

2N7002

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



SOT-23 CASE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2N7002 type is an N-Channel enhancement-mode MOSFET manufactured by the N-Channel DMOS Process, designed for high speed pulsed amplifier and driver applications.

MARKING CODE: 702

MAXIMUM RATINGS: (T_A=25°C)

Drain-Source Voltage
 Drain-Gate Voltage
 Gate-Source Voltage
 Continuous Drain Current (T_C=25°C)
 Continuous Drain Current (T_C=100°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} -65 to +150
 Θ_{JA} 357

UNITS

V
 V
 V
 mA
 mA
 mA
 mA
 mA
 mW
 °C
 °C/W

ELECTRICAL CHARACTERISTICS: (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I _{GSSF}	V _{GS} =20V			100	nA
I _{GSSR}	V _{GS} =20V			100	nA
I _{DSS}	V _{DS} =60V, V _{GS} =0			1.0	μA
I _{DSS}	V _{DS} =60V, V _{GS} =0, T _A =125°C			500	μA
I _{D(ON)}	V _{DS} =10V, V _{GS} =10V	500			mA
BV _{DSS}	I _D =10μA	60	105		V
V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	2.1	2.5	V
V _{DS(ON)}	V _{GS} =10V, I _D =500mA			3.75	V
V _{DS(ON)}	V _{GS} =5.0V, I _D =50mA			0.375	V
V _{SD}	V _{GS} =0, I _S =11.5mA			1.5	V
r _{DS(ON)}	V _{GS} =10V, I _D =500mA		3.7	7.5	Ω
r _{DS(ON)}	V _{GS} =10V, I _D =500mA, T _A =100°C			13.5	Ω
r _{DS(ON)}	V _{GS} =5.0V, I _D =50mA		6.2	7.5	Ω
r _{DS(ON)}	V _{GS} =5.0V, I _D =50mA, T _A =100°C			13.5	Ω
g _{FS}	V _{DS} =10V, I _D =200mA	80			mS

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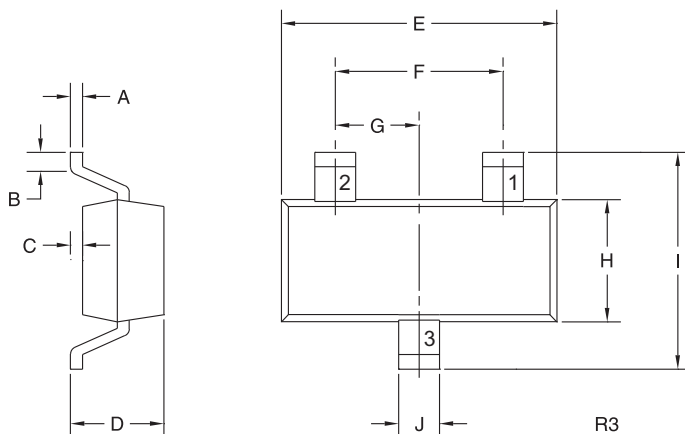
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ELECTRICAL CHARACTERISTICS - Continued: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	TYP	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
$Q_{g(\text{tot})}$	$V_{DS}=30\text{V}, V_{GS}=4.5\text{V}, I_D=100\text{mA}$	0.592		nC
Q_{gs}	$V_{DS}=30\text{V}, V_{GS}=4.5\text{V}, I_D=100\text{mA}$	0.196		nC
Q_{gd}	$V_{DS}=30\text{V}, V_{GS}=4.5\text{V}, I_D=100\text{mA}$	0.148		nC
t_{on}	$V_{DD}=30\text{V}, I_D=200\text{mA}, R_G=25\Omega, R_L=150\Omega$		20	ns
t_{off}	$V_{DD}=30\text{V}, I_D=200\text{mA}, R_G=25\Omega, R_L=150\Omega$		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)

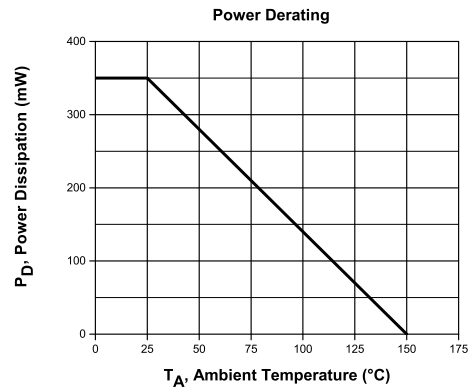
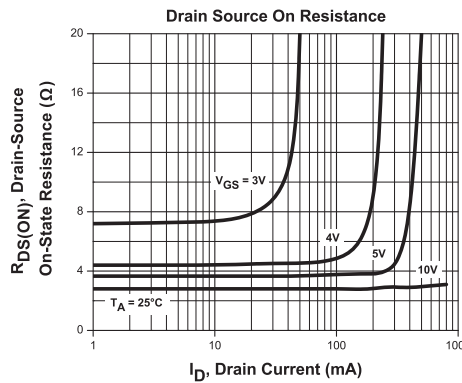
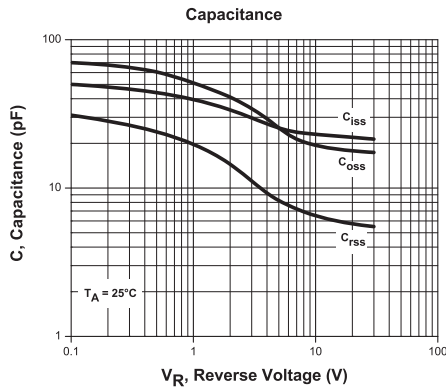
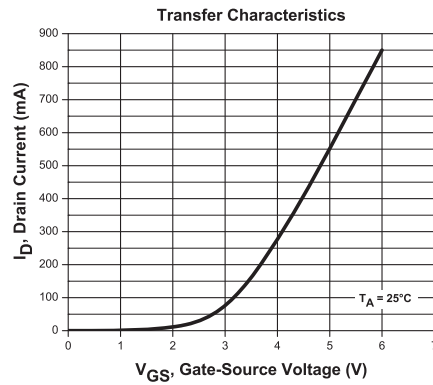
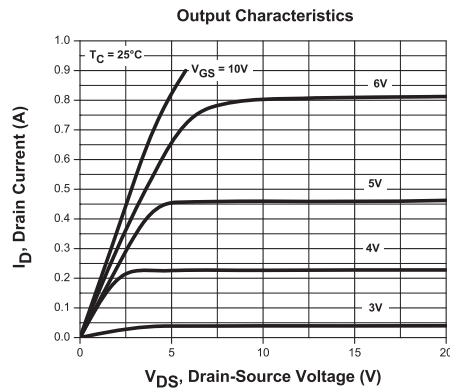
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TYPICAL ELECTRICAL CHARACTERISTICS



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OUTSTANDING SUPPORT AND SUPERIOR SERVICES



PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2nd day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix " TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix " PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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