

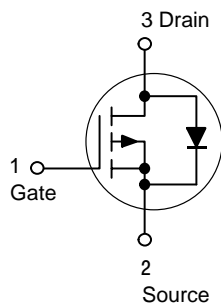
Power MOSFET

130 mAmps, 50 Volts

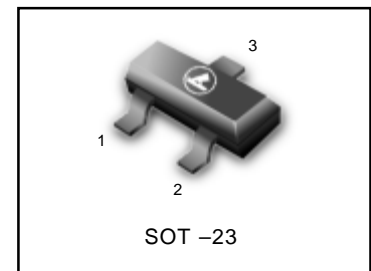
P-Channel SOT-23

These miniature surface mount MOSFETs reduce power loss conserve energy, making this device ideal for use in small power management circuitry. Typical applications are dc-dc converters, load switching, power management in portable and battery-powered products such as computers, printers, cellular and cordless telephones.

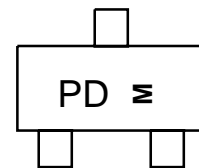
- Energy Efficient
- Miniature SOT-23 Surface Mount Package Saves Board Space
- Pb-Free Package is available.
- We declare that the material of product are Halogen Free and compliance with RoHS requirements.
- S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.



LBSS84LT1G
S-LBSS84LT1G



Marking Diagram



PD = Device Code
M = Month Code

MAXIMUM RATINGS ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DSS}	50	V _{dc}
Gate-to-Source Voltage – Continuous	V_{GS}	± 20	V _{dc}
Drain Current	I_D	130	mA
– Pulsed Drain Current ($t_p \leq 10 \mu\text{s}$)	I_{DM}	520	
Total Power Dissipation @ $T_A = 25^\circ\text{C}$	P_D	225	mW
Operating and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ\text{C}$
Thermal Resistance – Junction-to-Ambient	$R_{\theta JA}$	556	$^\circ\text{C/W}$
Maximum Lead Temperature for Soldering Purposes, for 10 seconds	T_L	260	$^\circ\text{C}$

ORDERING INFORMATION

Device	Package	Shipping
LBSS84LT1G	SOT-23	3000/Tape&Reel
S-LBSS84LT1G		
LBSS84LT3G	SOT-23	10000/Tape&Reel
S-LBSS84LT3G		

LBSS84LT1G,S-LBSS84LT1G

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Drain-to-Source Breakdown Voltage ($V_{GS} = 0 \text{ Vdc}$, $I_D = 250 \mu\text{Adc}$)	$V_{(BR)DSS}$	50	-	-	Vdc
Zero Gate Voltage Drain Current ($V_{DS} = 25 \text{ Vdc}$, $V_{GS} = 0 \text{ Vdc}$) ($V_{DS} = 50 \text{ Vdc}$, $V_{GS} = 0 \text{ Vdc}$) ($V_{DS} = 50 \text{ Vdc}$, $V_{GS} = 0 \text{ Vdc}$, $T_J = 125^\circ\text{C}$)	I_{DSS}	-	-	0.1 15 60	μAdc
Gate-Body Leakage Current ($V_{GS} = \pm 20 \text{ Vdc}$, $V_{DS} = 0 \text{ Vdc}$)	I_{GSS}	-	-	± 10	nAdc

ON CHARACTERISTICS (Note 1.)

Gate-Source Threshold Voltage ($V_{DS} = V_{GS}$, $I_D = 250 \mu\text{Adc}$)	$V_{GS(th)}$	0.8	-	2.0	Vdc
Static Drain-to-Source On-Resistance ($V_{GS} = 5.0 \text{ Vdc}$, $I_D = 100 \text{ mAdc}$)	$r_{DS(on)}$	-	5.0	10	Ohms
Transfer Admittance ($V_{DS} = 25 \text{ Vdc}$, $I_D = 100 \text{ mAdc}$, $f = 1.0 \text{ kHz}$)	$ y_{fs} $	50	-	-	mS

DYNAMIC CHARACTERISTICS

Input Capacitance	($V_{DS} = 5.0 \text{ Vdc}$)	C_{iss}	-	30	-	pF
Output Capacitance	($V_{DS} = 5.0 \text{ Vdc}$)	C_{oss}	-	10	-	
Transfer Capacitance	($V_{DG} = 5.0 \text{ Vdc}$)	C_{rss}	-	5.0	-	

SWITCHING CHARACTERISTICS (Note 2.)

