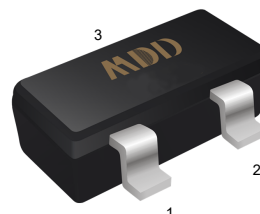


SOT-523

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	$2.7\Omega@10V$	340mA
	$3.0\Omega@4.5V$	



1. Gate
2. Source
3. Drain

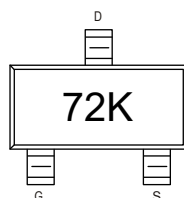
Features

- Trench Power MV MOSFET technology
- Voltage controlled small signal switch
- Low input Capacitance
- Fast Switching Speed
- Low Input / Output Leakage

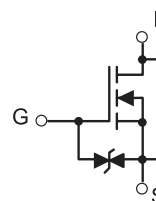
Application

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

Marking



Equivalent Circuit



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	0.34	A
Pulsed Drain Current (Note 1)	I_{DM}	0.80	A
Power Dissipation	P_D	0.15	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	625	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-50 ~ +150	$^\circ\text{C}$

Notes: Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Ta = 25°C unless otherwise specified

Symbol	Parameter	Condition	Min	Typ	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	60	--	--	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=48V, V_{GS}=0V$	--	--	1	μA
$I_{D(ON)}$	On-state Drain Current	$V_{DS}=7V, V_{GS}=10V$	500	--	--	mA
I_{GSS}	Gate-Source Leakage Current	$V_{DS}=0V, V_{GS}=\pm 20V$	--	--	± 10	μA
$V_{GS(TH)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=1mA$	1.0	1.3	2.5	V
$R_{DS(ON)}$	Drain-Source On-State Resistance(Note 2)	$V_{GS}=10V, I_D=0.5A$	--	2.2	3.0	Ω
		$V_{GS}=4.5V, I_D=0.2A$	--	2.4	3.2	Ω

Dynamic Electrical Characteristics(note3)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
C_{ISS}	Input Capacitance	$V_{DS}=10V$ $V_{GS}=0V$ $f=1MHz$	--	--	40	pF
C_{OSS}	Output Capacitance		--	--	30	pF
C_{RSS}	Reverse Transfer Capacitance		--	--	10	pF

Switching Characteristics(note3)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
$t_{d(on)}$	Turn on Delay Time	$V_{DD}=50V, V_{GS}=10V,$ $R_L=250\Omega, R_G=50\Omega,$ $R_{GS}=50\Omega$	--	--	10	ns
$t_{d(off)}$	Turn Off Delay Time		--	--	15	ns
t_{rr}	Turn Off Fall Time	$V_{GS}=0V, V_R=25V, I_S=300mA, DI_S/dt=-100a/\mu s$	--	30	--	ns

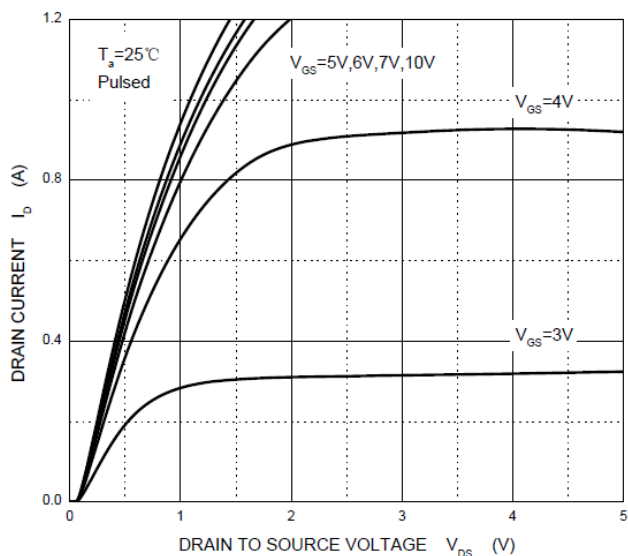
Source Drain Diode Characteristics

Symbol	Parameter	Condition	Min	Typ	Max	Unit
I_{SD}	Source drain current(Body Diode)	$T_A=25^\circ C$	--	--	0.2	A
V_{SD}	Drain-Source Diode Forward Voltage(Note 2)	$I_S=0.3A, V_{GS}=0V$	--	--	1.5	V

