

LBSS138LT1G

Power MOSFET

200 mA, 50V N-Channel SOT-23

1. FEATURES

- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- Low threshold voltage ($V_{GS(th)}$: 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	13000/Tape&Reel

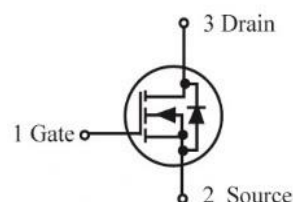
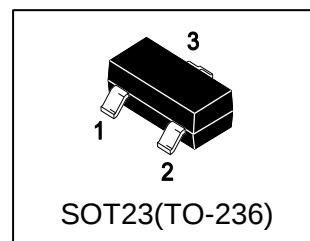
3. MAXIMUM RATINGS($T_a = 25^{\circ}\text{C}$)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V_{DS}	50	V
Gate-to-Source Voltage – Continuous	V_{GS}	± 20	V
Drain Current			mA
– Continuous $T_A = 25^{\circ}\text{C}$	I_D	200	
– Pulsed ($t_p \leq 10\mu\text{s}$)	I_{DM}	800	

4. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Total Device Dissipation, FR-4 Board (Note 1) @ $T_A = 25^{\circ}\text{C}$ Derate above 25°C	PD	287 2.3	mW mW/ $^{\circ}\text{C}$
Thermal Resistance, Junction-to-Ambient(Note 1)	$R_{\theta JA}$	435	$^{\circ}\text{C}/\text{W}$
Junction and Storage temperature	T_J, T_{stg}	$-55 \sim +150$	$^{\circ}\text{C}$
Maximum Lead Temperature for Solder Purposes, for 10 seconds	TL	260	$^{\circ}\text{C}$

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



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

DYNAMIC CHARACTERISTICS

Forward Transconductance (VDS = 25 V, ID = 200 mA, f = 1.0 kHz)	gfs	100	-	-	mS
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

