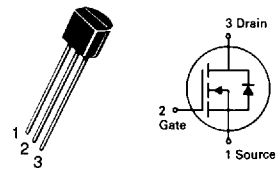
VN1706L★

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



TMOS FET TRANSISTOR

N-CHANNEL — ENHANCEMENT

★This is a Motorola designated preferred device.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	170	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°C Derate above 25°C	P_D	350 2.8	mW mW/°C
Operating and Storage Temperature	T_J, T_{stg}	–	°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	T_L	300	°C

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

Characteristic		Symbol	Min	Max	Unit
STATIC CHARACTERISTICS					
Drain-Source Breakdown Voltage (V_{GS} = 0, I_D = 100 μA)		$V_{(BR)DSS}$	170	—	V
Zero Gate Voltage Drain Current (V_{DS} = 120 V, V_{GS} = 0) (V_{DS} = 120 V, V_{GS} = 0, T_A = 125 °C)		I_{DSS}	 — —	 10 500	μA
Gate-Body Leakage (V_{DS} = 0, V_{GS} = ±15 V)		I_{GSS}	—	±100	nA
Gate Threshold Voltage (V_{DS} = V_{GS}, I_D = 1.0 mA)		$V_{GS(th)}$	0.8	2.0	V
On-State Drain Current* (V_{GS} = 10 V, $V_{DS} \geq 2.0\ V_{DS(on)}$)		$I_{D(on)}$	1.0	—	A
Drain-Source On Resistance* (V_{GS} = 2.5 V, I_D = 0.1 A) (V_{GS} = 10 V, I_D = 0.5 A)		$r_{DS(on)}$	 — —	 10 6.0	Ω
Forward Transconductance* (V_{DS} = 10 V, I_D = 0.5 A)		g_{fs}	300	—	mS
DYNAMIC CHARACTERISTICS					
Input Capacitance	V_{DS} = 25 V, V_{GS} = 0 f = 1.0 MHz	C_{iss}	—	125	pF
Output Capacitance		C_{oss}	—	50	
Reverse Transfer Capacitance		C_{rss}	—	20	
SWITCHING CHARACTERISTICS					
Turn-On Time	V_{DD} = 60 V, I_D = 0.1 A R_L = 150 Ω, R_G = 25 Ω	$t_{(on)}$	—	8.0	ns
		t_r	—	8.0	
Turn-Off Time		$t_{(off)}$	—	18	
		$t_{(f)}$	—	12	

* Pulse Test; Pulse width < 300 μs, Duty Cycle ≤ 2%