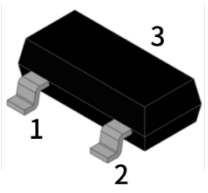
2N7002ALST1

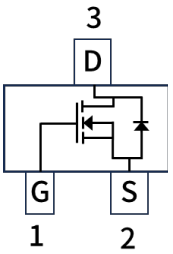
N–Channel MOSFET

1. FEATURES

- The material of product compliance with RoHS requirements and Halogen Free.
- High density cell design for low RDS(ON)
- Voltage controlled small signal switch
- High saturation current capability.



SOT23 (TO-236)



2. Mechanical Data

- SOT-23 Small Outline Plastic Package.
- Tin plated leads, solderable per J-STD-002 and JESD22-B102.
- Marking: 702A

3. ORDERING INFORMATION

Device	Min Pack	Inner Box	Outer Carton	Reel
2N7002ALST1	3000	45000	180000	7 inch

4. MAXIMUM RATINGS (Ta = 25°C)

Parameter	Symbol	Limit	Unit
Drain–Source Voltage	VDS	60	V
Drain–Source Voltage	VGS	±20	V
Continuous Drain Current	ID	0.115	A
Total Device Dissipation TA = 25°C	PD	225	mW

5. THERMAL CHARACTERISTICS

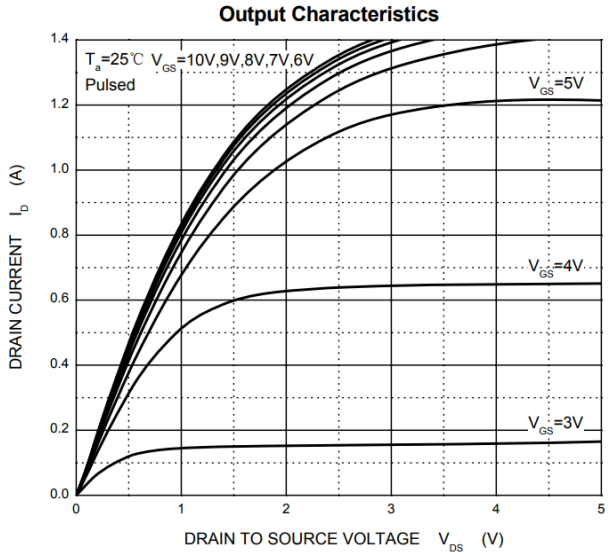
Parameter	Symbol	Limit	Unit
Thermal Resistance J to A	RθJA	556	°C/W
Operation Junction and Storage Temperature Range	TJ, TSTG	−55~+150	°C

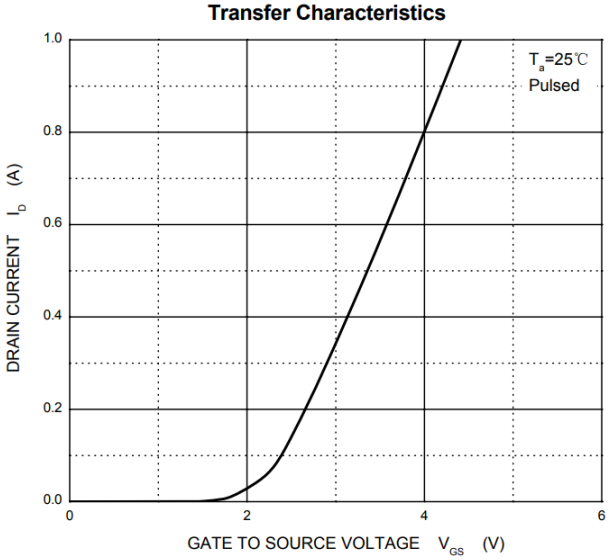
6. MOSFET ELECTRICAL CHARACTERISTICS (Ta= 25°C unless otherwise specified)

