N-CHANNEL POWER MOSFET
LBSS123LT1

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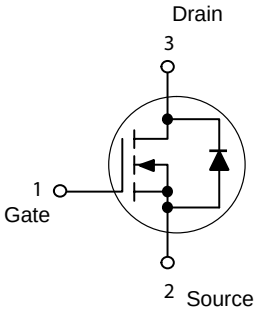
SOT–23



FEATURE

- Pb-Free Package is available.

DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LBSS123LT1	SA	3000/Tape&Reel
LBSS123LT1G	SA (Pb-Free)	3000/Tape&Reel
LBSS123LT3	SA	10000/Tape&Reel
LBSS123LT3G	SA (Pb-Free)	10000/Tape&Reel

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain–Source Voltage	V_{DSS}	100	Vdc
Gate–Source Voltage – Continuous – Non–repetitive ($t_p \le 50$ μs)	 V_{GS} V_{GSM}	 ±20 ±40	 Vdc Vpk
Drain Current Continuous (Note 1.) Pulsed (Note 2.)	 I_D I_{DM}	 0.17 0.68	Adc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR–5 Board (Note 3.) T_A = 25°C Derate above 25°C	P_D	225 1.8	mW mW/°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	°C/W
Junction and Storage Temperature	T_J, T_{stg}	–55 to +150	°C

1. The Power Dissipation of the package may result in a lower continuous drain current.
2. Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.
3. FR–5 = 1.0 × 0.75 × 0.062 in.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Drain–Source Breakdown Voltage (V_{GS} = 0, I_D = 250 μAdc)	$V_{(BR)DSS}$	100	–	–	Vdc
Zero Gate Voltage Drain Current (V_{GS} = 0, V_{DS} = 100 Vdc) T_J = 25°C T_J = 125°C	I_{DSS}	 – –	 – –	 15 60	μAdc
Gate–Body Leakage Current (V_{GS} = 20 Vdc, V_{DS} = 0)	I_{GSS}	–	–	50	nAdc
ON CHARACTERISTICS (Note 4.)					
Gate Threshold Voltage (V_{DS} = V_{GS}, I_D = 1.0 mAdc)	$V_{GS(th)}$	0.8	–	2.8	Vdc
Static Drain–Source On–Resistance (V_{GS} = 10 Vdc, I_D = 100 mAdc)	$r_{DS(on)}$	–	5.0	6.0	Ω
Forward Transconductance (V_{DS} = 25 Vdc, I_D = 100 mAdc)	g_{fs}	80	–	–	mmhos
DYNAMIC CHARACTERISTICS					
Input Capacitance (V_{DS} = 25 Vdc, V_{GS} = 0, f = 1.0 MHz)	C_{iss}	–	20	–	pF
Output Capacitance (V_{DS} = 25 Vdc, V_{GS} = 0, f = 1.0 MHz)	C_{oss}	–	9.0	–	pF
Reverse Transfer Capacitance (V_{DS} = 25 Vdc, V_{GS} = 0, f = 1.0 MHz)	C_{rss}	–	4.0	–	pF
SWITCHING CHARACTERISTICS(4)					
Turn–On Delay Time (V_{CC} = 30 Vdc, I_C = 0.28 Adc, V_{GS} = 10 Vdc, R_{GS} = 50 Ω)	$t_{d(on)}$	–	20	–	ns
Turn–Off Delay Time	$t_{d(off)}$	–	40	–	ns
REVERSE DIODE					
Diode Forward On–Voltage (I_D = 0.34 Adc, V_{GS} = 0 Vdc)	V_{SD}	–	–	1.3	V

