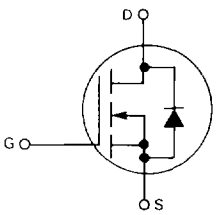
MFE910
MPF910

N-CHANNEL ENHANCEMENT-MODE TMOS FIELD-EFFECT TRANSISTOR

This TMOS FET is designed for high-voltage, high-speed switching applications such as line drivers, relay drivers, CMOS logic, microprocessor of TTL-to-high voltage interface and high voltage display drivers.

- Fast Switching Speed — $t_{on} = t_{off} = 6.0$ ns Typ
- Low On-Resistance — 2.0 Ohms Typ
- Low Drive Requirement, $V_{GS(th)} = 2.5$ V Max
- Inherent Current Sharing Capability Permits Easy Paralleling of Many Devices

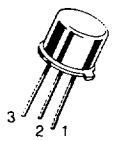
TMOS™



60 VOLTS

N-CHANNEL TMOS FET

MFE910



CASE 79-04
TO-205AD

MPF910

CASE 29-03
TO-226AE

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	60	Vdc
Gate-Source Voltage	V_{GS}	±15	Vdc
Drain Current — Continuous (1) Pulsed (2)	I_D I_{DM}	0.5 1.0	Adc
Total Power Dissipation @ $T_C = 25°C$ Derate above 25°C MFE910	P_D	6.25 50	Watts mW/°C
Total Power Dissipation @ $T_A = 25°C$ Derate above 25°C MPF910	P_D	1.0 8.0	Watts mW/°C
Operating and Storage Temperature Range	T_J, T_{stg}	−55 to +150	°C

(1) The Power Dissipation of the package may result in a lower continuous drain current.
(2) Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

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

Characteristics	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Drain-Source Breakdown Voltage (V_{GS} = 0, I_D = 100 μA)	$V_{(BR)DSS}$	60	90	—	Vdc
Zero Gate Voltage Drain Current (V_{DS} = 40 V, V_{GS} = 0)	I_{DSS}	—	0.1	10	μAdc
Gate-Body Leakage Current (V_{GS} = 10 V, V_{DS} = 0)	I_{GSS}	—	0.01	10	nAdc
ON CHARACTERISTICS					
Gate Threshold Voltage (V_{DS} = V_{GS}, I_D = 1.0 mA)	$V_{GS(th)}$	0.3	1.5	2.5	Vdc
Drain-Source On-Voltage (V_{GS} = 10 V, I_D = 500 mA)	$V_{DS(on)}$	—	—	2.5	Vdc
On-State Drain Current (V_{DS} = 25 V, V_{GS} = 10 V)	$I_{D(on)}$	500	—	—	mA
Forward Transconductance (V_{DS} = 15 V, I_D = 500 mA)	g_{FS}	100	—	—	mmhos

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FIGURE 1 — $V_{GS(th)}$ NORMALIZED versus TEMPERATURE

