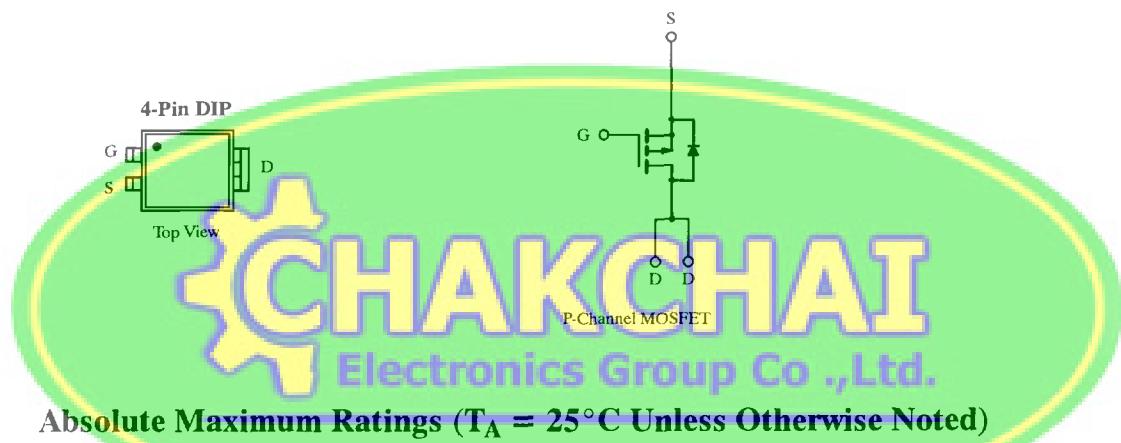


P-Channel Enhancement-Mode Transistors

Product Summary

Part Number	$V_{(BR)DSS}$ (V)	$r_{DS(on)}$ (Ω)	I_D (A)
IRFD9120	-100	0.60	-1.0
IRFD9123	-60	0.80	-0.8

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	IRFD9120	IRFD9123	Unit
Drain-Source Voltage	V_{DS}	-100	-60	V
Gate-Source Voltage	V_{GS}	± 20	± 20	
Continuous Drain Current	I_D	-1.0	-0.8	A
		-0.6	-0.5	
Pulsed Drain Current	I_{DM}	-8.0	-6.4	
Power Dissipation	P_D	1.0	1.0	W
		0.4	0.4	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150		°C
Lead Temperature ($1/16''$ from case for 10 sec.)	T_L	300		

6

N/P-Channel
MOSFETs

Thermal Resistance Ratings

Parameter	Symbol	Maximum	Unit
Junction-to-Ambient	R_{thJA}	120	°C/W

Specifications ($T_J = 25^\circ\text{C}$ Unless Otherwise Noted)

