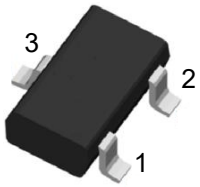
TN7002KNSI

N-Channel Enhancement Mode Power MOSFET

Product Summary

- V_{DS}= 60V,I_D= 0.3A
- $R_{DS(on)}$< 2.3Ω @V_{GS}= 10V
- $R_{DS(on)}$< 2.9Ω @V_{GS}= 4.5V

SOT-323



(Top View)

Pin	Description
1	Gate
2	Source
3	Drain

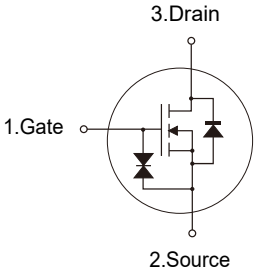
Features

- ESD Protected(HBM) up to 2KV
- Advanced Trench Technology
- RoHS and Reach Compliant
- Halogen and Antimony Free
- Moisture Sensitivity Level 3

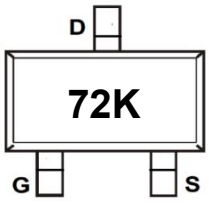
Application

- Battery Operated Systems
- Direct Logic-level Interface:TTL/CMOS
- Solid-State Relays

Schematic Diagram



Marking Code



Absolute Maximum Ratings

(Ta=25℃ unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	0.3	A
Drain Current-Pulsed Note1	I_{DM}	0.8	A
Maximum Power Dissipation	P_D	0.3	W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Thermal Resistance,Junction-to-Ambient Note2	$R_{\theta JA}$	417	°C/W

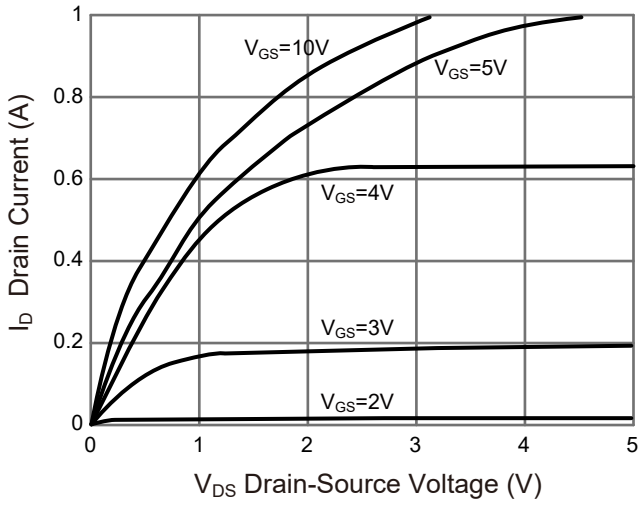
Electrical Characteristics

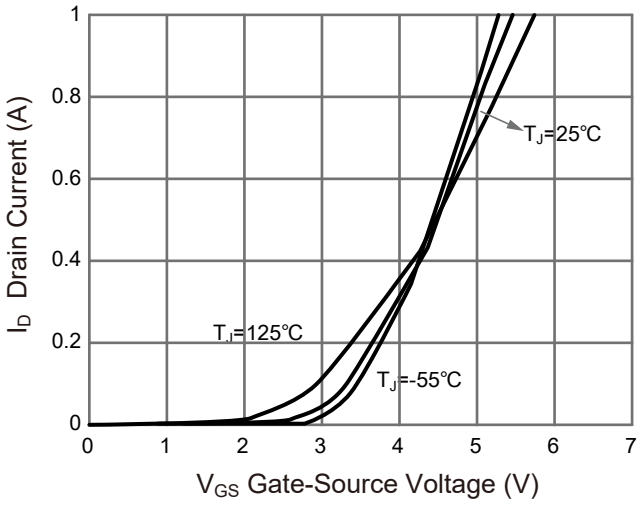
(Ta=25℃ unless otherwise specified)

