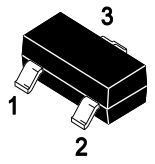
LBSS138LT1G
S-LBSS138LT1G

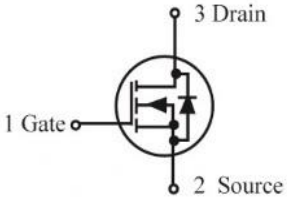
Power MOSFET
200 mA, 50V N–Channel SOT-23



SOT23(TO-236)

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.
- Low threshold voltage (VGS(th): 0.5V...1.5V) makes it ideal for low voltage applications.



2. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LBSS138LT1G	J1	3000/Tape&Reel
LBSS138LT3G	J1	10000/Tape&Reel

3. MAXIMUM RATINGS(Ta = 25ºC)

Parameter	Symbol	Limits	Unit
Drain–Source Voltage	VDSS	50	V
Gate–to–Source Voltage – Continuous	VGS	±20	V
Drain Current – Continuous TA = 25°C – Pulsed (tp≤10μs)	 ID IDM	 200 800	mA

4. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Total Device Dissipation, FR−4 Board (Note 1) @ TA = 25ºC Derate above 25ºC	PD	 287 2.3	 mW mW/ºC
Thermal Resistance, Junction–to–Ambient(Note 1)	RΘJA	435	ºC/W
Junction and Storage temperature	TJ,Tstg	−55~+150	° C
Maximum Lead Temperature for Solde Purposes, for 10 seconds	TL	260	ºC

1. 30.0mm×25.0mm×1.6mm(FR4), Copper foil thickness 35μm;

5. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain–Source Breakdown Voltage (VGS = 0, ID = 250μA)	VBRDSS	50	-	-	V
Zero Gate Voltage Drain Current (VGS = 0, VDS = 25 V) (VGS = 0, VDS = 50 V)	IDSS	- -	- -	0.1 0.5	μA
Gate–Body Leakage Current, Forward (VGS = 20 V)	IGSSF	-	-	0.1	μA
Gate–Body Leakage Current, Reverse (VGS = - 20 V)	IGSSR	-	-	-0.1	μA

ON CHARACTERISTICS (Note 2)

Gate Threshold Voltage (VDS = VGS, ID = 1.0mA)	VGS(th)	0.5	-	1.5	V
Static Drain–Source On–State Resistance (VGS = 2.75 V, ID < 200 mA, TA = –40°C to +85°C) (VGS = 5.0 V, ID = 200 mA)	RDS(on)	- -	5.6 -	10 3.5	Ohms
Forward Transconductance (VDS = 25 V, ID = 200 mA, f = 1.0 kHz)	gfs	100	-	-	mS

DYNAMIC CHARACTERISTICS

Input Capacitance (VDS = 25 V, VGS = 0, f = 1.0 MHz)	Ciss	-	40	50	pF
Output Capacitance (VDS = 25 V, VGS = 0, f = 1.0 MHz)	Coss	-	12	25	pF
Reverse Transfer Capacitance (VDS = 25 V, VGS = 0, f = 1.0 MHz)	Crss	-	3.5	5.0	pF

SWITCHING CHARACTERISTICS

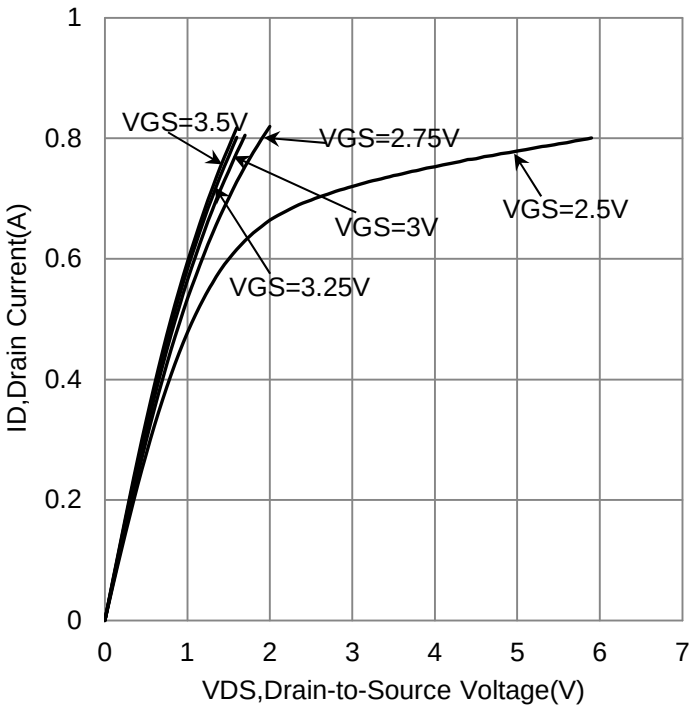
Turn-On Delay Time	(VDD = 30 V , ID =200 mA)	td(on)	-	-	20	ns
Turn-Off Delay Time		td(off)	-	-	20	

