

LBSS139LT1G

Power MOSFET

200 mA, 60 V N-Channel SOT-23

1. FEATURES

- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- Low threshold voltage ($V_{GS(th)}$: 0.8V...1.5V) makes it ideal for low voltage applications.
- ESD Protected: 2KV

2. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LBSS139LT1G	J2	3000/Tape&Reel
LBSS139LT3G	J2	10000/Tape&Reel

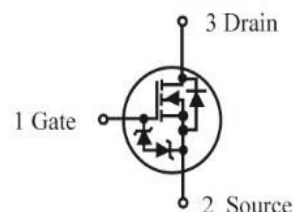
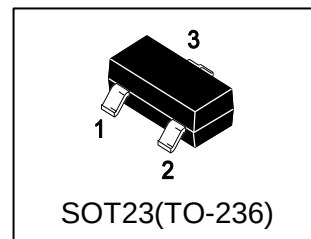
3. MAXIMUM RATINGS($T_a = 25^{\circ}\text{C}$)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V_{DSS}	60	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	225 1.8	mW mW/ $^{\circ}\text{C}$
Thermal Resistance, Junction-to-Ambient(Note 1)	$R_{\theta JA}$	556	$^{\circ}\text{C}/\text{W}$
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. FR-4 = 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
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 Vdc)	IGSSF	-	-	10.0	μA
Gate–Body Leakage Current, Reverse (VGS = - 20 V)	IGSSR	-	-	-10	μA

ON CHARACTERISTICS (Note 2)

Gate Threshold Voltage (VDS = VGS, ID = 1.0mA)	VGS(th)	0.8	-	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) (VGS = 10 V, ID = 300 mA)	RDS(on)	- - -	5.6 - -	10 2.0 1.6	Ohms
Forward Transconductance (VDS = 25 V, ID = 200 mA, f = 1.0 kHz)	gfs	100	-	-	mS

