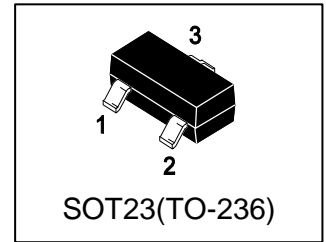


L2N7002KLT1G

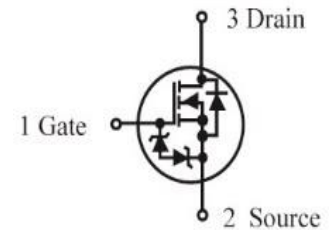
S-L2N7002KLT1G

Small Signal MOSFET
380 mA, 60V N-Channel SOT-23



1. FEATURES

- 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.
- ESD Protected



2. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
L2N7002KLT1G	RK	3000/Tape&Reel
L2N7002KLT3G	RK	10000/Tape&Reel

3. MAXIMUM RATINGS(Ta = 25°C)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	VDSS	60	V
Gate-Source Voltage	VGS	±20	V
Drain Current	ID		mA
– Steady State TA = 25°C		320	
TA = 85°C		230	
– t<5s TA = 25°C		380	
TA = 85°C		270	
Pulsed Drain Current (tp=10µs)	IDM	1.5	A
Source Current (Body Diode)	IS	300	mA

4. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Total Device Dissipation(Note 1)	PD		mW
– Steady State		300	
– t<5s		420	
Junction-to-Ambient(Note 1)	RθJA		°C/W
– Steady State		417	
– t<5s		300	
Lead Temperature for Soldering Purposes (1/8 " from case for 10 s)	TL	260	°C
Junction and Storage temperature	TJ,Tstg	-55~+150	°C
Gate-Source ESD Rating(HBM, Method 3015)	ESD	2000	V

1. FR-5 = 1.0×0.75×0.062 in.

5. ELECTRICAL CHARACTERISTICS (Ta= 25°C)
OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage (VGS = 0, ID = 250μA)	VBRDSS	60	-	-	V
Drain-to-Source Breakdown Voltage Temperature Coefficient	VBRDSS/TJ	-	71	-	mV/°C
Zero Gate Voltage Drain Current (VGS = 0, VDS = 60 V)	IDSS	TJ = 25°C	-	1.0	μA
		TJ = 125°C	-	500	
(VGS = 0, VDS = 50 V)		-	-	100	nA
Gate-Body Leakage Current, Forward (VGS = 20 V)	IGSSF	-	-	10	μA
Gate-Body Leakage Current, Reverse (VGS = - 20 V)	IGSSR	-	-	-10	μA

ON CHARACTERISTICS (Note 2)

Gate Threshold Voltage (VDS = VGS, ID = 250μA)	VGS(th)	1.0	-	2.5	V
Negative Threshold Temperature Coefficient	VGS(TH)/TJ	-	4	-	mV/°C
Static Drain-Source On-State Resistance (VGS = 10 V, ID = 500 mA)	RDS(on)	-	-	2.3	Ohm
		(VGS = 5.0 V, ID = 50 mA)	-	-	
Forward Transconductance (VDS = 5.0 V, ID = 200 mA)	gfs	80	-	-	mS

DYNAMIC CHARACTERISTICS

Total Gate Charge (VDS = 10V, VGS = 4.5V, ID = 0.5A)	Qg	-	360	-	pC
Gate-Source Charge (VDS = 10V, VGS = 4.5V, ID = 0.5A)	Qgs	-	90	-	
Gate-Drain Charge (VDS = 10V, VGS = 4.5V, ID = 0.5A)	Qgd	-	210	-	
Input Capacitance (VDS = 25 V, VGS = 0, f = 1.0 MHz)	Ciss	-	34	-	pF
Output Capacitance (VDS = 25 V, VGS = 0, f = 1.0 MHz)	Coss	-	3	-	pF
Reverse Transfer Capacitance (VDS = 25 V, VGS = 0, f = 1.0 MHz)	Crss	-	2.2	-	pF

