

P-Channel Power MOSFET

KX5120P

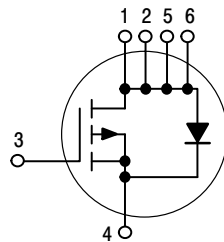
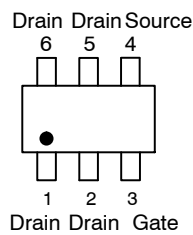
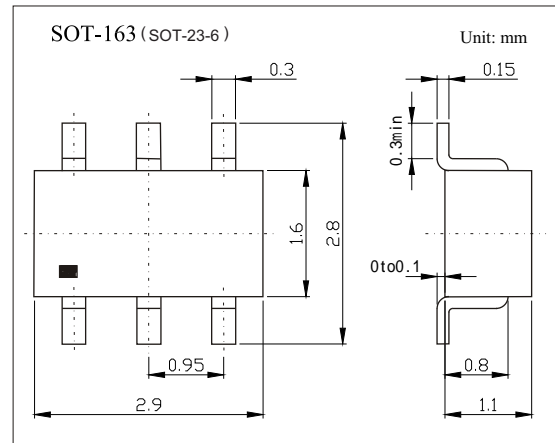
Features

$V_{DS} (V) = -60V$

$I_D = -2.9A (V_{GS} = -10V)$

$R_{DS(ON)} < 111m (V_{GS} = -10V)$

$R_{DS(ON)} < 142m (V_{GS} = -4.5V)$



Absolute Maximum Ratings $T_a = 25$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current $t = 5 s$	I_D	-2.9	A
Pulsed Drain Current $t_p = 10 \mu s$	I_{DM}	-8	
Power Dissipation $t = 5 s$	P_D	1.4	W
Thermal Resistance Junction-to-Ambient	R_{thJA}	102	/W
Lead Temperature for Soldering Purposes (1/8" from case for 10 s)	T_L	260	
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	

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Electrical Characteristics Ta = 25

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =-250 μA, V _{GS} =0V	-60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-48V, V _{GS} =0V			-1	μA
		V _{DS} =-48V, V _{GS} =0V, T _J =125			-5	
Gate-Body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±100	nA
		V _{DS} =0V, V _{GS} =±20V			±200	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =-250 μA	-1		-3	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-2.9A		72	111	m
		V _{GS} =-4.5V, I _D =-2.5A		88	142	
Forward Transconductance	g _{FS}	V _{DS} =-5V, I _D =-6A		10.1		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =-30V, f=1MHz		942		pF
Output Capacitance	C _{oss}			72		
Reverse Transfer Capacitance	C _{rss}			48		
Total Gate Charge	Q _g			18.1		
Gate Source Charge	Q _{gs}	V _{GS} =-10V, V _{DS} =-30V, I _D =-2.9A		2.7		
Gate Drain Charge	Q _{gd}			3.6		
Turn-On DelayTime	t _{d(on)}		V _{GS} =-10V, V _{DS} =-30V, I _D =-1.0A, R _G =6.0		8.7	
Turn-On Rise Time	t _r			4.9		
Turn-Off DelayTime	t _{d(off)}			38		
Turn-Off Fall Time	t _f			12.8		
Body Diode Reverse Recovery Time	t _{rr}	I _S =-0.9A, dI/dt=100A/μs			18.3	
Body Diode Reverse Recovery Charge	Q _{rr}	I _S =-0.9A, dI/dt=100A/μs		15.1		nC
Diode Forward Voltage T _J =125	V _{SD}	I _S =-0.9A, V _{GS} =0V		-0.75	-1	V

