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BSS84LT1G

Power MOSFET
Single P-Channel SOT-23
-50 V, 10 Ω

- SOT−23 Surface Mount Package Saves Board Space
- These Devices are Pb−Free and are RoHS Compliant

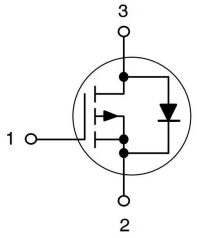
$V_{(BR)DSS}$	$R_{DS(ON)}$ MAX
−50 V	10 Ω @ 10 V

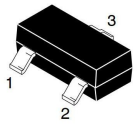
MAXIMUM RATINGS (T_J = 25°C unless otherwise noted)

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

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

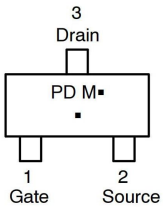
P−Channel





SOT−23
CASE 318
STYLE 21

MARKING DIAGRAM & PIN ASSIGNMENT



PD = Specific Device Code
M = Date Code
▪ = Pb−Free Package

(*Note: Microdot may be in either location)

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

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain–to–Source Breakdown Voltage (V_{GS} = 0 Vdc, I_D = –250 μAdc)		$V_{(BR)DSS}$	–50	–	–	Vdc
Zero Gate Voltage Drain Current (V_{DS} = –25 Vdc, V_{GS} = 0 Vdc) (V_{DS} = –50 Vdc, V_{GS} = 0 Vdc) (V_{DS} = –50 Vdc, V_{GS} = 0 Vdc, T_J = 125°C)		I_{DSS}	 – – –	 – – –	 –0.1 –15 –60	μAdc
Gate–Body Leakage Current (V_{GS} = ± 20 Vdc, V_{DS} = 0 Vdc)		I_{GSS}	–	–	±10	nAdc
ON CHARACTERISTICS (Note 1)						
Gate–Source Threaded Voltage (V_{DS} = V_{GS}, I_D = –250 μA)		$V_{GS(th)}$	–0.9	–	–2.0	Vdc
Static Drain–to–Source On–Resistance (V_{GS} = –5.0 Vdc, I_D = –100 mAdc)		$R_{DS(on)}$	–	4.7	10	Ω
Transfer Admittance (V_{DS} = –25 Vdc, I_D = –100 mAdc, f = 1.0 kHz)		$\|y_{fs}\|$	50	–	–	mS
DYNAMIC CHARACTERISTICS						
Input Capacitance	V_{DS} = 5.0 Vdc	C_{iss}	–	36	–	pF
Output Capacitance	V_{DS} = 5.0 Vdc	C_{oss}	–	17	–	
Transfer Capacitance	V_{DG} = 5.0 Vdc	C_{rss}	–	6.5	–	
SWITCHING CHARACTERISTICS (Note 2)						
Turn–On Delay Time	V_{DD} = –15 Vdc, I_D = –2.5 Adc, R_L = 50 Ω	$t_{d(on)}$	–	3.6	–	ns
Rise Time		t_r	–	9.7	–	
Turn–Off Delay Time		$t_{d(off)}$	–	12	–	
Fall Time		t_f	–	1.7	–	
Gate Charge	V_{DD} = –40 Vdc, I_D = –0.5 A, V_{GS} = –10 V	Q_T	–	2.2	–	nC
SOURCE–DRAIN DIODE CHARACTERISTICS						
Continuous Current		I_S	–	–	–0.130	A
Pulsed Current		I_{SM}	–	–	–0.520	
Forward Voltage (Note 2)	V_{GS} = 0 V, I_S = –130 mA	V_{SD}	–	–	–2.2	V

1. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.
2. Switching characteristics are independent of operating junction temperature.

