

### 2N7002T MOSFET (N-Channel)

#### FEATURES

Power dissipation

$$P_D: 0.15 \text{ W (Tamb=25}^\circ\text{C)}$$

Collector current

$$I_D: 115 \text{ mA}$$

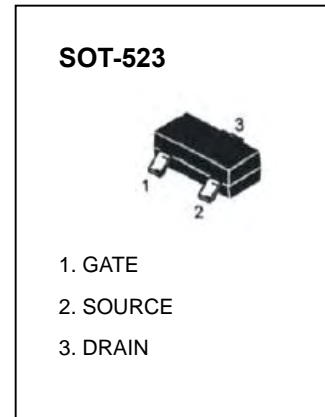
Collector-base voltage

$$V_{DS}: 60 \text{ V}$$

Operating and storage junction temperature range

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

Marking: 72



#### 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			V
Gate-Threshold Voltage*	$V_{th(GS)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1		2	
Gate-body Leakage*	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 10$	nA
Zero Gate Voltage Drain Current *	$I_{DSS}$	$V_{DS}=60V, V_{GS}=0V$			1	$\mu A$
		$V_{DS}=60V, V_{GS}=0V, T_j=125^\circ C$			500	
On-state Drain Current *	$I_{D(ON)}$	$V_{GS}=10V, V_{DS}=7.5V$	500	1000		mA
Drain-Source On-Resistance *	$R_{DS(on)}$	$V_{GS}=5V, I_D=50mA$		3.2	7.5	$\Omega$
		$V_{GS}=10V, I_D=500mA$		4.4	13.5	
Forward Transconductance *	$g_{FS}$	$V_{DS}=10V, I_D=200mA$	80			ms
Input Capacitance	$C_{iSS}$	$V_{DS}=25V, V_{GS}=0V$ $f=1MHz$		22	50	$\mu F$
Output Capacitance	$C_{oSS}$			11	25	
Reverse Transfer Capacitance	$C_{rSS}$			2	5	

#### SWITCHING

Turn-on Time	$T_{D(ON)}$	$V_{DD}=30V, R_L=150$ $I_D=200mA, V_{GEN}=10V$ $R_{GEN}=25\Omega$		7	20	ns
Turn-off Time	$T_{D(OFF)}$			11	20	

\* Pulse test.

