Preferred Device

Small Signal MOSFET 150 mAmps, 60 Volts

N-Channel TO-92

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain-Source Voltage	V _{DSS}	60	Vdc
Drain–Gate Voltage (RGS = 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	150 1000	mAdc
Total Power Dissipation @ T _A = 25°C Derate above 25°C	PD	400 3.2	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	$R_{\theta JA}$	312.5	°C/W
Maximum Lead Temperature for Soldering Purposes, 1/16" from case for 10 seconds	TL	300	°C

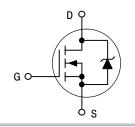


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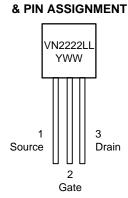
http://onsemi.com

150 mAMPS 60 VOLTS RDS(on) = 7.5 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.

ELECTRICAL CHARACTERISTICS ($T_C = 25$ °C unless otherwise noted)

Characteristic			Min	Max	Unit
OFF CHARACTERISTICS				•	
Drain–Source Breakdown Voltage (V _{GS} = 0, I _D = 100 μAdc)		V(BR)DSS	60	-	Vdc
Zero Gate Voltage Drain Current $(V_{DS} = 48 \text{ Vdc}, V_{GS} = 0)$ $(V_{DS} = 48 \text{ Vdc}, V_{GS} = 0, T_{J} = 125)$	IDSS	<u>-</u>	10 500	μAdc	
Gate–Body Leakage Current, Forwar (VGSF = 30 Vdc, VDS = 0)	IGSSF	-	-100	nAdc	
ON CHARACTERISTICS (Note 1.)				•	•
Gate Threshold Voltage (VDS = VGS, ID = 1.0 mAdc)		VGS(th)	0.6	2.5	Vdc
Static Drain–Source On–Resistance (V _{GS} = 10 Vdc, I _D = 0.5 Adc) (V _{GS} = 10 Vdc, I _D = 0.5 Vdc, T _C = 125°C)		rDS(on)	_ _	7.5 13.5	Ω
Drain–Source On–Voltage (V _{GS} = 5.0 Vdc, I _D = 200 mAdc) (V _{GS} = 10 Vdc, I _D = 500 mAdc)		V _{DS(on)}	-	1.5 3.75	Vdc
On–State Drain Current (V _{GS} = 10 Vdc, V _{DS} ≥ 2.0 V _{DS} (on))		I _{D(on)}	750	-	mA
Forward Transconductance (V _{DS} = 10 Vdc, I _D = 500 mAdc)	9fs	100	-	μmhos	
DYNAMIC CHARACTERISTICS					
Input Capacitance		C _{iss}	-	60	pF
Output Capacitance	$(V_{DS} = 25 \text{ Vdc}, V_{GS} = 0,$ f = 1.0 MHz)	C _{oss}	-	25	
Reverse Transfer Capacitance	. =	C _{rss}	-	5.0	
SWITCHING CHARACTERISTIC	S (Note 1.)				
Turn-On Delay Time	$(V_{DD} = 15 \text{ Vdc, } I_D = 600 \text{ mA,}$ $R_{gen} = 25 \Omega, R_L = 23 \Omega)$	ton	_	10	ns
Turn-Off Delay Time		toff	-	10	1

Turn–Off Delay Time Rgen = 23 1. Pulse Test: Pulse Width $\leq 300 \,\mu$ s, Duty Cycle $\leq 2.0\%$.

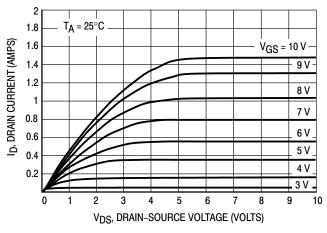


Figure 1. Ohmic Region

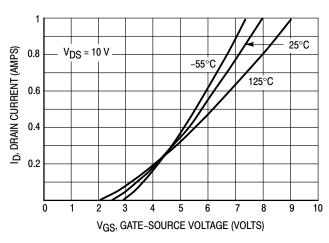


Figure 2. Transfer Characteristics

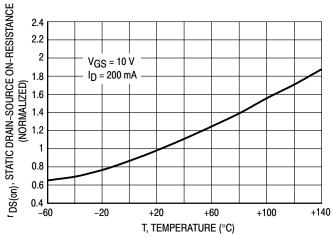


Figure 3. Temperature versus Static Drain–Source On–Resistance

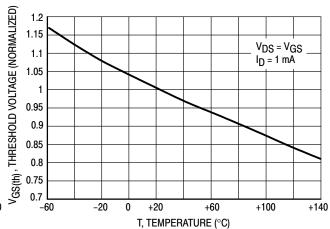


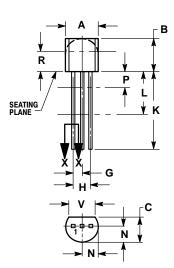
Figure 4. Temperature versus Gate Threshold Voltage

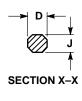
ORDERING INFORMATION

Device	Package	Shipping
VN2222LL	TO-92	1000 Unit/Box
VN2222LLRL	TO-92	2000 Tape & Reel
VN2222RLRA	TO-92	2000 Tape & Reel
VN2222RLRM	TO-92	1000 Unit/Box

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 //3	

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

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