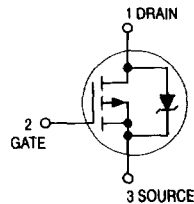


TMOS Field Effect Transistor
Dual In-Line Package
P-Channel Enhancement Mode

- Ideal for Peripheral Control Applications
- Intermediate 1 Watt Power Capability
- Standard DIP Outline



IRFD9120
IRFD9123

TMOS FET
TRANSISTORS
FET DIP



CASE 370-01, STYLE 1

MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	IRFD9120	IRFD9123	Unit
Drain-Source Voltage	V_{DSS}	100	60	Vdc
Drain-Gate Voltage ($R_{GS} = 20\text{ k}\Omega$)	V_{DGR}	100	60	Vdc
Gate-Source Voltage	V_{GS}	± 20		Vdc
Drain Current — Continuous $T_C = 25^\circ\text{C}$ — Pulsed	I_D I_{DM}	1.0 8.0	0.8 6.4	Adc
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	1.0 8.0		Watts mW/ $^\circ\text{C}$
Operating and Storage Temperature Range	T_J, T_{stg}	-55 to +150		$^\circ\text{C}$

THERMAL CHARACTERISTICS

Thermal Resistance — Junction-to-Ambient (Free Air Operation)	$R_{\theta JA}$	120	$^\circ\text{C/W}$
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ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Drain-Source Breakdown Voltage ($V_{GS} = 0, I_D = -250 \mu\text{A}$)	IRFD9120 IRFD9123	$V_{(BR)DSS}$	100 60	— —	— —	Vdc
Zero Gate Voltage Drain Current ($V_{DSS} = \text{Rated } V_{DSS}, V_{GS} = 0 \text{ V}$)		I_{DSS}	—	—	250	μAdc
Gate-Body Leakage Current, Forward ($V_{GSF} = -20 \text{ V}$)		I_{GSSF}	—	—	500	nAdc
Gate-Body Leakage Current, Reverse ($V_{GSR} = 20 \text{ V}$)		I_{GSSR}	—	—	500	nAdc

ON CHARACTERISTICS

Gate Threshold Voltage ($I_D = -250 \mu\text{A}, V_{DS} = V_{GS}$)		$V_{GS(th)}$	2.0	—	4.0	Vdc
Static Drain-Source On-Resistance (1) ($V_{GS} = -10 \text{ Vdc}, I_D = -0.8 \text{ A}$)	IRFD9120 IRFD9123	$R_{DS(on)}$	— —	— —	0.6 0.8	Ohms
On-State Drain Current (1) ($V_{GS} = 10 \text{ V}, V_{DS} = -5.0 \text{ V}$)	IRFD9120 IRFD9123	$I_{D(on)}$	1.0 0.8	— —	— —	Adc
Forward Transconductance (1) ($I_D = -0.8 \text{ A}, V_{DS} = -5.0 \text{ V}$)		g_{FS}	0.8	—	—	mhos

CAPACITANCE

Input Capacitance	$(V_{DS} = -25 \text{ V}, V_{GS} = 0, f = 1.0 \text{ MHz})$	C_{iss}	—	—	450	μF
Output Capacitance		C_{oss}	—	—	350	
Reverse Transfer Capacitance		C_{rss}	—	—	100	

SWITCHING CHARACTERISTICS

Turn-On Delay Time	$(V_{DS} = 0.5 V_{(BR)DSS}, I_D = -0.8 \text{ A}, Z_o = 50 \Omega)$	$t_{d(on)}$	—	—	50	ns
Rise Time		t_r	—	—	100	
Turn-Off Delay Time		$t_{d(off)}$	—	—	100	
Fall Time		t_f	—	—	100	

SOURCE-DRAIN DIODE CHARACTERISTICS

Diode Forward Voltage ($V_{GS} = 0$)	$I_S = -1.0 \text{ A}, \text{IRFD9120}$ $I_S = -0.8 \text{ A}, \text{IRFD9123}$	V_F	— —	— —	6.3 6.0	Vdc
Continuous Source Current, Body Diode	IRFD9120 IRFD9123	I_S	— —	— —	1.0 0.8	Adc
Pulsed Source Current, Body Diode	IRFD9120 IRFD9123	I_{SM}	— —	— —	8.0 6.4	A
Forward Turn-On Time	$(I_S = \text{Rated } I_S, V_{GS} = 0)$	t_{on}	negligible			ns
Reverse Recovery Time		t_{rr}	—	150	—	

1. Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2.0\%$.