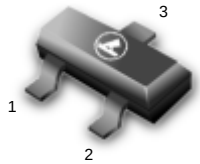
20V P-Channel Enhancement-Mode MOSFET

LP2301ALT1G
S-LP2301ALT1G



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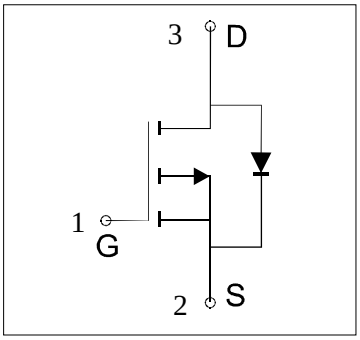
FEATURES

- $R_{DS(ON)}$ ≦110mΩ@V_{GS}=-4.5V
- $R_{DS(ON)}$ ≦150mΩ@V_{GS}=-2.5V
- Super high density cell design for extremely low $R_{DS(ON)}$
- S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- Load Switch
- DSC
- We declare that the material of product are Halogen Free and compliance with RoHS requirements.



Ordering Information

Device	Marking	Shipping
LP2301ALT1G S-LP2301ALT1G	01A	3000/Tape&Reel
LP2301ALT3G S-LP2301ALT3G	01A	10000/Tape&Reel

Absolute Maximum Ratings (T_A=25℃ Unless Otherwise Noted)

Parameter		Symbol	Limit		Unit
Drain-Source Voltage		V_{DSS}	-20		V
Gate-Source Voltage		V_{GSS}	±8		V
Continuous Drain Current (Tj=150℃)*	T_A=25℃	I_D	-2.0		A
	T_A=70℃		-1.6		
Pulsed Drain Current		I_{DM}	-10		A
Maximum Power Dissipation	T_A=25℃	P_D	0.7		W
	T_A=70℃		0.45		
Operating Junction Temperature		T_J	-55 to 150		℃
Storage Temperature Range		T_{stg}	-55 to 150		℃
Thermal Resistance-Junction to Ambient*		$R_{\theta JA}$	Typical	Maximum	℃/W
			100	175	

* The device mounted on 1in^2 FR4 board with 2 oz copper

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ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250μA	-20			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250μA	-0.4	-0.6	-1	V
I_{GSS}	Gate Leakage Current	V_{DS}=0V, V_{GS}=±8V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-20V, V_{GS}=0V			-1	μA
$R_{DS(ON)}$	Drain-Source On-Resistance [a]	V_{GS}=-4.5V, I_D= -2.8A		90	110	mΩ
		V_{GS}=-2.5V, I_D= -2.0A		110	150	
V_{SD}	Diode Forward Voltage	I_S=-1A, V_{GS}=0V		-0.7	-1.4	V
DYNAMIC						
Qg	Total Gate Charge	V_{DS}=-6V, V_{GS}=-4.5V, I_D=-2.8A		7.2		nC
Qgs	Gate-Source Charge			2.2		
Qgd	Gate-Drain Charge			1.2		
Rg	Gate resistance	V_{DS}=0V, V_{GS}=0V, f=1MHz		7.5		Ω
Ciss	Input Capacitance	V_{DS}=-15V, V_{GS}=0V, f=1MHz		480		pF
Coss	Output Capacitance			46		
Crss	Reverse Transfer Capacitance			10		
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=-6V, R_L =6Ω R_{GEN}=6Ω, V_{GS}=-4.5V		50		ns
t_r	Turn-On Rise Time			30		
$t_{d(off)}$	Turn-Off Delay Time			40		
t_f	Turn-Off Fall time			11		

Notes: a. Pulse test; pulse width ≦ 300us, duty cycle≦ 2%

Typical Characteristics (TJ =25℃ Noted)