SOURCE–DRAIN DIODE CHARACTERISTICS

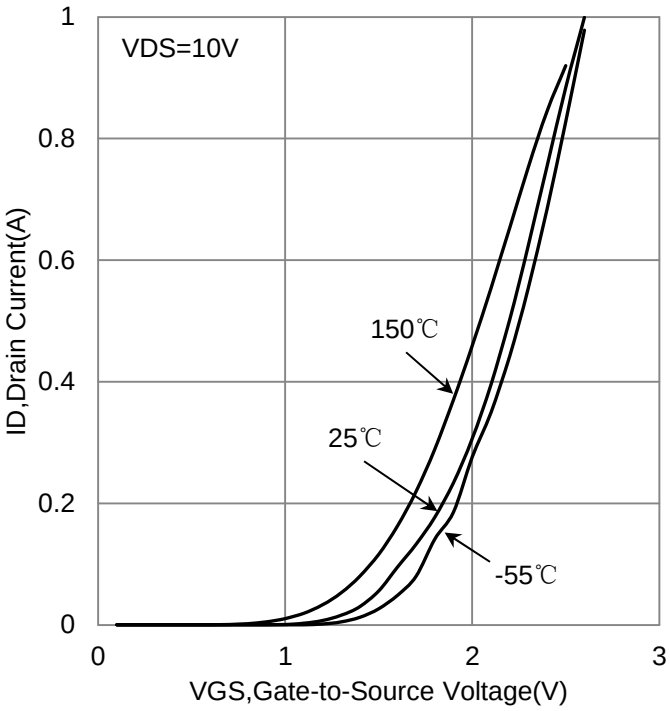
Forward Voltage (IS=0.2A，VGS=0V)	VSD	-	-	1.4	V

