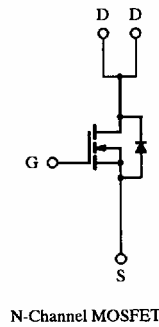
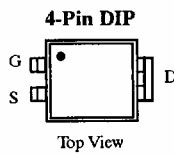


Product Summary

Part Number	$V_{(BR)DSS}$ (V)	$r_{DS(on)}$ (Ω)	I_D (A)
IRFD120	100	0.3	1.3
IRFD123	60	0.4	1.1



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

Parameter	Symbol	IRFD120	IRFD123	Unit
Drain-Source Voltage	V_{DS}	100	60	V
Gate-Source Voltage	V_{GS}	± 20	± 20	V
Continuous Drain Current	I_D	$T_A = 25^\circ\text{C}$	1.3	1.1
		$T_A = 100^\circ\text{C}$	0.8	0.7
Pulsed Drain Current	I_{DM}	5.2	4.4	A
Power Dissipation	P_D	$T_A = 25^\circ\text{C}$	1.0	1.0
		$T_A = 100^\circ\text{C}$	0.4	0.4
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150		$^\circ\text{C}$
Lead Temperature ($1/16''$ from case for 10 sec.)	T_L	300		$^\circ\text{C}$

6
N-/P-Channel
MOSFETS

Thermal Resistance Ratings

Parameter	Symbol	Maximum	Unit
Junction-to-Ambient	R_{thJA}	120	$^\circ\text{C/W}$

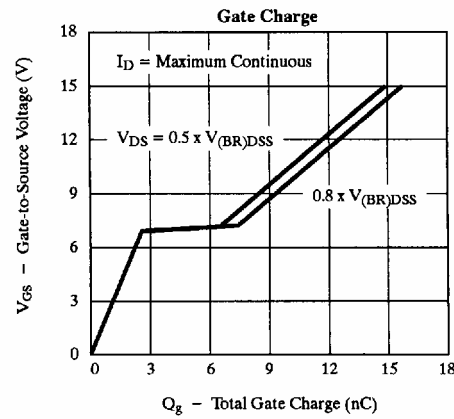
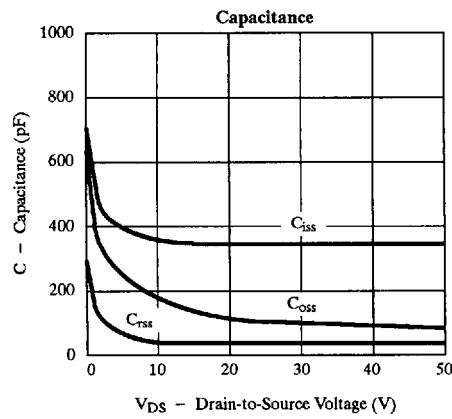
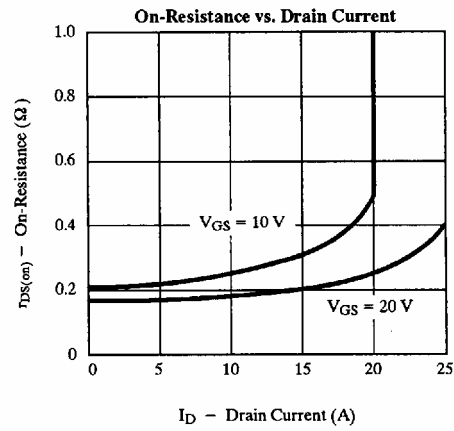
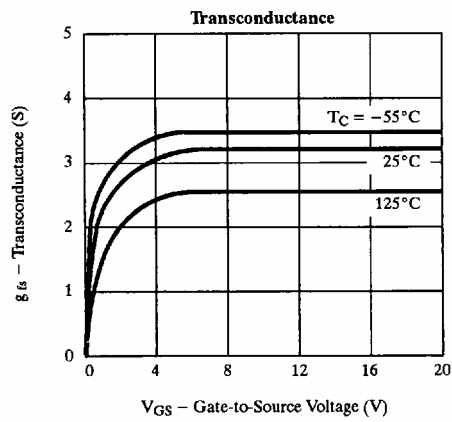
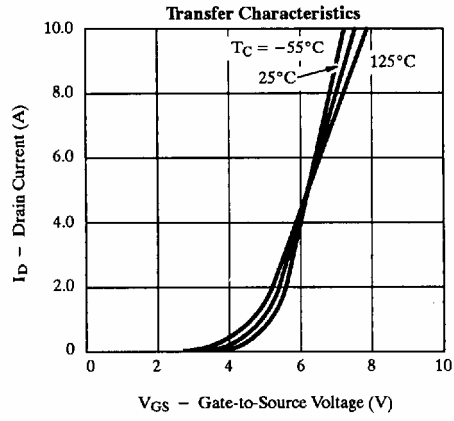
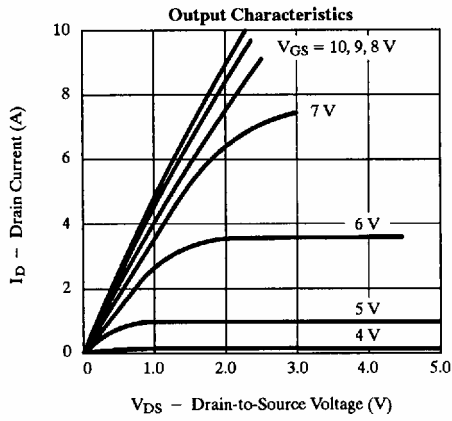
Specifications ($T_J = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Test Condition	Min	Typ ^a	Max	Unit	
Static							
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = 250\ \mu\text{A}$	IRFD120	100		V	
			IRFD123	60			
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	2.0		4.0		
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			± 500	nA	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = V_{(BR)DSS}, V_{GS} = 0\text{ V}$			250	μA	
		$V_{DS} = 0.8 \times V_{(BR)DSS}, V_{GS} = 0\text{ V}, T_J = 125^\circ\text{C}$			1000		
On-State Drain Current ^b	$I_{D(on)}$	$V_{DS} = 10\text{ V}, V_{GS} = 10\text{ V}$	IRFD120	1.3		A	
			IRFD123	1.1			
Drain-Source On-State Resistance ^b	$r_{DS(on)}$	$V_{GS} = 10\text{ V}, I_D = 0.6\text{ A}$	IRFD120		0.22	0.30	Ω
			IRFD123		0.30	0.40	
			IRFD120		0.4	0.60	
			IRFD123		0.6	0.80	
Forward Transconductance ^b	g_{fs}	$V_{DS} = 15\text{ V}, I_D = 0.6\text{ A}$		1.6		S	
Dynamic							
Input Capacitance	C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		360		pF	
Output Capacitance	C_{oss}			120			
Reverse Transfer Capacitance	C_{rss}			15			
Total Gate Charge ^c	Q_g	$V_{DS} = 0.5 \times V_{(BR)DSS}, V_{GS} = 10\text{ V}, I_D = 1.3\text{ A}$		10	15	nC	
Gate-Source Charge ^c	Q_{gs}			2.4			
Gate-Drain Charge ^c	Q_{gd}			5.1			
Turn-On Delay Time ^c	$t_{d(on)}$			7	40		
Rise Time ^c	t_r	$V_{DD} = 50\text{ V}, R_L = 80\ \Omega$ $I_D \approx 0.6\text{ A}, V_{GEN} = 10\text{ V}, R_G = 25\ \Omega$		20	70	ns	
Turn-Off Delay Time ^c	$t_{d(off)}$			20	100		
Fall Time ^c	t_f			10	70		
Source-Drain Diode Ratings and Characteristics ($T_A = 25^\circ\text{C}$)							
Continuous Current	I_S		IRFD120		1.3	A	
			IRFD123		1.1		
Pulsed Current	I_{SM}		IRFD120		5.2	A	
			IRFD123		4.4		
Forward Voltage ^b	V_{SD}	$I_F = I_S, V_{GS} = 0\text{ V}$	IRFD120		2.5	V	
			IRFD123		2.3		
Reverse Recovery Time	t_{rr}	$I_F = I_S, di_F/dt = 100\text{ A}/\mu\text{s}$		100		ns	
Reverse Recovery Charge	Q_{rr}			0.15		μC	

