

Advanced Small Signal MOSFET 2N7000BU/2N7000TA

FEATURES

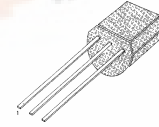
- Fast Switching Times
- Improved Inductive Ruggedness
- Lower Input Capacitance
- Extended Safe Operating Area
- Improved High Temperature Reliability

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

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

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

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 ^①	1000	mA
V_{GS}	Gate-to-Source Voltage	± 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	$^\circ\text{C/W}$

FAIRCHILD
SEMICONDUCTOR®

Rev. B

2N7000BU/2N7000TA

N-CHANNEL
Small Signal MOSFET

Electrical Characteristics ($T_C=25^\circ\text{C}$ unless otherwise specified)

Symbol	Characteristic	Min.	Typ.	Max.	Units	Test Condition
BV_{DSS}	Drain-Source Breakdown Voltage	60	--	--	V	$V_{GS}=0V, I_D=250\mu A$
$V_{GS(th)}$	Gate Threshold Voltage	0.3	--	3.9	V	$V_{DS}=V_{GS}, I_D=250\mu A$
		0.4	--	2.2		$V_{DS}=V_{GS}, I_D=1mA$
I_{GSS}	Gate-Source Leakage, Forward	--	--	100	nA	$V_{GS}=15V$
	Gate-Source Leakage, Reverse	--	--	-100		$V_{GS}=-15V$
I_{DSS}	Drain-to-Source Leakage Current	--	--	1	μA	$V_{DS}=60V$
		--	--	1000		$V_{DS}=45V, T_C=125^\circ C$
$R_{DS(on)}$	Static Drain-Source On-State Resistance ^②	--	--	5.0	Ω	$V_{GS}=10V, I_D=0.5A$
g_{fs}	Forward Transconductance ^②	0.1	0.3	--	S	$V_{DS}=15V, I_D=0.5A$
C_{iss}	Input Capacitance	--	30	--	pF	$V_{GS}=0V, V_{DS}=25V,$ $f=1MHz$
C_{oss}	Output Capacitance	--	12	--		
C_{rss}	Reverse Transfer Capacitance	--	3.0	--		
$t_{d(on)}$	Turn-On Delay Time	--	--	10	ns	$V_{DD}=30V, I_D=0.5A,$ $R_G=15\Omega$ ^{②③}
t_r	Rise Time	--	--	10		
$t_{d(off)}$	Turn-Off Delay Time	--	--	10		
t_f	Fall Time	--	--	10		

Notes ;

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

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