SWITCHING CHARACTERISTICS

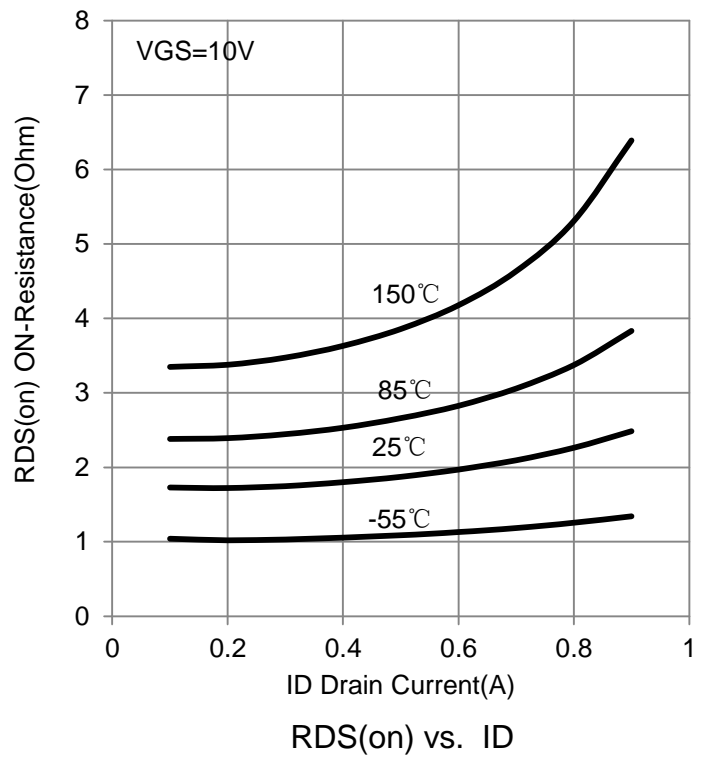
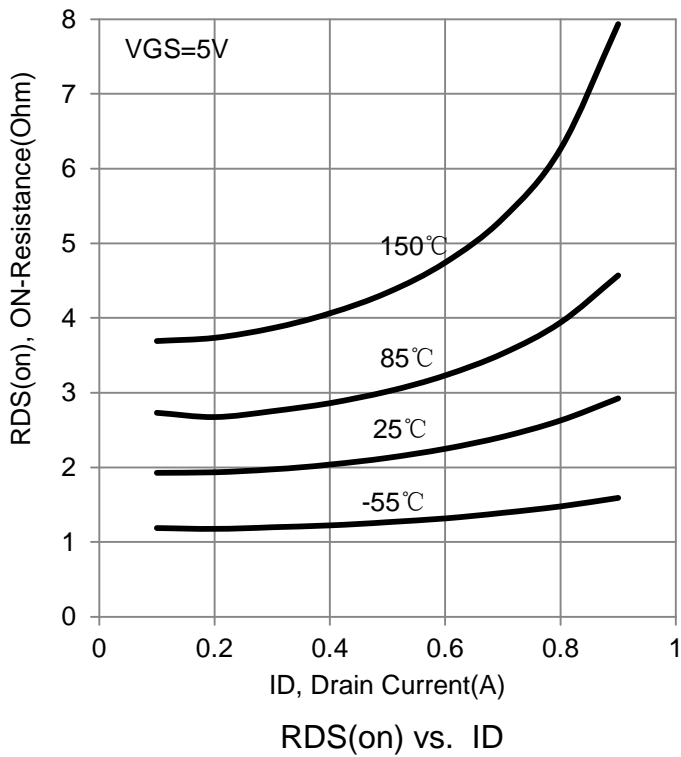
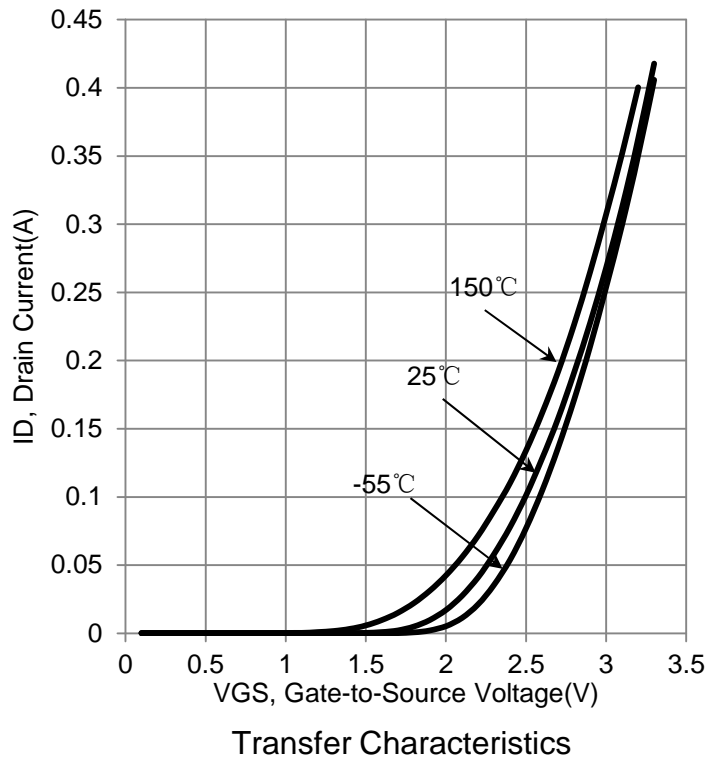
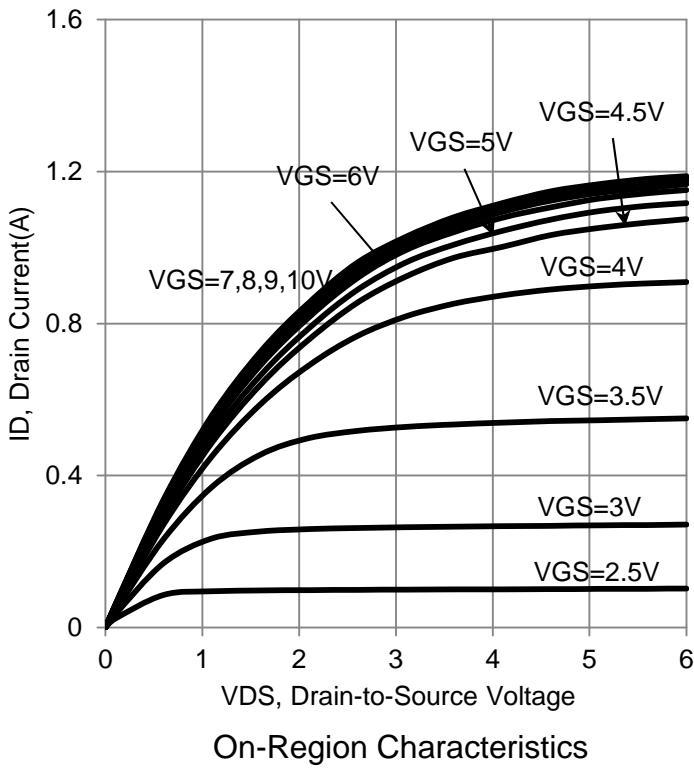
Turn-On Delay Time	VDS = 10 V, VGEN = 10 V, ID = 500 mA	td(on)	-	3.8	-	ns
Rise Time		tr	-	3.4	-	
Turn-Off Delay Time		td(off)	-	19	-	
Fall Time		tf	-	12	-	