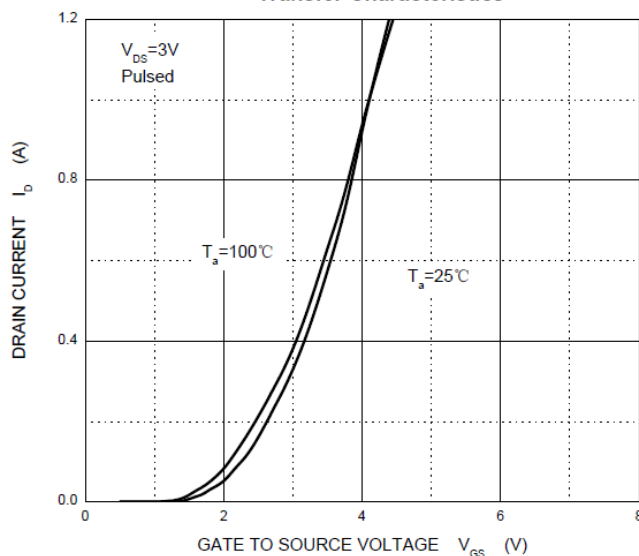
- Notes:**
- 1.Repetitive rating : Pulse width limited by junction temperature
 - 2.Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
 - 3.Guaranteed design, not subject to production testing.

