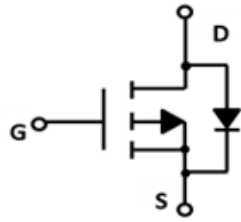
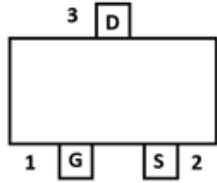


SOT-323



Product Summary

- V_{DS} -15V
- I_D -1.5A
- $R_{DS(ON)}$ (at $V_{GS}=-4.5V$) < 100 mohm
- $R_{DS(ON)}$ (at $V_{GS}=-2.5V$) < 130 mohm
- $R_{DS(ON)}$ (at $V_{GS}=-1.8V$) < 230 mohm

General Description

- Trench Power LV MOSFET technology
- Low $R_{DS(ON)}$
- Low Gate Charge

Applications

- Video monitor
- Power management

■ Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Maximum	Unit
Drain-source Voltage	V_{DS}	-15	V
Gate-source Voltage	V_{GS}	± 10	V
Drain Current	I_D	$T_A=25^\circ\text{C}$ @ Steady State	-1.5
		$T_A=70^\circ\text{C}$ @ Steady State	-1.2
Pulsed Drain Current ^A	I_{DM}	-8	A
Total Power Dissipation @ $T_A=25^\circ\text{C}$	P_D	0.35	W
Thermal Resistance Junction-to-Ambient ^B	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	$^\circ\text{C}$

■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
LM2301GW	F2	2301G.	3000	30000		7" reel



■ Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-15			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-15V, V_{GS}=0V, T_C=25^{\circ}\text{C}$			-1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 10V, V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.4	-0.62	-1.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-1.5A$		82	100	m Ω
		$V_{GS}=-2.5V, I_D=-1.5A$		105	130	
		$V_{GS}=-1.8V, I_D=-1.5A$		140	230	
Diode Forward Voltage	V_{SD}	$I_S=-1.5A, V_{GS}=0V$		-0.8	-1.2	V
Maximum Body-Diode Continuous Current	I_S				-1.5	A
Dynamic Parameters						
Input Capacitance	C_{iss}	$V_{DS}=-10V, V_{GS}=0V, f=1\text{MHz}$		260		pF
Output Capacitance	C_{oss}			44		
Reverse Transfer Capacitance	C_{rss}			29		
Switching Parameters						
Total Gate Charge	Q_g	$V_{GS}=-4.5V, V_{DS}=-10V, I_D=-1.5A$		3.9		nC
Gate Source Charge	Q_{gs}			0.7		
Gate Drain Charge	Q_{gd}			0.9		
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=-4.5V, V_{DD}=-10V, I_D=-1A, R_{GEN}=2.5\Omega$		12		ns
Turn-on Rise Time	t_r			54		
Turn-off Delay Time	$t_{D(off)}$			15		
Turn-off Fall Time	t_f			9		

- A. Pulse Test: Pulse Width $\leq 300\mu s$, Duty cycle $\leq 2\%$.
- B. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.