BODY-DRAIN DIODE RATINGS

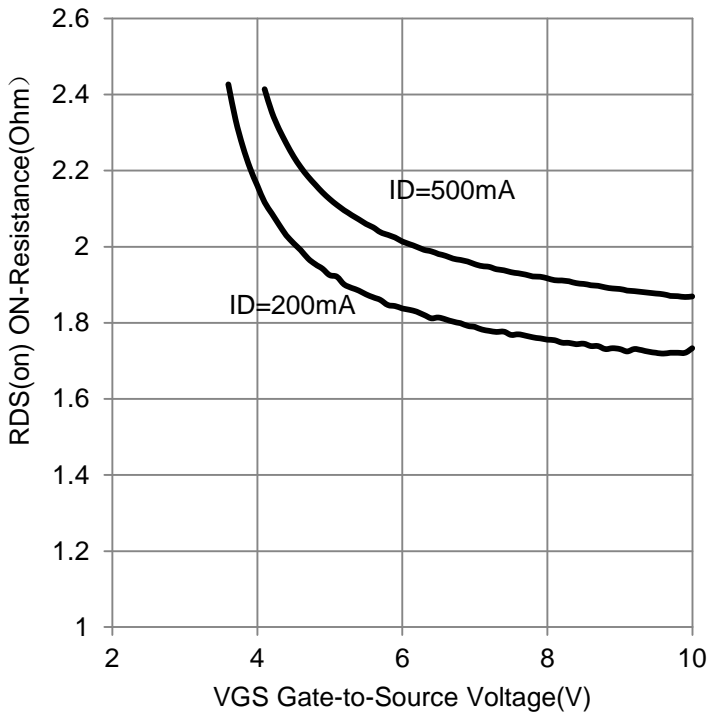
Diode Forward On-Voltage (IS = 115 mA, VGS = 0 V)	TJ = 25°C	VSD	-	-	1.4	V
	TJ = 85°C		-	0.7	-	