■ TYPICAL CHARACTERISTICS

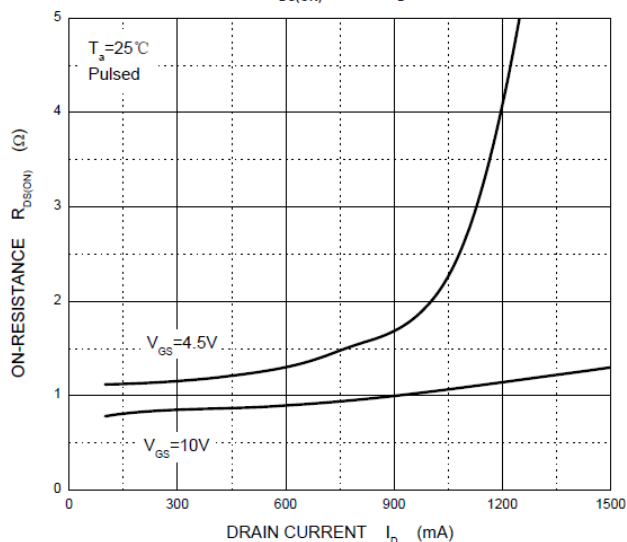
Output Characteristics



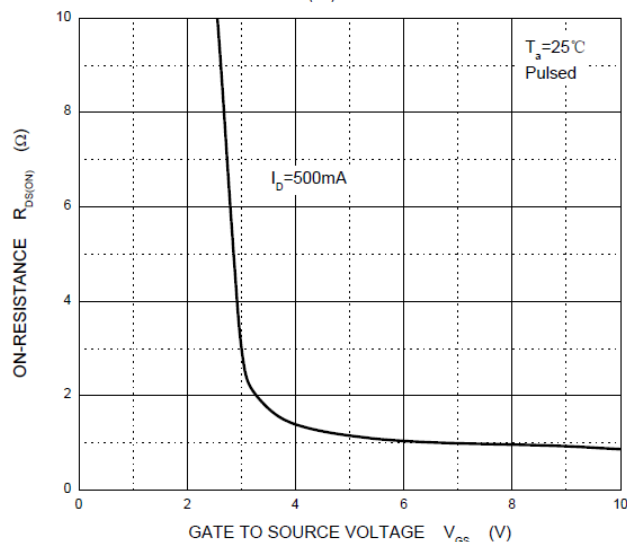
Transfer Characteristics



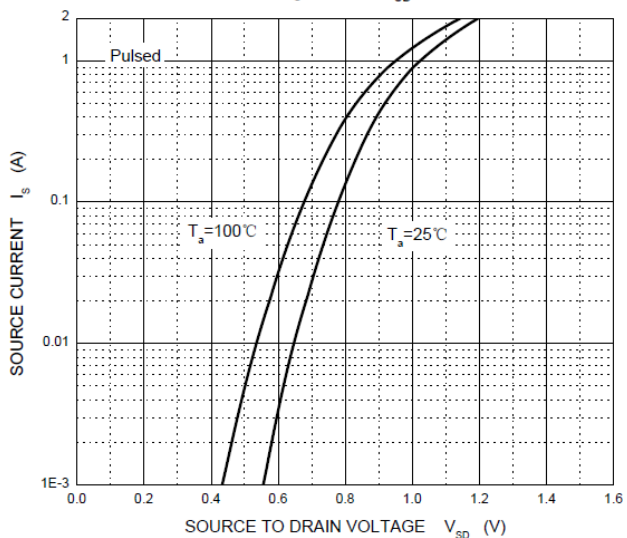
$R_{DS(ON)}$ — I_D



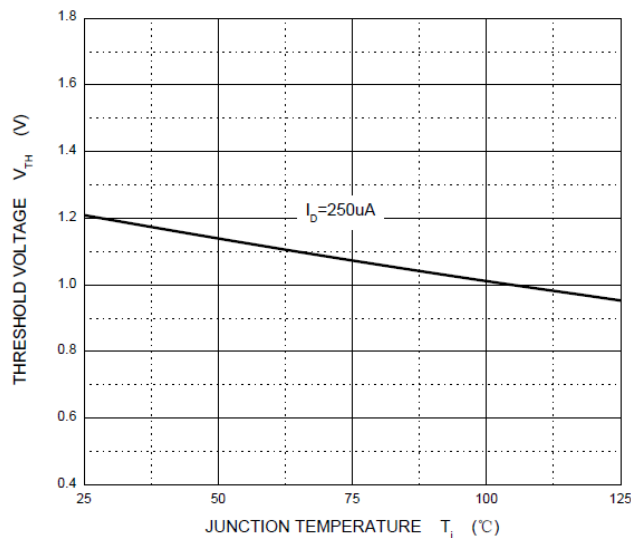
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}

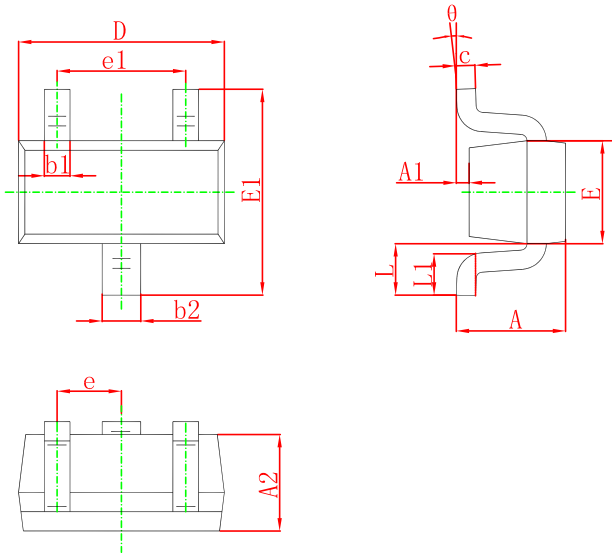


Threshold Voltage



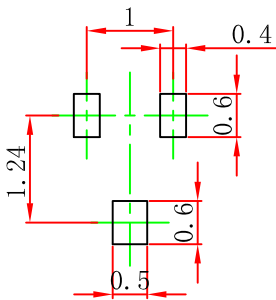
Outlitne Drawing

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		0.020	
e1	0.900 TYP.	1.100	0.035 TYP.	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

Suggested Pad Layout



Note:
1. Controlling dimension:in/millimeters.
2. General tolerance: ±0.05mm.
3. The pad layout is for reference purposes only.