Turn-On Delay Time	$(V_{DD} = -15 \text{ Vdc}$, $I_D = -2.5 \text{ Adc}$, $R_L = 50 \Omega$)	$t_{d(on)}$	-	2.5	-	ns
Rise Time		t_r	-	1.0	-	
Turn-Off Delay Time		$t_{d(off)}$	-	16	-	
Fall Time		t_f	-	8.0	-	
Gate Charge		Q_T	-	6000	-	pC

SOURCE-DRAIN DIODE CHARACTERISTICS

Continuous Current	I_S	-	-	0.130	A
Pulsed Current	I_{SM}	-	-	0.520	
Forward Voltage (Note 2.)	V_{SD}	-	2.5	-	V

1. Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2\%$.
2. Switching characteristics are independent of operating junction temperature.

TYPICAL ELECTRICAL CHARACTERISTICS

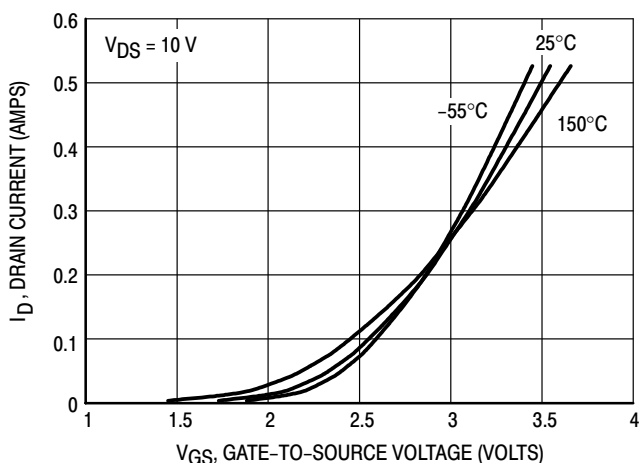


Figure 1. Transfer Characteristics

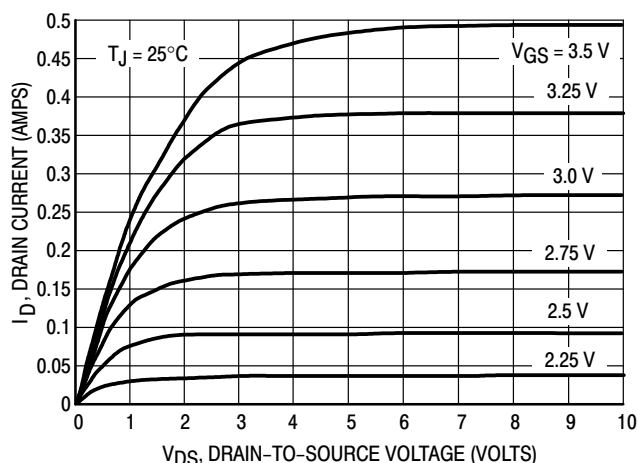


Figure 2. On-Region Characteristics

TYPICAL ELECTRICAL CHARACTERISTICS