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

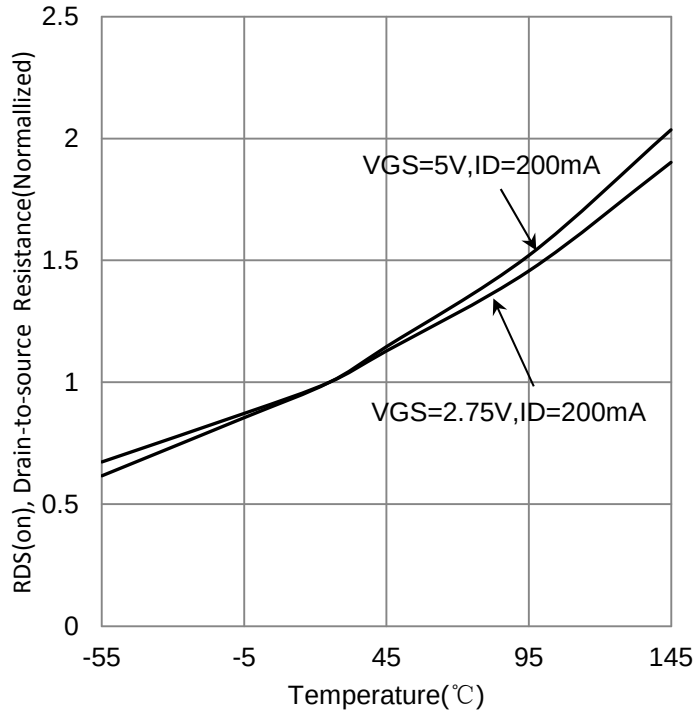
6. ELECTRICAL CHARACTERISTICS CURVES



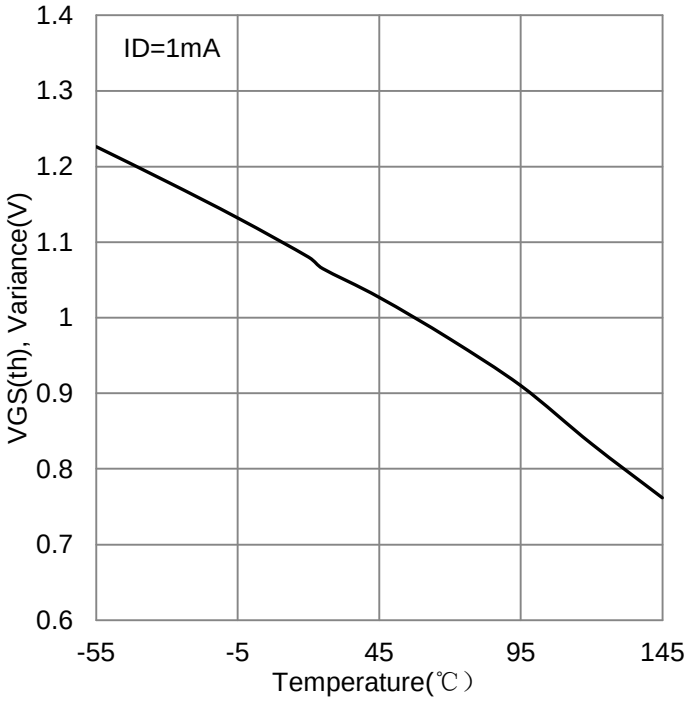
On-Region Characteristics



Transfer Characteristics

