

2N7002

N-CHANNEL MOSFET

VOLTAGE 60 Volt **CURRENT** 0.115 Ampere

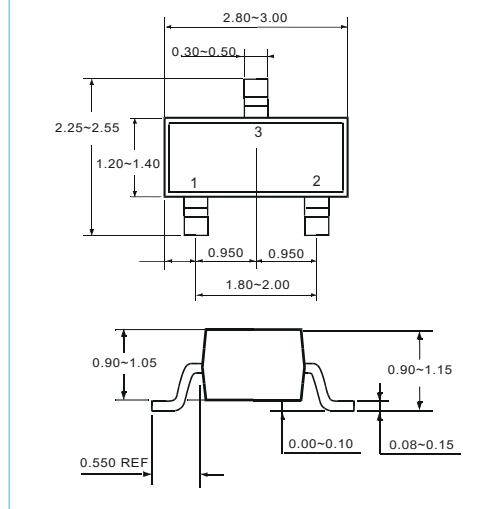
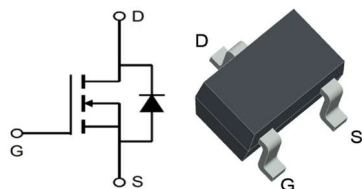
SOT-23 Unit:mm

FEATURES

- N-Channel Enhancement Mode Field Effect Transistor
- High Input Impedance
- High Speed Switching
- Lead free in compliance with EU RoHS

MECHANICAL DATA

- Case Material: Molded Plastic.
- UL Flammability Classification Rating 94V-0



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS T_A 25 °C unless otherwise noted

SYMBOL	PARAMETER	VALUE	UNIT
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Drain Current	115	mA
P_D	Power Dissipation	200	mW
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	625	°C/W
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +150	°C

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ELECTRICAL CHARACTERISTICS $T_A = 25^\circ\text{C}$ unless otherwise noted

Parameter	Symbo	Test conditions	Min	Typ	Max	Un
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0\text{ V}$, $I_D=250\text{ }\mu\text{A}$	60			V
Gate-Threshold Voltage	$V_{th(GS)}$	$V_{DS}=V_{GS}$, $I_D=250\text{ }\mu\text{A}$	1	1.6	2.5	
Gate-body Leakage	I_{GSS}	$V_{DS}=0\text{ V}$, $V_{GS}=\pm 20\text{ V}$			± 80	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60\text{ V}$, $V_{GS}=0\text{ V}$			80	nA
On-state Drain Current	$I_{D(ON)}$	$V_{GS}=10\text{ V}$, $V_{DS}=7\text{ V}$	500			mA
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10\text{ V}$, $I_D=500\text{ mA}$		0.9	5	Ω
		$V_{GS}=5\text{ V}$, $I_D=50\text{ mA}$		1.1	7	
Forward Trans conductance	g_{fs}	$V_{DS}=10\text{ V}$, $I_D=200\text{ mA}$	80			ms
Drain-source on-voltage	$V_{DS(on)}$	$V_{GS}=10\text{ V}$, $I_D=500\text{ mA}$			3.75	V
		$V_{GS}=5\text{ V}$, $I_D=50\text{ mA}$			0.375	V
Diode Forward Voltage	V_{SD}	$I_S=115\text{ mA}$, $V_{GS}=0\text{ V}$	0.55		1.2	V
Input Capacitance *	C_{iss}	$V_{DS}=25\text{ V}$, $V_{GS}=0\text{ V}$, $f=1\text{ MHz}$			50	pF
Output Capacitance *	C_{oss}				25	
Reverse Transfer Capacitance *	C_{rss}				5	

