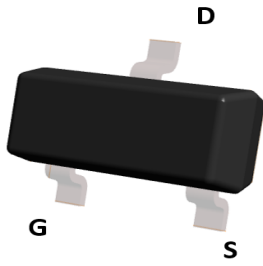
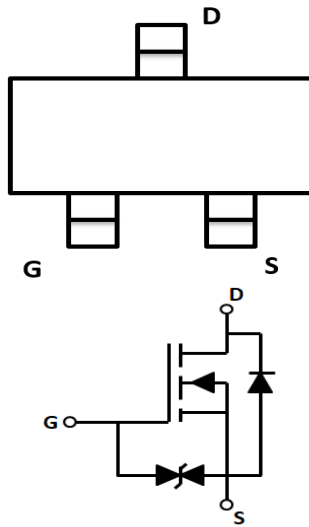


N-Channel Enhancement Mode Field Effect Transistor



Top View

SOT-523



Product Summary

- V_{DS} 60V
- I_D 100mA
- $R_{DS(ON)}$ (at $V_{GS}=10V$) $< 8.0 \Omega$
- $R_{DS(ON)}$ (at $V_{GS}=4.5V$) $< 13.0 \Omega$
- ESD Protected Up to 2.0KV (HBM)

General Description

- Trench Power LV MOSFET technology
- High Power and current handling capability

Applications

- Load/Power Switching
- Interfacing Switching
- Logic Level Shift

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

Parameter	Symbol	Limit	Unit
Drain-source Voltage	V_{DS}	60	V
Gate-source Voltage	V_{GS}	± 20	V
Drain Current	I_D	100	mA
Pulsed Drain Current ^A	I_{DM}	1.5	A
Total Power Dissipation @ $T_A=25^\circ C$	P_D	0.15	W
Thermal Resistance Junction-to-Ambient @ Steady State	$R_{\theta JA}$	357	$^\circ C/W$
Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	$^\circ C$

■ 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}	$V_{GS}=0V, I_D=250\mu A$	60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$			1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}= \pm 20V, V_{DS}=0V$			± 10	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.8	1.5	2.2	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=100mA$		2.5	8.0	Ω
		$V_{GS}=4.5V, I_D=10mA$		3.0	13.0	
Diode Forward Voltage ^C	V_{SD}	$I_S=100mA, V_{GS}=0V$			1.2	V
Maximum Body-Diode Continuous Current	I_S				100	mA
Dynamic Parameters ^B						
Input Capacitance	C_{iss}	$V_{DS}=30V, V_{GS}=0V, f=1MHz$			18	μF
Output Capacitance	C_{oss}				12	
Reverse Transfer Capacitance	C_{rss}				7	
Switching Parameters ^B						
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DS}=30V, I_D=0.1A$		1.7		nC
Gate Source Charge	Q_{gs}			0.19		
Gate Drain Charge	Q_{gd}			0.27		
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=10V, V_{DD}=30V, R_G=6\Omega, I_D=0.1A$		5		ns
Turn-off Delay Time	$t_{D(off)}$			17		

A. Repetitive Rating: Pulse width limited by maximum junction temperature.

B. These parameters have no way to verify.

C. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$.