TYPICAL ELECTRICAL CHARACTERISTICS

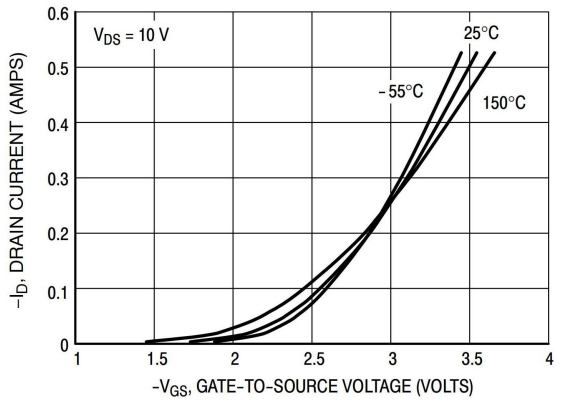


Figure 1. Transfer Characteristics

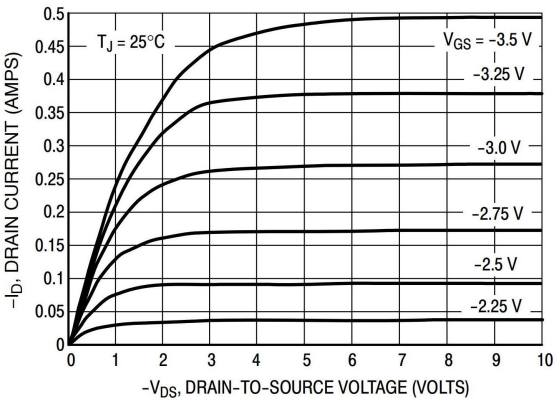


Figure 2. On–Region Characteristics

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TYPICAL ELECTRICAL CHARACTERISTICS

