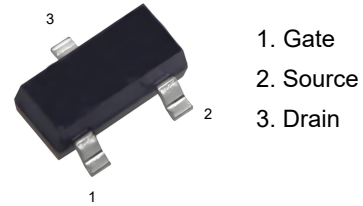


Product Summary

V_{DS} (V)	$R_{DS(on),max}$ (Ω)	I_D (mA)
60	2.0 @ $V_{GS} = 10V$	340 ⁽¹⁾

SOT-523



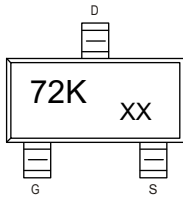
Features

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

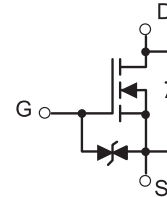
Application

- 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.

Electrical characteristics (Ta=25°C ± 3°C)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
V_{(BR)DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	60	--	--	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=48V, V_{GS}=0V	--	--	1	uA
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}=±20V	--	--	±10	uA
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=0.3A	--	1.4	2.0	Ω
		V_{GS}=4.5V, I_D=0.2A	--	1.5	2.2	Ω

Dynamic⁽⁵⁾

Symbol	Parameter	Test conditions	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
t_{d(on)}	Turn on Delay Time	V_{DD}=50V, V_{GS} =10V, R_L=250Ω, R_G=50Ω, R_{GS}=50Ω	--	--	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/us	--	30	--	ns

Reverse Diode Characteristics⁽⁵⁾

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{SD}	Source drain current(Body Diode)	T_A=25℃	--	--	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 ≤300us, duty cycle ≤2%.
- (3) Guaranteed design, not subject to production testing.