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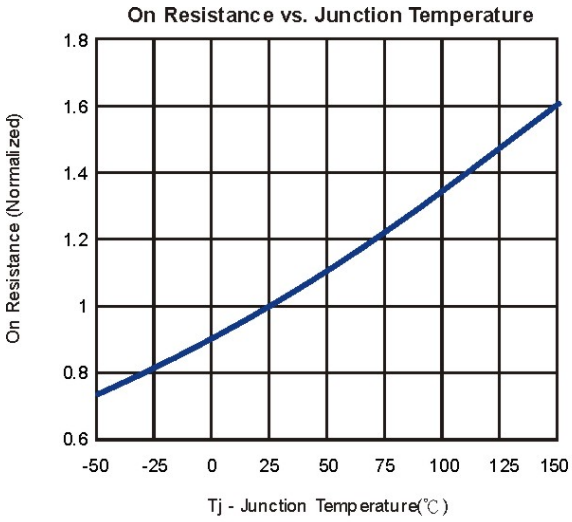

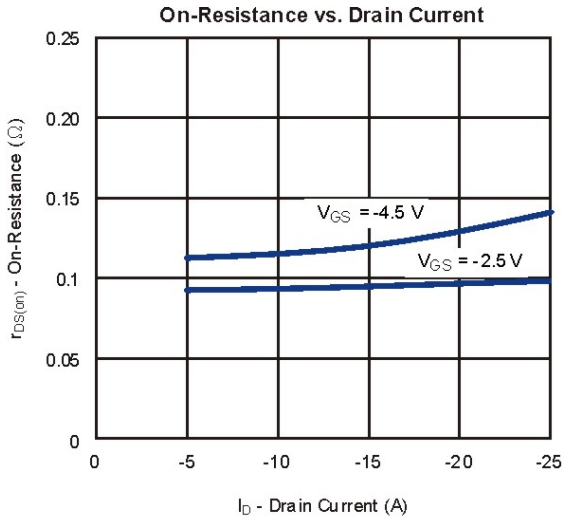

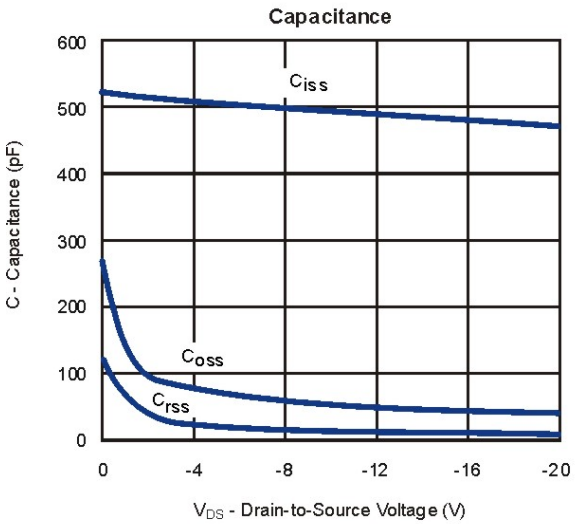

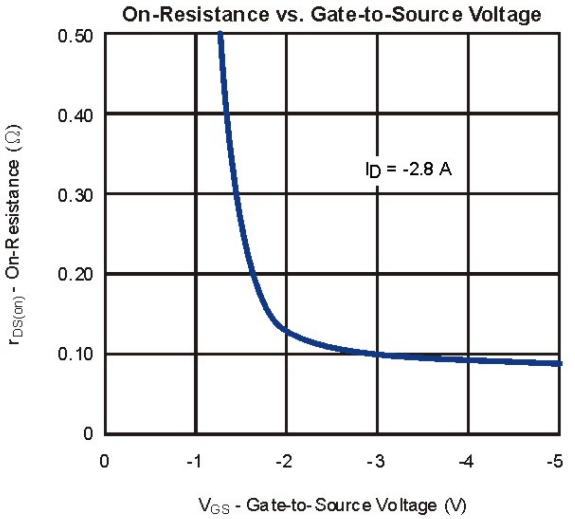

