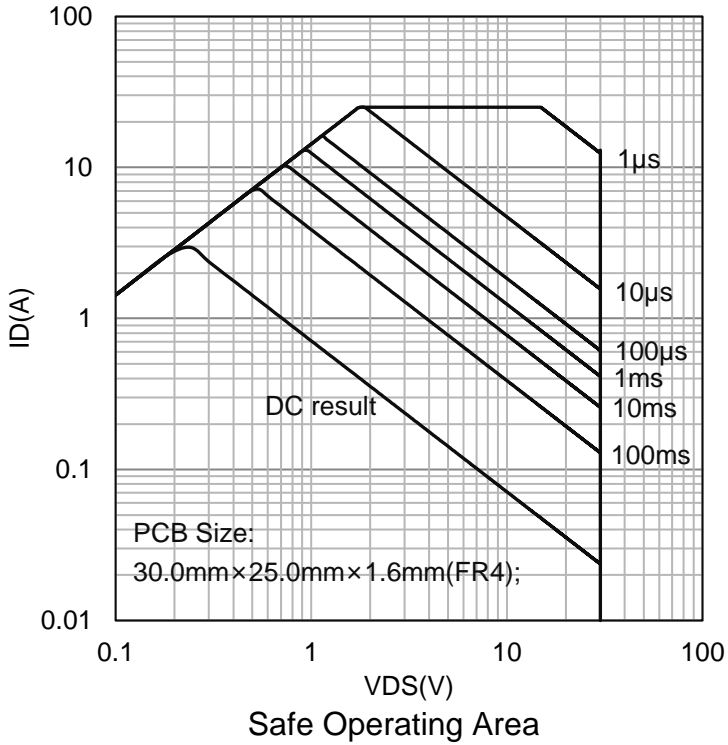
**7. ELECTRICAL CHARACTERISTICS CURVES**



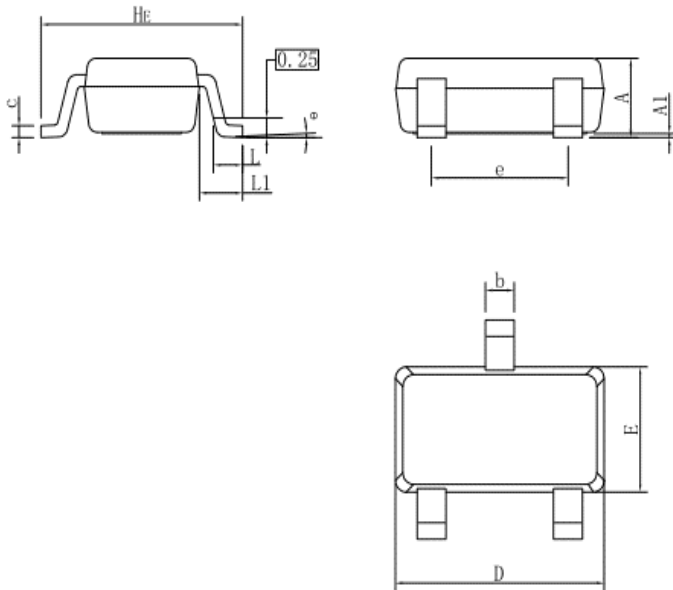
**7. ELECTRICAL CHARACTERISTICS CURVES(Con.)**



**7. ELECTRICAL CHARACTERISTICS CURVES(Con.)**



### 8. OUTLINE AND DIMENSIONS

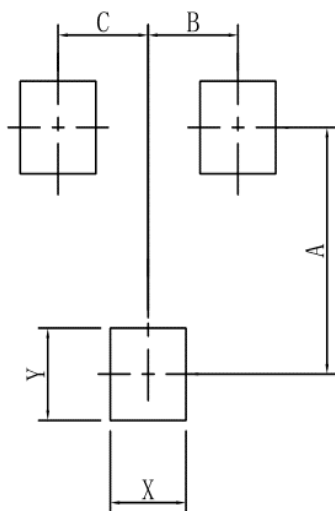


SOT23LC			
DIM	MIN	NOR	MAX
A	0.90	1.00	1.10
A1	0.01	0.06	0.10
b	0.30	0.40	0.50
c	0.10	0.17	0.20
D	2.80	2.90	3.00
E	1.50	1.60	1.70
e	1.80	1.90	2.00
L	0.20	0.40	0.60
L1	0.60REF		
HE	2.60	2.80	3.00
$\theta$	0°	-	10°
All Dimensions in mm			

#### 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  $Ra0.4\pm0.2\mu m$

### 9. SOLDERING FOOTPRINT



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

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