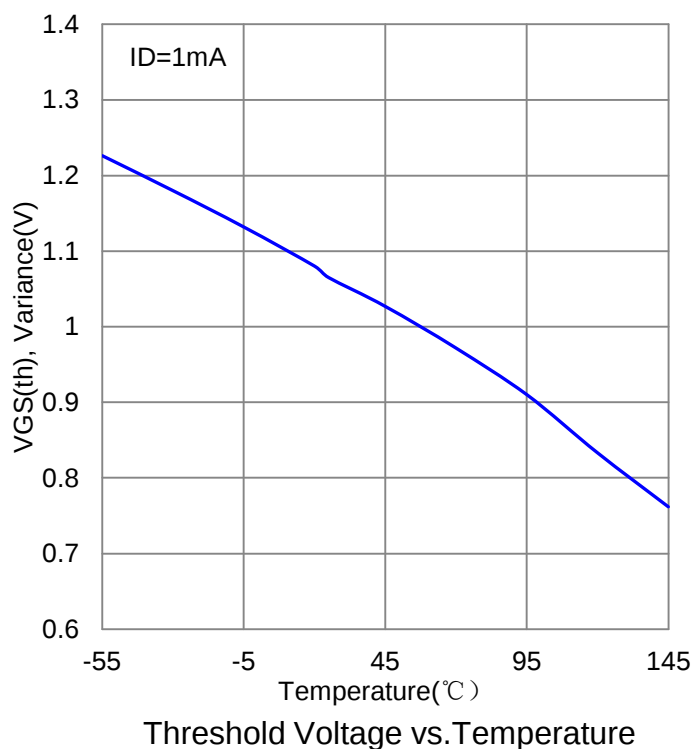
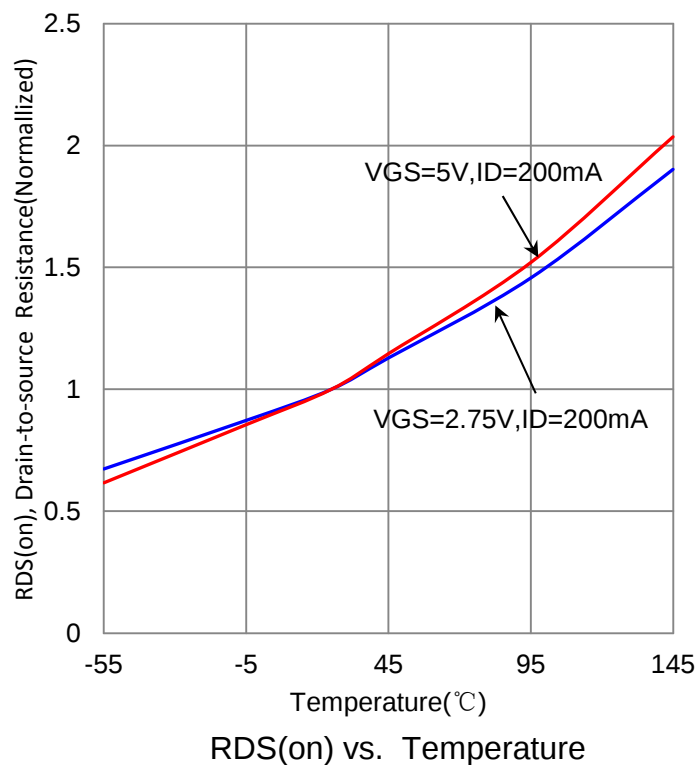
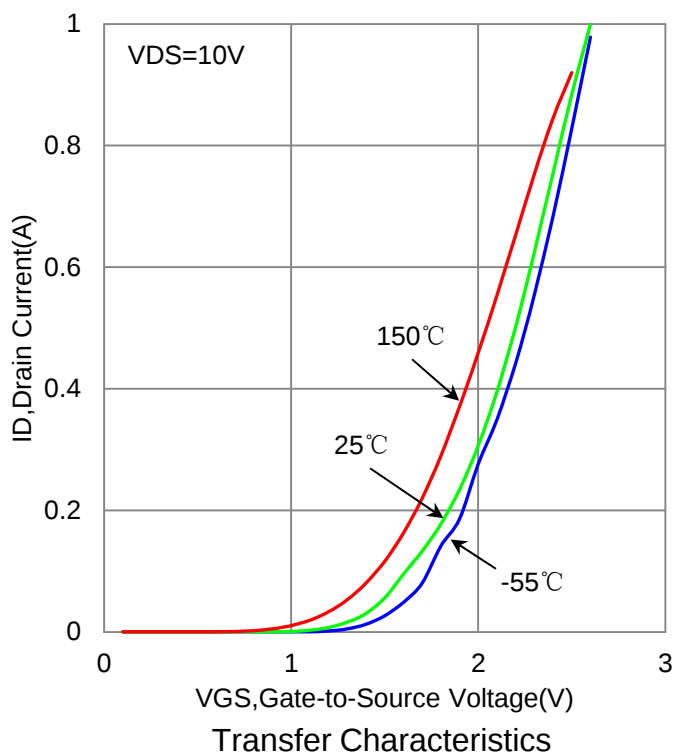
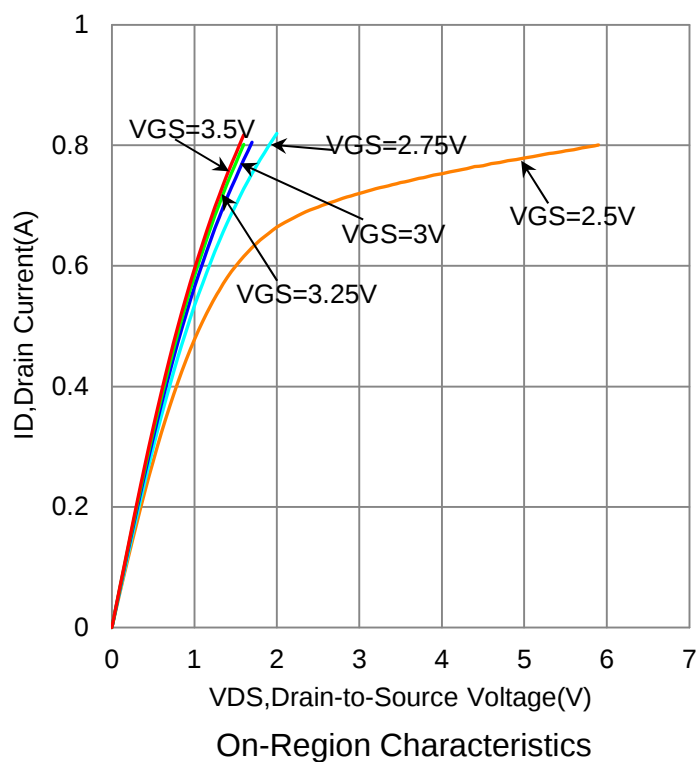
Turn-On Delay Time	(VDD = 30 V , ID =200 mA)	td(on)	-	-	20	ns
Turn-Off Delay Time		td(off)	-	-	20	

