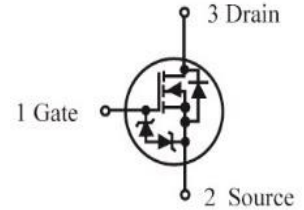
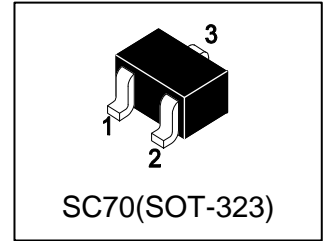


# LBSS139WT1G

## S-LBSS139WT1G

Power MOSFET

200 mA, 60V N-Channel SC-70



### 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 ( $V_{GS(th)}$ ): 0.5V...1.5V) makes it ideal for low voltage applications.
- ESD Protected:1500V
- MSL:Level 1

### 2. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LBSS139WT1G	J2	3000/Tape&Reel
LBSS139WT3G	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	$V_{GS}$	$\pm 20$	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 $25^\circ\text{C}$	PD	150	mW
		1.2	mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient(Note 1)	$R_{\theta JA}$	833	$^\circ\text{C}/\text{W}$
Junction and Storage temperature	$T_J, T_{stg}$	$-55 \sim +150$	$^\circ\text{C}$
Maximum Lead Temperature for Solde 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 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 = 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 MHz)	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**

