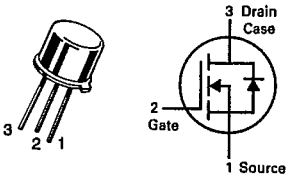
2N6790

CASE 79-05, STYLE 6
TO-39 (TO-205AF)



TMOS FET TRANSISTOR
N-CHANNEL — ENHANCEMENT

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	200	Vdc
Drain-Gate Voltage (R_{GS} = 1.0 mΩ)	V_{DGR}	200	Vdc
Gate-Source Voltage	V_{GS}	±20	Vdc
Drain Current Continuous Pulsed	 I_D I_{DM}	 3.5 14	Adc
Total Power Dissipation @ T_C = 25°C Derate above 25°C	P_D	20 0.16	Watts W/°C
Operating and Storage Temperature Range	T_J, T_{stg}	−55 to 150	°C

THERMAL CHARACTERISTICS

Thermal Resistance Junction to Case	$R_{\theta JC}$	6.25	°C/W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	175	°C/W
Maximum Lead Temperature 1.6 mm from Case for 10 s	T_L	300	°C

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

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Drain-Source Breakdown Voltage (V_{GS} = 0, I_D = 0.25 mA)		$V_{(BR)DSS}$	200	—	Vdc
Zero Gate Voltage Drain Current (V_{DS} = Rated V_{DSS}, V_{GS} = 0) (V_{DS} = 0.8 Rated V_{DSS}, V_{GS} = 0, T_J = 125°C)		I_{DSS}	 — —	 250 1000	μAdc
Gate-Body Leakage Current, Forward (V_{GS} = 20 Vdc, V_{DS} = 0)		I_{GSSF}	—	100	nAdc
Gate-Body Leakage Current, Reverse (V_{GS} = −20 Vdc, V_{DS} = 0)		I_{GSSR}	—	−100	nAdc
ON CHARACTERISTICS*					
Gate Threshold Voltage (V_{DS} = V_{GS}, I_D = 1.0 mA)		$V_{GS(th)}$	2.0	4.0	Vdc
Static Drain-Source On-Resistance (V_{GS} = 10 Vdc, I_D = 2.25 Adc)	T_A = 25°C T_A = 125°C	$r_{DS(on)}$	— —	0.8 1.5	Ohm
Drain-Source On-Voltage (V_{GS} = 10 V, I_D = 3.5 Adc)		$V_{DS(on)}$	—	2.8	Vdc
Forward Transconductance (V_{DS} = 5.0 V, I_D = 2.25 Adc)		g_{fs}	1.5	4.5	mhos
DYNAMIC CHARACTERISTICS					
Input Capacitance	(V_{DS} = 25 V, V_{GS} = 0, f = 1.0 MHz)	C_{iss}	200	600	pF
Output Capacitance		C_{oss}	60	300	
Reverse Transfer Capacitance		C_{rss}	15	80	
SWITCHING CHARACTERISTICS*					
Turn-On Delay Time	(V_{DD} ≈ 74 V, I_D = 2.25 A, R_{gen} = 50 ohms)	$t_{d(on)}$	—	40	ns
Rise Time		t_r	—	50	
Turn-Off Delay Time		$t_{d(off)}$	—	50	
Fall Time		t_f	—	50	
SOURCE-DRAIN DIODE CHARACTERISTICS*					
Forward Diode Voltage	(I_S = Rated $I_{D(on)}$, V_{GS} = 0)	V_{SD}	0.7	1.5	Vdc
Forward Turn-On Time		t_{on}	—	Negligible	ns
Reverse Recovery Time		t_{rr}	—	350	ns

*Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

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