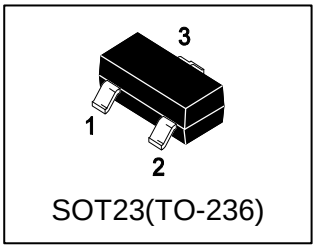
LSI1013LT1G

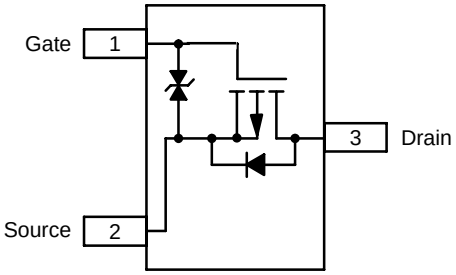
P-Channel 1.8-V (G-S) MOSFET



SOT23(TO-236)

1. FEATURES

- Fast Switching Speed: 14 ns
- High-Side Switching
- Gate to Source ESD Protected:2000V
- We declare that the material of product compliance with RoHS requirements and Halogen Free.



(Top View)

2. APPLICATIONS

- Drivers: Relays, Solenoids, Lamps, Hammers,Displays, Memories
- Battery Operated Systems
- Power Supply Converter Circuits
- Load/Power Switching Cell Phones, Pagers

3. DEVICE MARKING AND RESISTOR VALUES

Device	Marking	Shipping
LSI1013LT1G	A1	3000/Tape&Reel
LSI1013LT3G	A1	13000/Tape&Reel

4. MAXIMUM RATINGS(Ta = 25ºC)

Parameter		Symbol	5 secs	Steady State	Unit
Drain−to−Source Voltage		VDSS	-20		V
Gate−to−Source Voltage		VGS	±6		V
Continuous Drain Current (Note 1)	TA = 25℃	ID	-400	-350	mA
	TA = 85℃		-300	-275	
Pulsed Drain Current (Note 1)		IDM	-1000		
Continuous Source Current		IS	-275	-250	
Junction Temperature		Tj	-55~+150		℃
Storage Temperature		Tstg	-55~+150		℃
Gate-Source ESD Rating (HBM, Method 3015)		ESD	2000		V

1.Pulse width limited by maximum junction temperature.

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Total Device Dissipation, FR−4 Board (Note 2) @ TA = 25ºC	PD	290	mW
Derate above 25ºC		2.3	mW/ºC
Thermal Resistance, Junction–to–Ambient(Note 2)	RΘJA	430	ºC/W

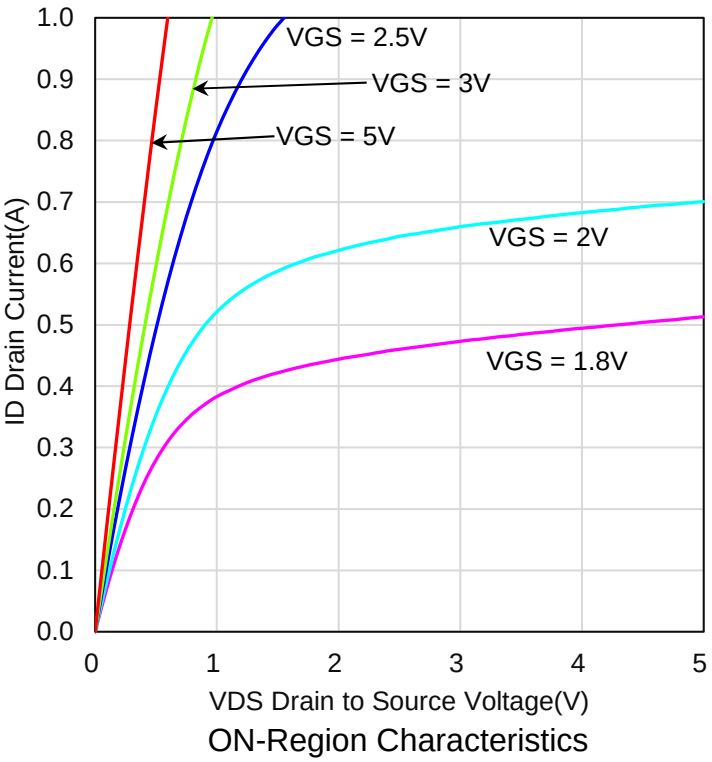
2. 30.0mm×25.0mm×1.6mm(FR4), Copper foil thickness 35μm;