Notes:

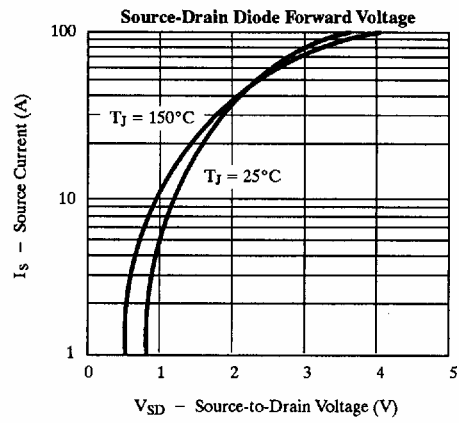
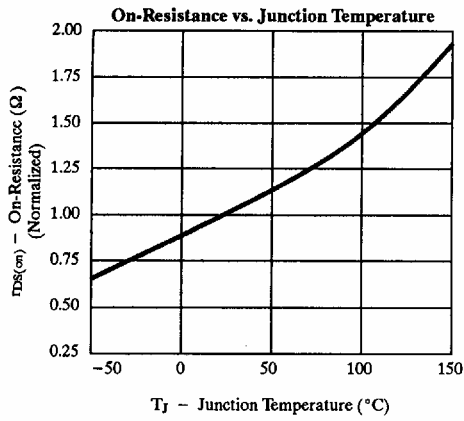
- For design aid only; not subject to production testing.
- Pulse test; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.
- Independent of operating temperature.

Typical Characteristics (25°C Unless Otherwise Noted)



IRFD120/123

Typical Characteristics (25°C Unless Otherwise Noted)



Thermal Ratings

