

SOT23 N-CHANNEL ENHANCEMENT MODE VERTICAL DMOS FET

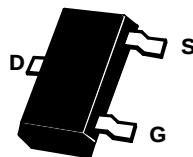
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FEATURES

* 60 Volt V_{CE0}

PARTMARKING DETAIL – 702

2N7002



SOT23

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Drain-Source Voltage	V_{DS}	60	V
Continuous Drain Current at $T_{amb}=25^{\circ}\text{C}$	I_D	115	mA
Pulsed Drain Current	I_{DM}	800	mA
Gate-Source Voltage	V_{GS}	± 40	V
Power Dissipation at $T_{amb}=25^{\circ}\text{C}$	P_{tot}	330	mW
Operating and Storage Temperature Range	T_j, T_{stg}	-55 to +150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	CONDITIONS.
Drain-Source Breakdown Voltage	BV_{DSS}	60		V	$I_D=10\mu\text{A}$, $V_{GS}=0\text{V}$
Gate-Source Threshold Voltage	$V_{GS(th)}$	1	2.5	V	$I_D=250\text{mA}$, $V_{DS}=V_{GS}$
Gate-Body Leakage	I_{GSS}		10	nA	$V_{GS}=\pm 20\text{V}$, $V_{DS}=0\text{V}$
Zero Gate Voltage Drain Current	I_{DSS}		1 500	μA μA	$V_{DS}=48\text{V}$, $V_{GS}=0\text{V}$ $V_{DS}=48\text{V}$, $V_{GS}=0\text{V}$, $T=125^{\circ}\text{C}(2)$
On-State Drain Current(1)	$I_{D(on)}$	500		mA	$V_{DS}=25\text{V}$, $V_{GS}=10\text{V}$
Static Drain-Source On-State Voltage (1)	$V_{DS(on)}$		3.75 375	V mV	$V_{GS}=10\text{V}$, $I_D=500\text{mA}$ $V_{GS}=5\text{V}$, $I_D=50\text{mA}$
Static Drain-Source On-State Resistance (1)	$R_{DS(on)}$		7.5 7.5	Ω Ω	$V_{GS}=10\text{V}$, $I_D=500\text{mA}$ $V_{GS}=5\text{V}$, $I_D=50\text{mA}$
Forward Transconductance (1)(2)	g_{fs}	80		mS	$V_{DS}=25\text{V}$, $I_D=500\text{mA}$
Input Capacitance (2)	C_{iss}		50	pF	$V_{DS}=25\text{V}$, $V_{GS}=0\text{V}$, $f=1\text{MHz}$
Common Source Output Capacitance (2)	C_{oss}		25	pF	
Reverse Transfer Capacitance (2)	C_{rss}		5	pF	
Turn-On Time (2)(3)	$t_{(on)}$		20	ns	$V_{DD}\approx 30\text{V}$, $I_D=200\text{mA}$ $R_g=25\Omega$, $R_L=150\Omega$
Turn-Off Time (2)(3)	$t_{(off)}$		20	ns	

(1) Measured under pulsed conditions. Width=300 μs . Duty cycle $\leq 2\%$ (2) Sample test.

(3) Switching times measured with 50 Ω source impedance and <5ns rise time on a pulse generator
Spice parameter data is available upon request for this device