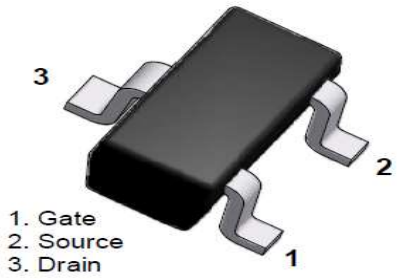
2N7002T
N-Channel MOSFET

General description
N-Channel MOSFET

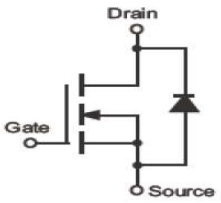
Green Product



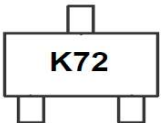
SOT-523

FEATURES
- Low On-resistance
- Low Gate Threshold Voltage
- Low Input capacitance
- RoHS Compliant
- Green EMC
- Matte Tin(Sn) Lead Finish
- Weight: approx. 0.002g

Electrical Symbol:



Device Marking Code:



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	V
I_D	Continuous Drain Current	115	mA
P_D	Power Dissipation	150	mW
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	833	°C /W
T_{STG}	Storage Temperature Range	-55 to +150	°C
T_J	Operating Junction Temperature	+150	°C

Electrical Characteristics (Ratings at 25℃ ambient temperature unless otherwise specified).

Off Characteristics

Symbol	Parameter	Test Condition	Limits			Unit
			Min	Typ	Max	
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
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=250uA	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=500mA			7.5	Ω
		V_{GS}=5V, I_D=50mA			7.5	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	
Ciss	Input Capacitance	V_{DS} = 25V, V_{GS} = 0V, f = 1.0MHz	--	--	50	pF
Coss	Output Capacitance		--	--	25	pF
Crss	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=20Ω, I_D=500mA, V_{GEN}=10V, R_G = 10Ω	--	5.6	--	nS
$t_{D(off)}$	Turn-off Time		--	25	--	nS

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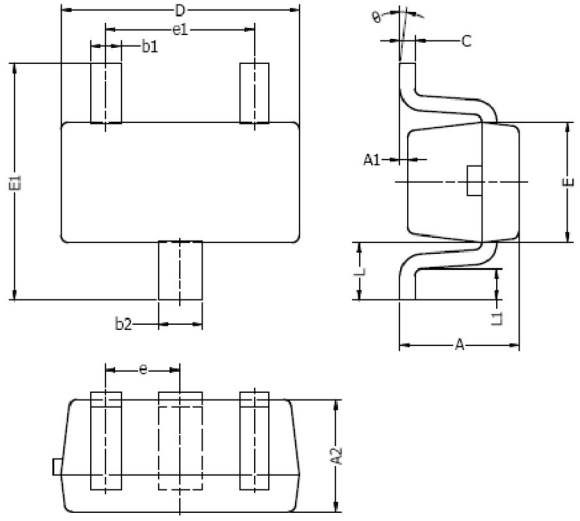
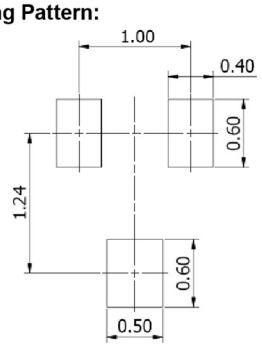
SOT-523 Package Outline



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.70	0.90	0.028	0.035
A1	0.00	0.10	0.000	0.004
A2	0.70	0.80	0.028	0.031
b1	0.15	0.25	0.006	0.010
b2	0.25	0.35	0.010	0.014
c	0.10	0.20	0.004	0.008
D	1.50	1.70	0.059	0.067
E	0.70	0.90	0.028	0.035
E1	1.45	1.75	0.057	0.069
e	0.50 TYP.		0.020 TYP.	
e1	0.90	1.10	0.035	0.043
L	0.40 REF.		0.016 REF.	
L1	0.10	0.30	0.004	0.012
θ	0°	8°	0°	8°

Typical Soldering Pattern:



Note :

1.Above package outline conforms to JEITA EAIJ ED-7500A SC-75A.
2.Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.

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