■ Typical Performance Characteristics

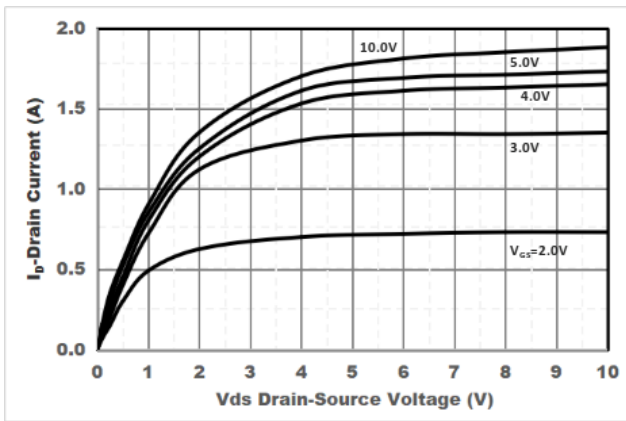


Figure1. Output Characteristics

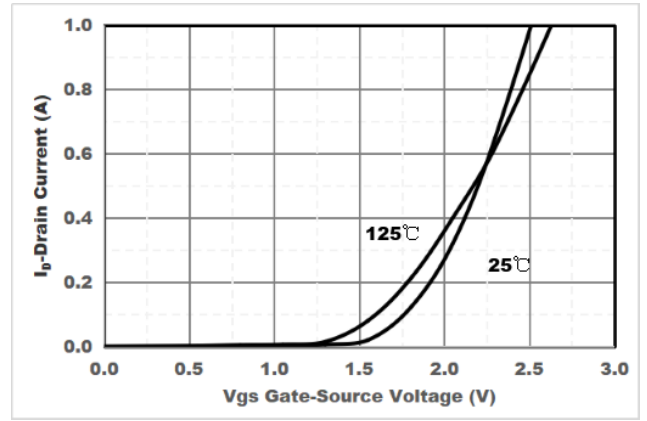


Figure2. Transfer Characteristics

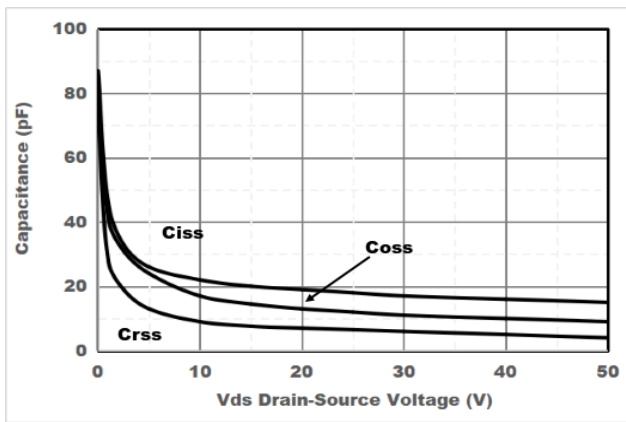


Figure3. Capacitance Characteristics

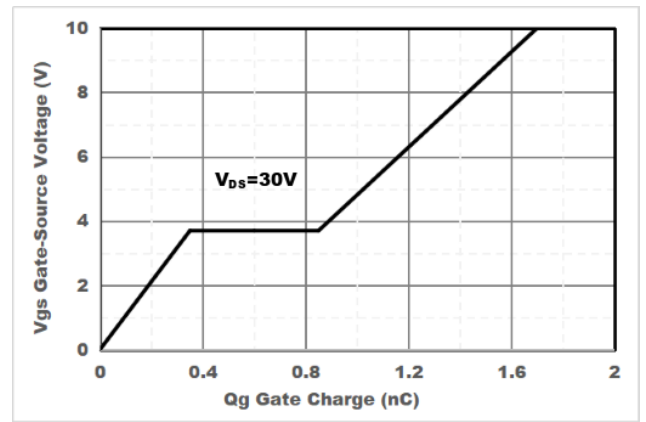


Figure4. Gate Charge

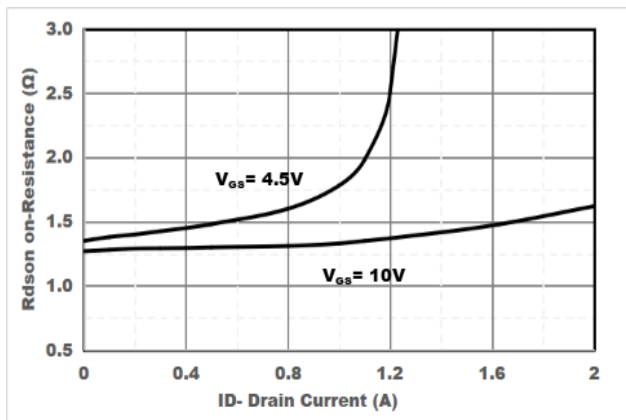


Figure5. Drain-Source on Resistance

