

VN0300L

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	V
Drain-Gate Voltage	V_{DGR}	60	V
Gate-Source Voltage – Continuous – Non-repetitive ($t_p \leq 50 \mu s$)	V_{GS} V_{GSM}	± 20 ± 40	Vdc Vpk
Continuous Drain Current	I_D	200	mA
Pulsed Drain Current	I_{DM}	500	mA
Power Dissipation @ $T_C = 25^\circ C$ Derate above $25^\circ C$	P_D	350 2.8	mW mW/ $^\circ C$
Operating and Storage Temperature	T_J, T_{stg}	–	$^\circ C$

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	312.5	$^\circ C/W$
Maximum Lead Temperature for Soldering Purposes, 1/16" from case for 10 seconds	T_L	300	$^\circ C$

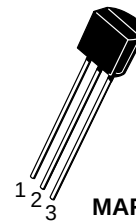
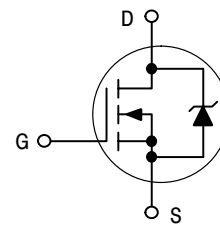


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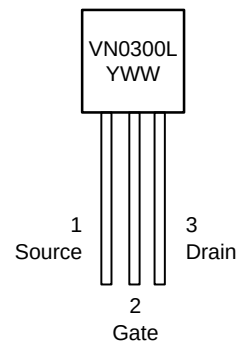
**200 mAmps
60 VOLTS
 $R_{DS(on)} = 1.2 \Omega$**

N-Channel



TO-92
CASE 29
Style 22

MARKING DIAGRAM & PIN ASSIGNMENT



Y = Year
WW = Work Week

ORDERING INFORMATION

Device	Package	Shipping
VN0300L	TO-92	1000 Units/Box
VN0300LRLRA	TO-92	2000 Tape & Reel
VN0300LRLRE	TO-92	2000 Tape & Reel

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

VN0300L

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
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STATIC CHARACTERISTICS

Drain–Source Breakdown Voltage (V _{DS} = 0, I _D = 10 μA)	V _{(BR)DSS}	30	–	V
Zero Gate Voltage Drain Current (V _{DS} = 48 Vdc, V _{GS} = 0) (V _{DS} = 48 Vdc, V _{GS} = 0, T _A = 125°C)	I _{DSS}	– –	10 500	μA
Gate–Body Leakage (V _{DS} = 0, V _{GS} = ±30 V)	I _{GSS}	–	±100	nA
Gate Threshold Voltage (V _{DS} = V _{GS} , I _D = 1.0 mA)	V _{GS(th)}	0.8	2.5	V
On–State Drain Current (Note 1.) (V _{DS} = V _{GS} , I _D = 1.0 mA)	I _{D(on)}	1.0	–	A
Drain–Source On Resistance (Note 1.) (V _{GS} = 5.0 V, I _D = 0.3 A) (V _{GS} = 10 V, I _D = 1.0 A)	r _{DS(on)}	– –	3.3 1.2	Ω
Forward Transconductance (Note 1.) (V _{DS} = 10 V, I _D = 0.5 A)	g _{fs}	200	–	mS

DYNAMIC CHARACTERISTICS

Input Capacitance	(V _{DS} = 15 Vdc, V _{GS} = 0, f = 1.0 MHz)	C _{iss}	–	100	pF
Output Capacitance		C _{oss}	–	95	pF
Reverse Transfer Capacitance		C _{rss}	–	25	pF

SWITCHING CHARACTERISTICS

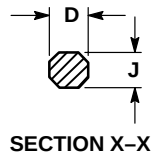
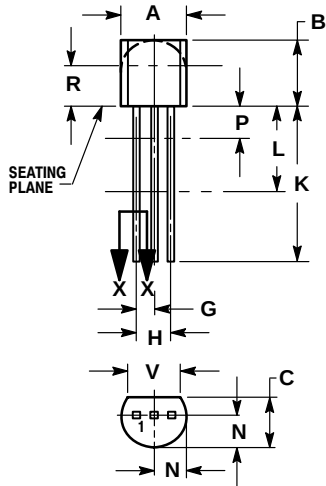
Turn–On Time	(V _{DD} = 25 Vdc, I _D = 1.0 A, R _L = 24 Ω, R _G = 25 Ω)	t _{on}	–	30	ns
Turn–Off Time		t _{off}	–	30	ns

1. Pulse Test; Pulse Width < 300 μs, Duty Cycle ≤ 2.0%.

VN0300L

PACKAGE DIMENSIONS

TO-92
CASE 29-11
ISSUE AL



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

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.175	0.205	4.45	5.20
B	0.170	0.210	4.32	5.33
C	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
H	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
 - GATE
 - DRAIN

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