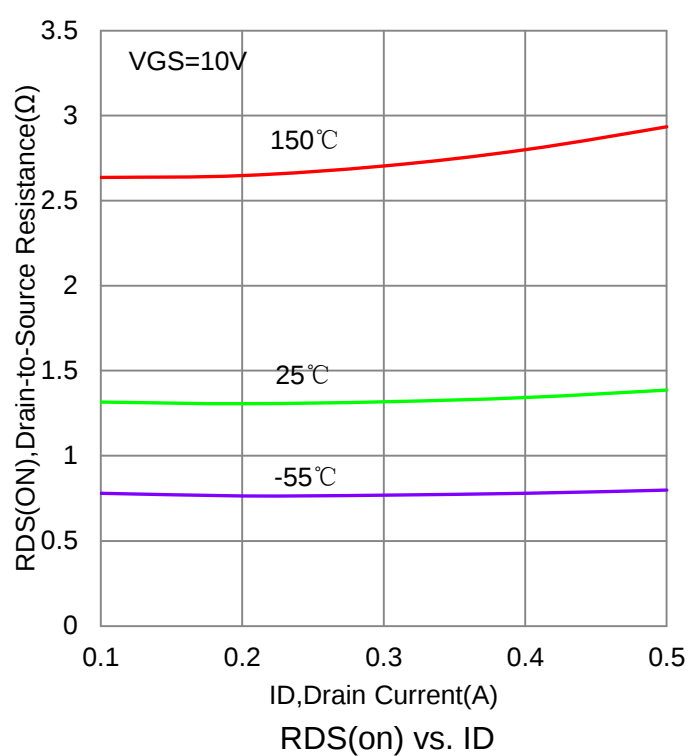
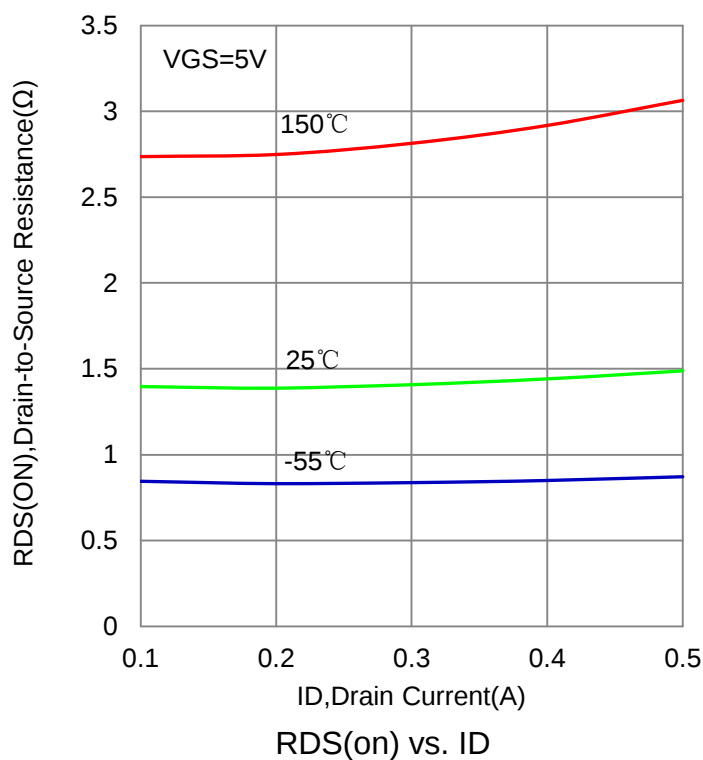
