

16V P-Channel Enhancement-Mode MOSFET

V_{DS} = -16V

R_{DS(ON)}, V_{GS}@-4.5V, I_{DS}@-4.7A = 70 mΩ

R_{DS(ON)}, V_{GS}@-2.5V, I_{DS}@-1.0A = 110 mΩ

Features

Advanced trench process technology

High Density Cell Design For Ultra Low On-Resistance

S- Prefix for Automotive and Other Applications Requiring

Unique Site and Control Change Requirements; AEC-Q101

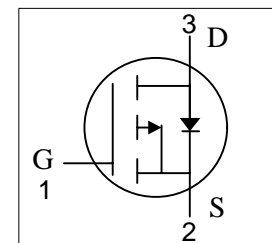
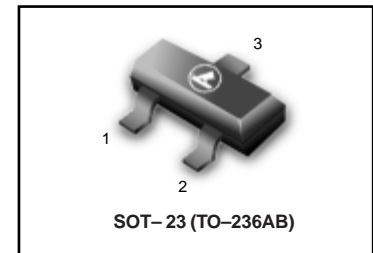
Qualified and PPAP Capable.

▼ **Simple Drive Requirement**

▼ **Small Package Outline**

▼ **Surface Mount Device**

LP2307LT1G
S-LP2307LT1G



Ordering Information

Device	Marking	Shipping
LP2307LT1G S-LP2307LT1G	P07	3000/Tape&Reel
LP2307LT3G S-LP2307LT3G	P07	10000/Tape&Reel

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	-16	V
V _{GS}	Gate-Source Voltage	±8	V
I _D @T _A =25°C	Continuous Drain Current ³	-4.7	A
I _D @T _A =70°C	Continuous Drain Current ³	-3.3	A
I _{DM}	Pulsed Drain Current ¹	-20	A
P _D @T _A =25°C	Total Power Dissipation	1.1	W
P _D @T _A =70°C	Total Power Dissipation	0.7	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Value	Unit
R _{thj-a}	Thermal Resistance Junction-ambient ³	110	°C/W

LP2307LT1G , S-LP2307LT1G

Electrical Characteristics@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250uA	-16	-	-	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =-4.5V, I _D =-4.7A	-	48	70	mΩ
		V _{GS} =-2.7V, I _D =-3.8A	-	63	100	mΩ
		V _{GS} =-2.5V, I _D =-1.0A	-	65	110	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250uA	-0.6	-0.85	-1.4	V
g _{fs}	Forward Transconductance	V _{DS} =-10V, I _D =-4.7A	-	8	-	S
I _{DSS}	Drain-Source Leakage Current (T _j =25°C)	V _{DS} =-16V, V _{GS} =0V	-	-	-1	uA
I _{GSS}	Gate-Source Leakage	V _{GS} =±8V, V _{DS} =0V	-	-	±100	nA
Q _g	Total Gate Charge ²	I _D =-4.7A	-	24	36	nC
Q _{gs}	Gate-Source Charge	V _{DS} =-10V	-	18	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =-4.5V	-	2.7	-	nC
t _{d(on)}	Turn-on Delay Time ²	V _{DS} =-10V	-	22	35	ns
t _r	Rise Time	I _D =-1A	-	35	55	ns
t _{d(off)}	Turn-off Delay Time	R _G =6Ω, V _{GS} =-4.5V	-	45	70	ns
t _f	Fall Time	R _D =10Ω	-	25	40	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	985	1580	pF
C _{oss}	Output Capacitance	V _{DS} =-15V	-	180	-	pF
C _{riss}	Reverse Transfer Capacitance	f=1.0MHz	-	160	-	pF

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
I _S	Max Diode Forward Current				-1.7	A
V _{SD}	Diode Forward Voltage	I _S =-1.7A, V _{GS} =0V			-1.2	V

Notes:

- 1.Pulse width limited by Max. junction temperature.
- 2.Pulse width ≤300us , duty cycle ≤2%.
- 3.Surface mounted on 1 in² copper pad of FR4 board ; 270°C/W when mounted on min. copper pad.

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TYPICAL ELECTRICAL CHARACTERISTICS