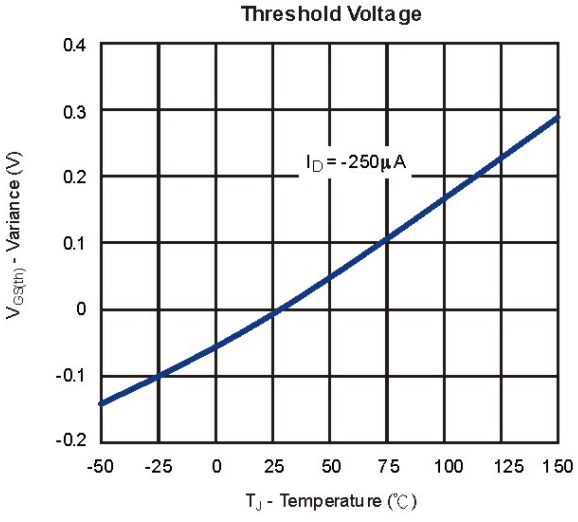

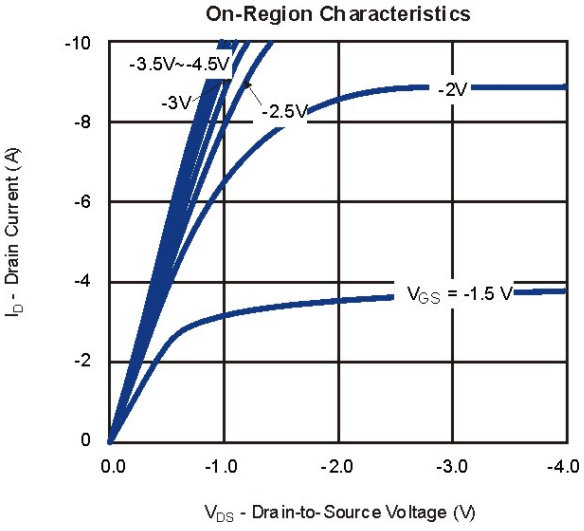

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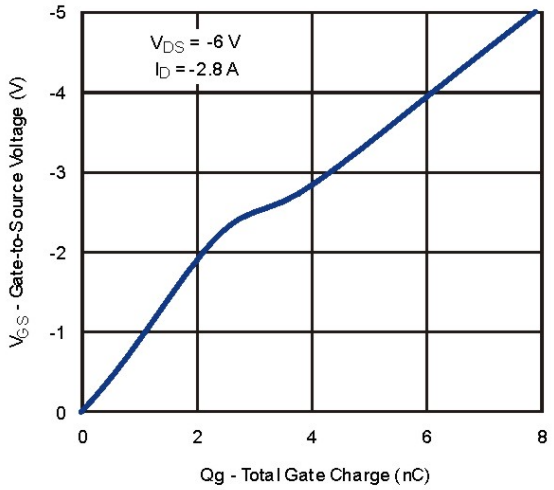
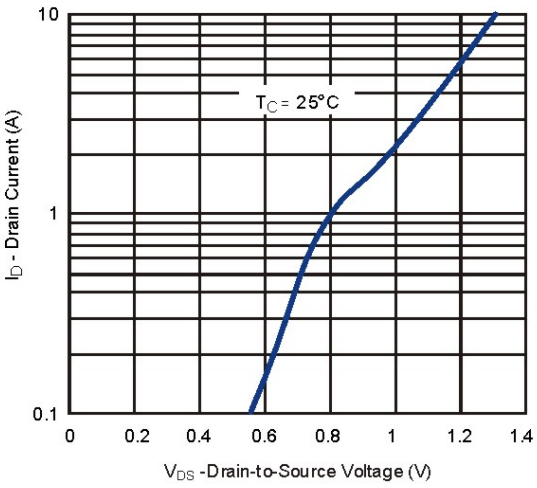
Typical Characteristics (T_J =25℃ Noted)