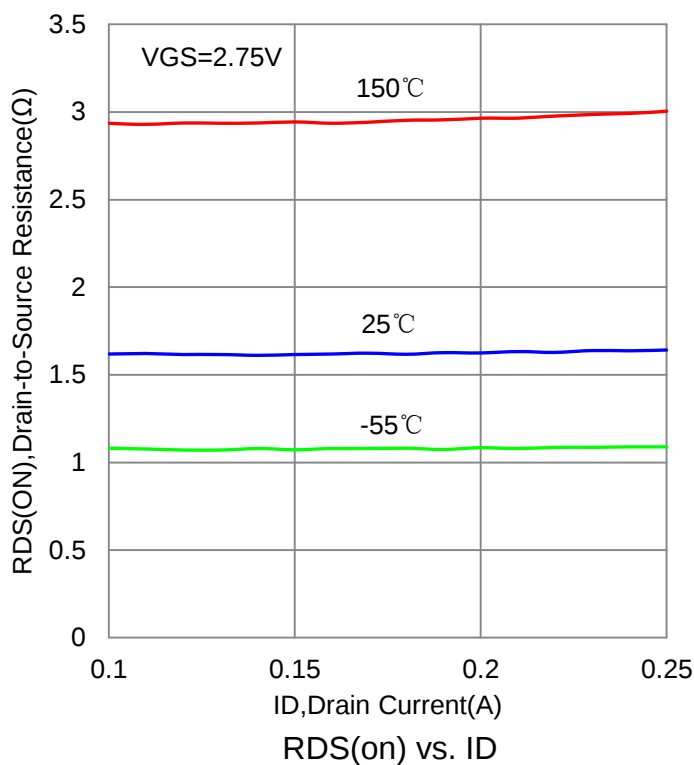
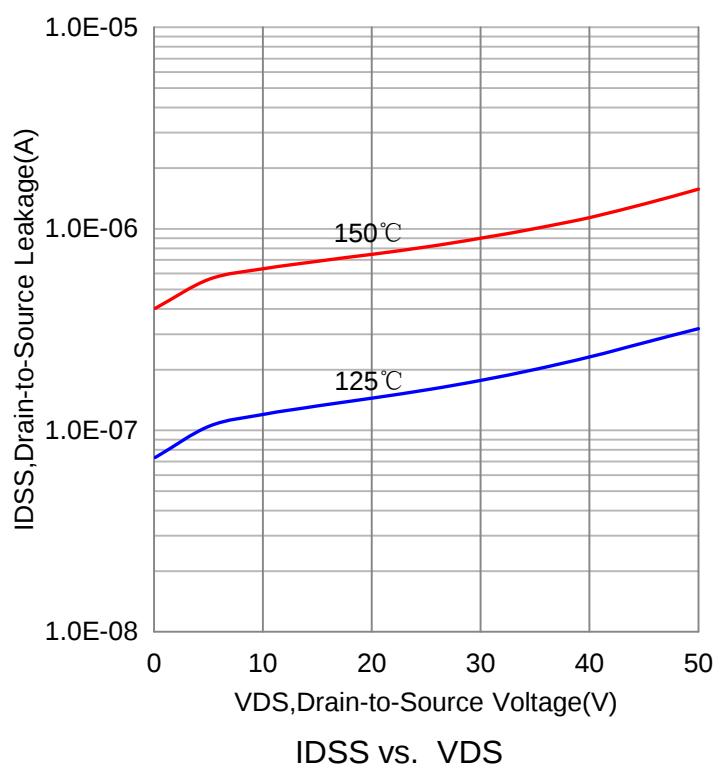
SOURCE–DRAIN DIODE CHARACTERISTICS