DYNAMIC CHARACTERISTICS

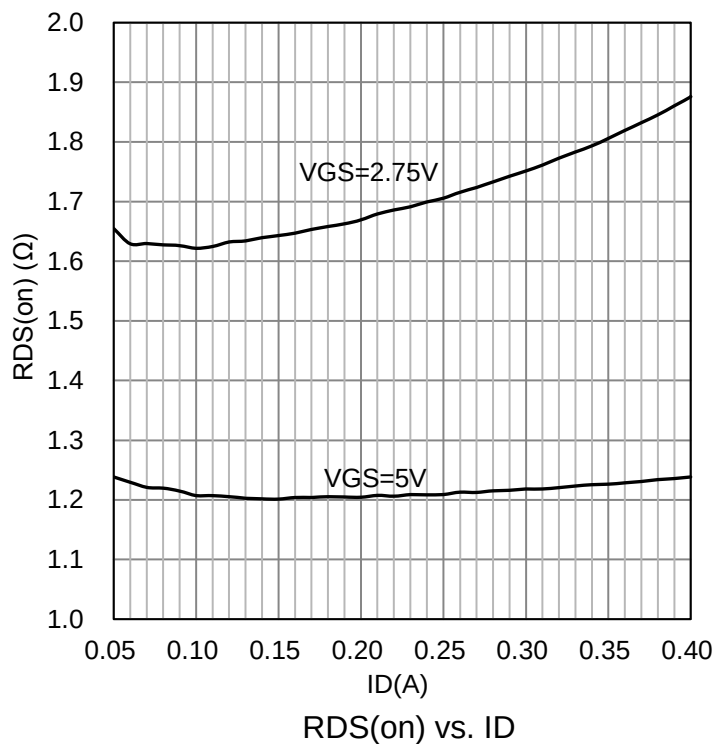
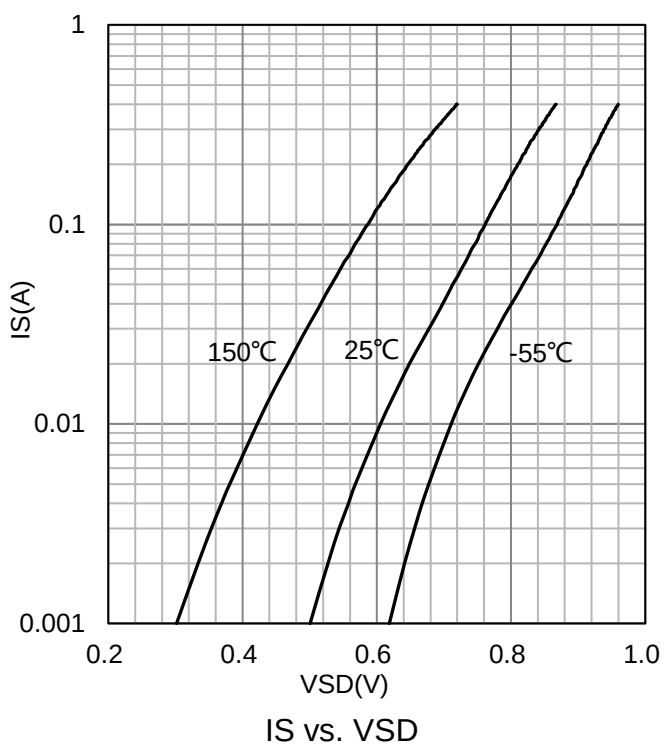
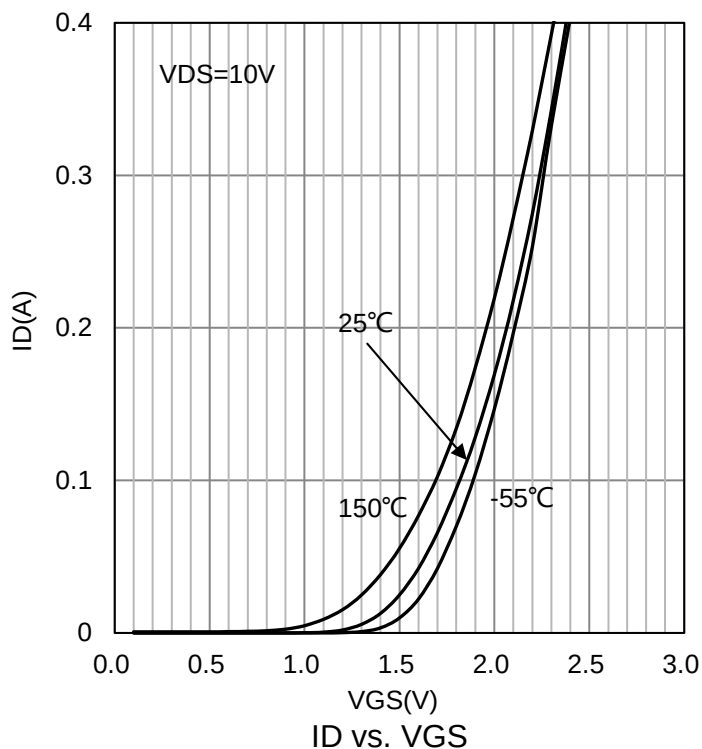
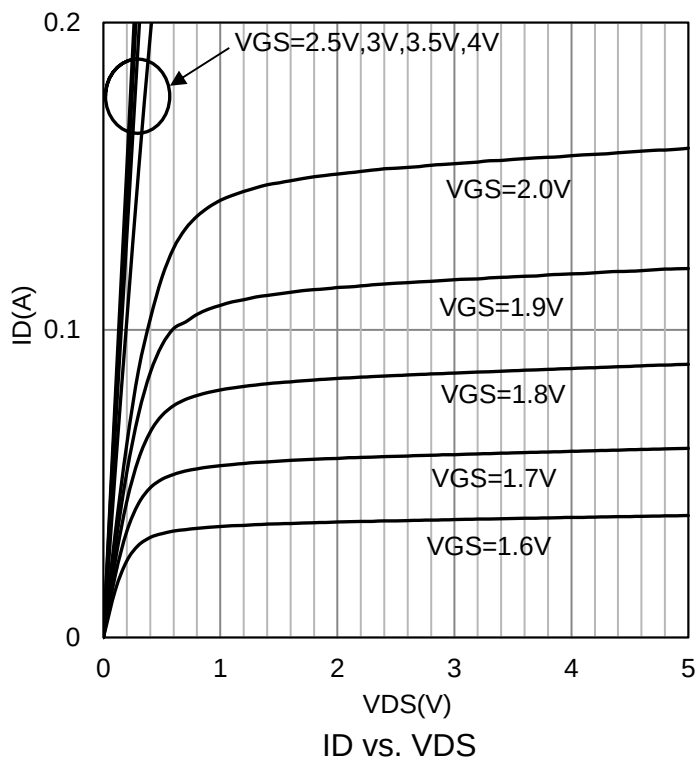
Input Capacitance (VDS = 25 V, VGS = 0, f = 1.0 MHz)	Ciss	-	22.8	-	pF
Output Capacitance (VDS = 25 V, VGS = 0, f = 1.0 MHz)	Coss	-	3.5	-	pF
Reverse Transfer Capacitance (VDS = 25 V, VGS = 0, f = 1.0 MHz)	Crss	-	2.9	-	pF

