SuperMOS – SOT-23 100V BV_{DSS}, 2.70Ω $R_{DS(ON)}$, N-channel MOSFET

1. Description

The LBSS123LT1G is N-Channel enhancement MOS Field Effect Transistor. Uses advanced technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. Device is suitable for use in DC-DC conversion, power switch and charging circuit. Standard Product LBSS123LT1G is Pb-free.

2. Features

- 100V, $R_{DS(ON)}$=2.70Ω(Typ.) @ V_{GS}=10V
  $R_{DS(ON)}$=2.95Ω(Typ.) @V_{GS}=4.5V
- High density cell design for low $R_{DS(on)}$
- Material: Halogen free
- Reliable and rugged
- Avalanche Rated
- Low leakage current

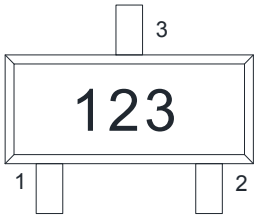
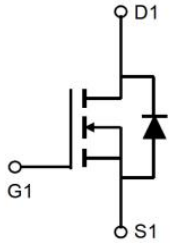
3. Applications

- PWM applications
- Load switch
- Power management in portable/desktop PCs
- DC/DC conversion

4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
LBSS123LT1G	SOT-23	123	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7 inches

5. Pin Configuration and Functions

Pin	Function	Outline	Circuit Diagram
1	Gate		
2	Source		
3	Drain		

6. Specification

Absolute Maximum Rating & Thermal Characteristics

Ratings at 25 ˚C ambient temperature unless otherwise specified.

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		BV_{DSS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_A=25°C	I_D	0.29	A
	T_A=70°C		0.20	
Maximum Power Dissipation		P_D	0.35	W
Operating Junction Temperature		T_J	150	°C
Lead Temperature		T_L	260	°C
Storage Temperature Range		T_{stg}	-55 to 150	°C

Thermal resistance ratings

Single Operation					
Parameter		Symbol	Typical	Maximum	Unit
Junction-to-Ambient Thermal Resistance	t ≤ 10s	$R_{\theta JA}$		357	°C/W

Electrical Characteristics

At TA = 25℃ unless otherwise specified

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250uA	100			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V, V_{GS}=0V			100	nA
Gate-to-source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS}=V_{DS}, I_D=250uA	1.0	1.8	2.5	V
Drain-to-source On-resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=0.2A		2.7	3.5	Ω
		V_{GS}=4.5V, I_D=0.18A		2.95	4.2	
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C_{ISS}	V_{GS}=0V, f=1MHz, V_{DS}=25V		29		pF
Output Capacitance	C_{OSS}			2.8		
Reverse Transfer Capacitance	C_{RSS}			2.0		
Gate Resistance	Rg	f=1MHz		1.3		Ω
BODY DIODE CHARACTERISTICS						
Forward Voltage	V_{SD}	V_{GS}=0V, I_S=0.2A	0.45		1.5	V