Forward Voltage (IS=0.2A ,VGS=0V)	VSD	-	-	1.4	V
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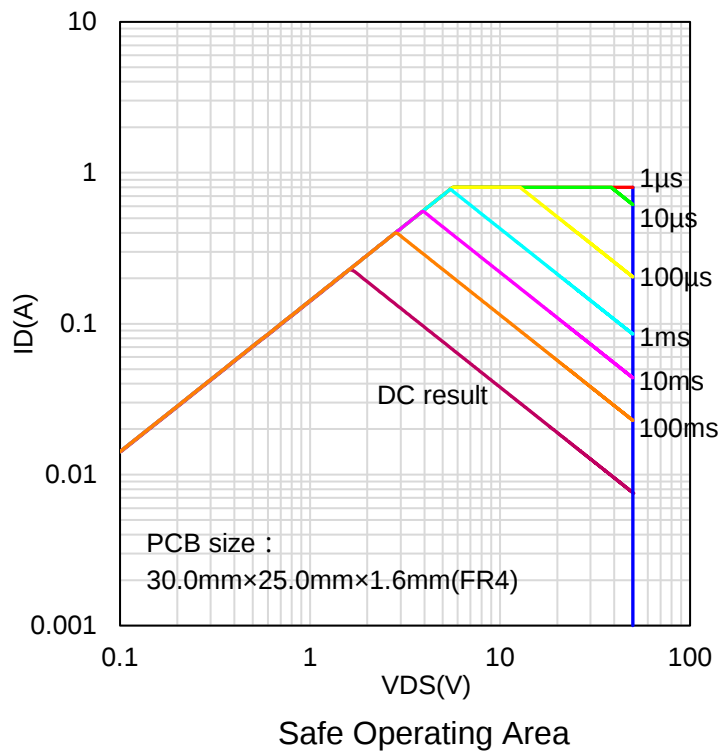
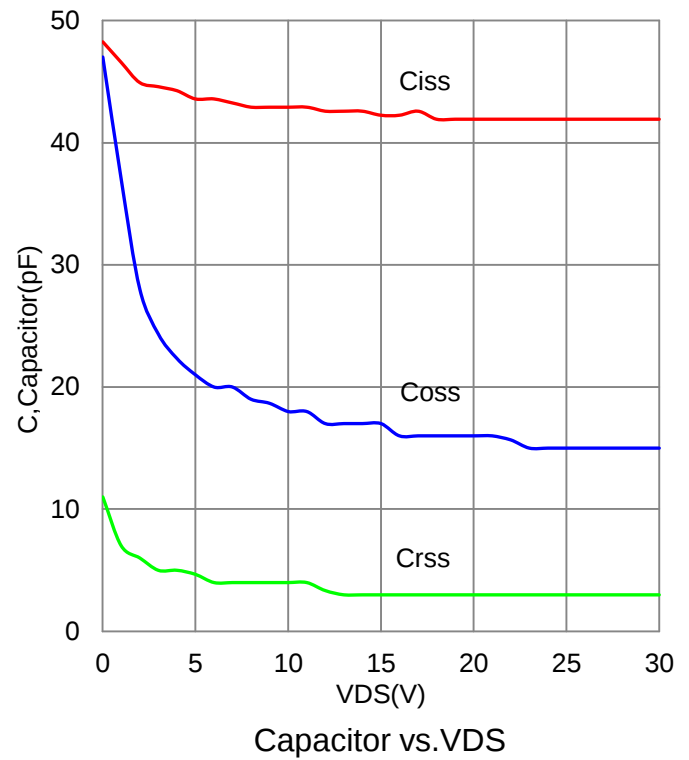
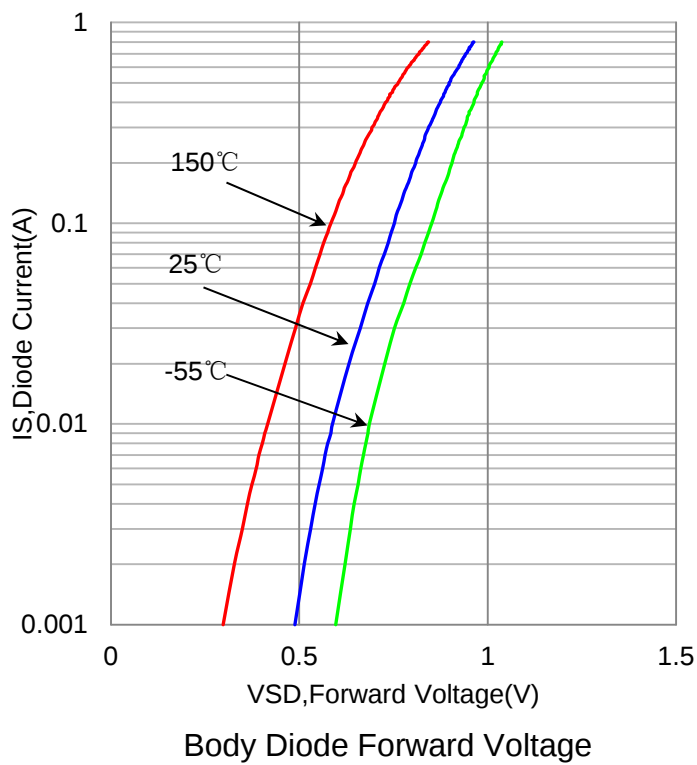
2.Pulse Test: Pulse Width ≤300 μs, Duty Cycle ≤2.0%.

