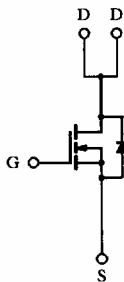
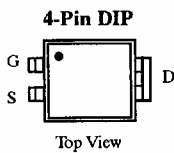


N-Channel Enhancement-Mode Transistors

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



N-Channel MOSFET

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	
Continuous Drain Current	T _A = 25°C	I _D	1.3	1.1	A
	T _A = 100°C		0.8	0.7	
Pulsed Drain Current		I _{DM}	5.2	4.4	
Power Dissipation	T _A = 25°C	P _D	1.0	1.0	W
	T _A = 100°C		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	$^\circ\text{C/W}$

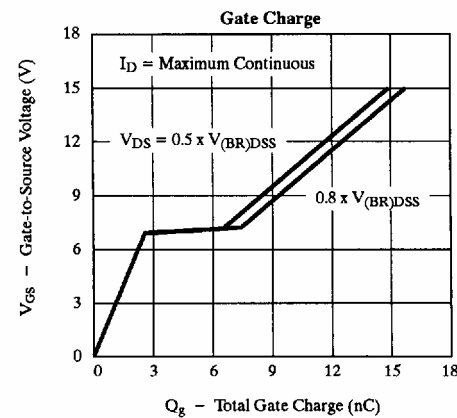
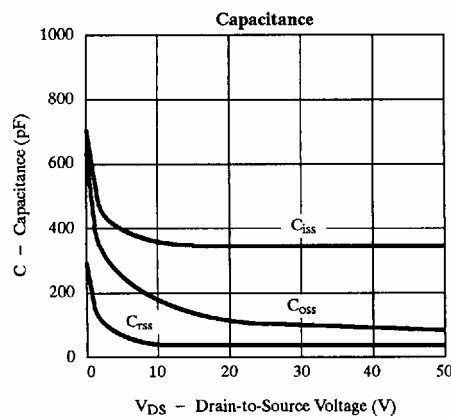
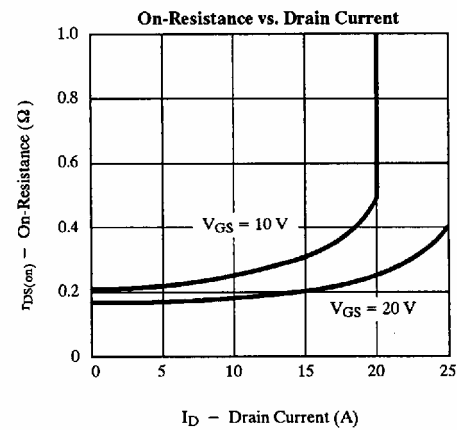
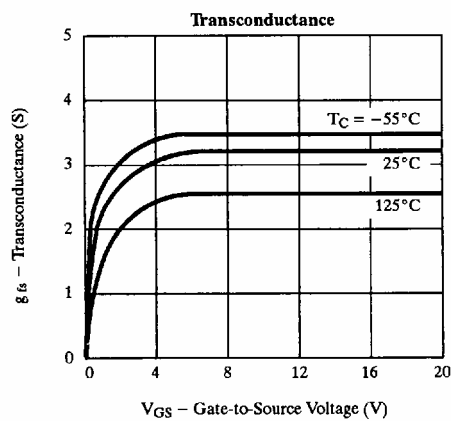
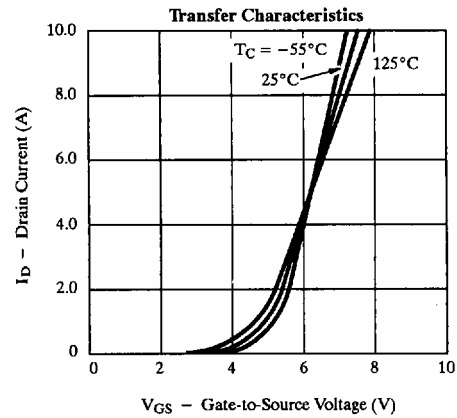
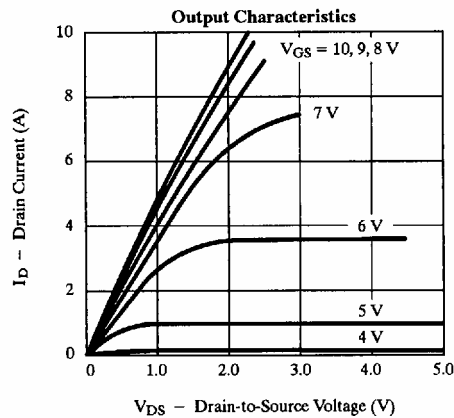
Specifications ($T_J = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Test Condition	Min	Typ ^a	Max	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = 250 μA	IRFD120 IRFD123	100 60		V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA		2.0	4.0	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ± 20 V			± 500	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = V _{(BR)DSS} , V _{GS} = 0 V V _{DS} = 0.8 × V _{(BR)DSS} , V _{GS} = 0 V, T _J = 125°C			250 1000	μA
On-State Drain Current ^b	I _{D(on)}	V _{DS} = 10 V, V _{GS} = 10 V	IRFD120 IRFD123	1.3 1.1		A
Drain-Source On-State Resistance ^b	r _{DS(on)}	V _{GS} = 10 V, I _D = 0.6 A V _{GS} = 10 V, I _D = 0.6 A, T _J = 125°C	IRFD120 IRFD123 IRFD120 IRFD123		0.22 0.30 0.4 0.6	Ω
Forward Transconductance ^b	g _{fs}	V _{DS} = 15 V, I _D = 0.6 A			1.6	S
Dynamic						
Input Capacitance	C _{iss}	V _{GS} = 0 V, V _{DS} = 25 V, f = 1 MHz		360		pF
Output Capacitance	C _{oss}			120		
Reverse Transfer Capacitance	C _{ris}			15		
Total Gate Charge ^c	Q _g	V _{DS} = 0.5 × V _{(BR)DSS} , V _{GS} = 10 V, I _D = 1.3 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)}	V _{DD} = 50 V, R _L = 80 Ω I _D ≈ 0.6 A, V _{GEN} = 10 V, R _G = 25 Ω		7	40	ns
Rise Time ^c	t _r			20	70	
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°C)						
Continuous Current	I _S		IRFD120 IRFD123		1.3 1.1	A
Pulsed Current	I _{SM}		IRFD120 IRFD123		5.2 4.4	
Forward Voltage ^b	V _{SD}	I _F = I _S , V _{GS} = 0 V	IRFD120 IRFD123		2.5 2.3	V
Reverse Recovery Time	t _{rr}	I _F = I _S , dI _F /dt = 100 A/μs		100		ns
Reverse Recovery Charge	Q _{rr}				0.15	μC

