

2N7002

**SURFACE MOUNT
N-CHANNEL
ENHANCEMENT-MODE
SILICON MOSFET**



SOT-23 CASE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2N7002 type is a N-Channel Field Effect Transistor, manufactured by the N-Channel DMOS Process, designed for high speed pulsed amplifier and driver applications.

MARKING CODE: 702

MAXIMUM RATINGS: ($T_A=25^\circ\text{C}$)

Drain-Source Voltage
 Drain-Gate Voltage
 Gate-Source Voltage
 Continuous Drain Current ($T_C=25^\circ\text{C}$)
 Continuous Drain Current ($T_C=100^\circ\text{C}$)
 Continuous Source Current (Body Diode)
 Maximum Pulsed Drain Current
 Maximum Pulsed Source Current
 Power Dissipation
 Operating and Storage Junction Temperature
 Thermal Resistance

SYMBOL

V_{DS} 60
 V_{DG} 60
 V_{GS} 40
 I_D 115
 I_D 75
 I_S 115
 I_{DM} 800
 I_{SM} 800
 P_D 350
 T_J, T_{stg} -55 to +150
 θ_{JA} 357

UNITS

V
 V
 V
 mA
 mA
 mA
 mA
 mA
 mW
 $^\circ\text{C}$
 $^\circ\text{C/W}$

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

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_{GSSF}	$V_{GS}=20\text{V}$			100	nA
I_{GSSR}	$V_{GS}=20\text{V}$			100	nA
I_{DSS}	$V_{DS}=60\text{V}, V_{GS}=0$			1.0	μA
I_{DSS}	$V_{DS}=60\text{V}, V_{GS}=0, T_A=125^\circ\text{C}$			500	μA
$I_{D(ON)}$	$V_{DS}=10\text{V}, V_{GS}=10\text{V}$	500			mA
BV_{DSS}	$I_D=10\mu\text{A}$	60	105		V
$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	1.0	2.1	2.5	V
$V_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=500\text{mA}$			3.75	V
$V_{DS(ON)}$	$V_{GS}=5.0\text{V}, I_D=50\text{mA}$			1.5	V
V_{SD}	$V_{GS}=0, I_S=11.5\text{mA}$			1.5	V
$r_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=500\text{mA}$		3.7	7.5	Ω
$r_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=500\text{mA}, T_A=100^\circ\text{C}$			13.5	Ω
$r_{DS(ON)}$	$V_{GS}=5.0\text{V}, I_D=50\text{mA}$		6.2	7.5	Ω
$r_{DS(ON)}$	$V_{GS}=5.0\text{V}, I_D=50\text{mA}, T_A=100^\circ\text{C}$			13.5	Ω
9FS	$V_{DS}=10\text{V}, I_D=200\text{mA}$	80			mS

R4 (7-January 2010)

2N7002

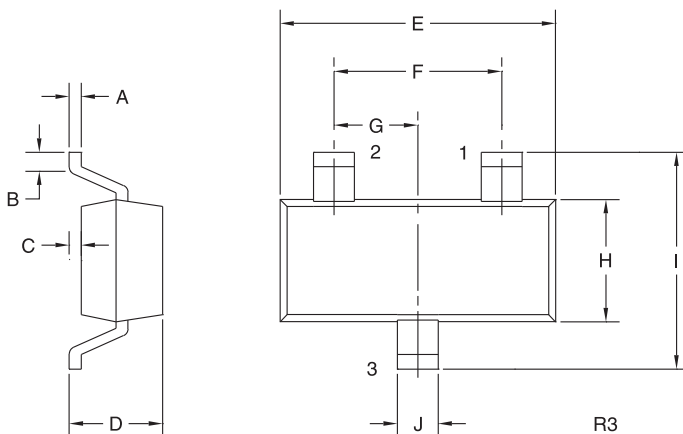
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ELECTRICAL CHARACTERISTICS - Continued: ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
C_{rss}	$V_{DS}=25\text{V}, V_{GS}=0, f=1.0\text{MHz}$		5.0	pF
C_{iss}	$V_{DS}=25\text{V}, V_{GS}=0, f=1.0\text{MHz}$		50	pF
C_{oss}	$V_{DS}=25\text{V}, V_{GS}=0, f=1.0\text{MHz}$		25	pF
t_{on}	$V_{DD}=30\text{V}, I_D=10\text{V}, R_G=25\Omega, R_L=25\Omega$		20	ns
t_{off}	$V_{DD}=30\text{V}, I_D=10\text{V}, R_G=25\Omega, R_L=25\Omega$		20	ns

SOT-23 CASE - MECHANICAL OUTLINE



LEAD CODE:

- 1) GATE
- 2) SOURCE
- 3) DRAIN

MARKING CODE: 702

SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.003	0.007	0.08	0.18
B	0.006	-	0.15	-
C	-	0.005	-	0.13
D	0.035	0.043	0.89	1.09
E	0.110	0.120	2.80	3.05
F	0.075		1.90	
G	0.037		0.95	
H	0.047	0.055	1.19	1.40
I	0.083	0.098	2.10	2.49
J	0.014	0.020	0.35	0.50

SOT-23 (REV: R3)

R4 (7-January 2010)