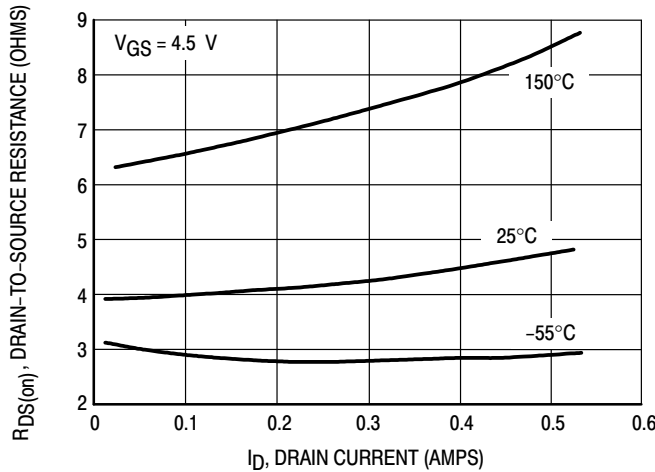


Figure 3. On-Resistance versus Drain Current

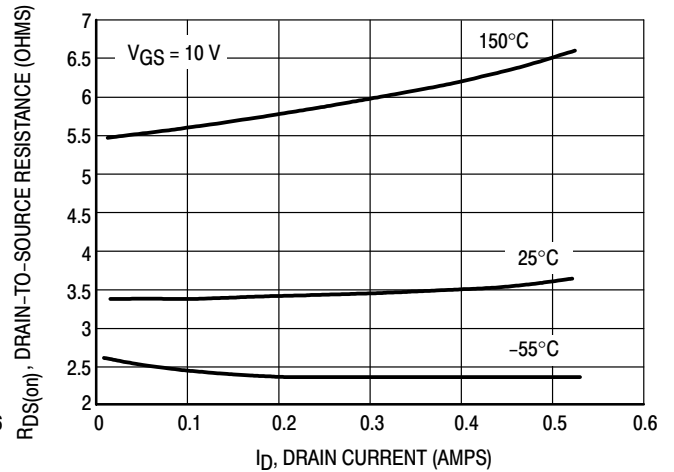


Figure 4. On-Resistance versus Drain Current

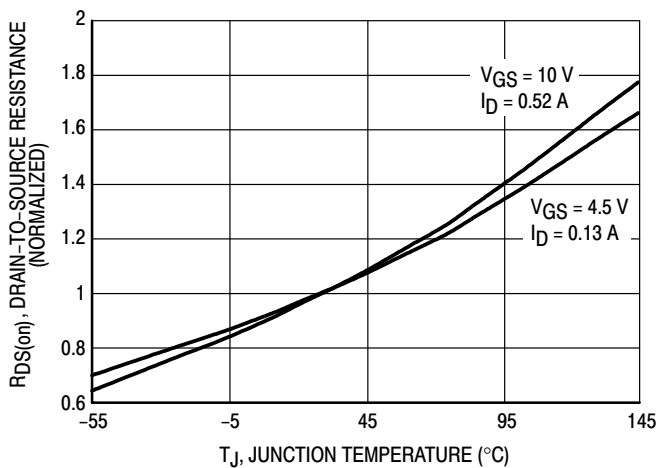


Figure 5. On-Resistance Variation with Temperature

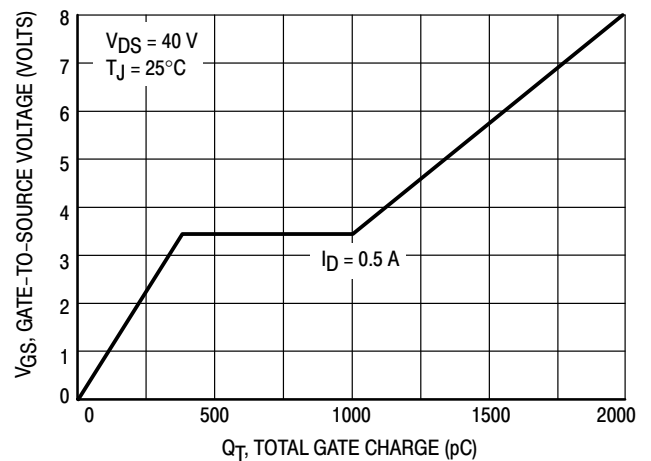


Figure 6. Gate Charge

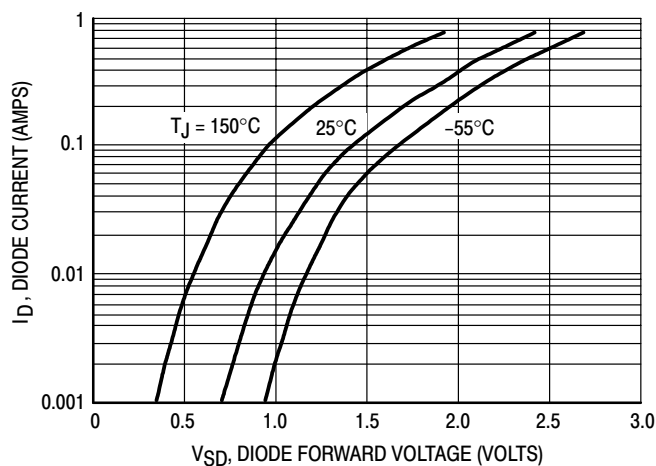
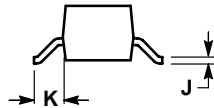
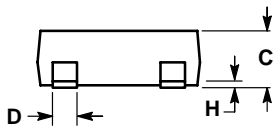
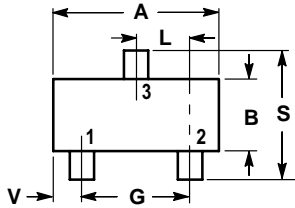


Figure 7. Body Diode Forward Voltage

LBSS84LT1G,S-LBSS84LT1G

SOT-23

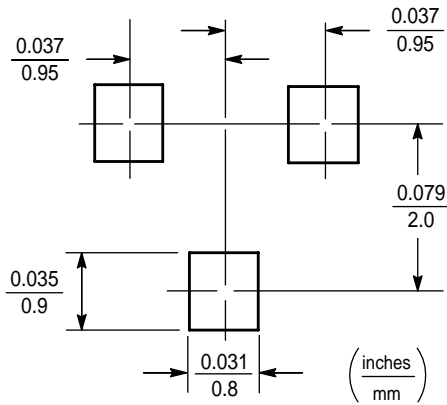


NOTES:

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. BASE
 2. EMITTER
 3. COLLECTOR



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