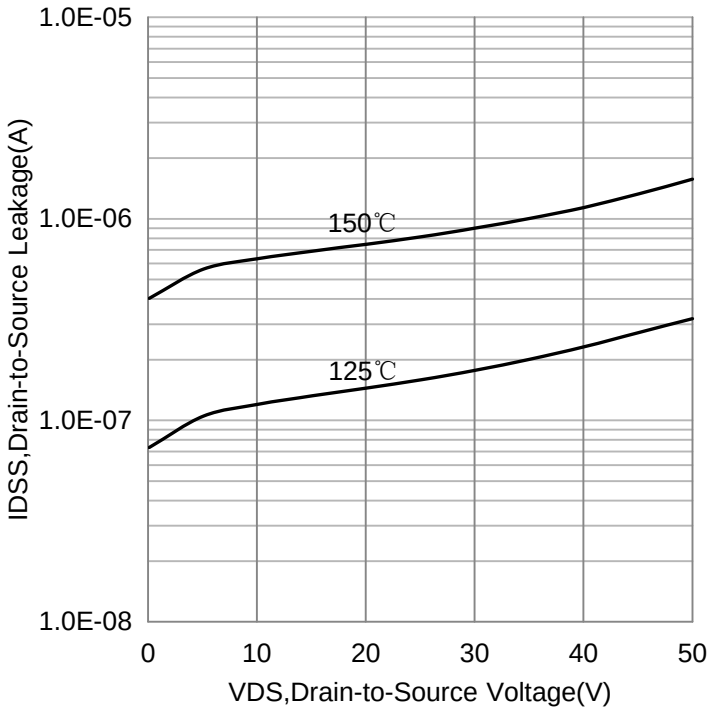


RDS(on) vs. Temperature

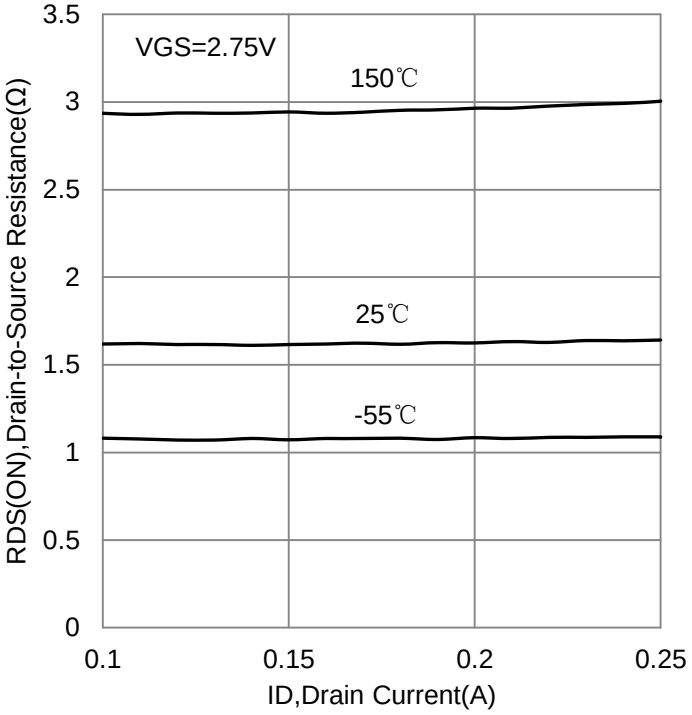


Threshold Voltage vs.Temperature

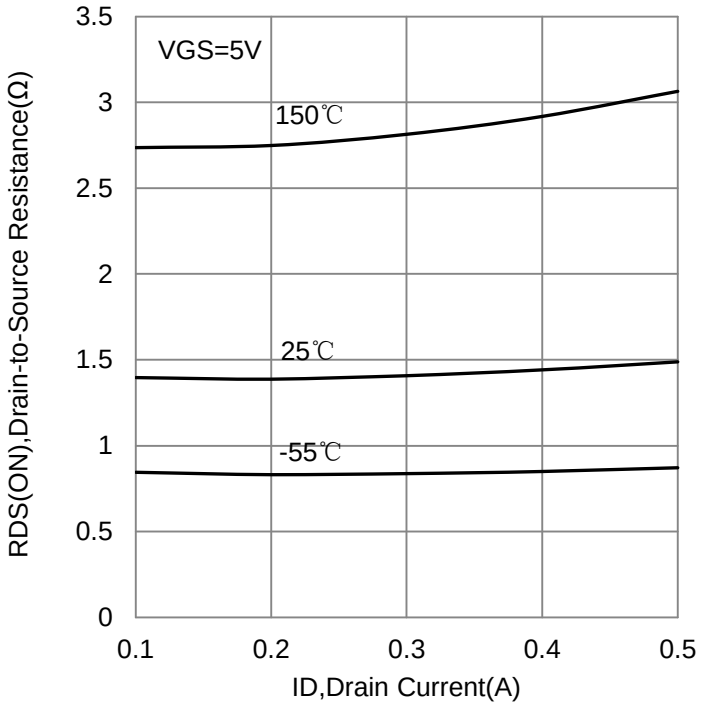
6.ELECTRICAL CHARACTERISTICS CURVES(Con.)



