



DC COMPONENTS CO., LTD.

DISCRETE SEMICONDUCTORS

2N7002

TECHNICAL SPECIFICATIONS OF N-CHANNEL SMALL SIGNAL MOSFET

Description

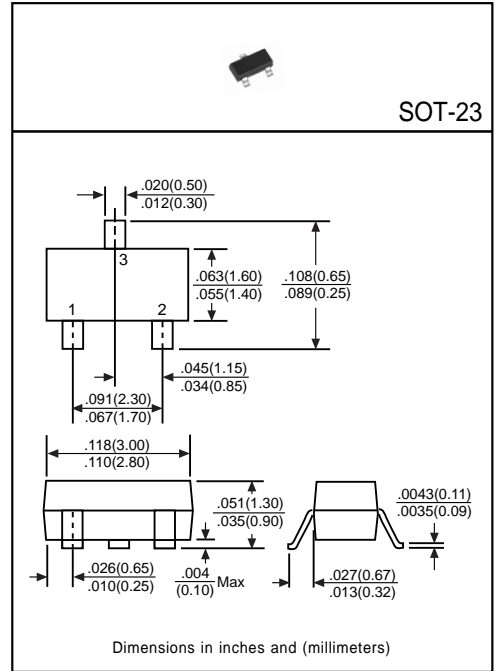
Designed for low voltage and low current applications such as small servo motor control, power MOSFET gate drivers, and other switching applications.

Pinning

- 1 = Gate
- 2 = Source
- 3 = Drain

Absolute Maximum Ratings (T_A=25°C)

Characteristic	Symbol	Rating	Unit
Drain-Source Voltage	V _{DSS}	60	V
Drain-Gate Voltage (R _{GS} =1MΩ)	V _{DGR}	60	V
Gate-Source Voltage (Continuous)	V _{GS}	±20	V
Drain Current (Continuous, T _c =25°C) ⁽¹⁾	I _D	115	mA
Drain Current (Pulsed) ⁽²⁾	I _{DM}	800	mA
Total Power Dissipation Derate above 25°C	P _D	200 1.8	mW mW/°C
Operating Junction Temperature	T _J	-55 to +150	°C
Storage Temperature	T _{STG}	-55 to +150	°C
Maximum Lead Temperature, for 10 Seconds Soldering Purpose	T _L	260	°C



Electrical Characteristics

(Ratings at 25°C ambient temperature unless otherwise specified)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain-Source Breakdown Voltage	V _{(BR)DSS}	60	-	-	V	I _D =10μA, V _{GS} =0
Zero Gate Voltage Drain Current	I _{DSS}	-	-	1	μA	V _{DS} =60V, V _{GS} =0
Gate-Source Forward Leakage Current	I _{GSSF}	-	-	100	nA	V _{GSF} =20V, V _{DS} =0
Gate-Source Reverse Leakage Current	I _{GSSR}	-	-	-100	nA	V _{GSR} =-20V, V _{DS} =0
Gate Threshold Voltage ⁽²⁾	V _{GS(th)}	1	-	2.5	V	V _{DS} =2.5V, I _D =0.25mA
On-State Drain Current ⁽²⁾	I _{D(on)}	500	-	-	mA	V _{DS} >2V _{DS(on)} , V _{GS} =10V
Static Drain-Source On-State Voltage ⁽²⁾	V _{DS(on)1}	-	-	0.375	V	I _D =50mA, V _{GS} =5V
	V _{DS(on)2}	-	-	3.75	V	I _D =500mA, V _{GS} =10V
Static Drain-Source On-State Resistance ⁽²⁾	R _{DS(on)1}	-	-	7.5	Ω	I _D =50mA, V _{GS} =5V
	R _{DS(on)2}	-	-	7.5	Ω	I _D =500mA, V _{GS} =10V
Forward Transconductance ⁽²⁾	g _{FS}	80	-	-	mS	V _{DS} >2V _{DS(on)} , I _D =200mA
Input Capacitance	C _{iss}	-	-	50	pF	V _{DS} =25V, V _{GS} =0, f=1MHZ
Output Capacitance	C _{oss}	-	-	25	pF	
Reverse Transfer Capacitance	C _{rss}	-	-	5	pF	
Thermal Resistance, Junction to Ambient	R _{θJA}	-	-	625	°C/W	-

(1)The Power Dissipation of the package may result in a lower continuous drain current.

(2)Pulse Test: Pulse Width ≤380μs, Duty Cycle ≤2%