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

TYPICAL ELECTRICAL CHARACTERISTICS

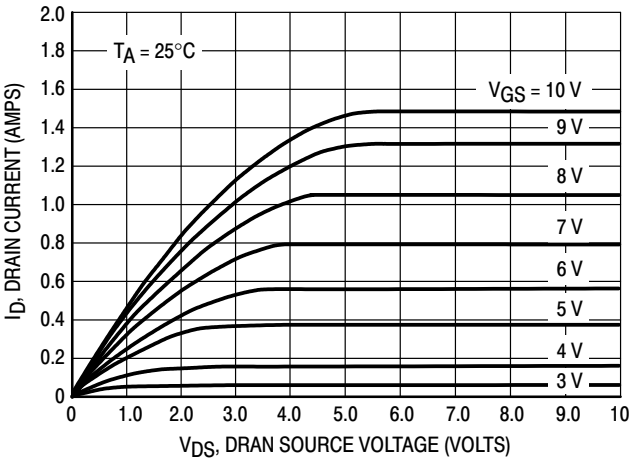


Figure 1. Ohmic Region

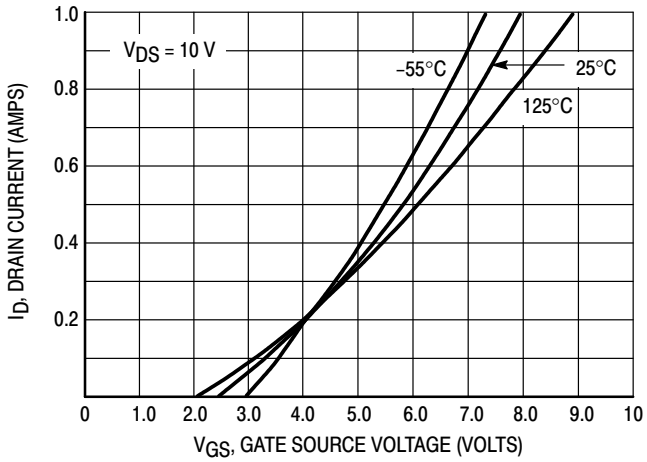


Figure 2. Transfer Characteristics

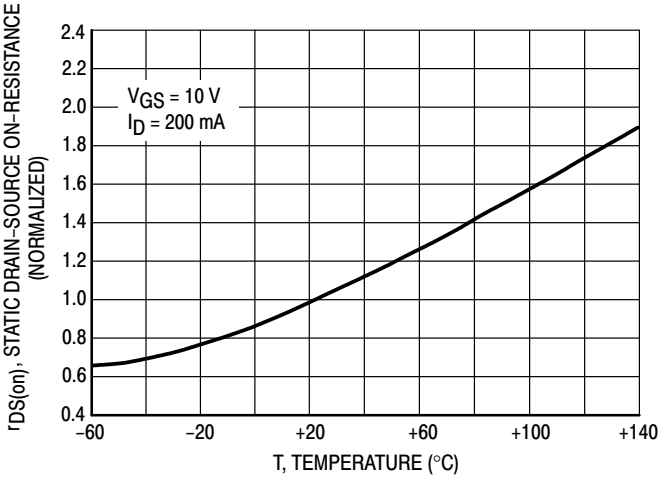


Figure 3. Temperature versus Static Drain–Source On–Resistance

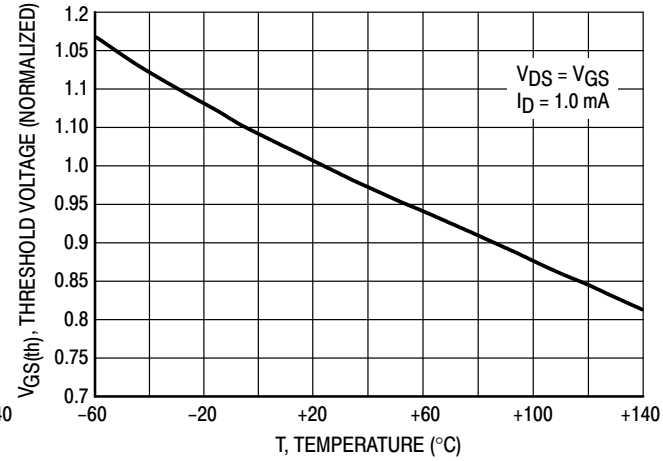


Figure 4. Temperature versus Gate Threshold Voltage

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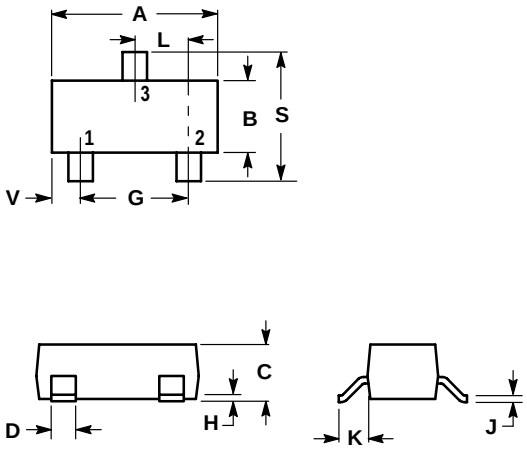

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

PIN 1. Gate
2. Source
3. Drain