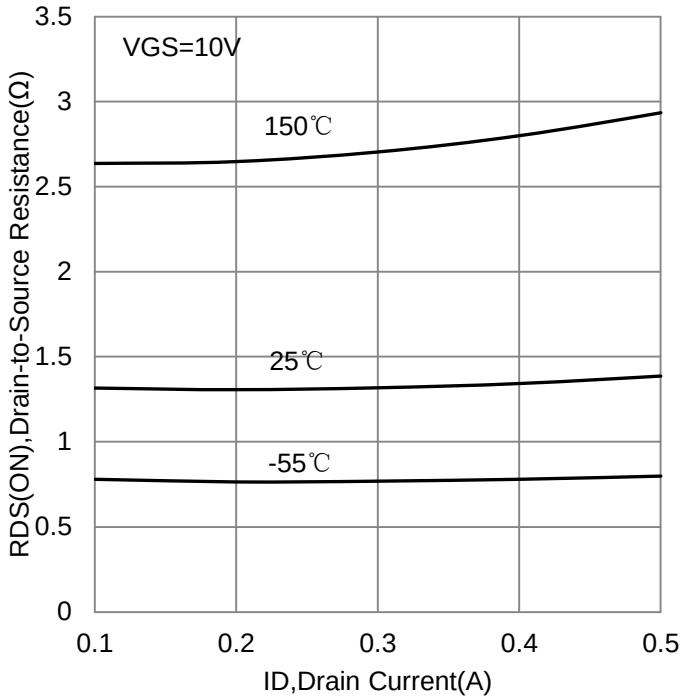
IDSS vs. VDS



RDS(on) vs. ID

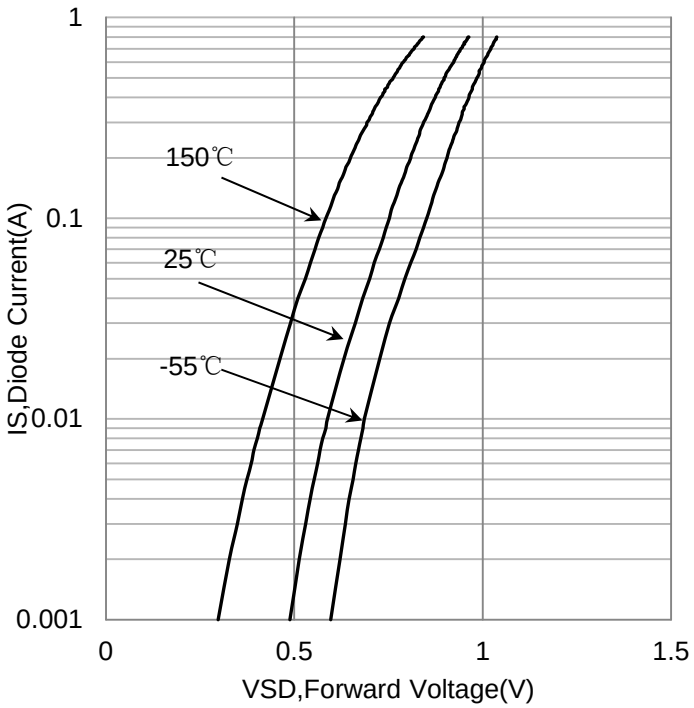


RDS(on) vs. ID

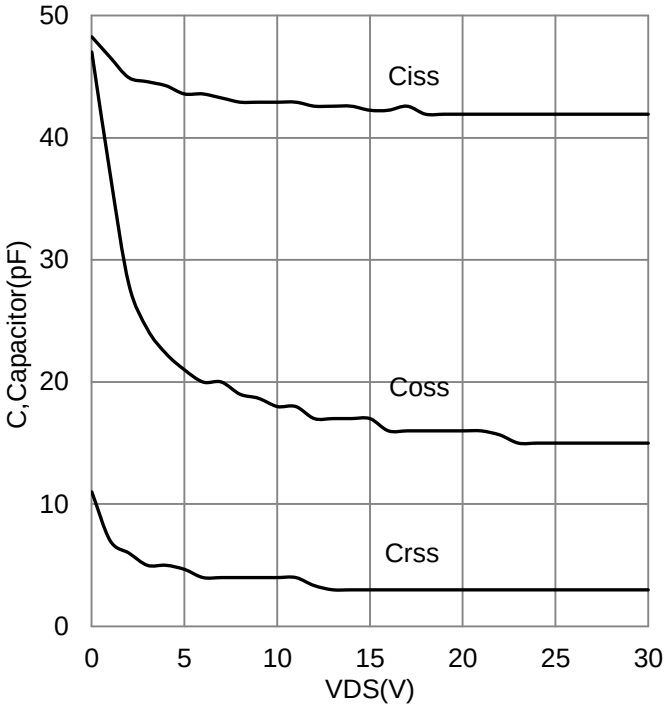


RDS(on) vs. ID

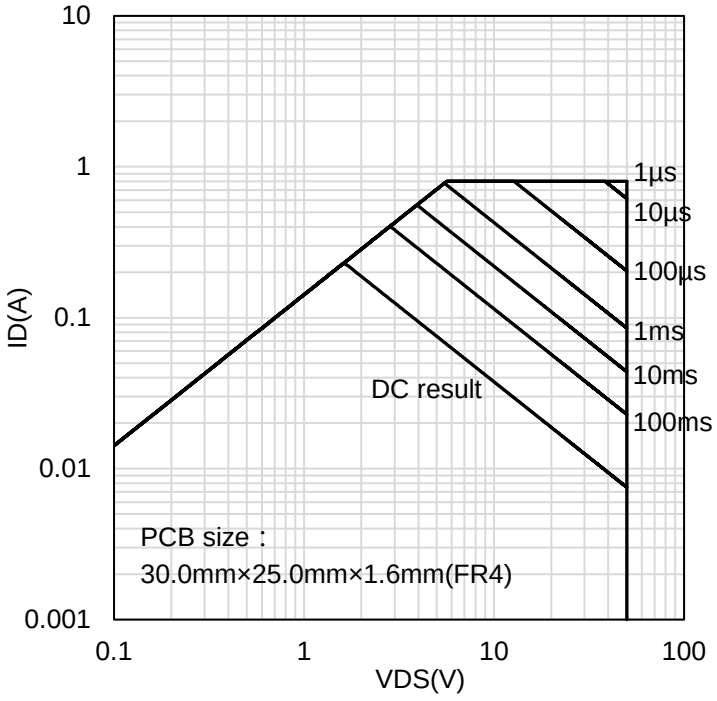
6.ELECTRICAL CHARACTERISTICS CURVES(Con.)