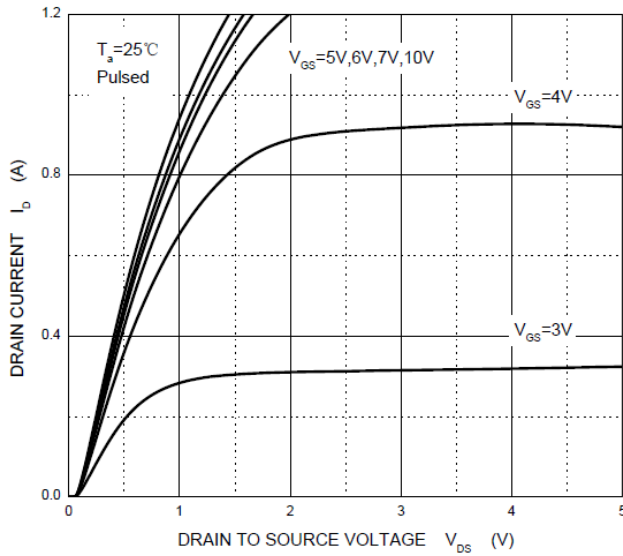


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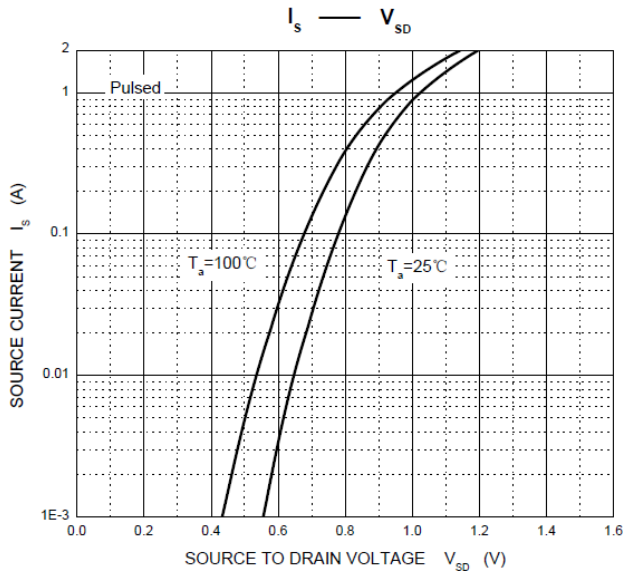
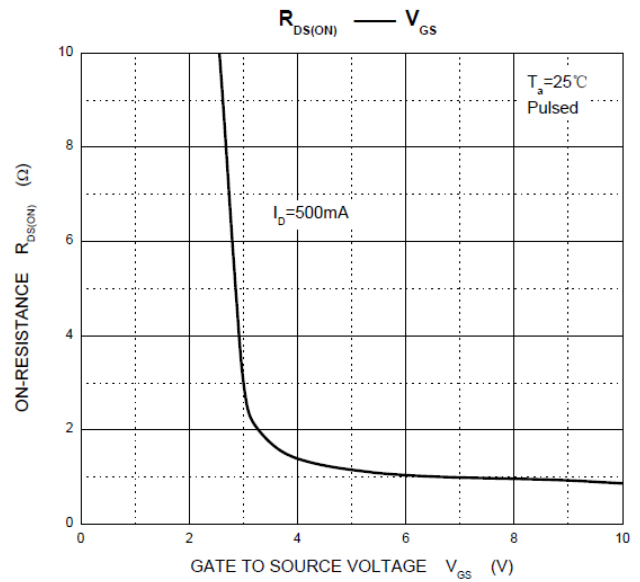
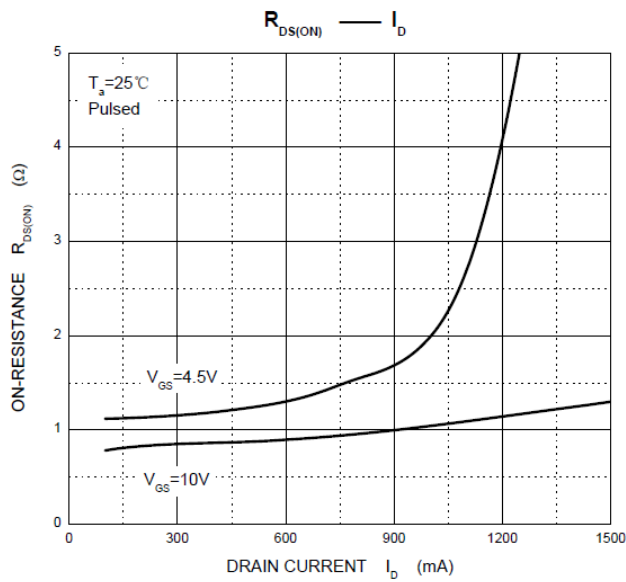
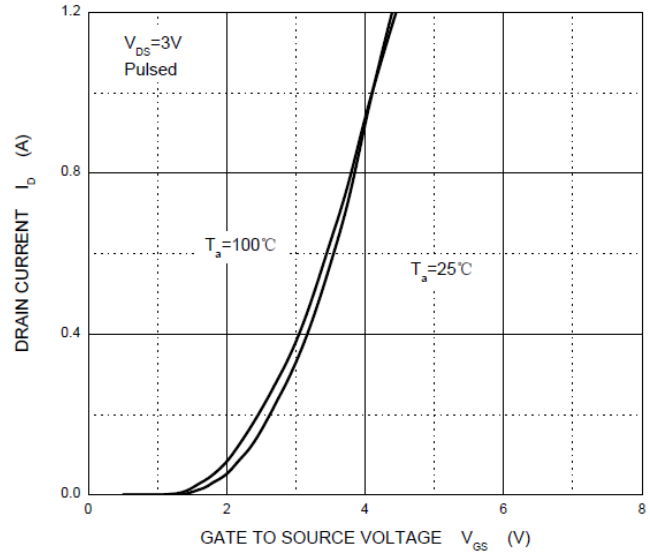
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Electrical characteristics diagrams

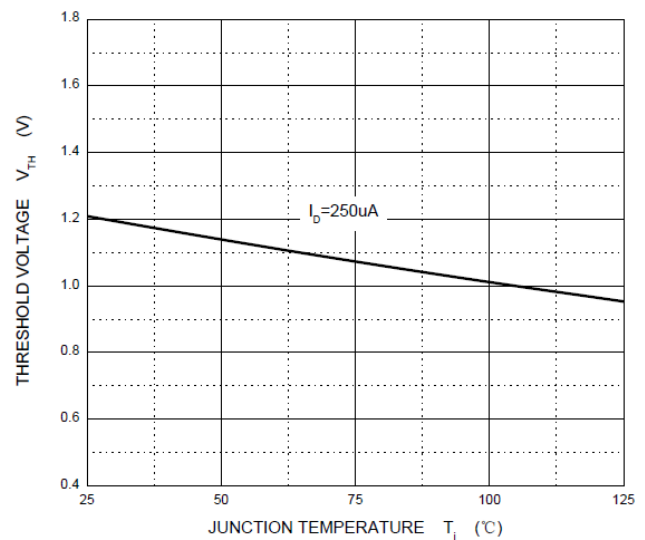
Output Characteristics

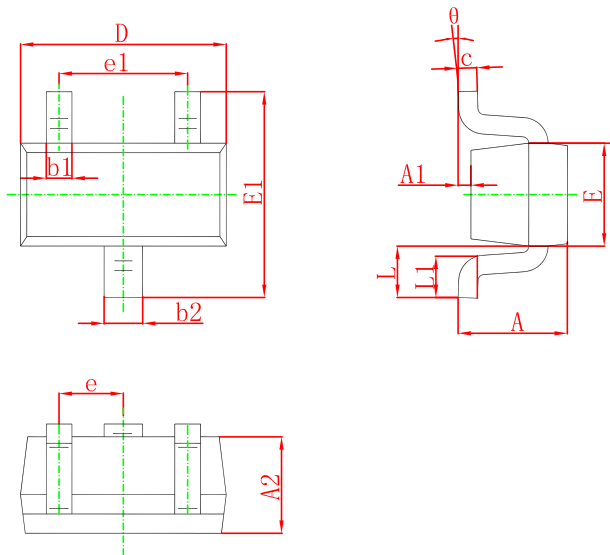


Transfer Characteristics

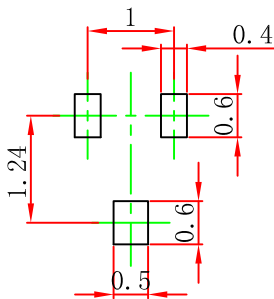


Threshold Voltage



Package outline dimensions: SOT-523


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: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

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