SWITCHING CHARACTERISTICS

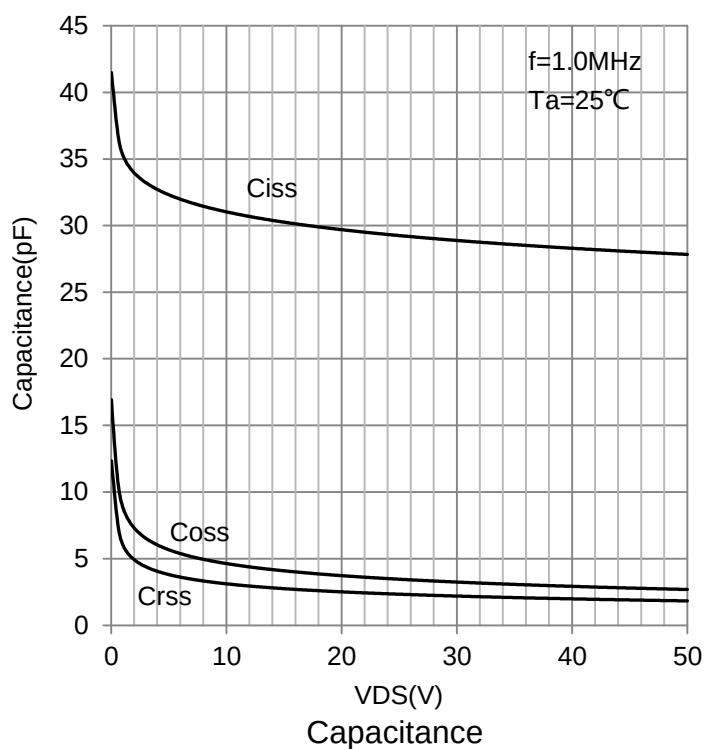
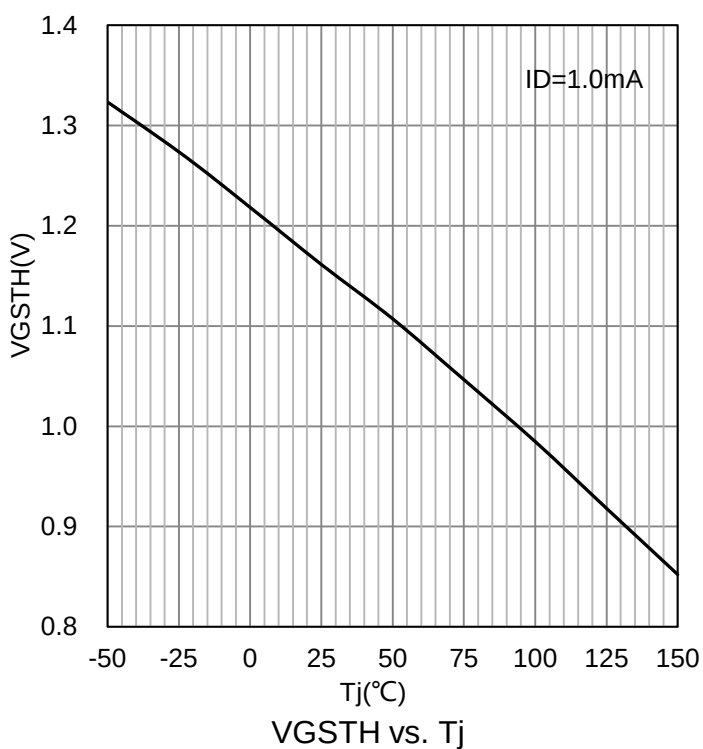
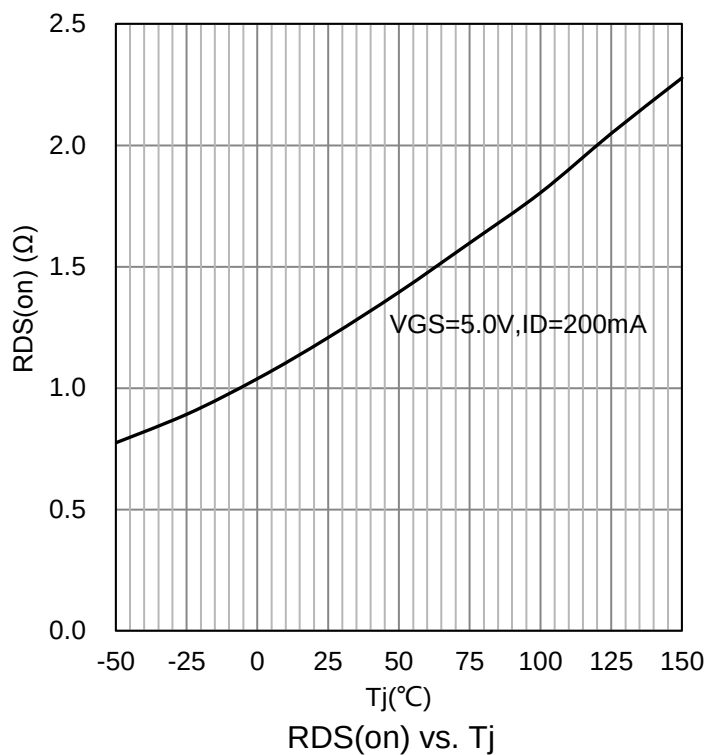
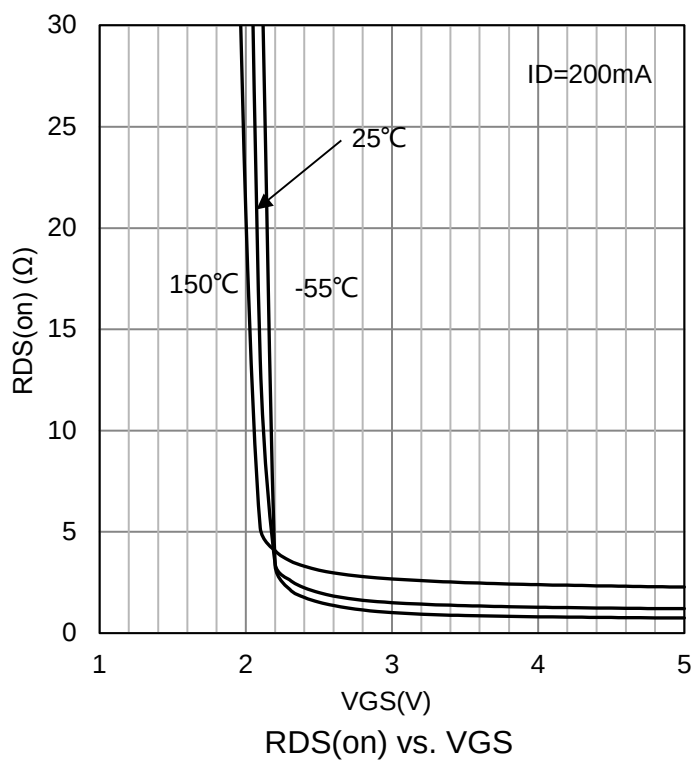
Turn-On Delay Time	(VDD = 30 V , VGEN = 10 V, RG =25Ω ,RL =60 Ω, ID =500 mA)	td(on)	-	3.8	-	ns
Turn-Off Delay Time		td(off)	-	19	-	