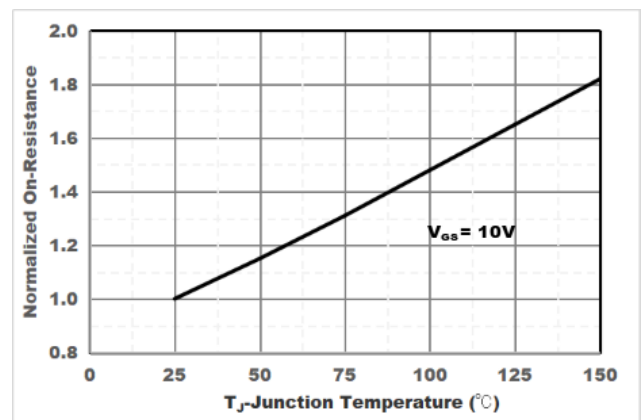


Figure6. Drain-Source on Resistance

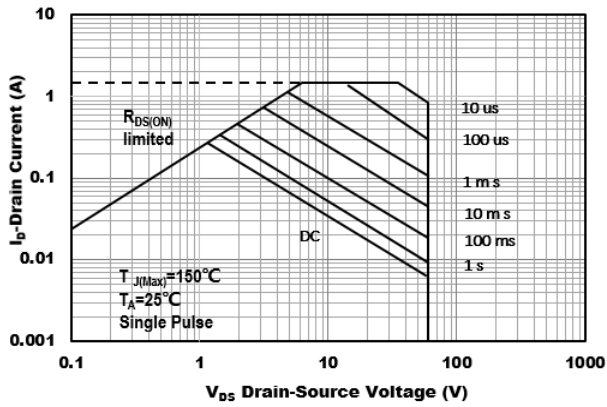


Figure 7. Safe Operation Area

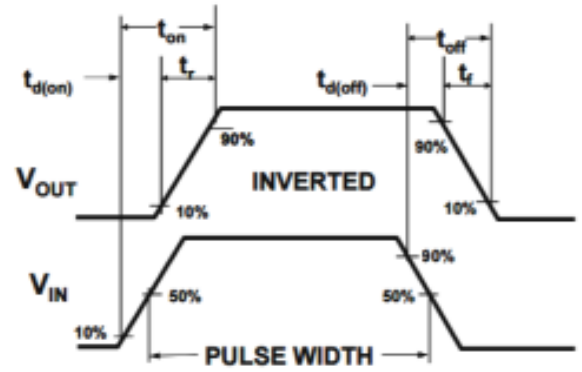
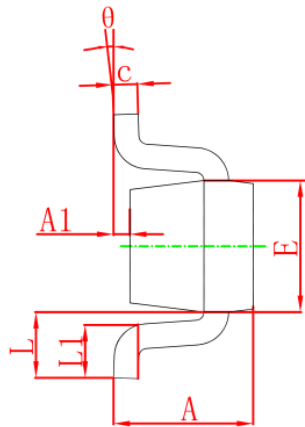
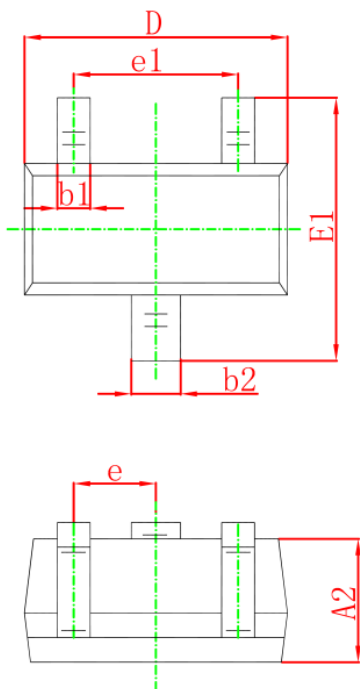


Figure 8. Switching wave

■SOT-523 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
theta	0°	8°	0°	8°