Preferred Device

Small Signal MOSFET 200 mAmps, 60 Volts

N-Channel TO-92

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain Source Voltage	V _{DSS}	60	Vdc
Drain–Gate Voltage (R _{GS} = 1.0 M Ω)	V _{DGR}	60	Vdc
Gate–Source Voltage – Continuous – Non–repetitive (t _p ≤ 50 μs)	V _{GS} V _{GSM}	±20 ±40	Vdc Vpk
Drain Current - Continuous - Pulsed	I _D	200 500	mAdc
Total Power Dissipation @ T _C = 25°C Derate above 25°C	PD	350 2.8	mW mW/°C
Operating and Storage Temperature Range	T _J , T _{stg}	–55 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{ heta JA}$	357	°C/W
Maximum Lead Temperature for Soldering Purposes, 1/16" from case for 10 seconds	TL	300	°C

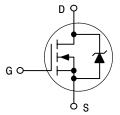


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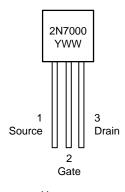
http://onsemi.com

200 mAMPS 60 VOLTS RDS(on) = 5 Ω

N-Channel







Y = Year WW = Work Week

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 3 of this data sheet.

Preferred devices are recommended choices for future use and best overall value.

2N7000

ELECTRICAL CHARACTERISTICS ($T_C = 25^{\circ}C$ unless otherwise noted)

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					II.
Drain–Source Breakdown Voltage (V _{GS} = 0, I _D = 10 μAdc)		V(BR)DSS	60	_	Vdc
Zero Gate Voltage Drain Current (VDS = 48 Vdc, VGS = 0) (VDS = 48 Vdc, VGS = 0, TJ = 125°C)		IDSS	_ _	1.0 1.0	μAdc mAdc
Gate–Body Leakage Current, Forward (VGSF = 15 Vdc, VDS = 0)		IGSSF	_	-10	nAdc
ON CHARACTERISTICS (N	ote 1.)			•	1
Gate Threshold Voltage (V _{DS} = V _{GS} , I _D = 1.0 mAdc	V _{GS(th)}	0.8	3.0	Vdc	
Static Drain–Source On–Resistance ($V_{GS} = 10 \text{ Vdc}$, $I_D = 0.5 \text{ Adc}$) ($V_{GS} = 4.5 \text{ Vdc}$, $I_D = 75 \text{ mAdc}$)		rDS(on)		5.0 6.0	Ohm
Drain–Source On–Voltage ($V_{GS} = 10 \text{ Vdc}$, $I_D = 0.5 \text{ Adc}$) ($V_{GS} = 4.5 \text{ Vdc}$, $I_D = 75 \text{ mAdc}$)		VDS(on)	_ _	2.5 0.45	Vdc
On–State Drain Current (V _{GS} = 4.5 Vdc, V _{DS} = 10 Vdc)		l _{d(on)}	75	-	mAdc
Forward Transconductance (V _{DS} = 10 Vdc, I _D = 200 mAdc)		9fs	100	-	μmhos
DYNAMIC CHARACTERIST	rics	-		*	1
Input Capacitance	(V _{DS} = 25 V, V _{GS} = 0,	C _{iss}	-	60	pF
Output Capacitance		C _{oss}	-	25	
Reverse Transfer Capacitance	f = 1.0 MHz)	C _{rss}	_	5.0	
SWITCHING CHARACTER	STICS (Note 1.)			•	-
Turn-On Delay Time	(V _{DD} = 15 V, I _D = 500 mA,	ton	-	10	ns
Turn-Off Delay Time	$R_G = 25 \Omega$, $R_L = 30 \Omega$, $V_{gen} = 10 V$)	toff	-	10	

^{1.} Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

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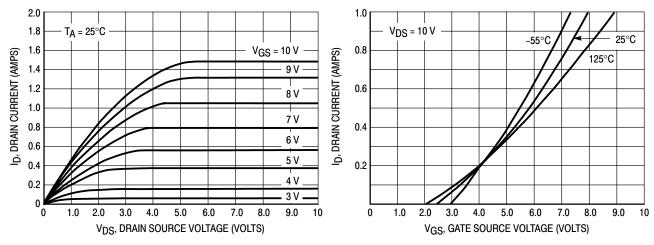


Figure 1. Ohmic Region

Figure 2. Transfer Characteristics

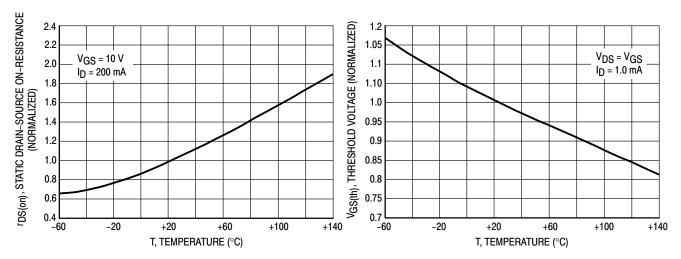


Figure 3. Temperature versus Static Drain–Source On–Resistance

Figure 4. Temperature versus Gate Threshold Voltage

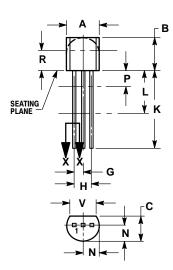
ORDERING INFORMATION

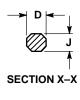
Device	Package	Shipping
2N7000	TO-92	1000 Unit/Box
2N7000RLRA	TO-92	2000 Tape & Reel
2N7000RLRM	TO-92	2000 Ammo Pack
2N7000RLRP	TO-92	2000 Ammo Pack
2N7000ZL1	TO-92	2000 Ammo Pack

2N7000

PACKAGE DIMENSIONS

TO-92 CASE 29-11 ISSUE AL





- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 - CONTROLLING DIMENSION: INCH.
- CONTOUR OF PACKAGE BEYOND DIMENSION R
- IS UNCONTROLLED.
 LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

	INCHES		MILLIN	IETERS
DIM	MIN	MAX	MIN	MAX
Α	0.175	0.205	4.45	5.20
В	0.170	0.210	4.32	5.33
С	0.125	0.165	3.18	4.19
D	0.016	0.021	0.407	0.533
G	0.045	0.055	1.15	1.39
Н	0.095	0.105	2.42	2.66
J	0.015	0.020	0.39	0.50
K	0.500		12.70	
L	0.250		6.35	
N	0.080	0.105	2.04	2.66
P		0.100		2.54
R	0.115		2.93	
v	0.135		3 43	

STYLE 22: PIN 1. SOURCE 2. GATE

3 DRAIN

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