

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	2.5Ω@10V	0.3A
	3Ω@4.5V	

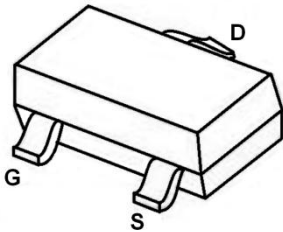
Feature

- Trench power MV MOSFET technology
- Voltage controlled small signal switch
- Low input capacitance
- Fast switching speed
- Low input / output leakage
- ESD protected

Application

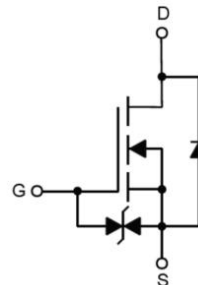
- Battery operated systems
- Solid-state relays
- Direct logic-level interface: TTL / CMOS

Package

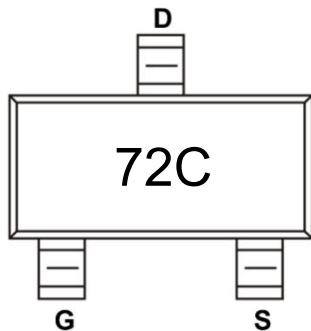


SOT-523

Circuit diagram



Marking



Absolute maximum ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	0.3	A
Continuous Drain Current ($T_A=70^\circ\text{C}$)	$I_D(70^\circ\text{C})$	0.24	A
Pulsed Drain Current ¹⁾	I_{DM}	1.5	A
Power Dissipation	P_D	0.3	W
Thermal Resistance Junction to Ambient ²⁾	$R_{\theta JA}$	416	$^\circ\text{C}/\text{W}$
Operating Junction Temperature	T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^\circ\text{C}$

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

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0\text{V}, I_D=250\mu\text{A}$	60			V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=60\text{V}, V_{GS}=0\text{V}$			1	μA
Gate-body leakage current	I_{GSS}	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$			± 10	μA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	1	1.5	2.5	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}, I_D=0.3\text{A}$		1.9	2.5	Ω
		$V_{GS}=4.5\text{V}, I_D=0.2\text{A}$		2	3	
Dynamic characteristics³⁾						
Input Capacitance	C_{iss}	$V_{DS}=30\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$		27		pF
Output Capacitance	C_{oss}			3		
Reverse Transfer Capacitance	C_{rss}			2		
Total Gate Charge	Q_g	$V_{DS}=30\text{V}, V_{GS}=10\text{V}, I_D=0.3\text{A}$		1.65		nC
Turn-on delay time	$t_{d(on)}$	$V_{DS}=30\text{V}, V_{GS}=10\text{V}, I_D=0.3\text{A}$ $R_G=6\Omega$		6.5		nS
Turn-off delay time	$t_{d(off)}$			9.6		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				0.3	A
Diode Forward voltage	V_{SD}	$V_{GS}=0\text{V}, I_S=0.3\text{A}$			1.2	V
Reverse Recovery Time	T_{rr}	$V_{GS}=0\text{V}, V_R=25\text{V}, I_S=0.3\text{A}$ $di/dt=-100\text{A}/\mu\text{s}$		24		nS

Notes:

- 1) Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$.
- 2) Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.
- 3) Guaranteed by design, not subject to production testing.