6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

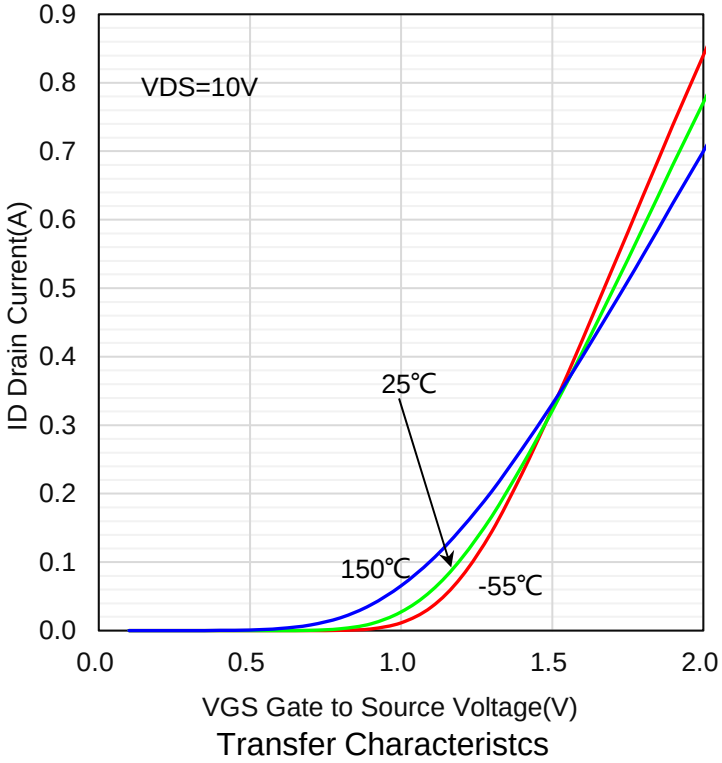
Characteristic		Symbol	Min.	Typ.	Max.	Unit
Drain–Source Breakdown Voltage (VGS = 0, ID = -250μA)		VBRDSS	-20	-	-	V
Zero Gate Voltage Drain Current (VDS = –16 V, VGS = 0 V) (VDS = –16 V, VGS = 0 V, TJ = 85℃)		IDSS	- -	-0.3 -	-100 -5	nA μA
Gate−to−Source Leakage Current (VDS = 0 V, VGS = ±4.5 V)		IGSS	-	±1	±2	μA
Gate Threshold Voltage (VDS = VGS , ID = –250μA)		VGS(th)	-0.45	-	-1.3	V
Drain−to−Source On Resistance (VGS = –4.5 V, ID = –350 mA) (VGS = –2.5 V, ID = –300 m A) (VGS = –1.8 V, ID = –10 m A)		RDS(on)	- - -	0.8 1.2 1.8	1.2 1.6 2.7	Ω
Forward Transconductance (VDS = -10 V, ID = -250 mA)		gfs	-	0.4	-	S
Diode Forward Voltage (IS = –150 mA, VGS = 0 V)		VSD	-	-0.8	-1.2	V
Total Gate Charge	(VDS=–10 V,VGS= –4.5 V,ID=–250 mA)	Qg	-	1500	-	pC
Gate-Source Charge		Qgs	-	150	-	
Gate-Drain Charge		Qgd	-	450	-	
Turn−On Delay Time	(VDD = –10 V, RL = 47 Ω,ID=–200 mA, VGEN = –4.5 V, RG = 10Ω)	td(ON)	-	5	-	ns
Rise Time		tr	-	9	-	
Turn−Off Delay Time		td(OFF)	-	35	-	
Fall Time		tf	-	11	-	