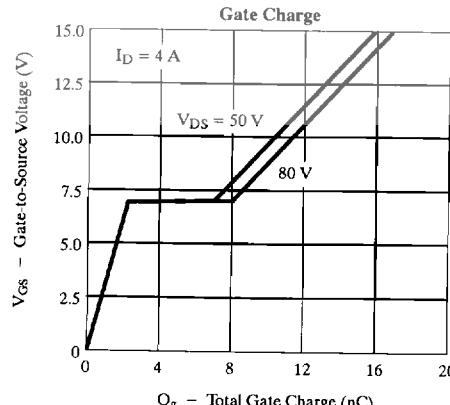
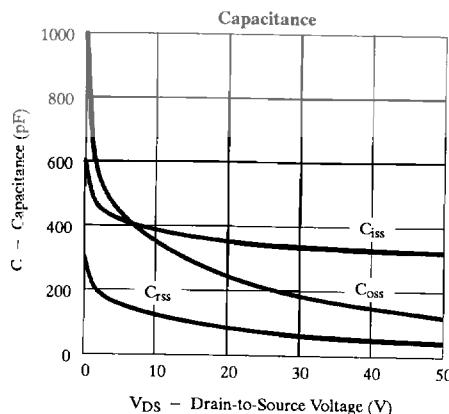
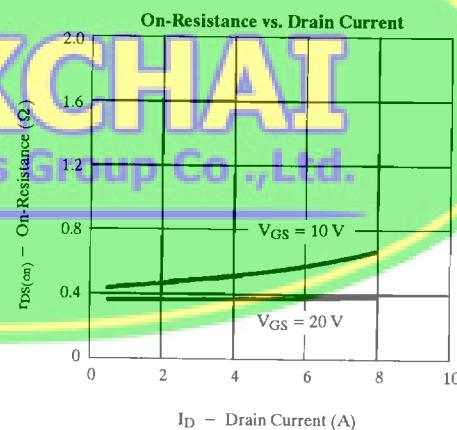
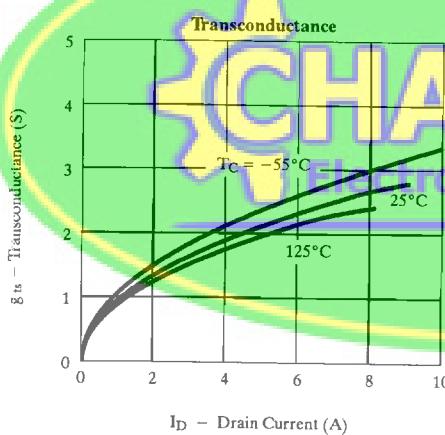
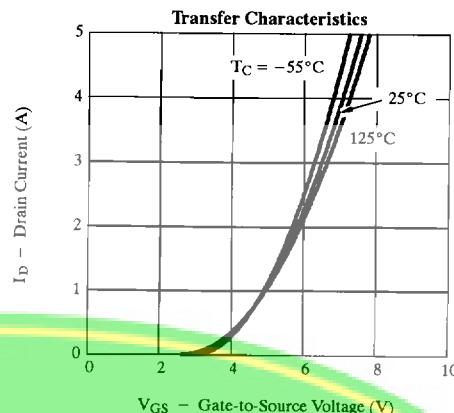
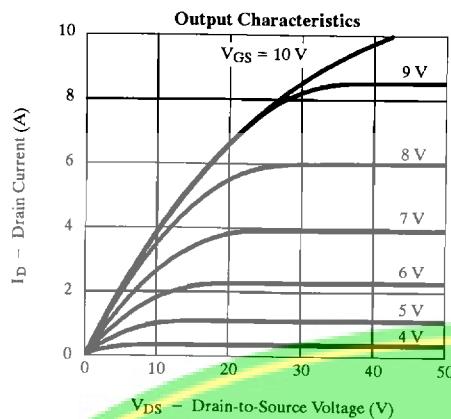
Parameter	Symbol	Test Condition	Min	Typ ^a	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(\text{BR})\text{DSS}}$	$V_{GS} = 0 \text{ V}, I_D = -250 \mu\text{A}$	IRFD9120 IRFD9123	-100 -60		V
Gate Threshold Voltage	$V_{GS(\text{th})}$	$V_{DS} = V_{GS}, I_D = -250 \mu\text{A}$		-2.0		-4.0
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$				nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = V_{(\text{BR})\text{DSS}}, V_{GS} = 0 \text{ V}$			-250	μA
		$V_{DS} = 0.8 \times V_{(\text{BR})\text{DSS}}, V_{GS} = 0 \text{ V}, T_J = 125^\circ\text{C}$			-1000	
On-State Drain Current ^b	$I_{D(\text{on})}$	$V_{DS} = -10 \text{ V}, V_{GS} = -10 \text{ V}$	IRFD9120 IRFD9123	-1.0 -0.8		A
		$V_{GS} = -10 \text{ V}, I_D = -0.8 \text{ A}$	IRFD9120 IRFD9123		0.50 0.60	
Drain-Source On-State Resistance ^b	$r_{DS(\text{on})}$	$V_{GS} = -10 \text{ V}, I_D = -0.8 \text{ A}, T_J = 125^\circ\text{C}$	IRFD9120 IRFD9123		0.80 1.0	Ω
			IRFD9120 IRFD9123		1.00 1.4	
Forward Transconductance ^b	g_{fs}	$V_{DS} = -15 \text{ V}, I_D = -0.8 \text{ A}$		0.8	1.0	S
Dynamic						
Input Capacitance	C_{iss}				350	450
Output Capacitance	C_{oss}	$V_{GS} = 0 \text{ V}, V_{DS} = -25 \text{ V}, f = 1 \text{ MHz}$			205	350
Reverse Transfer Capacitance	C_{rss}				80	100
Total Gate Charge ^c	Q_g				9	20
Gate-Source Charge ^c	Q_{gs}	$V_{DS} = -50 \text{ V}, V_{GS} = 10 \text{ V}, I_D = -4 \text{ A}$			1.8	
Gate-Drain Charge ^c	Q_{gd}				5.6	
Turn-On Delay Time ^c	$t_{d(on)}$				9	50
Rise Time ^c	t_r				25	100
Turn-Off Delay Time ^c	$t_{d(off)}$	$V_{DD} = -50 \text{ V}, R_L = 62 \Omega$ $I_D \approx -0.8 \text{ A}, V_{GEN} = -10 \text{ V}, R_G = 25 \Omega$			30	100
Fall Time ^c	t_f				30	100
Source-Drain Diode Ratings and Characteristics ($T_A = 25^\circ\text{C}$)						
Continuous Current	I_S		IRFD9120 IRFD9123			-1.0 -0.8
			IRFD9120 IRFD9123			-8.0 -6.4
Pulsed Current	I_{SM}		IRFD9120 IRFD9123			
Forward Voltage ^b	V_{SD}	$I_F = I_S, V_{GS} = 0 \text{ V}$	IRFD9120 IRFD9123			-6.3 -6.0
			IRFD9120 IRFD9123			
Reverse Recovery Time	t_{rr}			80		ns
Reverse Recovery Charge	Q_{rr}			0.18		μC