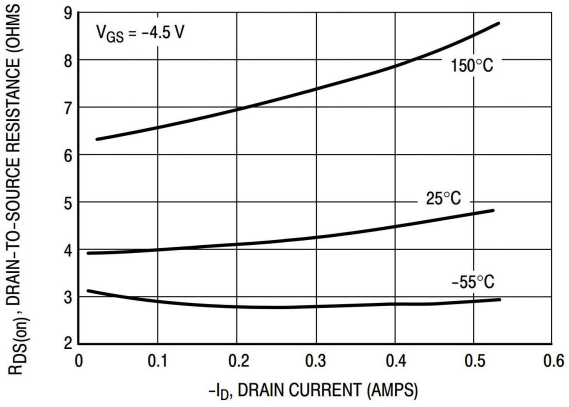


Figure 3. On−Resistance versus Drain Current

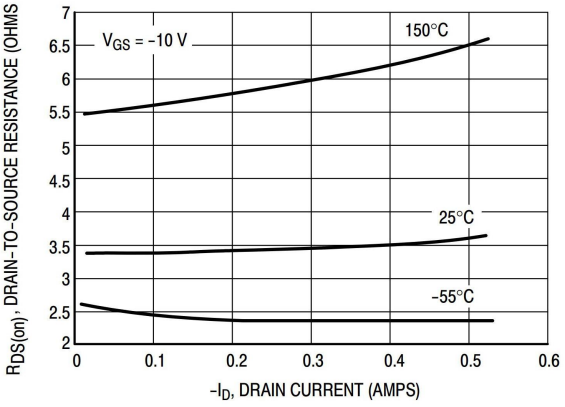


Figure 4. On−Resistance versus Drain Current

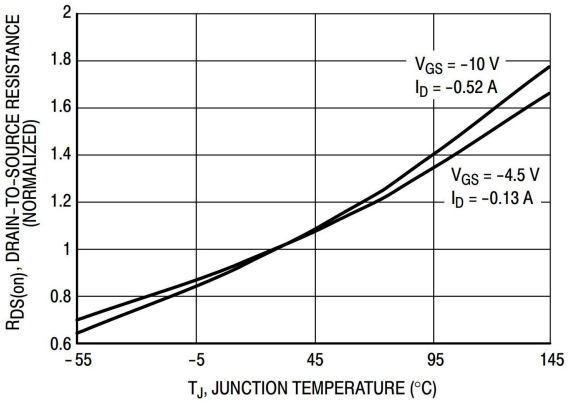


Figure 5. On−Resistance Variation with Temperature

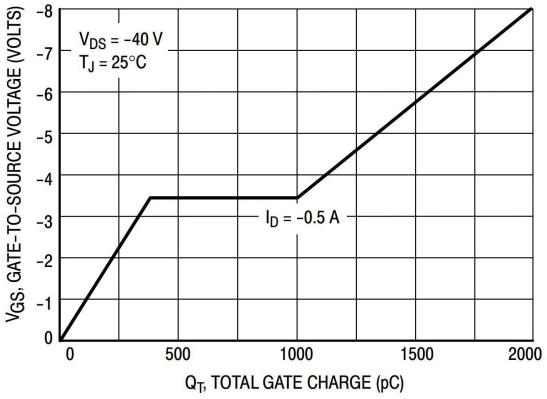


Figure 6. Gate Charge

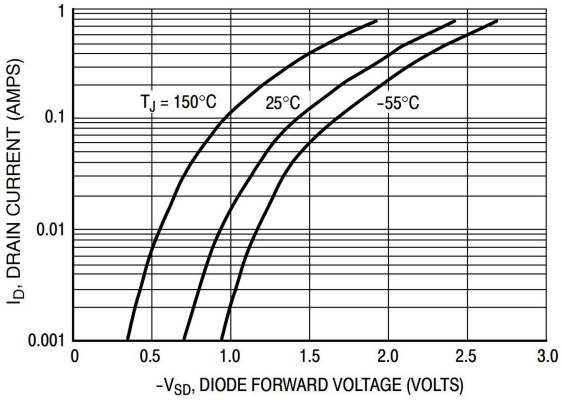


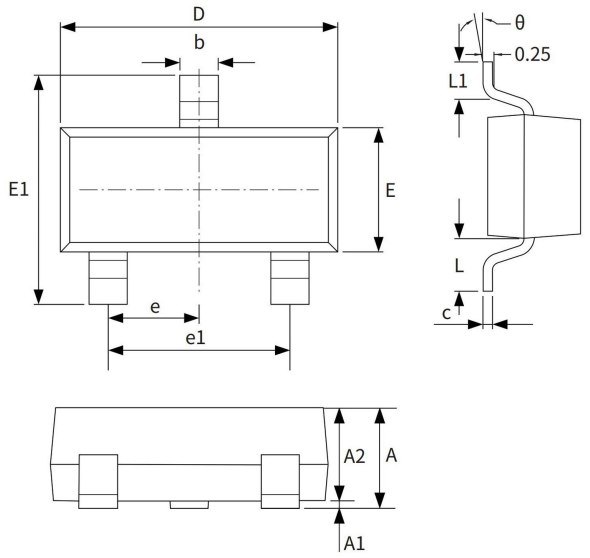
Figure 7. Body Diode Forward Voltage

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Ordering Information

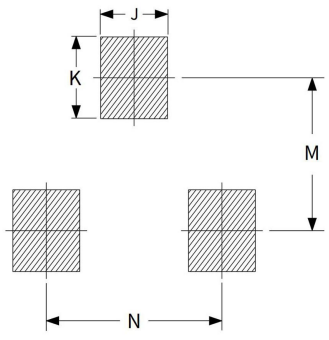
PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-323	R1	0.005	3000	30000	240000	7''

Package Outline Dimensions (SOT-323)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.10	0.035	0.043
A1	-	0.10	-	0.004
A2	0.90	1.00	0.035	0.039
b	0.15	0.40	0.012	0.020
c	0.10	0.25	0.004	0.010
D	1.80	2.20	0.071	0.087
E	1.15	1.35	0.045	0.053
E1	2.15	2.45	0.085	0.096
e	0.650TYP		0.026TYP	
e1	1.20	1.40	0.047	0.055
L	0.525REF		0.021REF	
L1	0.26	0.46	0.010	0.018
θ	-	8°	-	8°

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	0.65	0.75	0.026	0.030
K	0.85	0.95	0.033	0.037
M	2.15	2.25	0.073	0.077
N	1.25	1.35	0.049	0.053