3. Pulse Test: pulse width ≤300 μs, duty cycle ≤ 2%.

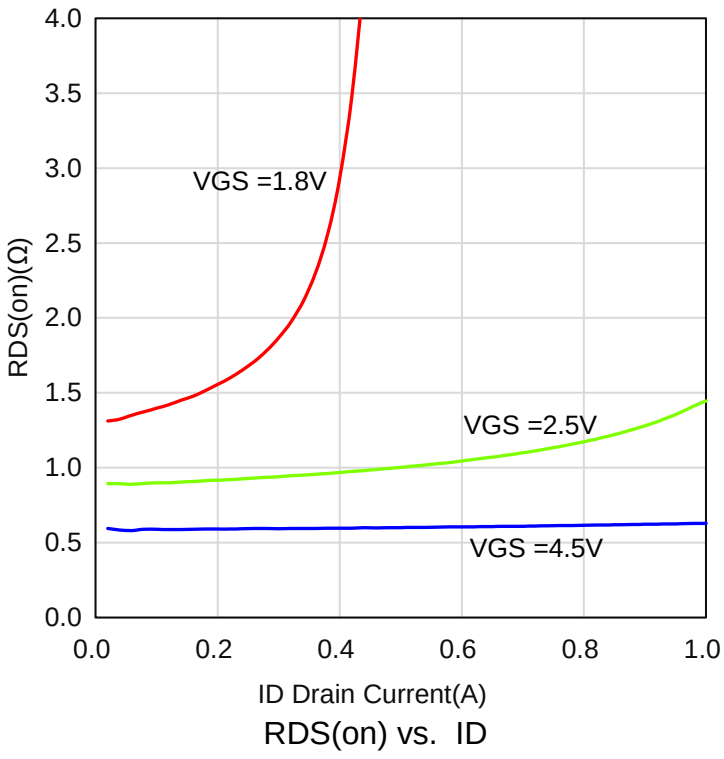
7.ELECTRICAL CHARACTERISTICS CURVES



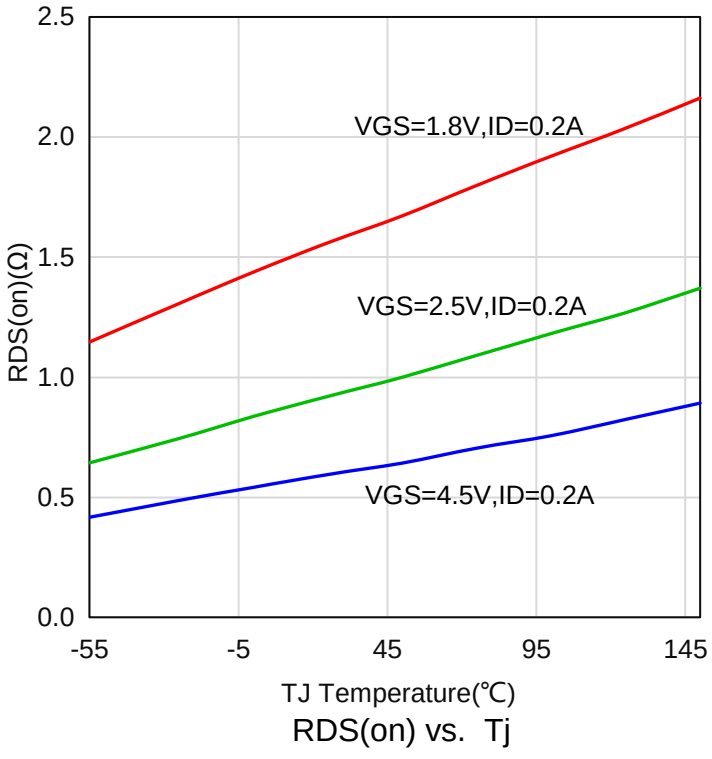
ON-Region Characteristics



