Microsemi LAWRENCE

TECHNICAL DATA

POWER MOSFET P CHANNEL

Devices

IRF9150

25 AMPERE
100 VOLTS
0.15 W

- **REPETITIVE AVALANCHE RATINGS**
- **LOW $R_{DS(ON)}$**
- **LOW DRIVE REQUIREMENT**
- **DYNAMIC dv/dt RATING**

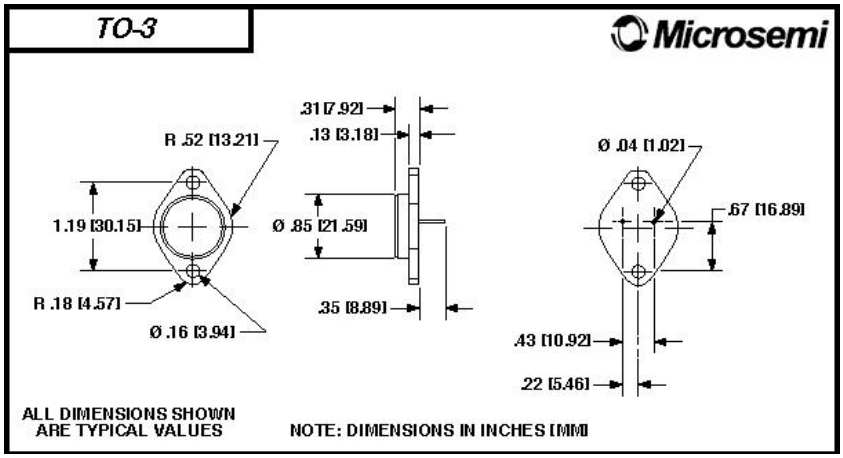
ABSOLUTE MAXIMUM RATINGS (T_C = 25^{0}C unless otherwise noted)

Parameters / Test Conditions		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	-100	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	T_C = 25^{0}C	I_D	-25	A
Pulsed Drain Current (1)		I_{DM}	-100	A
Power Dissipation	T_C = 25^{0}C	P_D	150	W
Operating Junction & Storage Temperature Range		T_J, T_{stg}	-55 to +150	^{0}C
Lead Temperature (1/16" from case for 10 secs.)		T_L	300	^{0}C

THERMAL RESISTANCE RATINGS

Thermal Resistance	Symbol	Typ.	Max.	Units
Junction-to-Case	R_{thJC}		0.83	^{0}C /W
Junction-to-Ambient	R_{thJA}		30	^{0}C /W
Case-to-Sink	R_{thCS}	0.1		^{0}C /W

(1)Pulse width limited by maximum junction temperature



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ELECTRICAL CHARACTERISTICS (T_J = 25^{0}C unless otherwise noted)

PARAMETERS / TEST CONDITIONS		SYMBOL	MIN.	TYP.	MAX.	UNITS
Drain-Source Breakdown Voltage V_{GS} = 0 V, I_D = -250 µA		$V_{(BR)DSS}$	-100			V
Gate Threshold Voltage V_{DS} = 0 $V_{GS,}$ I_D = 250 µA		$V_{GS(th)}$				V
Gate-Body Leakage V_{GS} = At Rated V_{GS}		I_{GSS}			± 100	nA
Zero Gate Voltage Drain Current V_{DS} = max Rating, V_{GS} = 0 V		I_{DSS}			-250	µA
Zero Gate Voltage Drain Current V_{DS} = 80% max $V_{(BR)DSS,}$ V_{GS} = 0 V, T_J = 125^{0}C		I_{DSS}			-1000	µA
Drain-Source On-State Resistance (2) V_{GS} = 10 V, I_D = 10 A		$r_{DS(on)}$			0.15	Ω
Forward Transconductance (2) V_{DS} = 10 V, I_D = 12.5 A		g_{fs}	4			S(Ω)
Input Capacitance	V_{GS} = 0 V	C_{iss}		2400		
Output Capacitance	V_{DS} = -25 V	C_{oss}		850		pF
Reverse Transfer Capacitance	f = 1.0 MHz	C_{rss}		400		
Total Gate Charge	V_{DS} = $V_{(BR)DSS}$ * 0.8	Q_g			120	
Gate-Source Charge	V_{GS} = 10 V, I_D = .25 A (Gate charge is essentially	Q_{gs}		14		nC
Gate -Drain Charge	independent of operating temperature.)	Q_{gd}		42		
Turn-On Delay Time	V_{dd} = -50 V,	$t_{d(on)}$			24	
Rise Time	I_D = -25 A, R_G = 6.8 Ω	t_r			160	ns
Turn-Off Delay Time	(Switching time is essentially independent	$t_{d(off)}$			100	
Fall Time	of operating temperature.)	t_f			70	

SOURCE-DRAIN DIODE RATINGS & CHARACTERISTICS (T_j = 25^{0}C unless otherwise noted)

PARAMETERS / TEST CONDITIONS	SYMBOL	MIN.	TYP.	MAX	UNITS
Continuous Current	I_S			-25	A
Pulsed Current (1)	I_{SM}			-100	A
Forward Voltage (2) I_F = I_S, V_{GS} = 0 V	V_{SD}			1.5	V
Reverse Recovery Time I_F = I_S, dI/dt = 100 A/µS	t_{rr}			300	ns
Reverse Recovered Charge I_F = I_S, dI/dt = 100 A/µS	Q_{rr}	0.3		1.5	µC

(1)Pulsed width limited by maximum junction temperature.

(2)Pulse Test: Pulse width < 300 µsec. Duty cycle ≤ 2%.