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

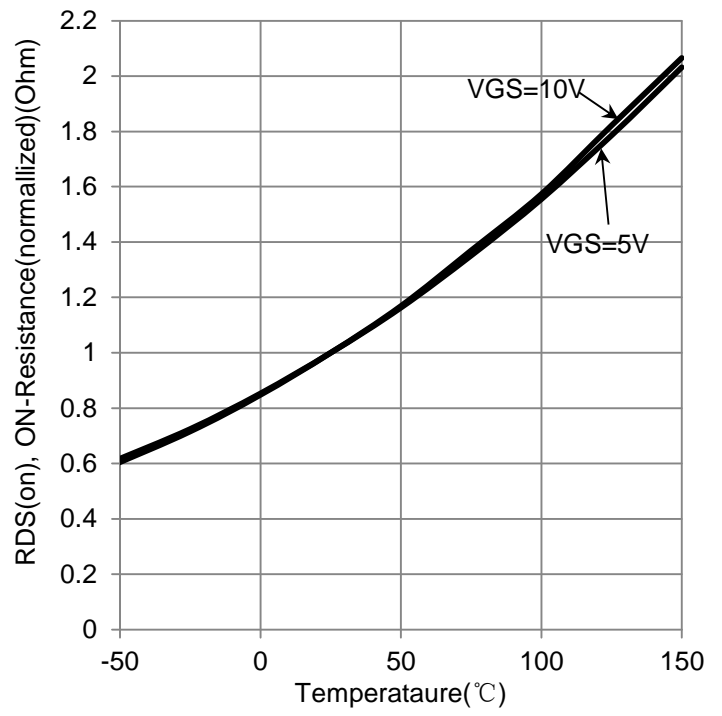
6. ELECTRICAL CHARACTERISTICS CURVES



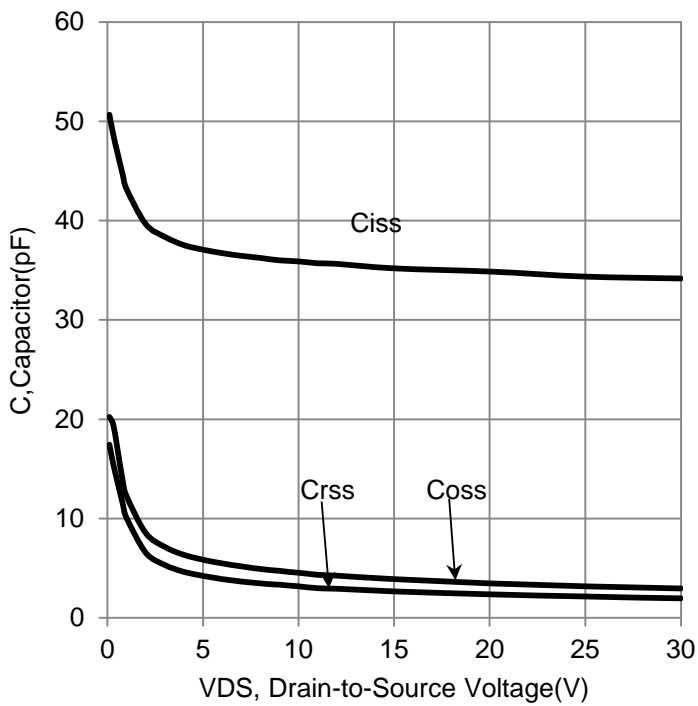
6. ELECTRICAL CHARACTERISTICS CURVES (Con.)