Typical Characteristics

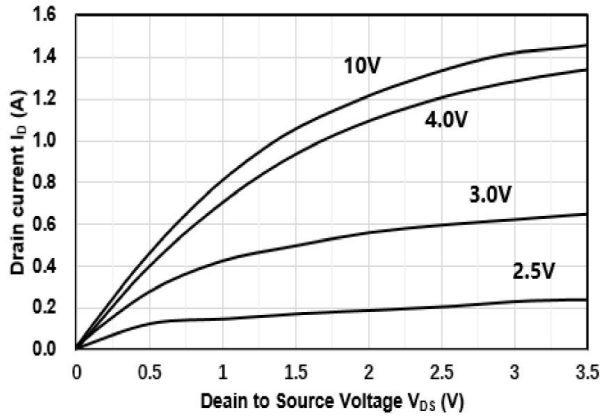


Figure1. Output Characteristics

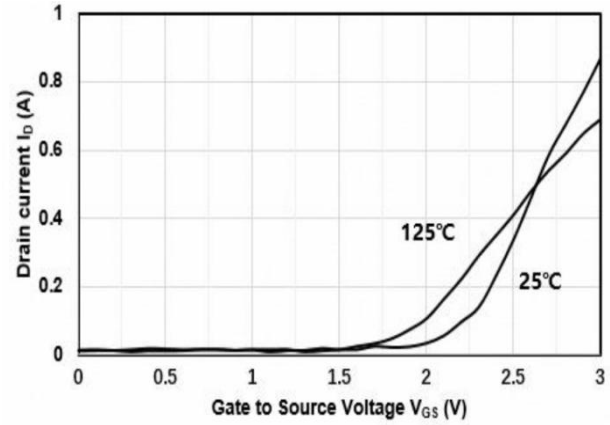


Figure2. Transfer Characteristics

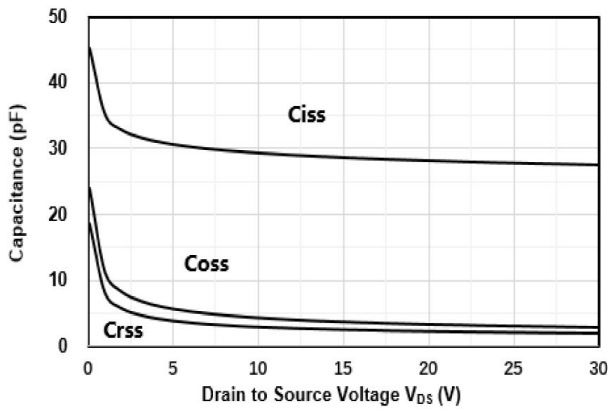


Figure3. Capacitance Characteristics

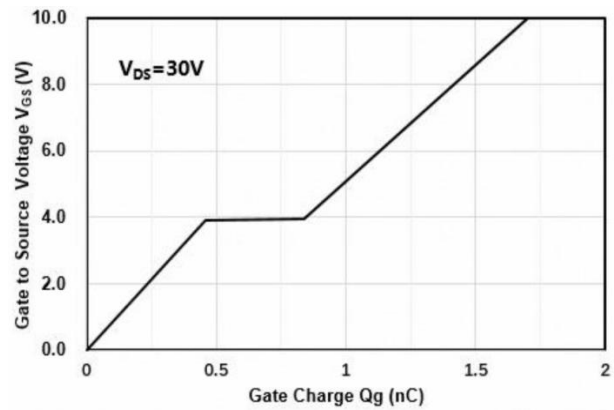


Figure4. Gate Charge

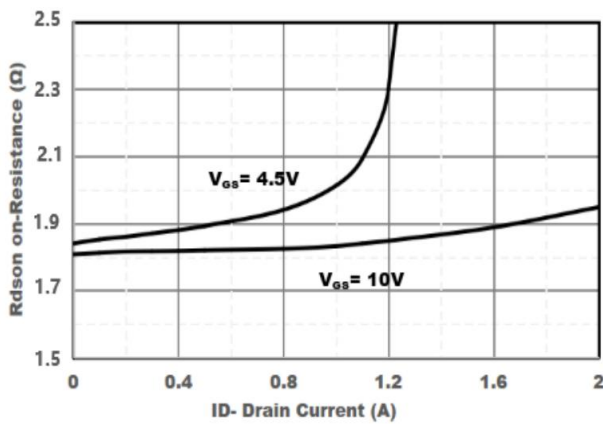


Figure5. Drain-Source on Resistance

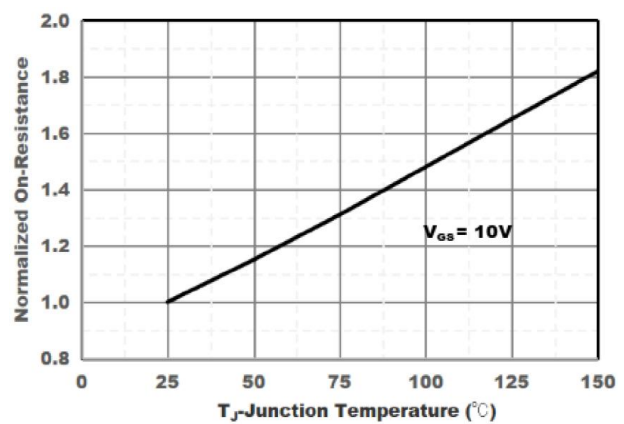


Figure6. Drain-Source on Resistance

Typical Characteristics

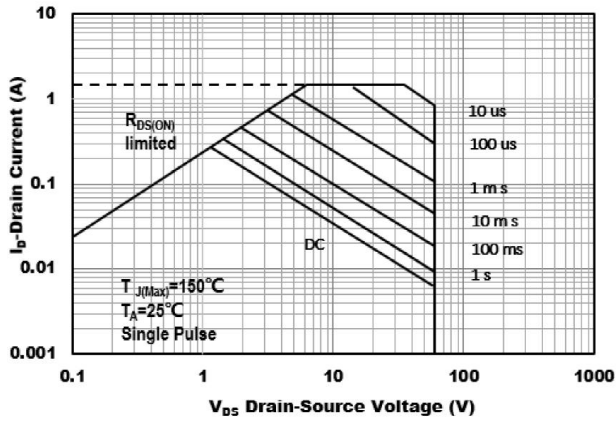


Figure7. Safe Operation Area