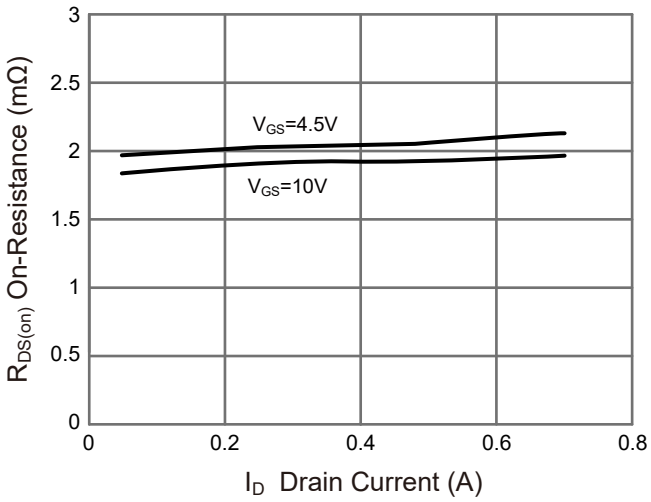
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250μA	60	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V,V_{GS}=0V	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	--	--	±10	μA
Gate Threshold Voltage Note3	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	1	1.6	2.5	V
Drain-Source On-Resistance Note3	$R_{DS(on)}$	V_{GS}=10V, I_D=0.3A	--	1.8	2.3	Ω
		V_{GS}=4.5V, I_D=0.2A	--	2.1	2.9	Ω
Forward Transconductance Note3	g_{FS}	V_{DS}=5V,I_D=0.3A	--	0.5	--	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V,f=1MHz	--	33	--	pF
Output Capacitance	C_{oss}		--	14	--	pF
Reverse Transfer Capacitance	C_{rss}		--	8	--	pF
Total Gate Charge	Q_g	V_{DS}=10V,I_D=0.3A, V_{GS}=4.5V	--	1.7	--	nC
Gate-Source Charge	Q_{gs}		--	0.3	--	nC
Gate-Drain Charge	Q_{gd}		--	0.6	--	nC
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=10V,I_D=0.2A, V_{GS}=10V,R_{GEN}=10Ω	--	2	--	nS
Turn-on Rise Time	t_r		--	15	--	nS
Turn-off Delay Time	$t_{d(off)}$		--	7	--	nS
Turn-off Fall Time	t_f		--	20	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage Note3	V_{SD}	V_{GS}=0V,I_S=0.3A	--	--	1.2	V
Diode Forward Current Note2	I_S		--	--	0.3	A

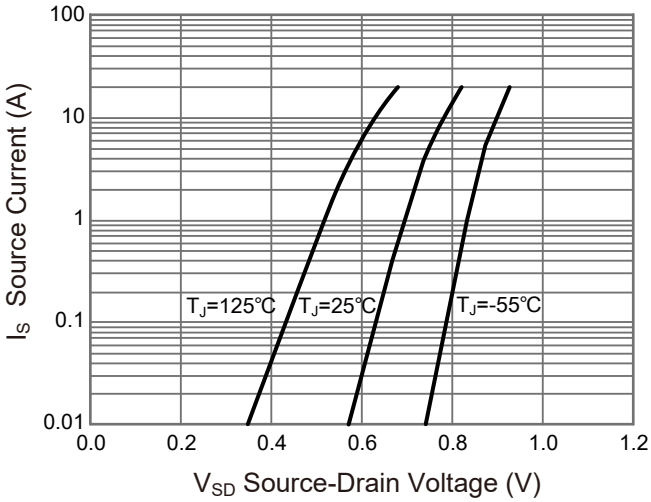
Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse width≤300μs, duty cycle≤2%.