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

6. ELECTRICAL CHARACTERISTICS CURVES



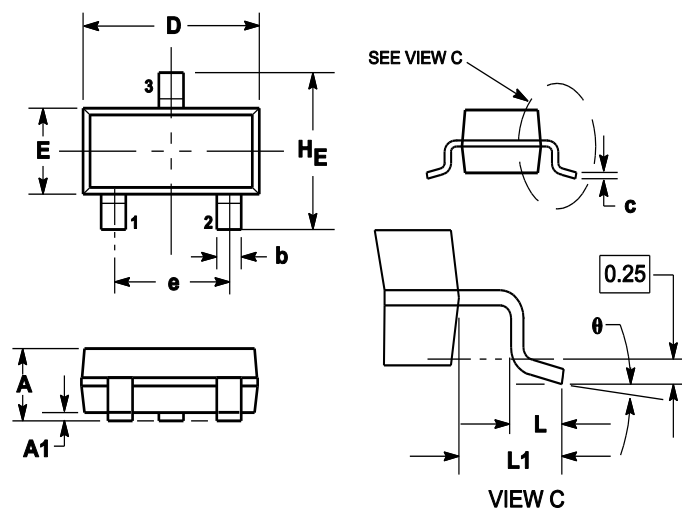
6.ELECTRICAL CHARACTERISTICS CURVES(Con.)



7.OUTLINE AND DIMENSIONS

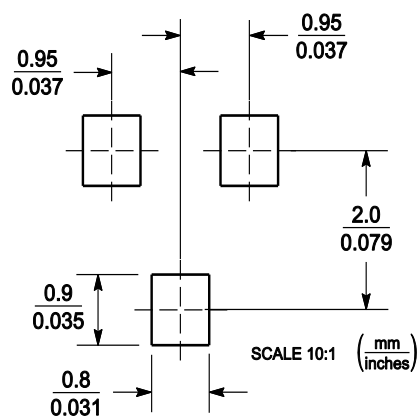
Notes:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.



DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1	1.11	0.035	0.04	0.044
A1	0.01	0.06	0.1	0.001	0.002	0.004
b	0.37	0.44	0.5	0.015	0.018	0.02
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.9	3.04	0.11	0.114	0.12
E	1.20	1.3	1.4	0.047	0.051	0.055
e	1.78	1.9	2.04	0.07	0.075	0.081
L	0.10	0.2	0.3	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
H _E	2.10	2.4	2.64	0.083	0.094	0.104
θ	0°	---	10°	0°	---	10°

8.SOLDERING FOOTPRINT



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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