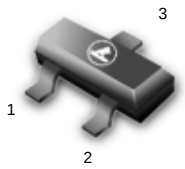
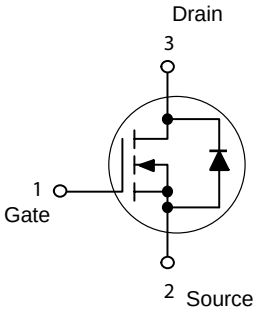
N-CHANNEL POWER MOSFET

LBSS123LT1G

LBSS123LT1G
S-LBSS123LT1G



SOT–23



FEATURE

- Pb-Free Package is available.
- S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LBSS123LT1G S-LBSS123LT1G	SA	3000/Tape&Reel
LBSS123LT3G S-LBSS123LT3G	SA	10000/Tape&Reel

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain–Source Voltage	V_{DSS}	100	Vdc
Gate–Source Voltage – Continuous – Non–repetitive ($t_p \leq 50$ 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	–	2.0	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

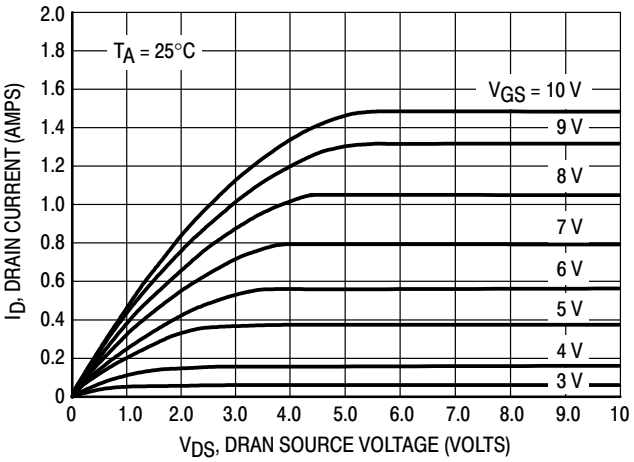


Figure 1. Ohmic Region

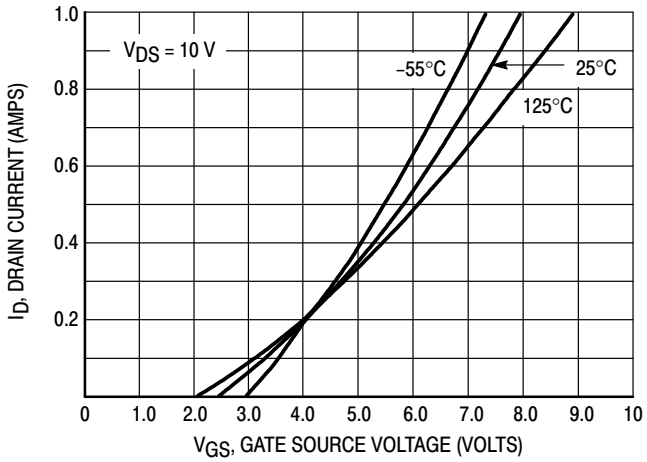


Figure 2. Transfer Characteristics

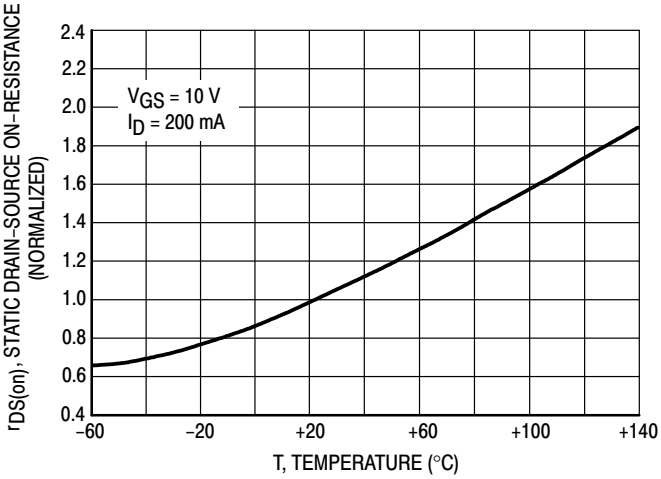


Figure 3. Temperature versus Static Drain–Source On–Resistance

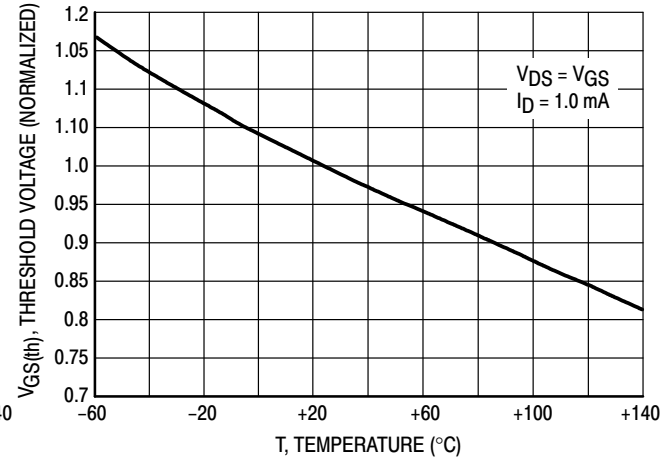
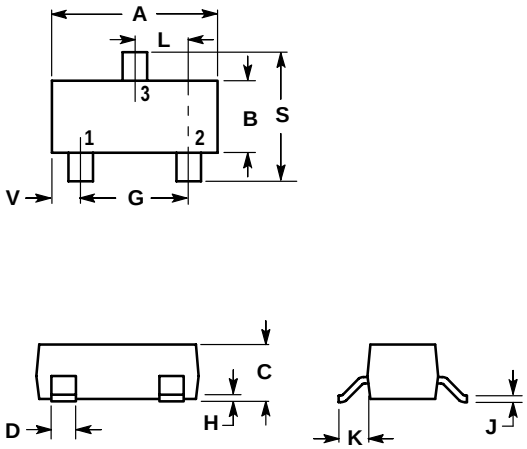


Figure 4. Temperature versus Gate Threshold Voltage

SOT-23

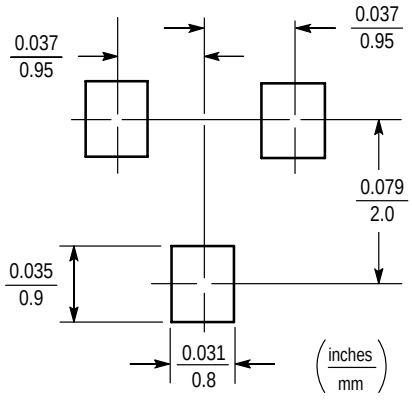


NOTES:

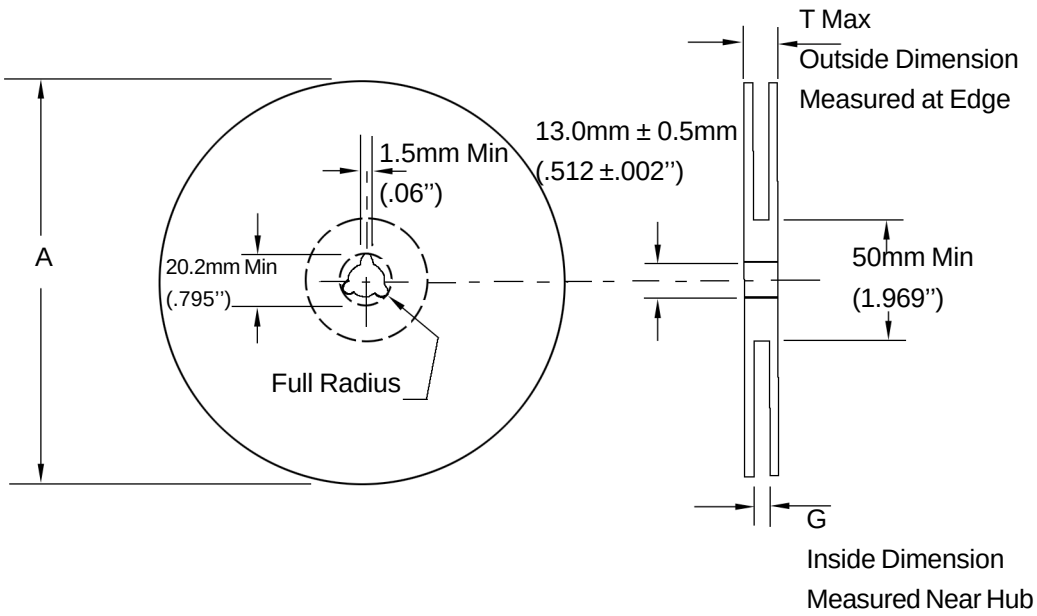
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