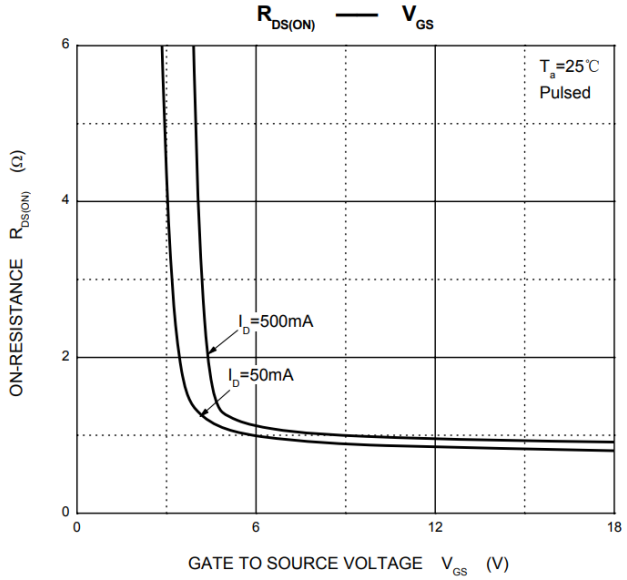
Parameter	Symbol	Condition	Min	TYP	Max	Unit

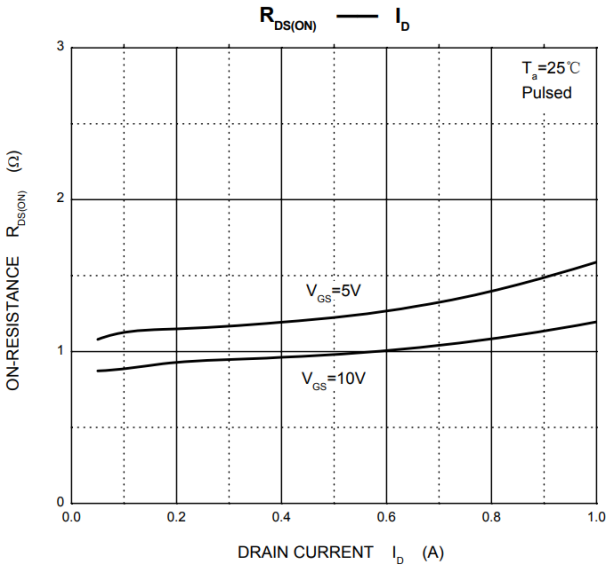
Drain–Source Breakdown Voltage	VBRDSS	VGS = 0, ID = 250μA	60			V
Zero Gate Voltage Drain Current	IDSS	VGS = 0, VDS = 60 V			80	nA
Gate–Body Leakage Current	IGSS	VGS = ±20 V			±80	nA
Gate Threshold Voltage	VGS(th)	VDS = VGS, ID = 250μA	1	1.6	2.5	V
On–State Drain Current	ID(on)	VGS = 10 V,VDS=7V	500			mA
Static Drain–Source On–State Voltage	VDS(on)	VGS = 10 V, ID = 500 mA			3.75	V
Static Drain–Source On–State Voltage	VDS(on)	VGS = 5V, ID = 50 mA			0.375	V
Static Drain–Source On–State Resistance	RDS(on)	VGS = 10 V, ID = 500 mA		0.9	2.5	Ω
Static Drain–Source On–State Resistance	RDS(on)	VGS = 5 V, ID = 50 mA		1.1	3	Ω
Forward Transconductance	gfs	VDS=10V, ID = 200 mA	80			mS
Input Capacitance	Ciss	VDS = 25 V, VGS = 0, f = 1.0 MHz			50	PF
Output Capacitance	Coss				25	PF
Reverse Transfer Capacitance	Crss				5	PF
Turn-On Delay Time	Td(on)	VDD = 25 V , ID = 500 mA, RG = 25 Ω, RL = 50 Ω,			20	ns
Turn-Off Delay Time	Td(off)				40	ns
Diode Forward On–Voltage	VSD	IS = 115 mA, VGS = 0 V	0.55		1.2	V