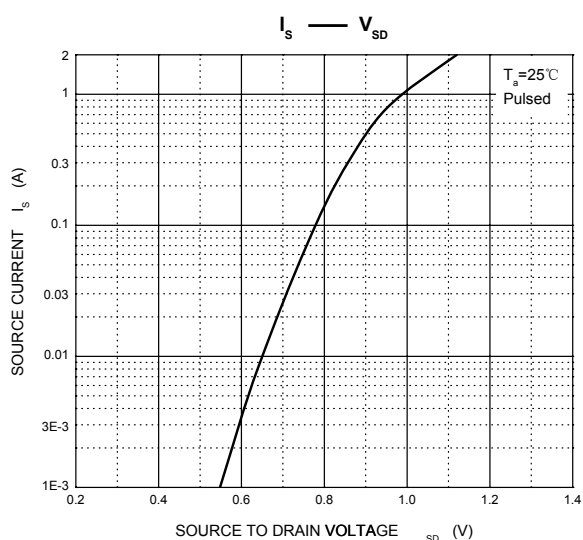
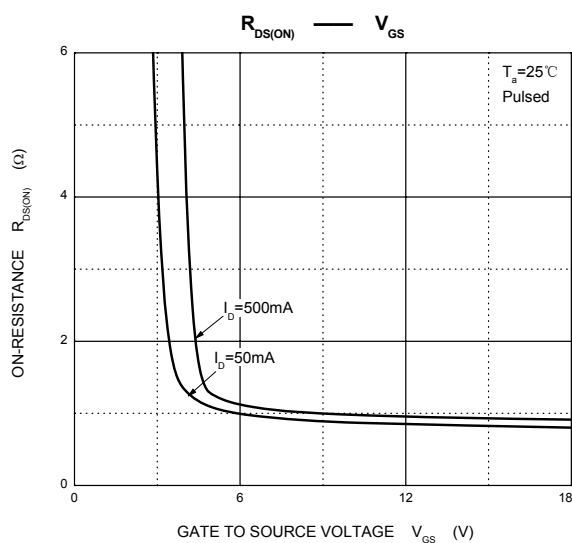
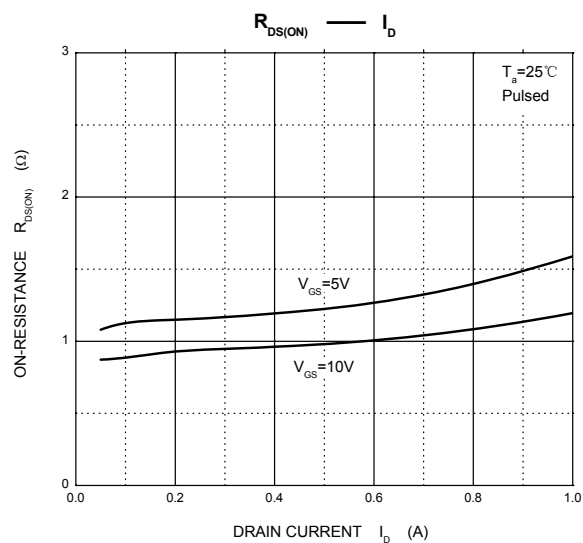
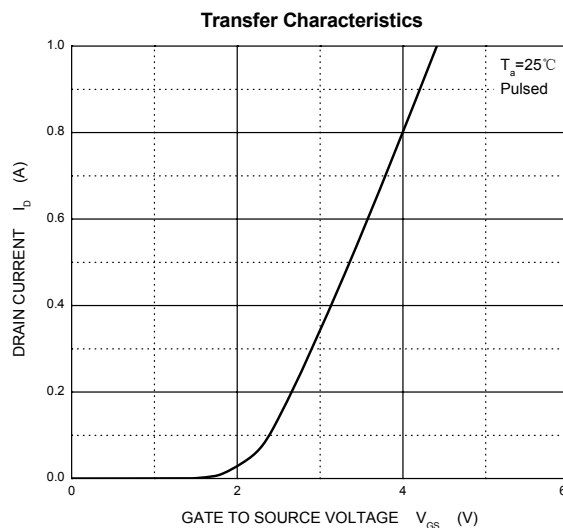
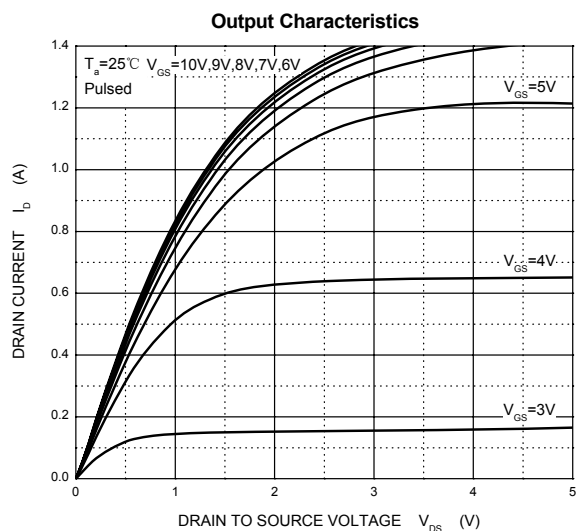
SWITCHING TIME

Turn-on Time *	$t_{d(on)}$	$V_{DD}=25\text{ V}$, $R_L=50\Omega$, $I_D=500\text{ mA}$, $V_{GEN}=10\text{ V}$ $R_G=25\Omega$			20	ns
Turn-off Time *	$t_{d(off)}$				40	

*These parameters have no way to verify.

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Typical Characteristics

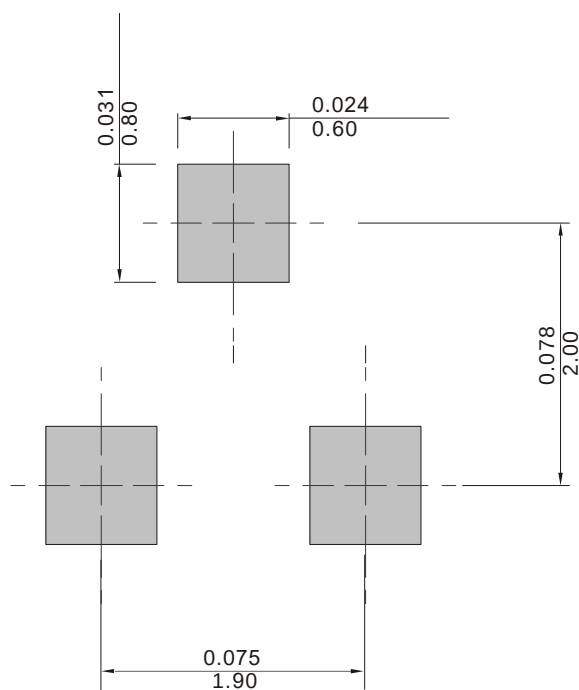


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MOUNTING PAD LAYOUT

SOT-23

Unit:Inch(mm)



ORDER INFORMATION

- Packing information

Part Number	Case	Reel Size	QUANTITY
2N7002	SOT-23	7 Inch	3000