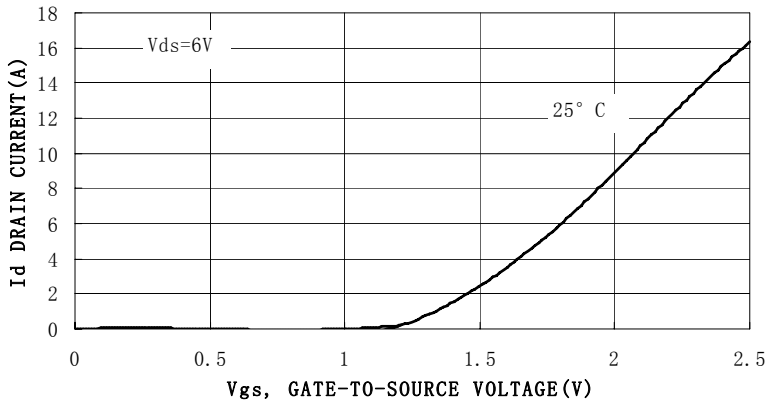


Figure 1. Transfer Characteristics

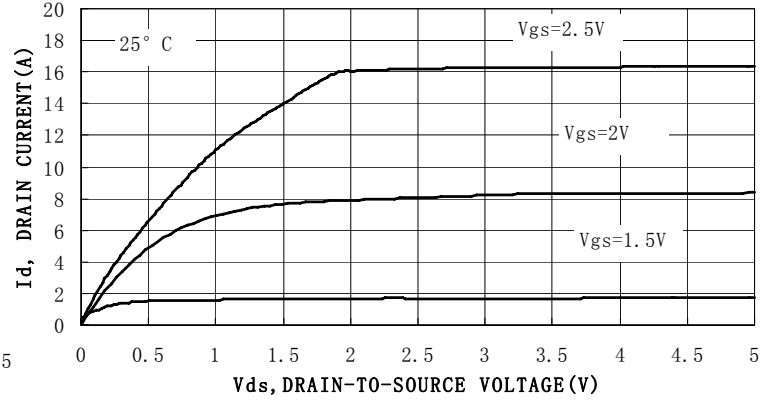


Figure 2. On-Region Characteristics

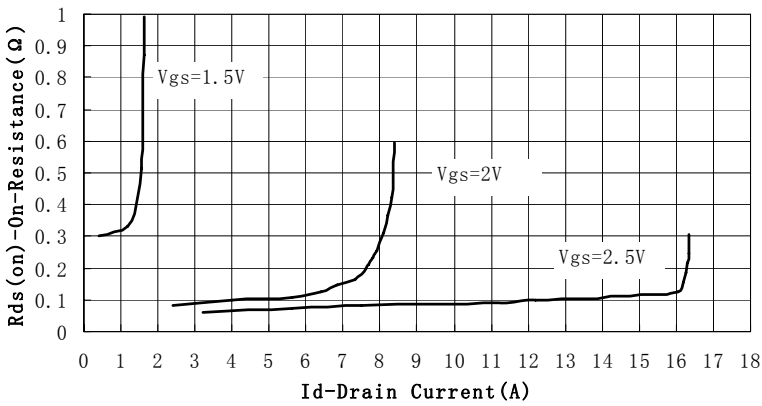


Figure 3. On-Resistance versus Drain Current

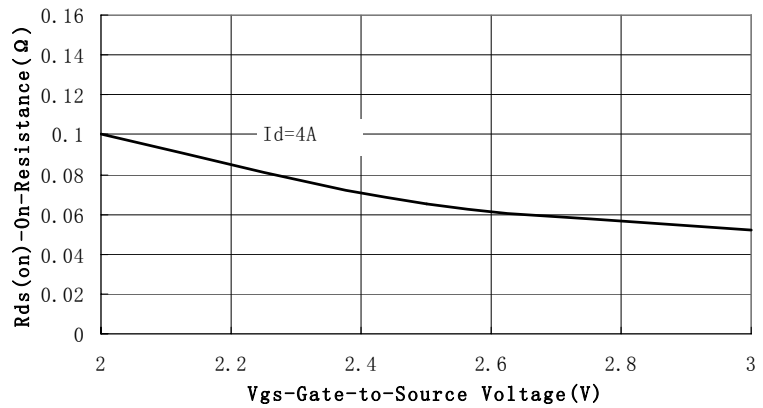


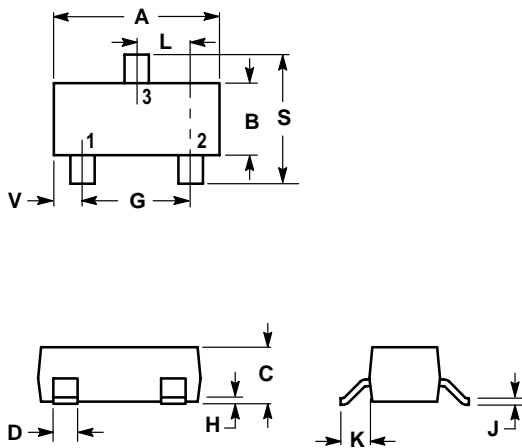
Figure 4. On-Resistance vs. Gate-to-Source Voltage

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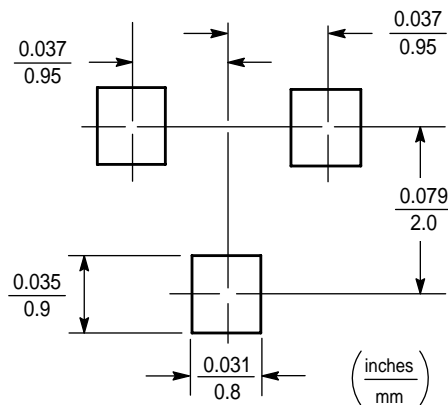
SOT-23

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



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