Notes:

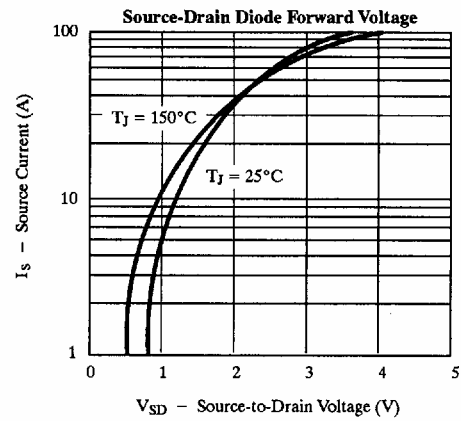
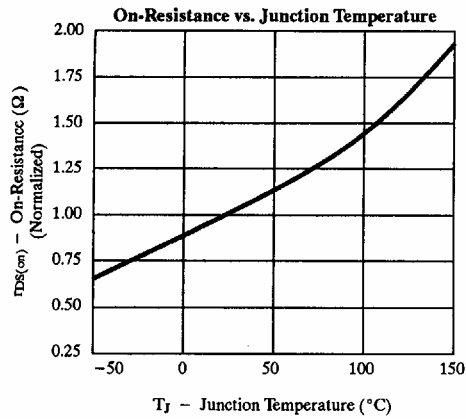
- For design aid only; not subject to production testing.
- Pulse test; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.
- Independent of operating temperature.

Typical Characteristics (25°C Unless Otherwise Noted)



IRFD120/123

Typical Characteristics (25°C Unless Otherwise Noted)



Thermal Ratings