Transfer Characteristcs

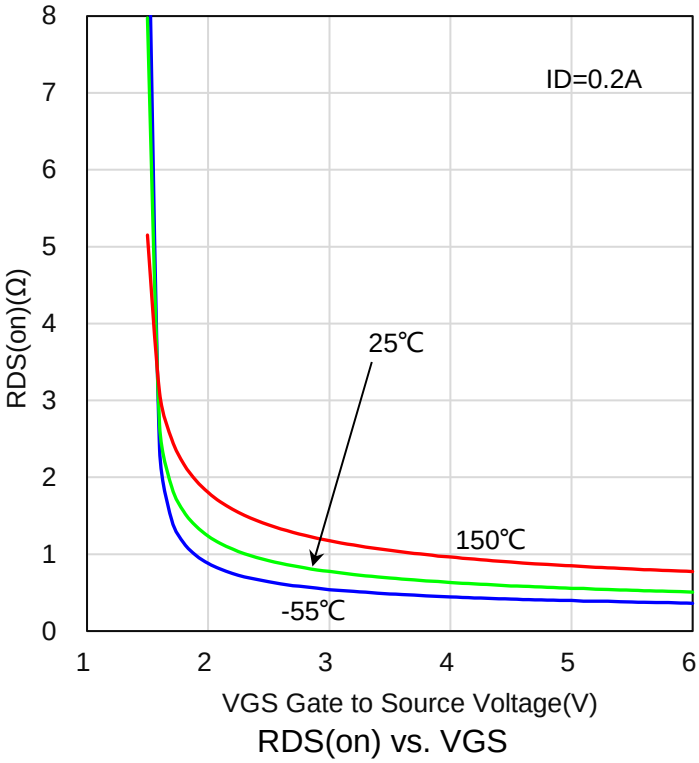


RDS(on) vs. ID

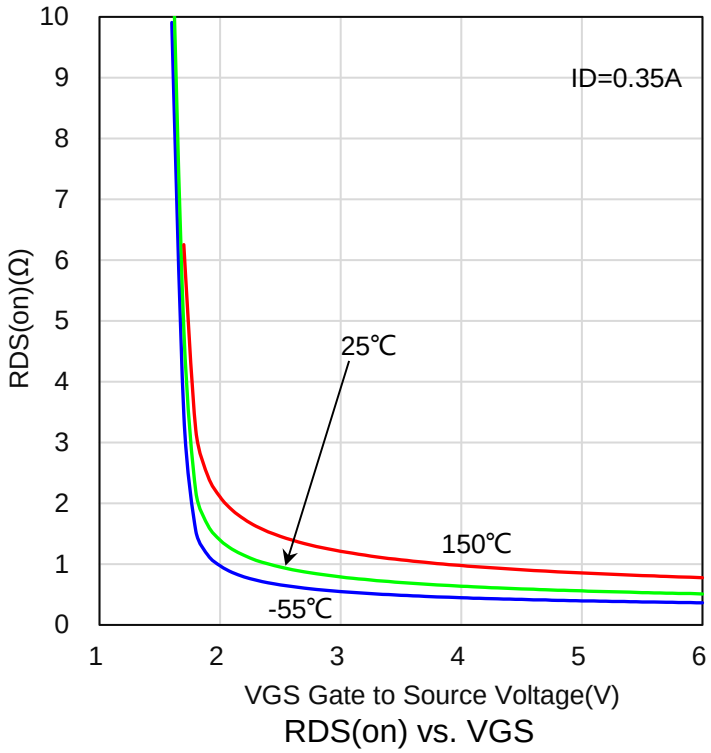


RDS(on) vs. Tj

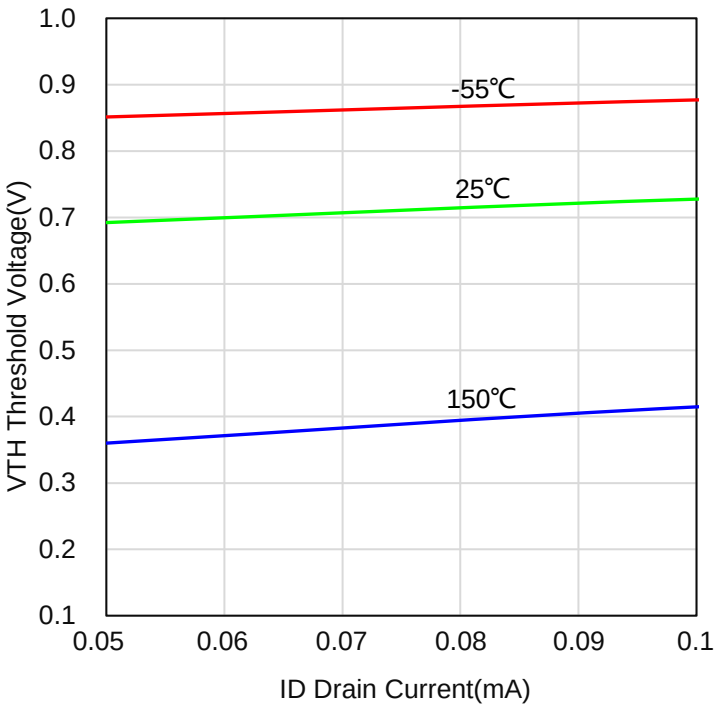
7.ELECTRICAL CHARACTERISTICS CURVES(Con.)