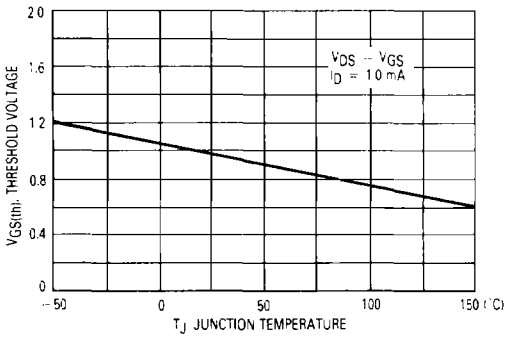


FIGURE 2 — ON-REGION CHARACTERISTICS

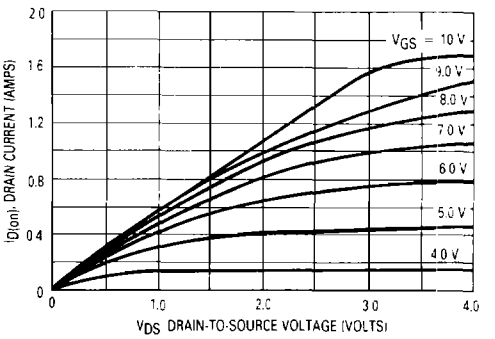


FIGURE 3 — OUTPUT CHARACTERISTICS

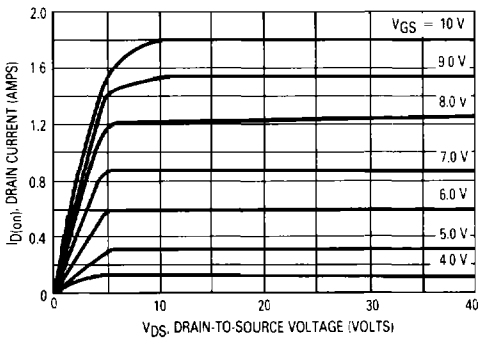
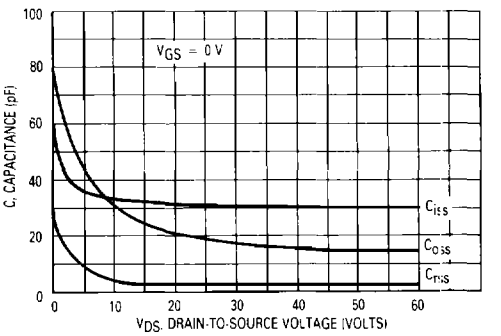
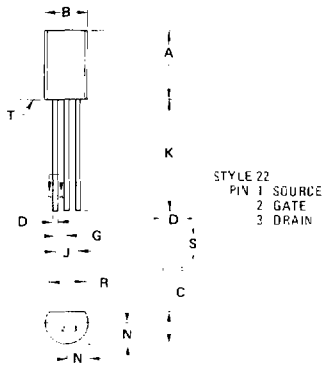


FIGURE 4 — CAPACITANCE versus DRAIN-TO-SOURCE VOLTAGE



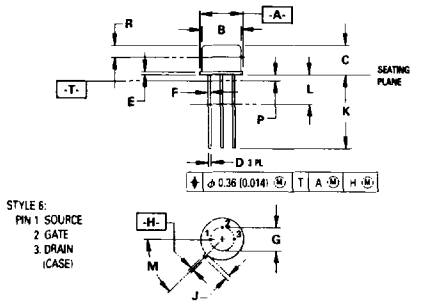
OUTLINE DIMENSIONS



NOTES
1. DIMENSIONS A AND B ARE DATUMS
2. T IS SEATING PLANE
3. POSITIONAL TOLERANCE FOR LEADS
   ⌖ Ø 0.10 (0.004) Ⓜ T A Ⓜ B Ⓜ
4. DIMENSIONING AND TOLERANCING PER ANSI Y14.5 1973

DIM	MILLIMETERS MIN	MAX	INCHES MIN	MAX
A	7.37	7.87	0.290	0.310
B	4.44	5.21	0.175	0.205
C	3.18	4.19	0.125	0.165
D	0.46	0.61	0.018	0.024
G	1.27 BSC		0.050 BSC	
J	2.54 BSC		0.100 BSC	
K	12.70	–	0.500	–
N	2.03	2.92	0.080	0.115
R	3.43	–	0.135	–
S	0.46	0.61	0.018	0.024

CASE 29-03
TO-226AE



NOTES
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION J MEASURED FROM DIMENSION A MAXIMUM.
4. DIMENSION B SHALL NOT VARY MORE THAN 0.25 (0.010) IN ZONE R. THIS ZONE CONTROLLED FOR AUTOMATIC HANDLING.
5. DIMENSION F APPLIES BETWEEN DIMENSION P AND L. DIMENSION D APPLIES BETWEEN DIMENSION L AND K MINIMUM. LEAD DIAMETER IS UNCONTROLLED IN DIMENSION P AND BEYOND DIMENSION K MINIMUM.

DIM	MILLIMETERS MIN	MAX	INCHES MIN	MAX
A	8.51	9.39	0.335	0.370
B	7.75	8.50	0.305	0.335
C	6.10	6.60	0.240	0.260
D	0.41	0.53	0.016	0.021
E	0.23	1.04	0.009	0.041
F	0.41	0.48	0.016	0.019
G	5.08 BSC		0.200 BSC	
H	0.72	0.86	0.028	0.034
J	0.74	1.14	0.029	0.045
K	12.70	19.05	0.500	0.750
L	6.35	–	0.250	–
M	45° BSC		45° BSC	
P	–	1.27	–	0.050
R	2.54	–	0.100	–

CASE 79-04
TO-205AD

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