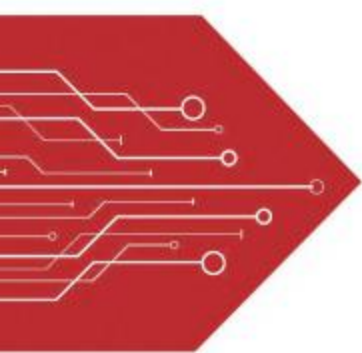


MSKSEMI

SEMICONDUCTOR



ESD



TVS



TSS



MOV



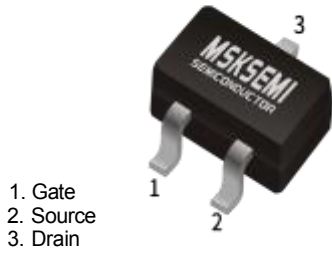
GDT



PLED

Product data sheet

www.msksemi.com



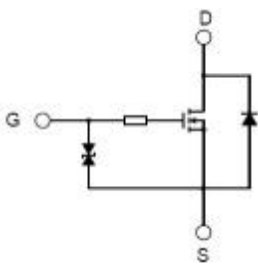
1. Gate
2. Source
3. Drain

SOT-523

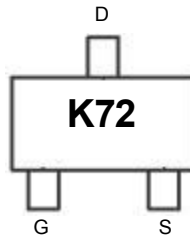
Specification Features:

- Low On-resistance
- Low Gate Threshold Voltage
- Low Input capacitance
- ESD Protected up to 1kV (HBM)
- RoHS Compliant
- Green EMC
- Matte Tin(Sn) Lead Finish
- Weight: approx. 0.002g

Electrical Symbol:



Marking



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

Symbol	Parameter	Value	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Continuous Gate-Source Voltage	$\pm 20\text{V}$	V
I_D	Continuous Drain Current	115	mA
P_D	Power Dissipation	150	mW
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	833	$^\circ\text{C}/\text{W}$
T_{STG}	Storage Temperature Range	-55 to +150	$^\circ\text{C}$
T_J	Operating Junction Temperature	+150	$^\circ\text{C}$

Off Characteristics

Symbol	Parameter	Test Condition	Limits			Unit
			Min	Typ	Max	
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=10\mu A$	60			Volts
I_{GSS}	Gate-Body Leakage	$V_{DS}=0V, V_{GS}=\pm 20V$			± 1	μA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=60V, V_{GS}=0V$			100	nA

On Characteristics

Symbol	Parameter	Test Condition	Limits			Unit
			Min	Typ	Max	
$V_{th(GS)}$	Gate-Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1		2.5	Volts
$I_{D(ON)}$	On-state Drain Current	$V_{GS}=10V, V_{DS}=7V$	500			mA
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=10V, I_D=300mA$			2.8	Ω
		$V_{GS}=4.5V, I_D=200mA$			3	Ω
g_{fs}	Forward Trans Conductance	$V_{DS}=10V, I_D=200mA$	80		500	ms
$V_{DS(on)}$	Drain-Source On-Voltage	$V_{GS}=10V, I_D=500mA$			3.75	V
		$V_{GS}=5V, I_D=50mA$			0.375	V
V_{SD}	Diode Forward Voltage	$I_S=250mA, V_{GS}=0V$			1	V

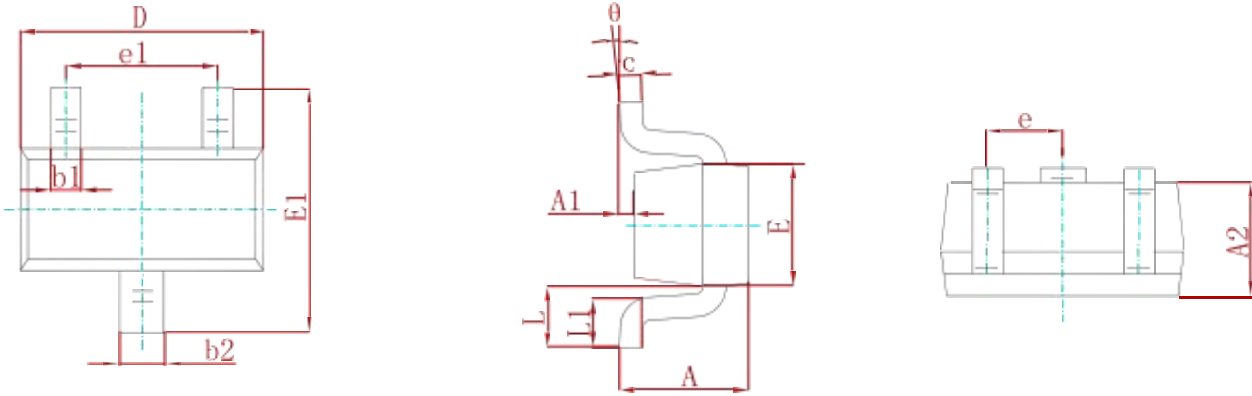
Dynamic Characteristics

Symbol	Parameter	Test Condition	Limits			Unit
			Min	Typ	Max	
C_{iss}	Input Capacitance		--	--	50	pF
C_{oss}	Output Capacitance	$V_{DS} = 25V, V_{GS} = 0V,$ $f = 1.0MHz$	--	--	25	pF
C_{rss}	Reverse Transfer Capacitance		--	--	5.0	pF

Switching Characteristics

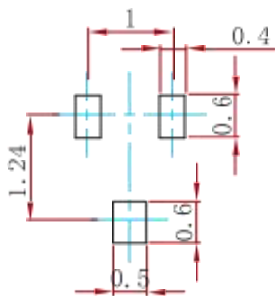
Symbol	Parameter	Test Condition	Limits			Unit
			Min	Typ	Max	
$t_{D(on)}$	Turn-on Time	$V_{DD}=10V, R_L=20\Omega,$	--	5.6	--	nS
$t_{D(off)}$	Turn-off Time	$I_D=500mA,$ $V_{GEN}=10V, R_G = 10\Omega$	--	25	--	nS

PACKAGE MECHANICAL DATA



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
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.

REEL SPECIFICATION

P/N	PKG	QTY
2N7002KT	SOT-523	3000

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