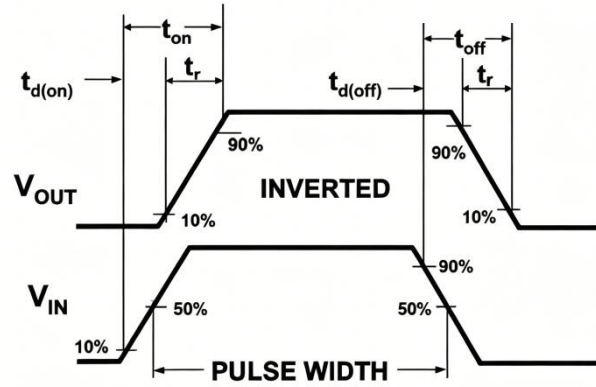
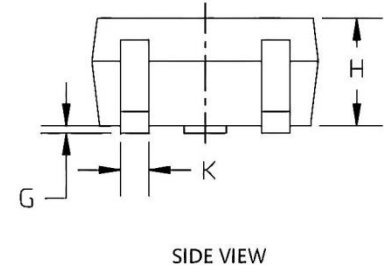
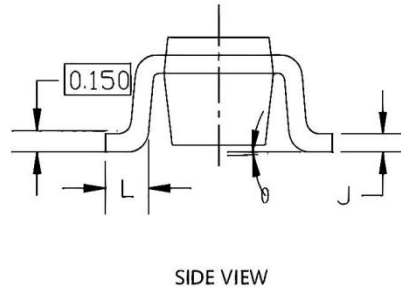
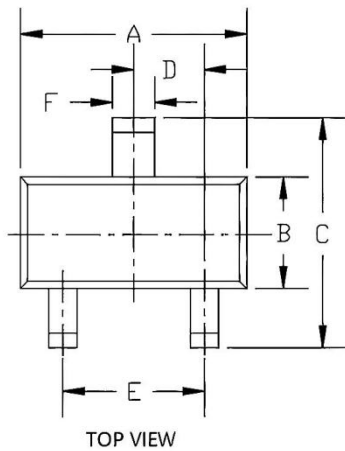


Figure8. Switching wave

SOT-523 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.500	1.700	0.059	0.067
B	0.750	0.850	0.030	0.033
C	1.450	1.750	0.057	0.069
D	0.500 TYP.		0.020 TYP.	
E	0.900	1.100	0.035	0.043
F	0.250	0.450	0.010	0.018
G	0.000	0.100	0.000	0.004
H	0.600	0.800	0.024	0.031
J	0.100	0.200	0.004	0.008
K	0.150	0.350	0.006	0.014
L	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°