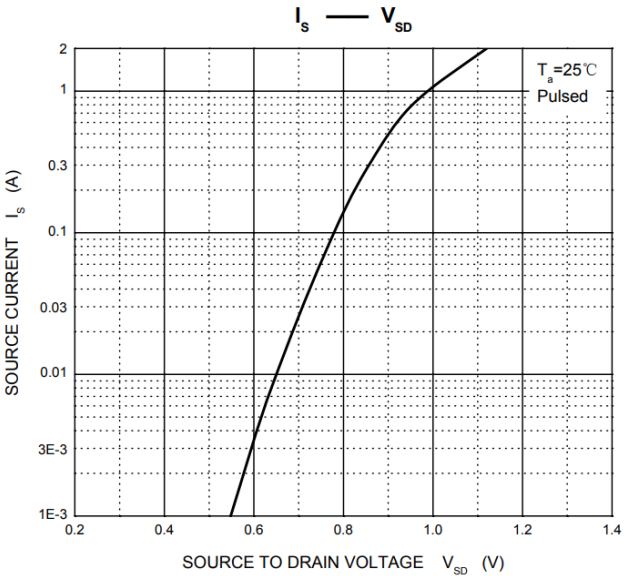
7. ELECTRICAL CHARACTERISTICS CURVES



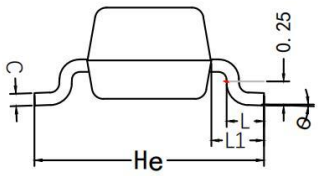


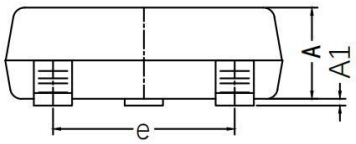

$R_{DS(ON)}$ — V_{GS}
T_a=25℃
Pulsed
I_D=500mA
I_D=50mA
ON-RESISTANCE $R_{DS(ON)}$ (Ω)
GATE TO SOURCE VOLTAGE V_{GS} (V)
0
2
4
6
0
6
12
18

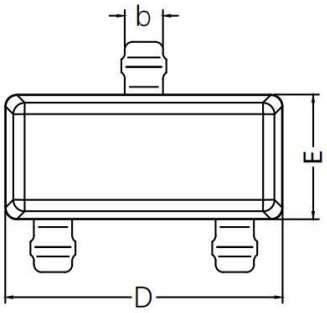

$R_{DS(ON)}$ — I_D
T_a=25℃
Pulsed
V_{GS}=5V
V_{GS}=10V
ON-RESISTANCE $R_{DS(ON)}$ (Ω)
DRAIN CURRENT I_D (A)
0
1
2
3
0.0
0.2
0.4
0.6
0.8
1.0


I_S — V_{SD}
T_a=25℃
Pulsed
SOURCE CURRENT I_S (A)
SOURCE TO DRAIN VOLTAGE V_{SD} (V)
2
1
0.3
0.1
0.03
0.01
3E-3
1E-3
0.2
0.4
0.6
0.8
1.0
1.2
1.4

8. OUTLINE AND DIMENSIONS

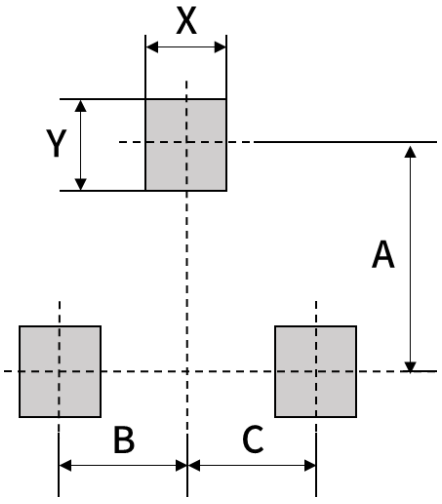






DIM	MIN	NOR	MAX
A	0.85	0.95	1.05
A1	0.01	0.06	0.10
b	0.36	0.44	0.52
c	0.09	0.13	0.18
D	2.80	2.90	3.10
E	1.20	1.30	1.40
e	1.78	1.90	2.04
L	0.30	0.40	0.50
L1	0.35	0.50	0.65
He	2.10	2.35	2.50
θ	0°	-	10°
All Dimensions in mm			

9. SUGGESTED PAD LAYOUT



SOT23		
DIM	mm	inch
A	2.00	0.079
B	0.95	0.037
C	0.95	0.037
X	0.80	0.031
Y	0.90	0.035

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