7. Typical Characteristic

Figure 1：Output Characteristics

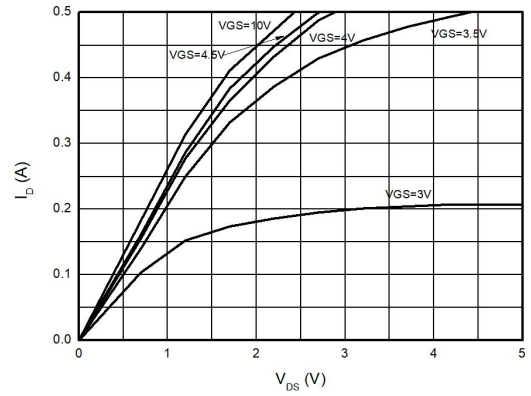


Figure 2：Transfer Characteristics

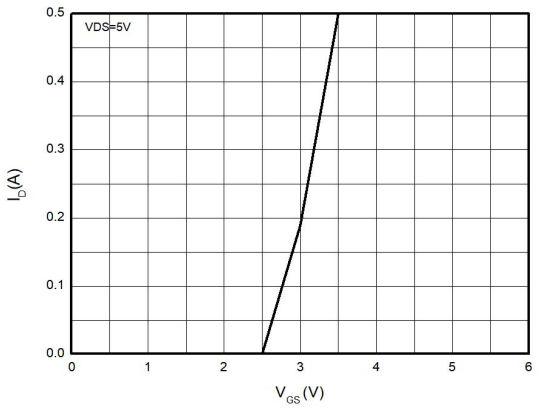


Figure 3：On-resistance vs Drain Current

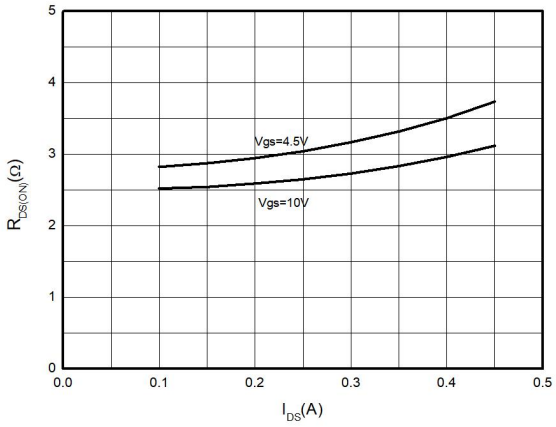


Figure 4：Body Diode Characteristics

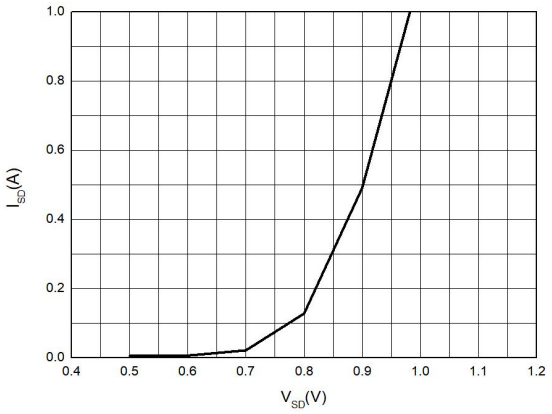


Figure 5：Capacitance Characteristics

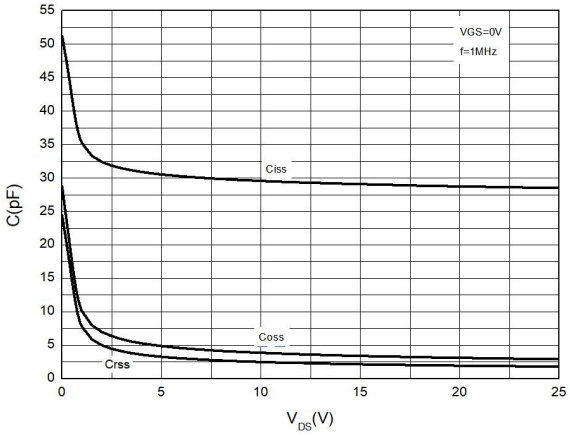
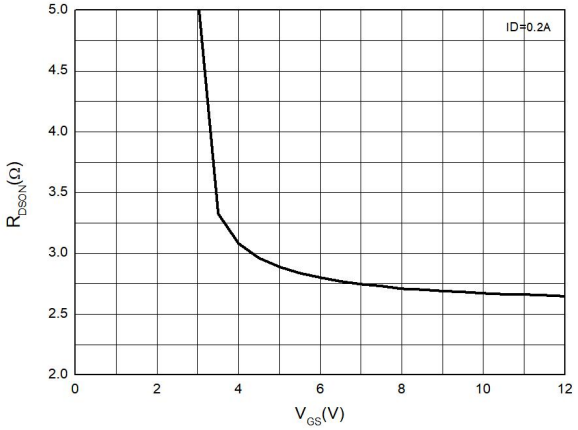
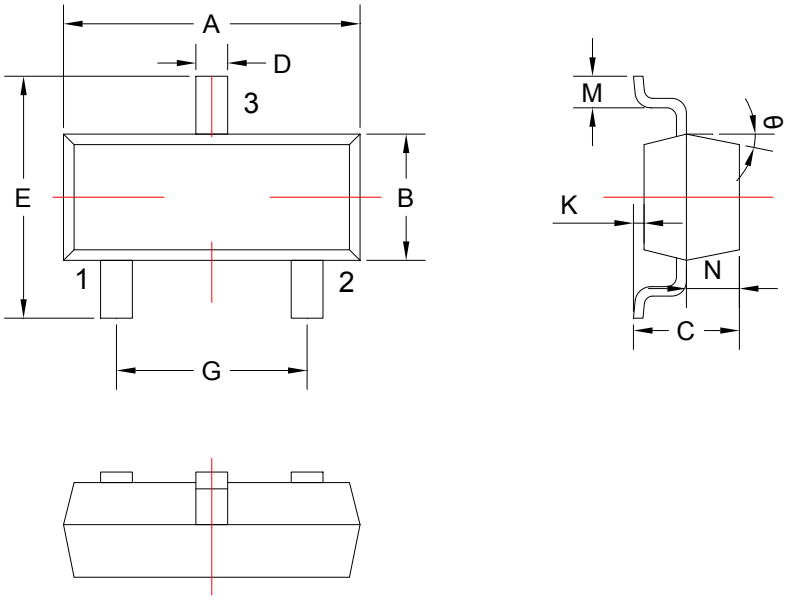


Figure 6：On-resistance vs Gate to Source



8. Dimension (SOT-23)



COMMON DIMENSIONS CUNITS MEASURE=MILLIMETER					
SYMBOL	MIN	MAX	SYMBOL	MIN	MAX
A	2.85	3.04	G	1.80	2.00
B	1.20	1.40	K	0	0.10
C	0.90	1.10	M	0.20	-
D	0.40	0.50	N	0.50	0.70
E	2.25	2.55	θ	5°	9°

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