

# Advanced Small Signal MOSFET 2N7000BU/2N7000TA

## FEATURES

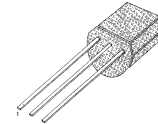
- Fast Switching Times
- Improved Inductive Ruggedness
- Lower Input Capacitance
- Extended Safe Operating Area
- Improved High Temperature Reliability

$$BV_{DSS} = 60 \text{ V}$$

$$R_{DS(on)} = 5.0 \ \Omega$$

$$I_D = 200 \text{ mA}$$

### TO-92



1.Source 2. Gate 3. Drain

## Absolute Maximum Ratings

Symbol	Characteristic	Value	Units
$V_{DSS}$	Drain-to-Source Voltage	60	V
$I_D$	Continuous Drain Current ( $T_C=25^\circ\text{C}$ )	200	mA
	Continuous Drain Current ( $T_C=100^\circ\text{C}$ )	110	
$I_{DM}$	Drain Current-Pulsed <sup>①</sup>	1000	mA
$V_{GS}$	Gate-to-Source Voltage	$\pm 30$	V
$P_D$	Total Power Dissipation ( $T_C=25^\circ\text{C}$ )	400	mW
	Linear Derating Factor	3.2	mW/ $^\circ\text{C}$
$T_J, T_{STG}$	Operating Junction and Storage Temperature Range	- 55 to +150	$^\circ\text{C}$
$T_L$	Maximum Lead Temp. for Soldering Purposes, 1/8" from case for 5-seconds	300	

## Thermal Resistance

Symbol	Characteristic	Typ.	Max.	Units
$R_{\theta JA}$	Junction-to-Ambient	--	312.5	$^\circ\text{C/W}$

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Rev. B

## Electrical Characteristics (T<sub>C</sub>=25°C unless otherwise specified)

Symbol	Characteristic	Min.	Typ.	Max.	Units	Test Condition
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	60	--	--	V	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA
V <sub>GS(th)</sub>	Gate Threshold Voltage	0.3	--	3.9	V	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA
		0.4	--	2.2		V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =1mA
I <sub>GSS</sub>	Gate-Source Leakage, Forward	--	--	100	nA	V <sub>GS</sub> =15V
	Gate-Source Leakage, Reverse	--	--	-100		V <sub>GS</sub> =-15V
I <sub>DSS</sub>	Drain-to-Source Leakage Current	--	--	1	μA	V <sub>DS</sub> =60V
		--	--	1000		V <sub>DS</sub> =45V, T <sub>C</sub> =125°C
R <sub>DS(on)</sub>	Static Drain-Source On-State Resistance <sup>②</sup>	--	--	5.0	Ω	V <sub>GS</sub> =10V, I <sub>D</sub> =0.5A
g <sub>fs</sub>	Forward Transconductance <sup>②</sup>	0.1	0.3	--	S	V <sub>DS</sub> =15V, I <sub>D</sub> =0.5A
C <sub>iss</sub>	Input Capacitance	--	30	--	pF	V <sub>GS</sub> =0V, V <sub>DS</sub> =25V, f=1MHz
C <sub>oss</sub>	Output Capacitance	--	12	--		
C <sub>rss</sub>	Reverse Transfer Capacitance	--	3.0	--		
t <sub>d(on)</sub>	Turn-On Delay Time	--	--	10	ns	V <sub>DD</sub> =30V, I <sub>D</sub> =0.5A, R <sub>G</sub> =15Ω <sup>②③</sup>
t <sub>r</sub>	Rise Time	--	--	10		
t <sub>d(off)</sub>	Turn-Off Delay Time	--	--	10		
t <sub>f</sub>	Fall Time	--	--	10		

### Notes ;

- ① Repetitive Rating : Pulse Width Limited by Maximum Junction Temperature
- ② Pulse Test : Pulse Width = 250μs, Duty Cycle ≤ 2%
- ③ Essentially Independent of Operating Temperature

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