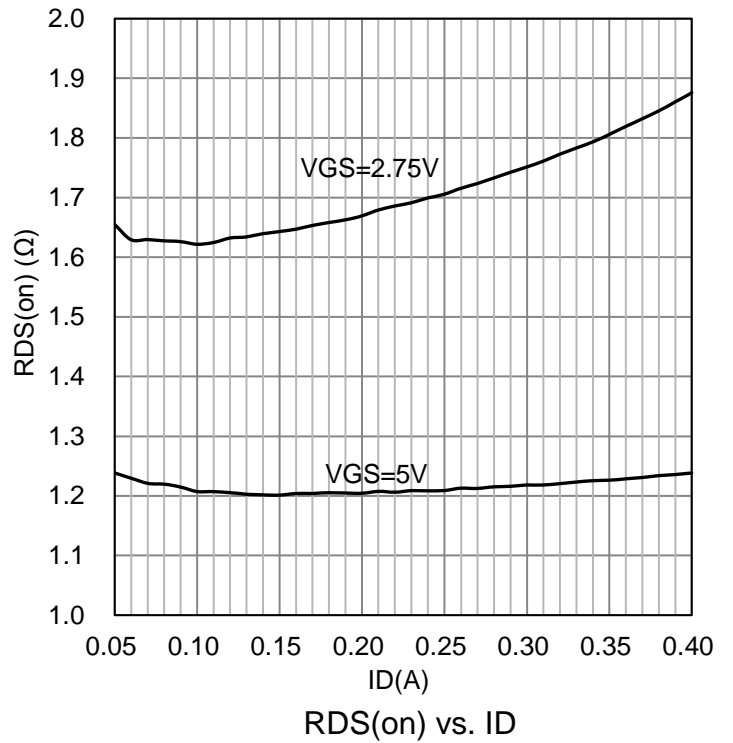
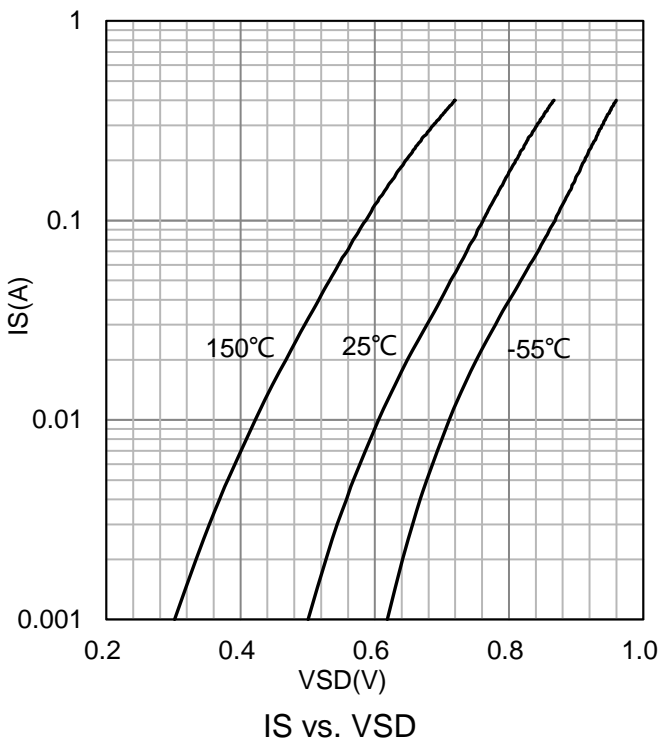
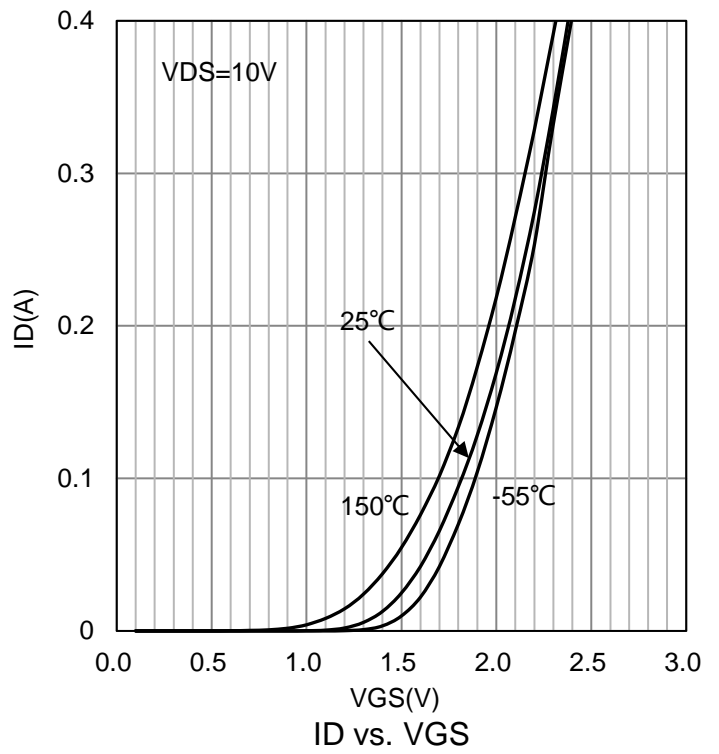
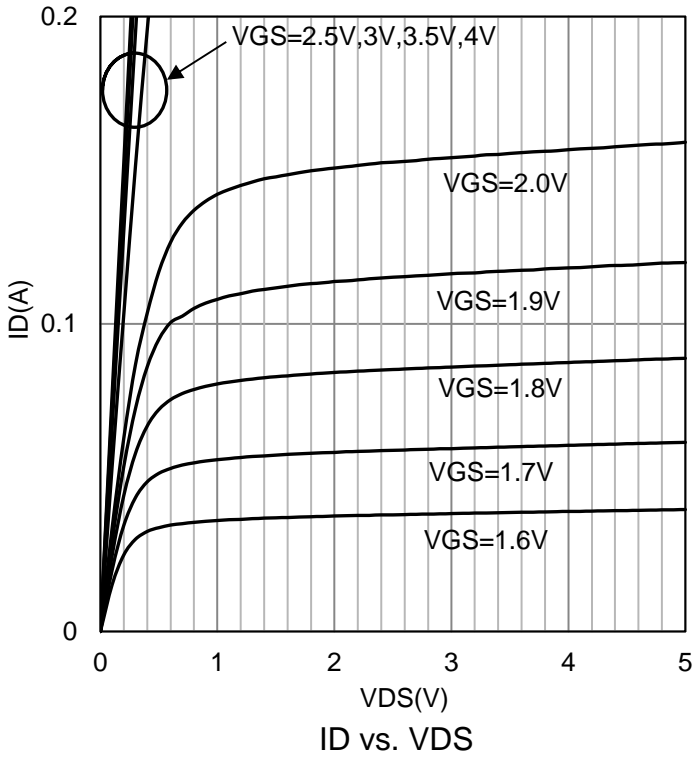
Turn-On Delay Time	(VDD = 30 V , VGEN = 10 V, RG =25Ω ,RL =60 Ω, ID =500 mA)	td(on)	-	3.8	-	ns
Turn-Off Delay Time		td(off)	-	19	-	