■ Typical Performance Characteristics

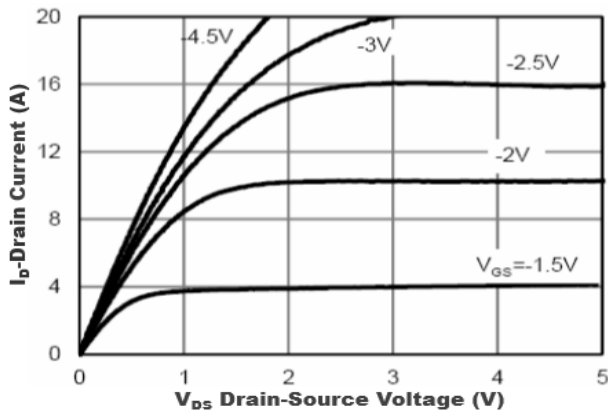


Figure1. Output Characteristics

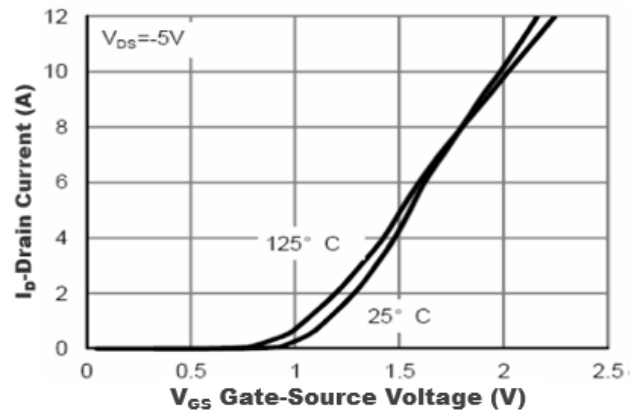


Figure2. Transfer Characteristics

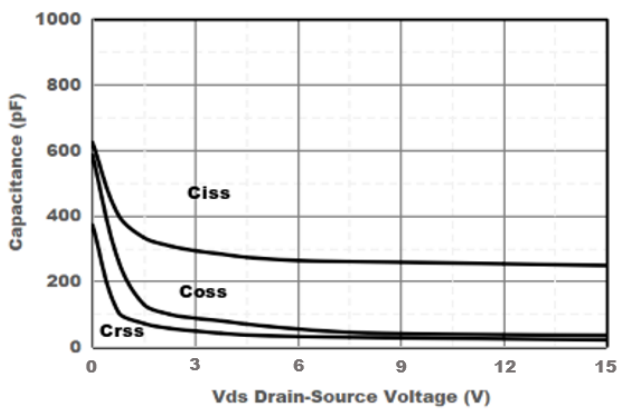


Figure3. Capacitance Characteristics

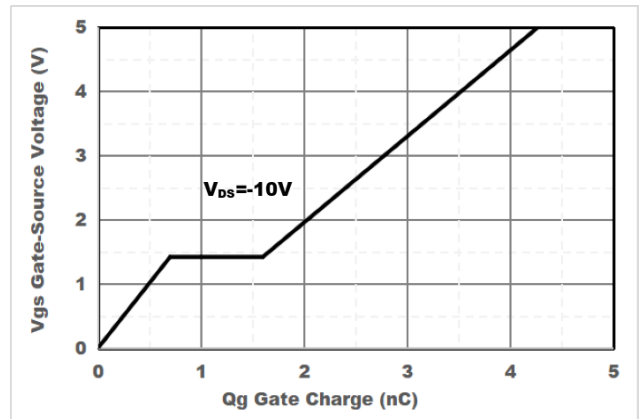


Figure4. Gate Charge

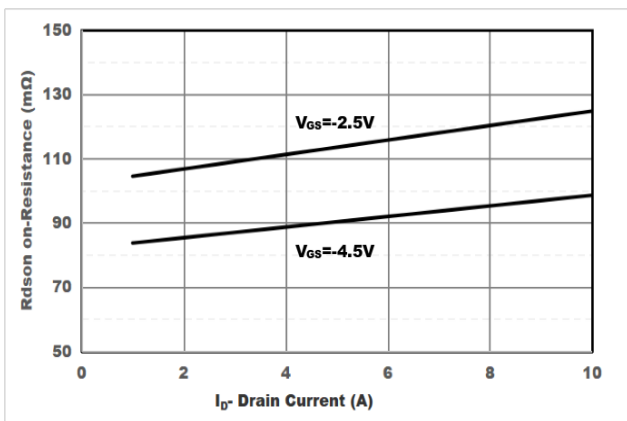


Figure5. Drain-Source on Resistance

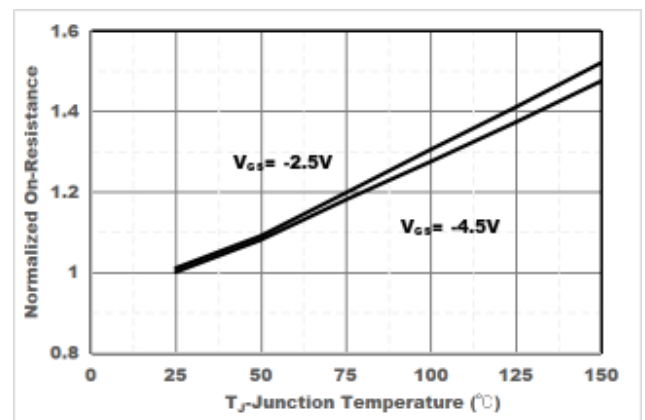


Figure6. Drain-Source on Resistance

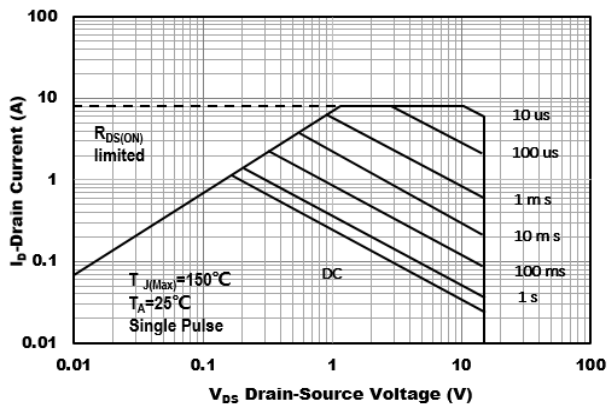


Figure7. Safe Operation Area

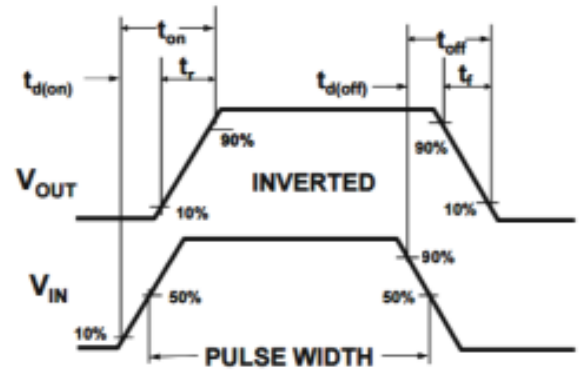
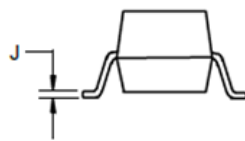
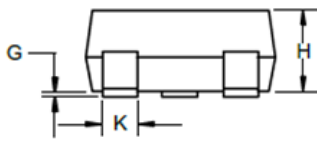
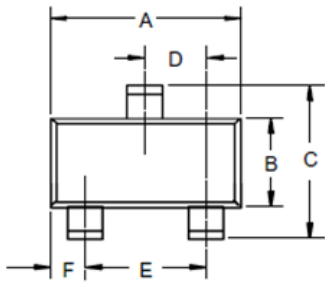


Figure8. Switching wave



■ SOT-323 Package information



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.071	.087	1.80	2.20	
B	.045	.053	1.15	1.35	
C	.083	.096	2.10	2.45	
D	.026 Nominal		0.65Nominal		
E	.047	.055	1.20	1.40	
F	.012	.016	.30	.40	
G	.000	.004	.000	.100	
H	.035	.039	.90	1.00	
J	.004	.010	.100	.250	
K	.006	.016	.15	.40	

■ SOT-323 Suggested Pad Layout

