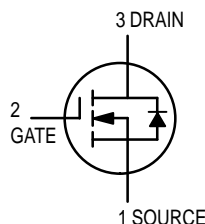


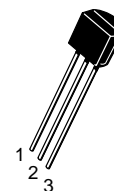
TMOS FET Transistor

N-Channel — Enhancement



VN0300L

Motorola Preferred Device



CASE 29-04, STYLE 22
TO-92 (TO-226AA)

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	$^\circ C$

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ C$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
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STATIC CHARACTERISTICS

Drain-Source Breakdown Voltage ($V_{DS} = 0, I_D = 10 \mu A$)	$V_{(BR)DSS}$	30	—	V
Zero Gate Voltage Drain Current ($V_{DS} = 48 V_{dc}, V_{GS} = 0$) ($V_{DS} = 48 V_{dc}, V_{GS} = 0, T_A = 125^\circ C$)	I_{DSS}	— —	10 500	μA
Gate-Body Leakage ($V_{DS} = 0, V_{GS} = \pm 30 V$)	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 ⁽¹⁾ ($V_{DS} = V_{GS}, I_D = 1.0 mA$)	$I_{D(on)}$	1.0	—	A
Drain-Source On Resistance ⁽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 ⁽¹⁾ ($V_{DS} = 10 V, I_D = 0.5 A$)	g_{fs}	200	—	mS

1. Pulse Test; Pulse Width < 300 μs , Duty Cycle $\leq 2.0\%$.

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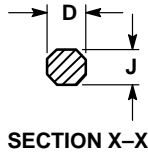
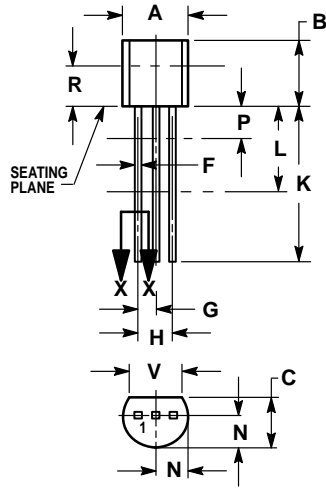
Preferred devices are Motorola recommended choices for future use and best overall value.

REV 1

VN0300L**ELECTRICAL CHARACTERISTICS** ($T_A = 25^\circ\text{C}$ unless otherwise noted) (Continued)

Characteristic	Symbol	Min	Max	Unit	
DYNAMIC CHARACTERISTICS					
Input Capacitance	$(V_{DS} = 15 \text{ Vdc}, V_{GS} = 0, f = 1.0 \text{ MHz})$	C_{iss}	—	100	pF
Output Capacitance		C_{oss}	—	95	pF
Reverse Transfer Capacitance		C_{rss}	—	25	pF
SWITCHING CHARACTERISTICS					
Turn-On Time	$(V_{DD} = 25 \text{ Vdc}, I_D = 1.0 \text{ A}, R_L = 24 \Omega, R_G = 25 \Omega)$	t_{on}	—	30	ns
Turn-Off Time		t_{off}	—	30	ns

PACKAGE DIMENSIONS



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. DIMENSION F APPLIES BETWEEN P AND L. DIMENSION D AND J APPLY BETWEEN L AND K. MINIMUM. 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	0.022	0.41	0.55
F	0.016	0.019	0.41	0.48
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	—

CASE 029-04
(TO-226AA)
ISSUE AD

STYLE 22:
PIN 1. SOURCE
2. GATE
3. DRAIN

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