**SOURCE–DRAIN DIODE CHARACTERISTICS**

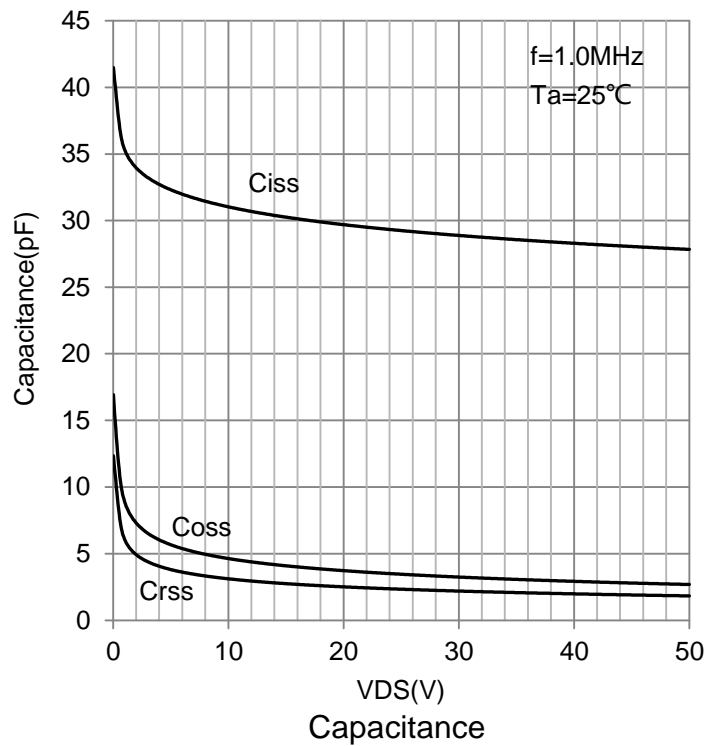
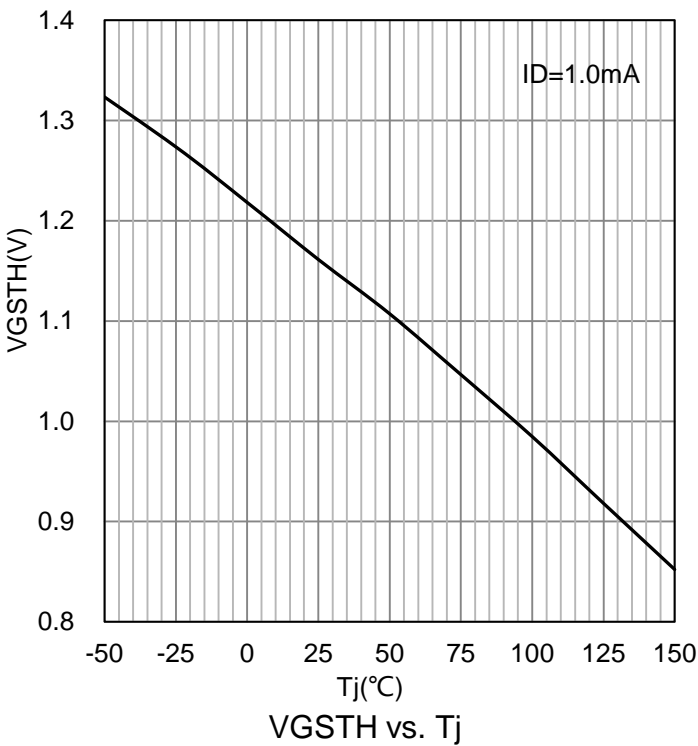
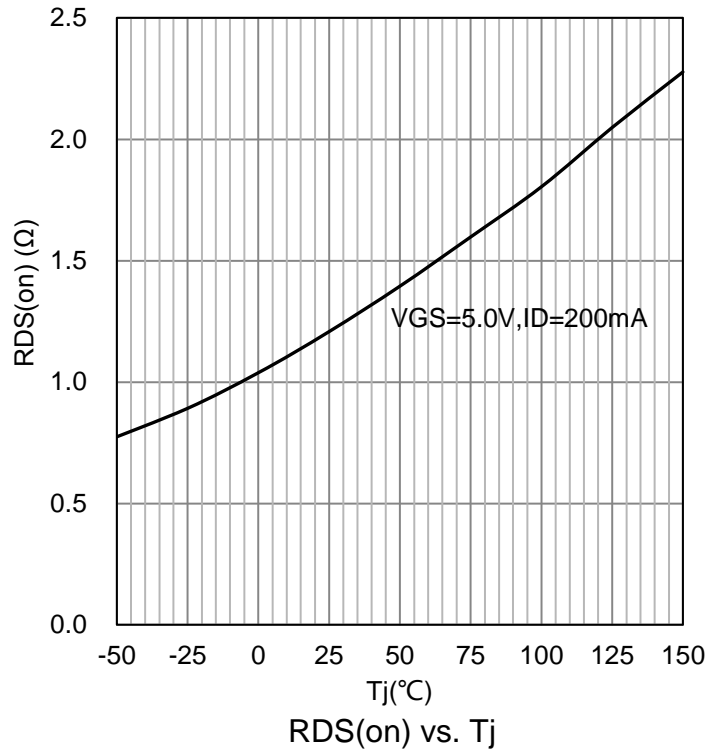
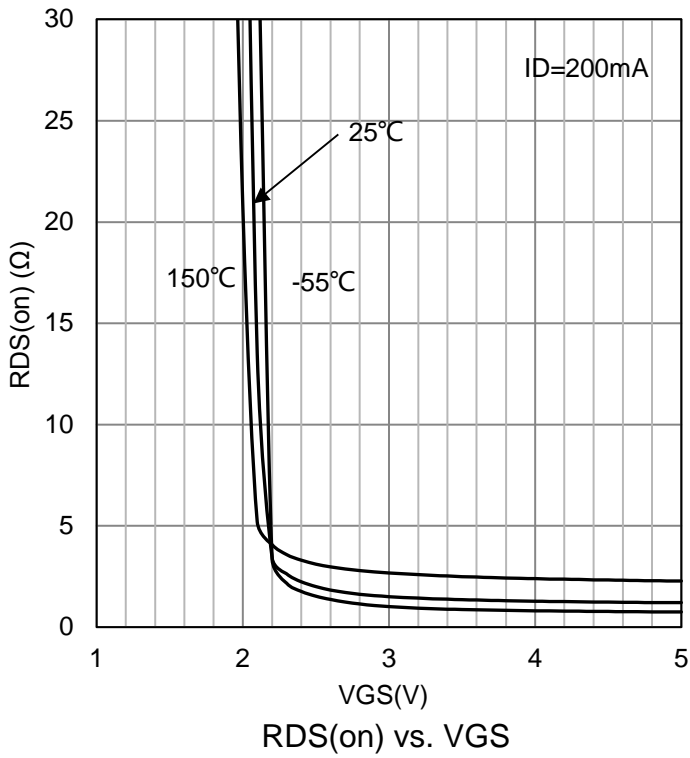
Forward Voltage (IS=0.5A, VGS=0V)	VSD	-	-	1.3	V
--------------------------------------	-----	---	---	-----	---