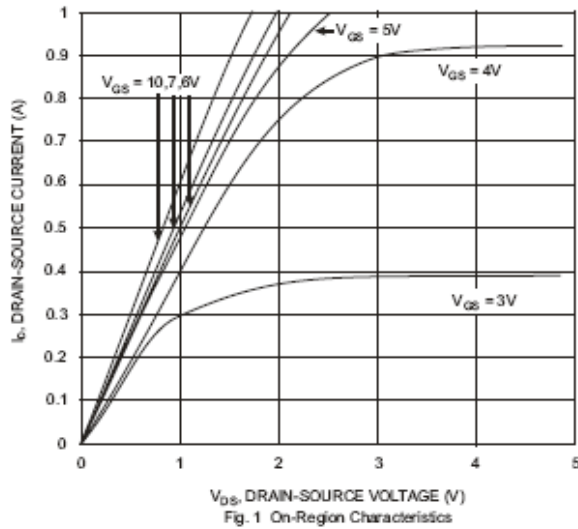


Fig. 1 On-Region Characteristics

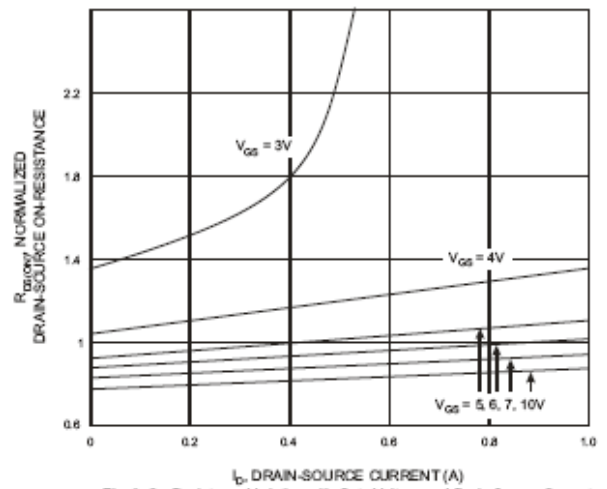


Fig. 2 On-Resistance Variation with Gate Voltage and Drain-Source Current

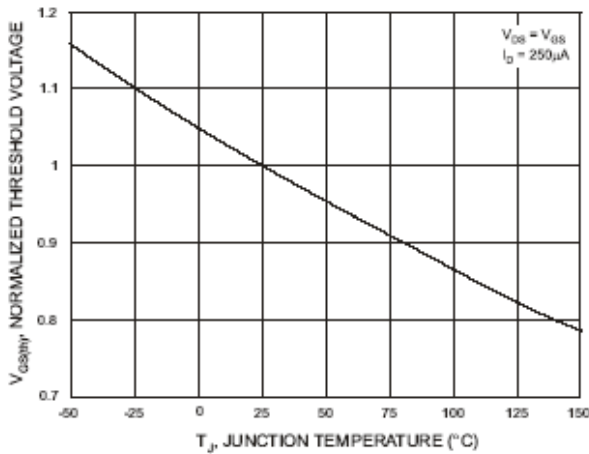


Fig. 3 Gate Threshold Variation with Temperature

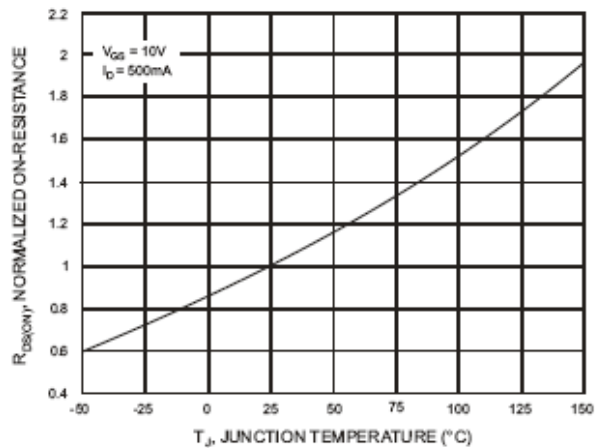


Fig. 4 On-Resistance Variation with Temperature

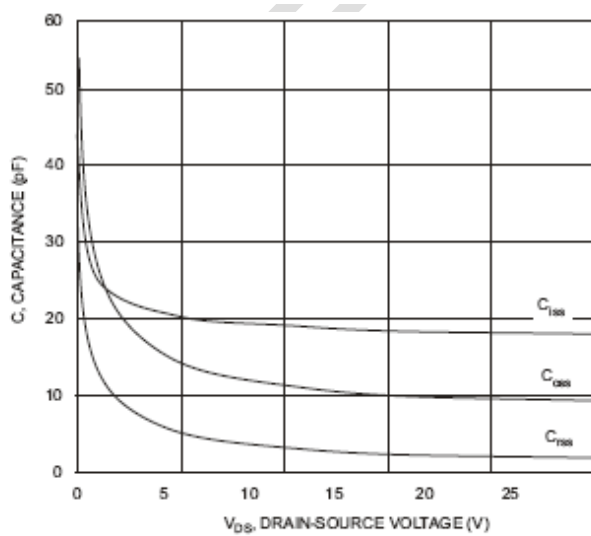


Fig. 5 Typical Capacitance

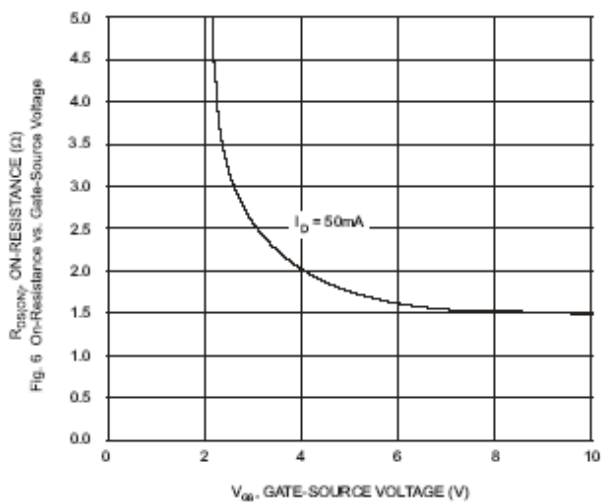


Fig. 6 On-Resistance vs. Gate-Source Voltage