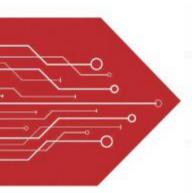
MSKSEMI SEMICONDUCTOR















ESD

TVS

TSS

MOV

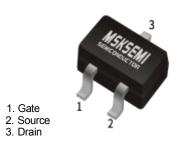
GDT

PLED

Product data sheet





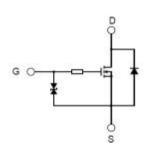


SOT-523

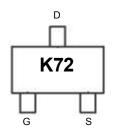
Specification Features:

- 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:







Absolute Maximum Ratings T_A = 25°C unless otherwise noted

Symbol	Parameter	Value	Units	
V _{DS}	Drain-Source Voltage	60	V	
V _{GS}	Continuous Gate-Source Voltage ±20V			
ID	Continuous Drain Current	mA		
P _D	Power Dissipation	150	mW	
Rеja	Thermal Resistance from Junction to Ambient	833	°C /W	
T _{STG}	Storage Temperature Range	-55 to +150	°C	
TJ	Operating Junction Temperature	+150	°C	



Semiconductor

Complance

Off Characteristics

Cymbol	Parameter	Test Condition	Limits			Unit
Symbol	Parameter	rest Condition	Min	Тур	Max	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =10uA	60			Volts
I _{GSS}	Gate-Body Leakage	V _{DS} =0V, V _{GS} =±20V			±1	uA
loss	Zero Gate Voltage Drain Current	V _{DS} =60V, V _{GS} =0V			100	nA

On Characteristics

Symbol Parameter Te		Test Condition	Limits			l l mit
Symbol	Farameter	rest Condition	Min	Тур	Max	Unit
Vth(GS)	Gate-Threshold Voltage	V _{DS} = V _{GS} , I _D =250uA	1		2.5	Volts
ID(ON)	On-state Drain Current	V _{GS} =10V, V _{DS} =7V	500			mA
RDS(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 _G S=0V			1	V

Dynamic Characteristics

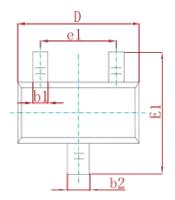
Cymphol	Dovementor	Toot Condition		Limits		11
Symbol	Parameter	Test Condition	Min	Тур	Max	Unit
Ciss	Input Capacitance				50	pF
Coss	Output Capacitance	$V_{DS} = 25V, V_{GS} = 0V,$ f = 1.0MHz			25	pF
Crss	Reverse Transfer Capacitance				5.0	pF

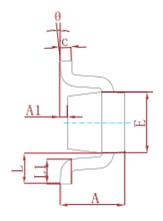
Switching Characteristics

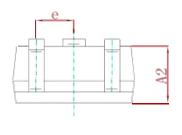
Cumbal	Parameter	Test Condition	Limits		Unit	
Symbol	raiailletei	rest Condition	Min	Тур	Max	Unit
t _{D(on)}	Turn-on Time	V_{DD} =10V, R_L =20 Ω ,		5.6	-	nS
t _{D(off)}	Turn-off Time	I_D =500mA, V_{GEN} =10V, R_G = 10 Ω		25		nS



PACKAGE MECHANICAL DATA

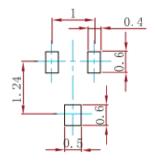






0	Dimensions	In Millimeters	Dimensions In Inches		
Symbol	Min.	Max.	Min.	Max.	
Α	0.700	0.900	0.028	0.035	
A1	0.000	0.100	0.000	0.004	
A2	0.700	0.800	0.028	0.031	
b1	0.150	0.250	0.006	0.010	
b2	0.250	0.350	0.010	0.014	
С	0.100	0.200	0.004	0.008	
D	1.500	1.700	0.059	0.067	
E	0.700	0.900	0.028	0.035	
E1	1.450	1.750	0.057	0.069	
е	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



Attention

- Any and all MSKSEMI Semiconductor products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your MSKSEMI Semiconductor representative nearest you before using any MSKSEMI Semiconductor products described or contained herein in such applications.
- MSKSEMI Semiconductor assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all MSKSEMI Semiconductor products described or contained herein.
- Specifications of any and all MSKSEMI Semiconductor products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.
- MSKSEMI Semiconductor. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with someprobability. It is possiblethat these probabilistic failures could give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits anderror prevention circuitsfor safedesign, redundant design, and structural design.
- In the event that any or all MSKSEMI Semiconductor products(including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from theauthorities concerned in accordance with the above law.
- No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of MSKSEMI Semiconductor.
- Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. MSKSEMI Semiconductor believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringementsof intellectual property rights or other rightsof third parties.
- Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. Whendesigning equipment, referto the "Delivery Specification" for the MSKSEMI Semiconductor productthat you intend to use.