



## SOT-23 Plastic-Encapsulated Transistors

**2N7002** MOSFET (N-Channel)

### FEATURES

Power dissipation

$$P_D : 0.35W \text{ (Tamb=25°C)}$$

Drain current

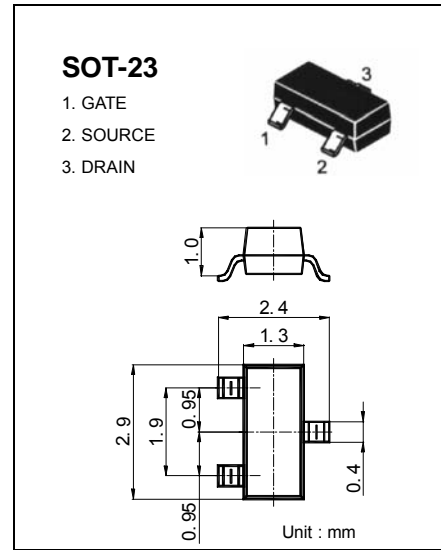
$$I_D: 250mA$$

Drain-Source voltage

$$V_{DS}: 60V$$

Operating and storage junction temperature range

$$T_J, T_{stg}: -55°C \text{ to } +150°C$$



### ELECTRICAL CHARACTERISTICS (Tamb=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=10\mu A$	60	70		V
Gate-Threshold Voltage	$V_{th(GS)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.5	2.5	
Gate-body Leakage	$I_{GSS}$	$V_{DS}=0V, V_{GS}=15V$			10	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=60V, V_{GS}=0V$			1	$\mu A$
		$V_{DS}=60V, V_{GS}=0V, T_J=125$			500	
On-state Drain Current	$I_{D(ON)}$	$V_{GS}=10V, V_{DS}=7.5V$	800	1300		mA
		$V_{GS}=4.5V, V_{DS}=10V$	500	700		
Drain-Source On-Resistance	$r_{DS(on)}$	$V_{GS}=10V, I_D=250mA$		1.5	3	$\Omega$
		$V_{GS}=4.5V, I_D=200mA$		2.0	4	
Forward Transconductance	$g_{fs}$	$V_{DS}=15V, I_D=200mA$		300		ms
Diode Forward Voltage	$V_{SD}$	$I_S=200mA, V_{GS}=0V$		0.85	1.2	V
Total Gate Charge	$Q_g$	$V_{DS}=30V, V_{GS}=10V, I_D=250mA$		0.6	1.0	nC
Gate-Source Charge	$Q_{gs}$			0.06		
Gate-Drain Charge	$Q_{gd}$			0.06		
Input Capacitance	$C_{iss}$	$V_{DS}=25V, V_{GS}=0V, f=1MHz$		25		pF
Output Capacitance	$C_{oss}$			6		
Reverse Transfer Capacitance	$C_{rss}$			1.2		

### SWITCHING TIME

Turn-on Time	$t_{d(on)}$	$V_{DD}=30V, R_L=200$ $I_D=100mA, V_{GEN}=10V$		7.5	20	ns
	$t_r$			6		
Turn-off Time	$t_{d(off)}$	$R_G=10\Omega$		7.5	20	