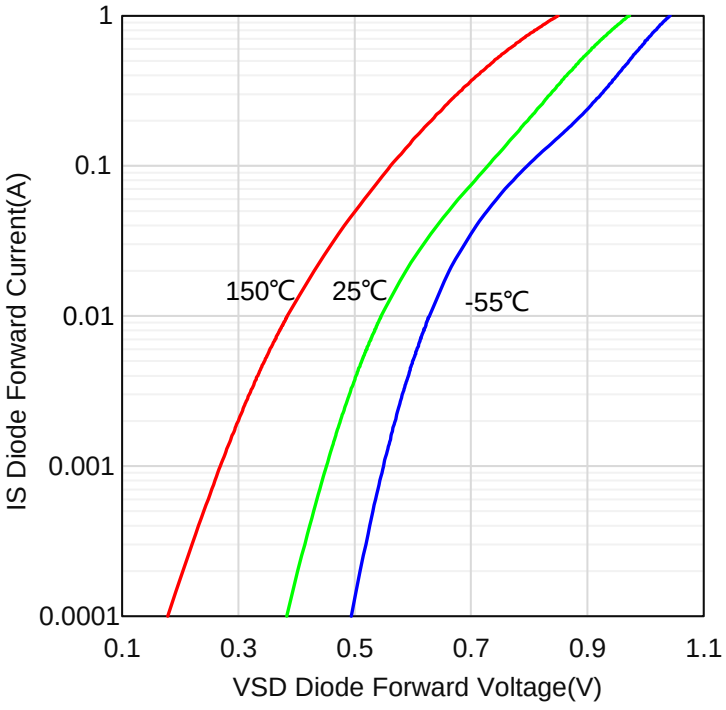
RDS(on) vs. VGS



RDS(on) vs. VGS

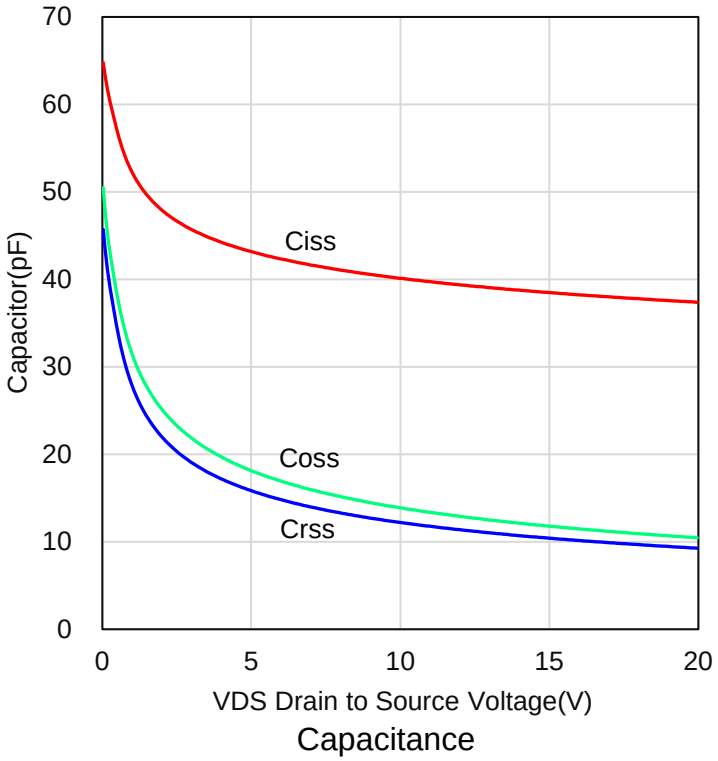


VTH vs. ID



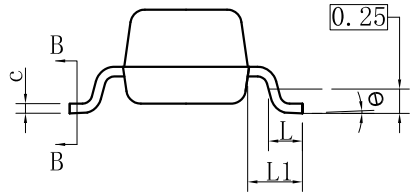
IS vs.VSD

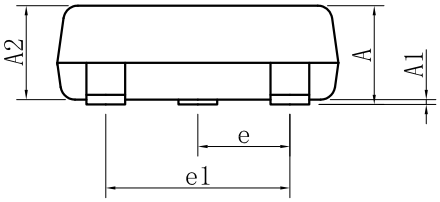
7.ELECTRICAL CHARACTERISTICS CURVES(Con.)

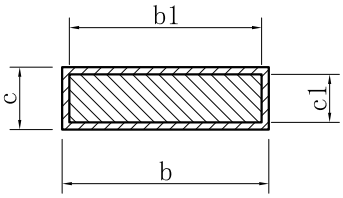


Capacitance

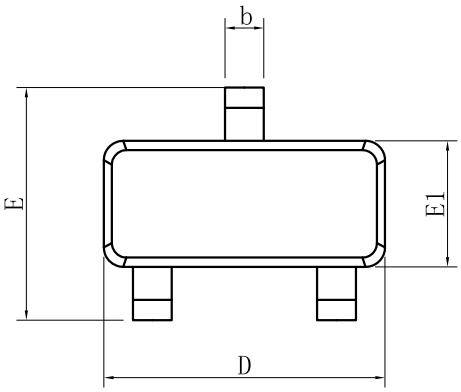
8.OUTLINE AND DIMENSIONS







SECTION B-B

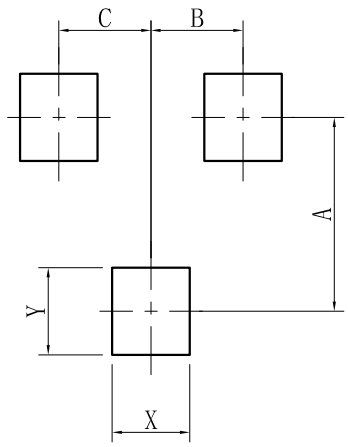


SOT23			
DIM	MIN	NOR	MAX
A	0.89	-	1.12
A1	0.01	-	0.10
A2	0.88	0.95	1.02
b	0.30	-	0.50
b1	0.30	0.40	0.45
c	0.08	-	0.20
c1	0.08	0.10	0.16
D	2.80	2.90	3.04
E	2.10	-	2.64
E1	1.20	1.30	1.40
e	0.95BSC		
e1	1.90BSC		
L	0.40	0.46	0.60
L1	0.54REF		
θ	0°	-	8°
All Dimensions in mm			

GENERAL NOTES

1. Top package surface finish Ra0.4±0.2um
2. Bottom package surface finish Ra0.7±0.2um
3. Side package surface finish Ra0.4±0.2um

9.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.

- Before you use our Products for new Project, you are requested to carefully read this document and fully under--stand its contents. LRC shall not be in any way responsible or liable for failure, malfunction or accident arising from the use of any LRC’s Products against warning, caution or note contained in this document.

- All information contained in this document is current as of the issuing date and subject to change without any prior notice. Before purchasing or using LRC's Products,please confirm the latest information with a LRC sales represe--ntative.