

N-Channel Enhancement Mode Field Effect Transistor 2N7002E

■ Features

- Low On-Resistance: $R_{DS(ON)}$
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage

■ Absolute Maximum Ratings $T_a=25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Drain-Gate Voltage $R_{GS} \leq 1.0 \text{ m}\Omega$	V_{DGR}	60	V
Gate-Source Voltage -Continuous	V_{GSS}	± 20	V
Pulsed		± 40	
Drain Current -Continuous	I_D	240	mA
Power Dissipation	P_D	300	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	417	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_j, T_{STG}	-55 to +150	$^\circ\text{C}$

■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DS}	$V_{GS} = 0V, I_D = 10 \mu\text{A}$	60	70		V
Zero Gate Voltage Drain Current @ $T_c = 25^\circ\text{C}$ @ $T_c = 125^\circ\text{C}$	I_{DSS}	$V_{DS} = 60V, V_{GS} = 0V$			1.0 500	μA
Gate-Body Leakage	I_{GSS}	$V_{GS} = \pm 15V, V_{DS} = 0V$			± 10	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\text{mA}$	1.0		2.5	V
Static Drain-Source On-Resistance @ $T_j = 25^\circ\text{C}$	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 250\text{mA}$		1.6	3	Ω
		$V_{GS} = 4.5V, I_D = 200\text{mA}$		2.0	4	
On-State Drain Current	$I_{D(ON)}$	$V_{GS} = 10V, V_{DS} = 7.5V$	0.8	1.0		A
Forward Transconductance	g_{FS}	$V_{DS} = 10V, I_D = 0.2A$	80			mS
Input Capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V, f = 1.0\text{MHz}$		22	50	pF
Output Capacitance	C_{oss}			11	25	pF
Reverse Transfer Capacitance	C_{rss}			2.0	5.0	pF
Turn-On Delay Time	$t_{D(ON)}$	$V_{DD} = 30V, I_D = 0.2A, R_L = 150 \Omega, V_{GEN} = 10V, R_{GEN} = 25 \Omega$		7.0	20	ns
Turn-Off Delay Time	$t_{D(OFF)}$			11	20	ns

■ Marking

Marking	K7B
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