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

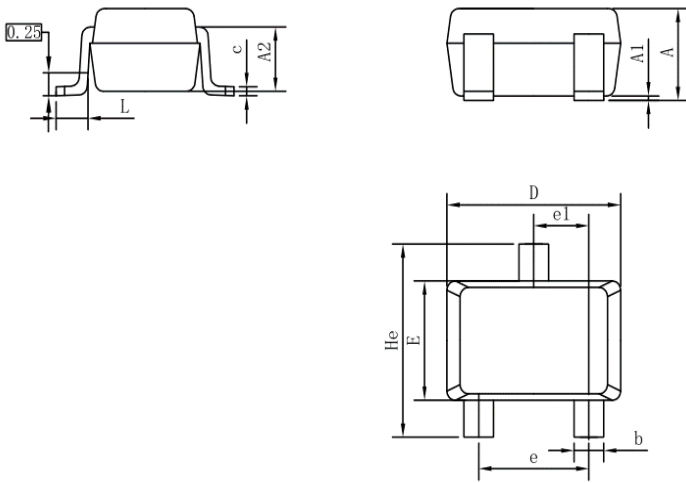
6. ELECTRICAL CHARACTERISTICS CURVES



**6.ELECTRICAL CHARACTERISTICS CURVES(Con.)**

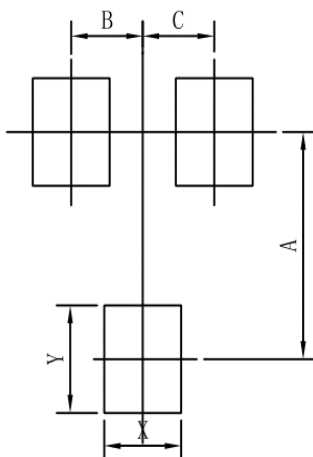


### 7.OUTLINE AND DIMENSIONS



SC70			
DIM	MIN	NOR	MAX
A	0.80	0.95	1.00
A1	0.00	0.05	0.10
A2	0.7 REF		
b	0.30	0.35	0.40
c	0.10	0.15	0.25
D	1.80	2.05	2.20
E	1.15	1.30	1.35
e	1.20	1.30	1.40
e1	0.65 BSC		
L	0.20	0.35	0.56
He	2.00	2.10	2.40
ALL Dimension in mm			

### 8.SOLDERING FOOTPRINT



SC70	
DIM	MIN
A	1.90
B	0.65
C	0.65
X	0.70
Y	0.90

## **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 understand 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 representative.