



DC COMPONENTS CO., LTD.

DISCRETE SEMICONDUCTORS

2N7000

TECHNICAL SPECIFICATIONS OF N-CHANNEL SMALL SIGNAL MOSFET

Description

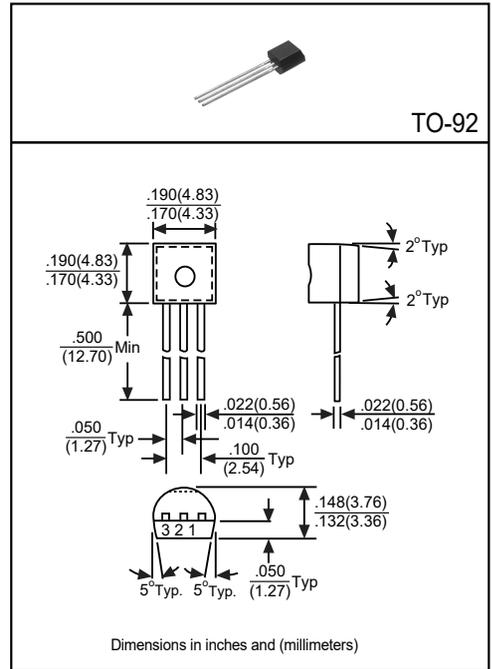
Designed for low voltage and low current applications such as small servo motor control, power MOSFET gate drivers, and other switching applications.

Pinning

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

Absolute Maximum Ratings (TA=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)	I _D	200	mA
Drain Current (Pulsed) ⁽¹⁾	I _{DM}	500	mA
Total Power Dissipation Derate above 25°C	P _D	350 2.8	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	300	°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 =10αA, V _{GS} =0
Zero Gate Voltage Drain Current	I _{DSS}	-	-	1	αA	V _{DS} =48V, V _{GS} =0
Gate-Source Forward Leakage Current	I _{GSSF}	-	-	10	nA	V _{GSF} =15V, V _{DS} =0
Gate-Source Reverse Leakage Current	I _{GSSR}	-	-	-10	nA	V _{GSR} =-15V, V _{DS} =0
Gate Threshold Voltage ⁽¹⁾	V _{GS(th)}	0.8	-	3	V	V _{DS} =3V, I _D =1mA
On-State Drain Current ⁽¹⁾	I _{D(on)}	75	-	-	mA	V _{DS} =4.5V, V _{BS} =10V
Static Drain-Source On-State Voltage ⁽¹⁾	V _{DS(on)1}	-	-	0.45	V	I _D =75mA, V _{GS} =4.5V
	V _{DS(on)2}	-	-	2.5	V	I _D =500mA, V _{GS} =10V
Static Drain-Source On-State Resistance ⁽¹⁾	R _{DS(on)1}	-	-	6	Ω	I _D =75mA, V _{GS} =4.5V
	R _{DS(on)2}	-	-	5	Ω	I _D =500mA, V _{GS} =10V
Forward Transconductance ⁽¹⁾	g _{FS}	100	-	-	αS	V _{DS} =10V, I _D =200mA
Input Capacitance	C _{iss}	-	-	60	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}	-	-	357	°C/W	-

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