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Typical Characteristics

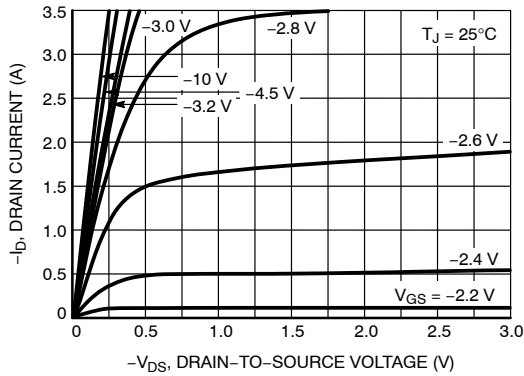


Figure 1. On-Region Characteristics

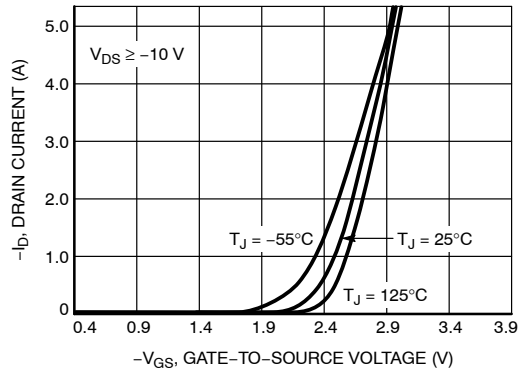


Figure 2. Transfer Characteristics

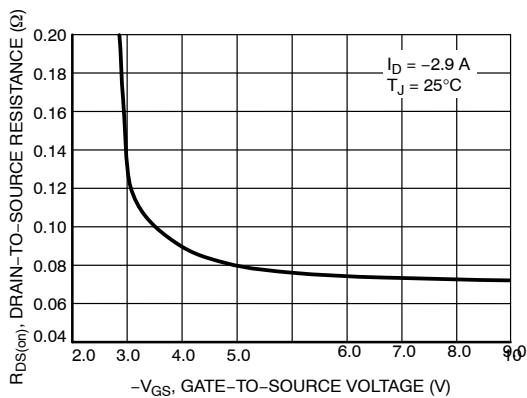


Figure 3. On-Resistance vs. Gate Voltage

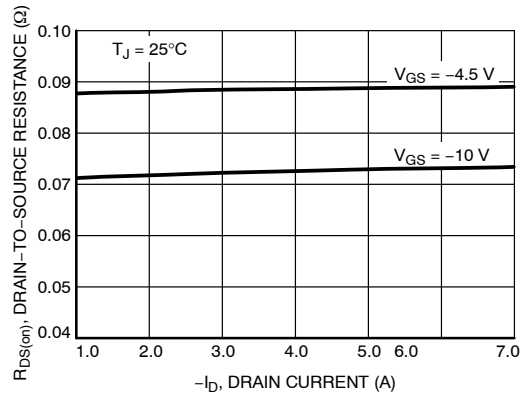


Figure 4. On-Resistance vs. Drain Current and Gate Voltage

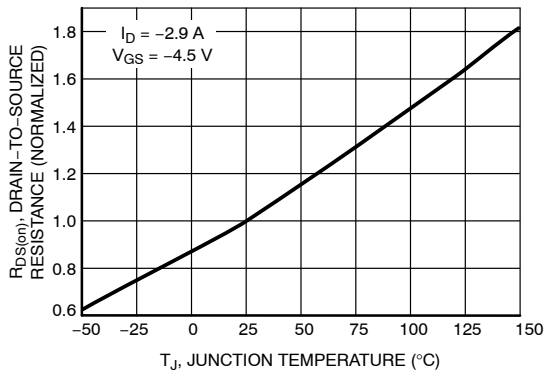


Figure 5. On-Resistance Variation with Temperature

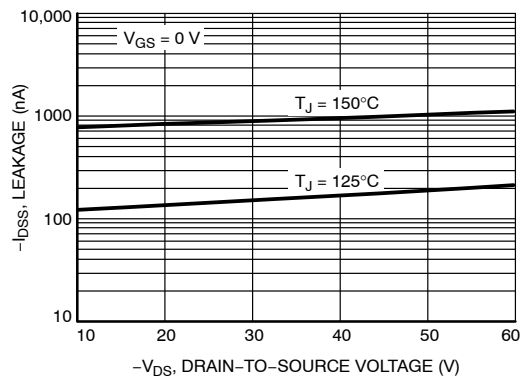


Figure 6. Drain-to-Source Leakage Current vs. Voltage

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■ Typical Characteristics

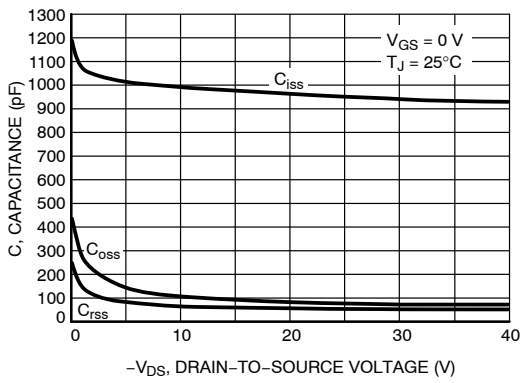


Figure 7. Capacitance Variation

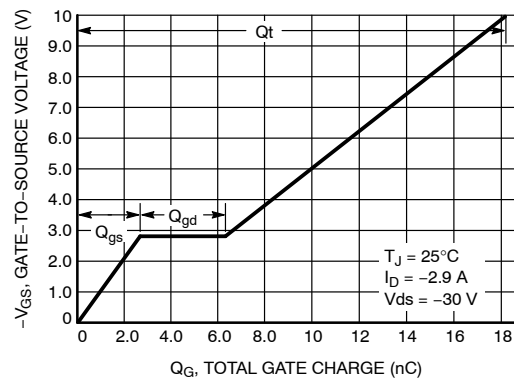


Figure 8. Gate-to-Source Voltage vs. Total Gate Charge

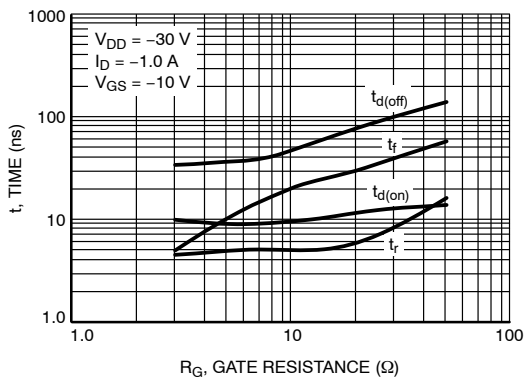


Figure 9. Resistive Switching Time Variation vs. Gate Resistance

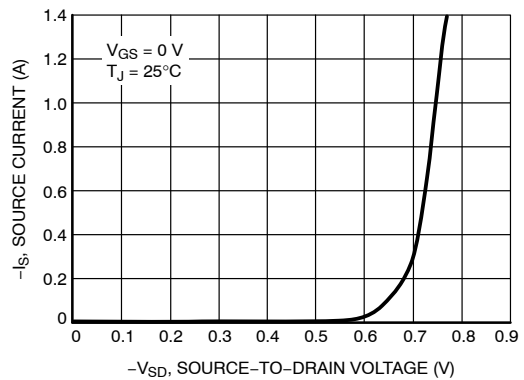


Figure 10. Diode Forward Voltage vs. Current