6. ELECTRICAL CHARACTERISTICS CURVES

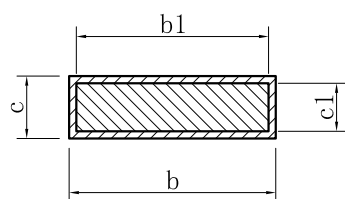
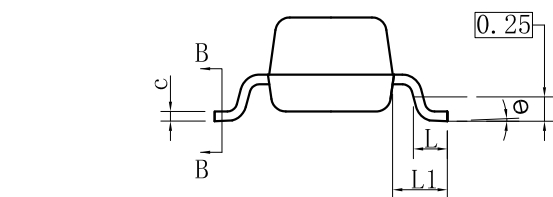


6.ELECTRICAL CHARACTERISTICS CURVES(Con.)


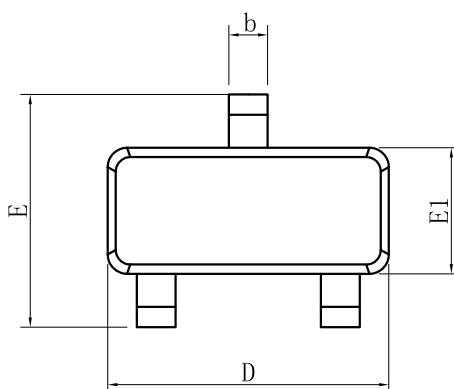
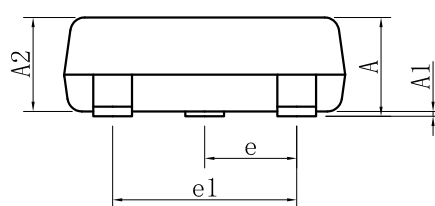
6.ELECTRICAL CHARACTERISTICS CURVES(Con.)



7.OUTLINE AND DIMENSIONS



SECTION B-B

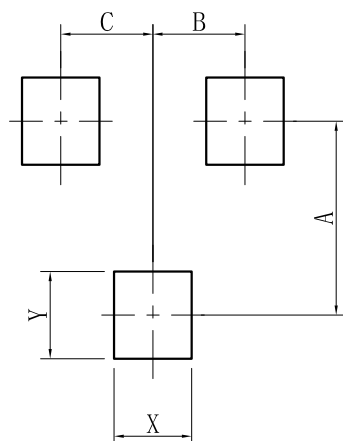


SOT23			
DIM	MIN	NOR	MAX
A	0.89	–	1.12
A1	0.01	–	0.10
A2	0.88	0.95	1.02
b	0.30	–	0.50
b1	0.30	0.40	0.45
c	0.08	–	0.20
c1	0.08	0.10	0.16
D	2.80	2.90	3.04
E	2.10	–	2.64
E1	1.20	1.30	1.40
e	0.95BSC		
e1	1.90BSC		
L	0.40	0.46	0.60
L1	0.54REF		
θ	0°	–	8°
All Dimensions in mm			

GENERAL NOTES

- 1.Top package surface finish $Ra0.4 \pm 0.2\mu m$
- 2.Bottom package surface finish $Ra0.7 \pm 0.2\mu m$
- 3.Side package surface finish $Ra0.4 \pm 0.2\mu m$

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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