Body Diode Forward Voltage

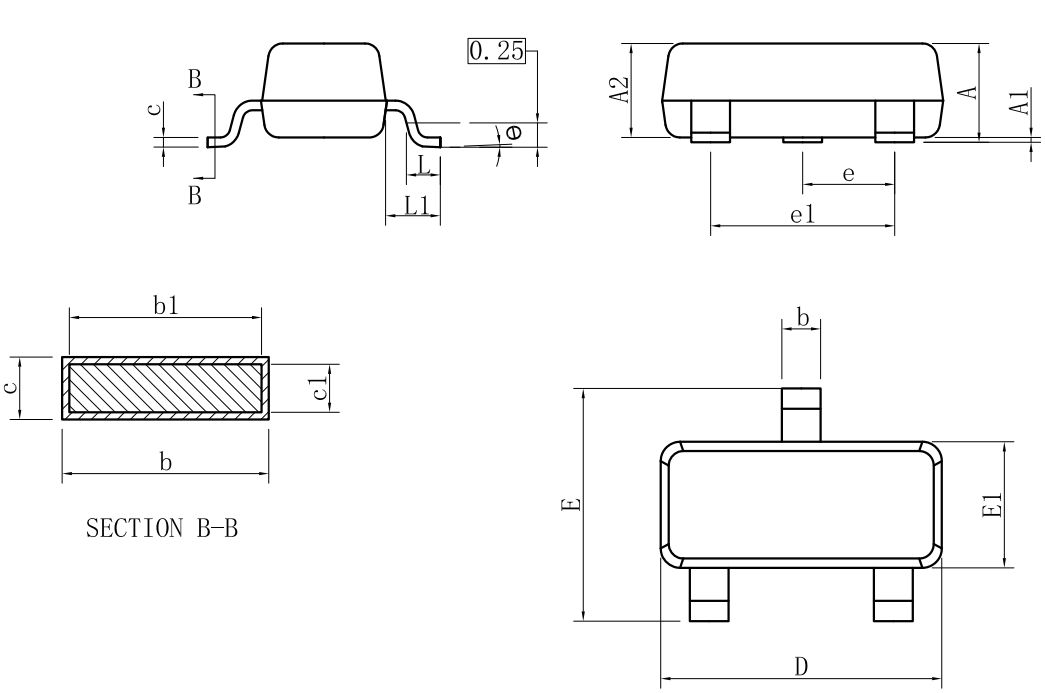


Capacitor vs.VDS



Safe Operating Area

7.OUTLINE AND DIMENSIONS

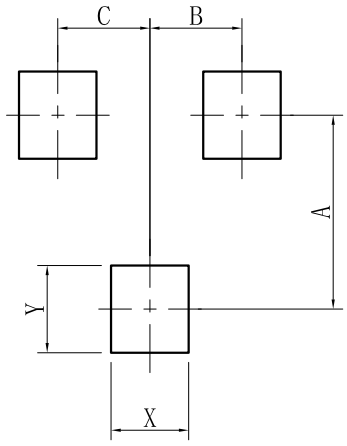


SOT23			
DIM	MIN	NOR	MAX
A	0.89	-	1.12
A1	0.01	-	0.10
A2	0.88	0.95	1.02
b	0.30	-	0.50
b1	0.30	0.40	0.45
c	0.08	-	0.20
c1	0.08	0.10	0.16
D	2.80	2.90	3.04
E	2.10	-	2.64
E1	1.20	1.30	1.40
e	0.95BSC		
e1	1.90BSC		
L	0.40	0.46	0.60
L1	0.54REF		
θ	0°	-	8°
All Dimensions in mm			

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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