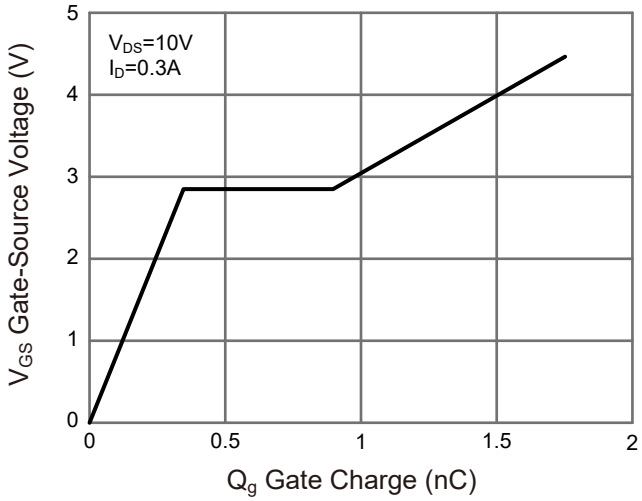
Typical Characteristic Curves

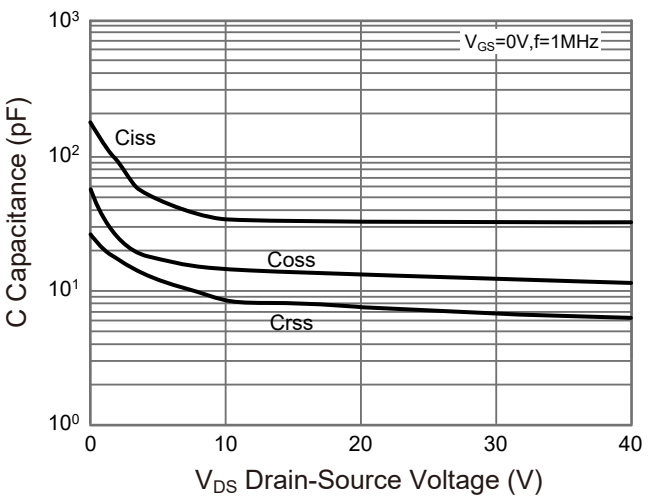


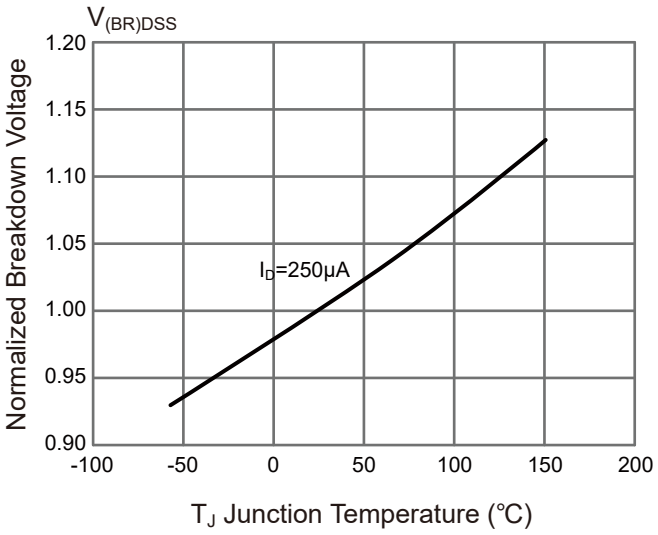


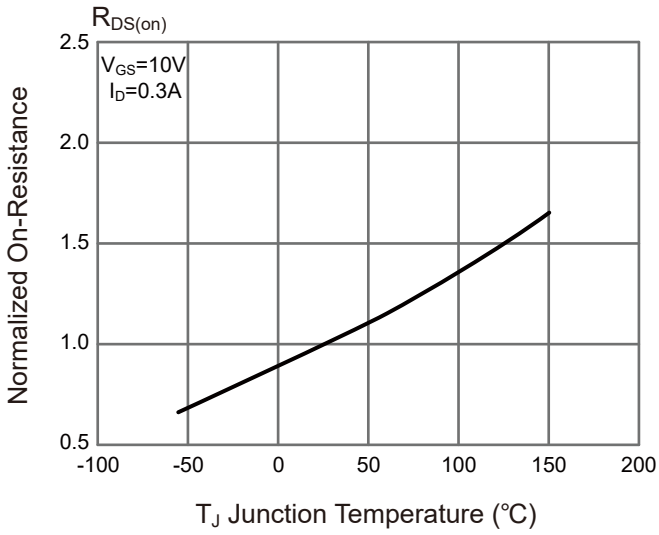








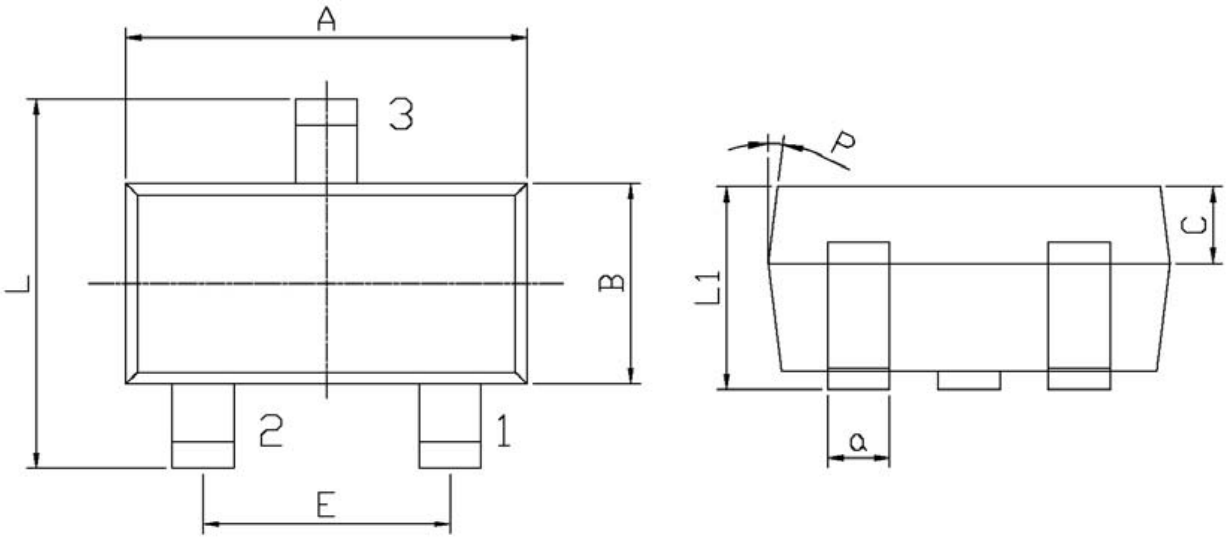




Package Outline

SOT-323

Dimensions in mm



Symbol	Dimensions		Symbol	Dimensions	
	Min.	Max.		Min.	Max.
A	1.95	2.35	C	0.30	0.50
L	2.00	2.20	L1	0.85	1.15
E	1.20	1.40	a	0.20	0.40
B	1.15	1.35	P	7°	

Ordering Information

Device	Package	Shipping
TN7002KNSI	SOT-323	3,000PCS/Reel&7inches

Contact Information

TANI website: **http://www.tanisemi.com** Email:tani@tanisemi.com

For additional information, please contact your local Sales Representative.

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