Notes:

- a. For design aid only; not subject to production testing.
- b. Pulse test; pulse width $\leq 300 \mu\text{s}$, duty cycle $\leq 2\%$.
- c. Independent of operating temperature.

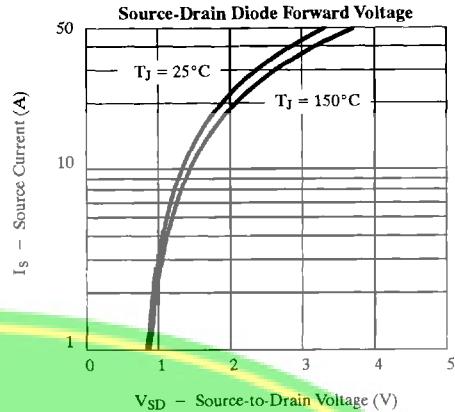
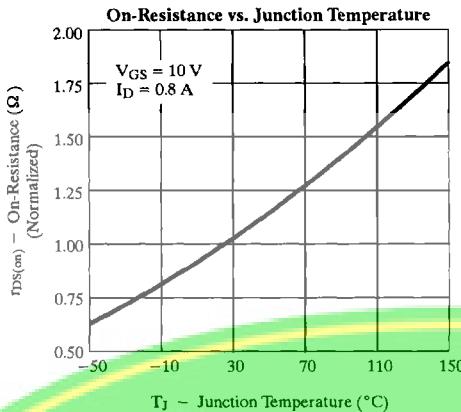
Typical Characteristics (25°C Unless Otherwise Noted)

Negative signs omitted for clarity.



IRFD9120/9123**Typical Characteristics (25°C Unless Otherwise Noted)**

Negative signs omitted for clarity.

**Thermal Ratings**