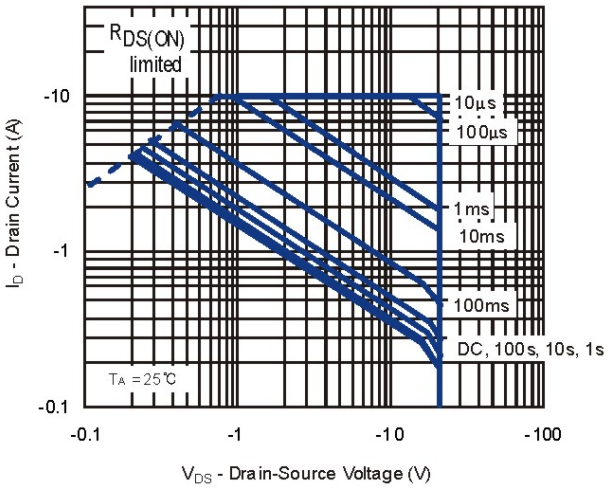
Gate Charge



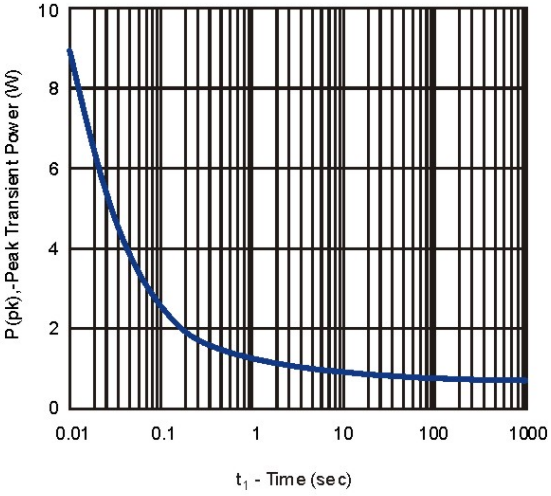
On-Resistance vs. Drain Current



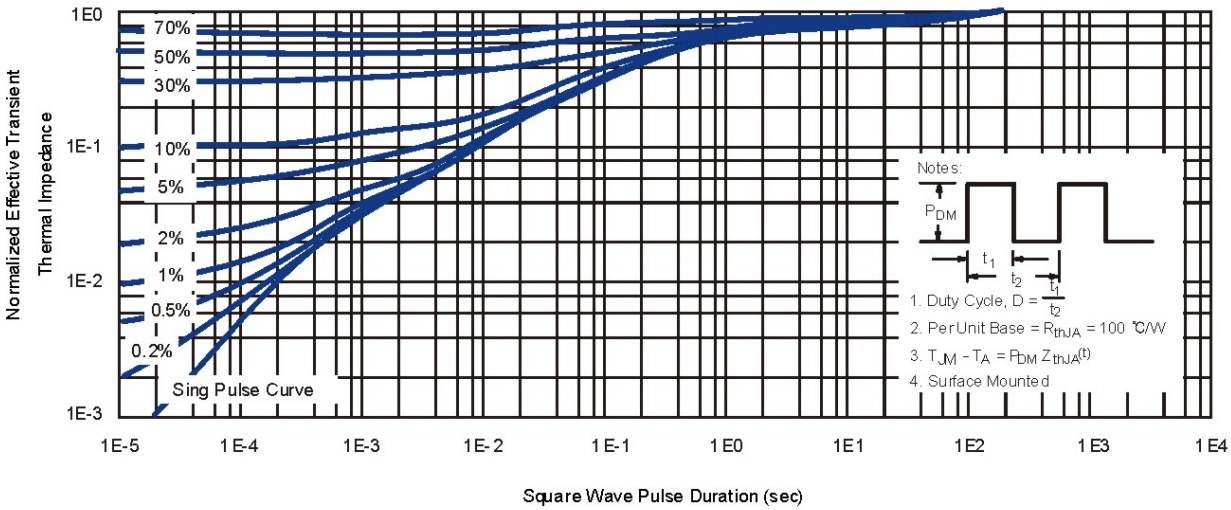
Maximum Forward Biased Safe Operating Area



Single Pulse Maximum Power Dissipation



Normalized Thermal Transient Impedance, Junction-to-Ambient



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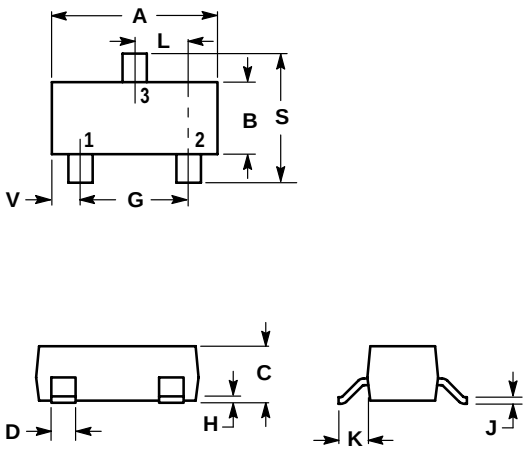

NOTES:

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