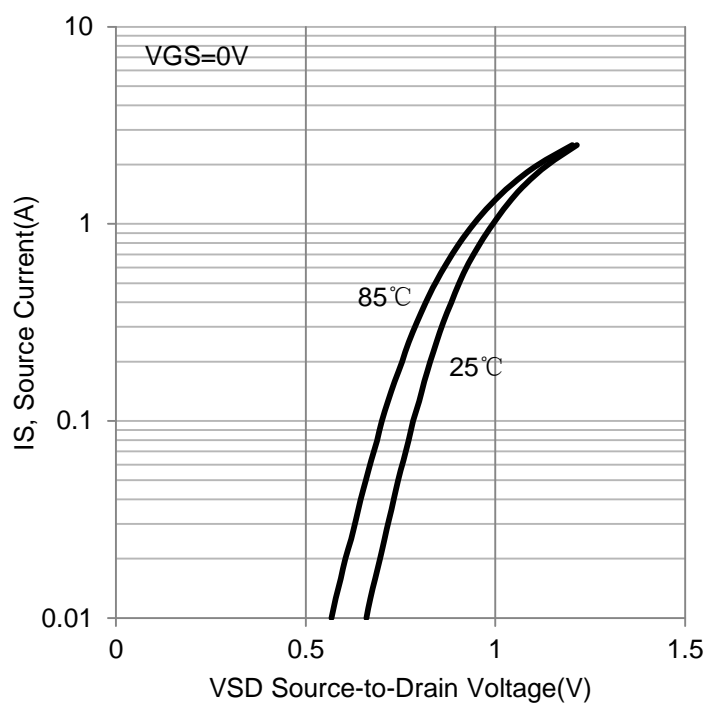
RDS(on) vs. VGS



RDS(on) vs. Temperature

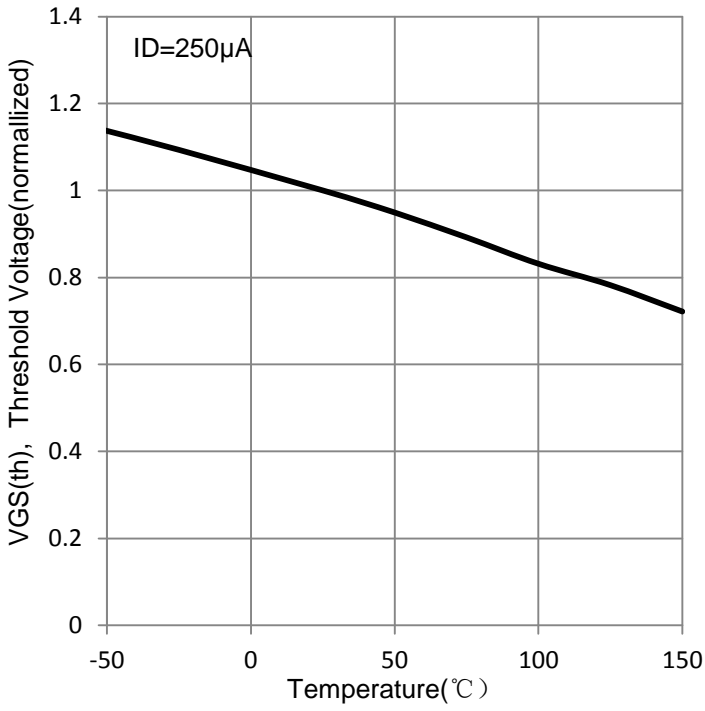


Capacitor vs. VDS

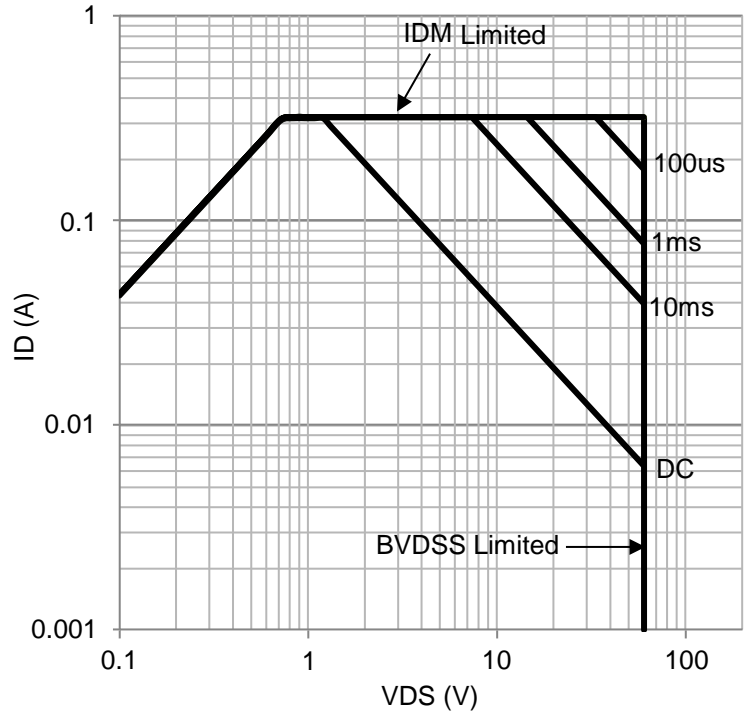


I_S vs. VSD

6. ELECTRICAL CHARACTERISTICS CURVES (Con.)

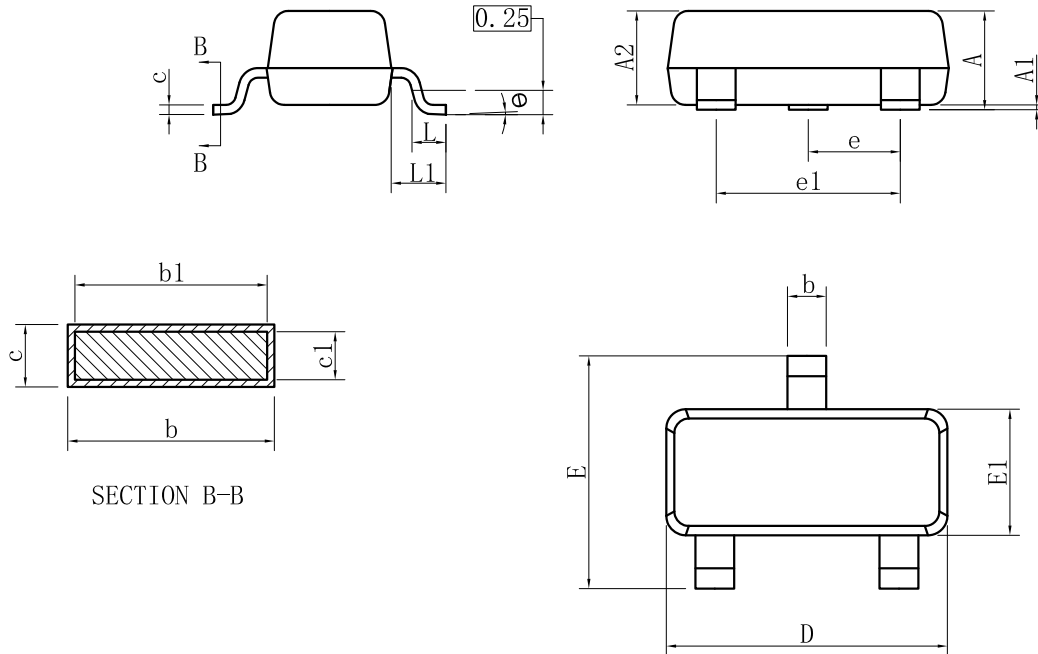


VGS(th) vs. Temperature



Safe Operating Area

7.OUTLINE AND DIMENSIONS

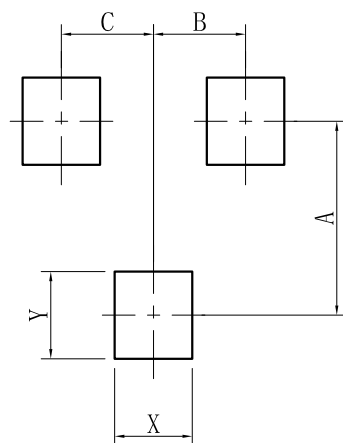


SOT23			
DIM	MIN	NOR	MAX
A	0.89	-	1.12
A1	0.01	-	0.10
A2	0.88	0.95	1.02
b	0.30	-	0.50
b1	0.30	0.40	0.45
c	0.08	-	0.20
c1	0.08	0.10	0.16
D	2.80	2.90	3.04
E	2.10	-	2.64
E1	1.20	1.30	1.40
e	0.95BSC		
e1	1.90BSC		
L	0.40	0.46	0.60
L1	0.54REF		
θ	0°	-	8°
All Dimensions in mm			

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

8.SOLDERING FOOTPRINT



SOT-23	
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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