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



EMBOSSED TAPE AND REEL DATA
FOR DISCRETES



Size	A Max	G	T Max
8 mm	330mm (12.992")	8.4mm+1.5mm, -0.0 (.33"+.059", -0.00)	14.4mm (.56")
12mm	330mm (12.992")	12.4mm+2.0mm, -0.0 (.49 "+ .079", -0.00)	18.4mm (.72")
16mm	360mm (14.173")	16.4mm+2.0mm, -0.0 (.646"+.078", -0.00)	22.4mm (.882")
24 mm	360mm (14.173")	24.4mm+2.0mm, -0.0 (.961"+.070", -0.00)	30.4mm (1.197")

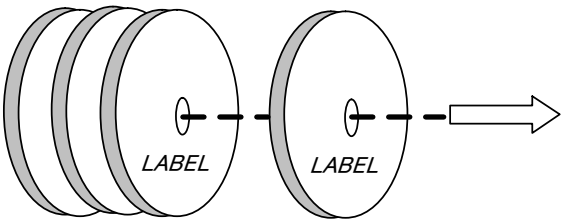
Reel Dimensions

Metric Dimensions Govern — English are in parentheses for reference only

Storage Conditions

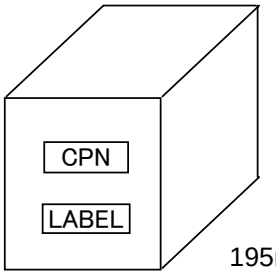
Temperature: 5 to 40 Deg.C (20 to 30 Deg. C is preferred)
Humidity: 30 to 80 RH (40 to 60 is preferred)
Recommended Period: One year after manufacturing
(This recommended period is for the soldering condition only. The characteristics and reliabilities of the products are not restricted to this limitation)

Shipment Specification



10 Reel

3000PCS/Reel
8000PCS/Reel (SOT-723,SOD-723)



Dim(Unit:mm)

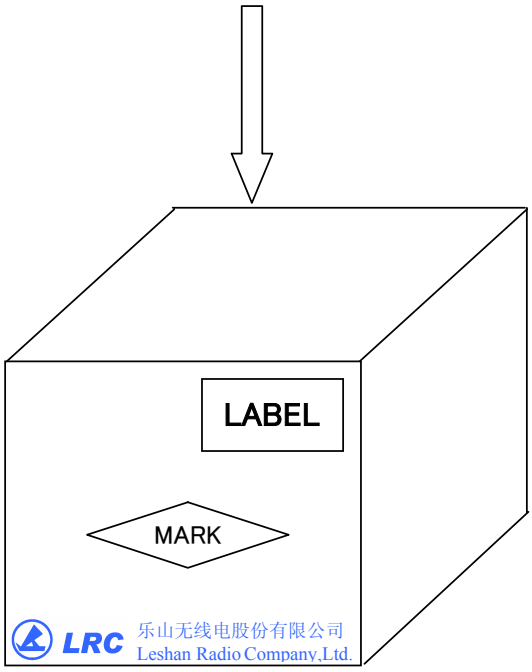
195mm*195mm*150mm

10Reel/Inner Box

30KPCS/Inner Box
80KPCS/Inner Box (SOT-723,SOD-723)

Dim(Unit:mm)

460mm*400mm*420mm



12 Inner Box/Carton

360KPCS/Carton
960KPCS/Carton (SOT-723,SOD-723)