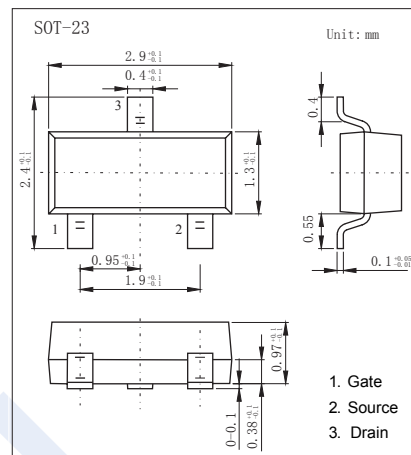
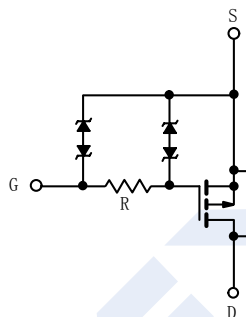


P-Channel MOSFET

SI2377EDS (KI2377EDS)

■ Features

- $V_{DS} (V) = -20V$
- $I_D = -4.4 A$
- $R_{DS(ON)} < 61m\Omega$ ($V_{GS} = -4.5V$)
- $R_{DS(ON)} < 80m\Omega$ ($V_{GS} = -2.5V$)
- $R_{DS(ON)} < 110m\Omega$ ($V_{GS} = -1.8V$)
- $R_{DS(ON)} < 165m\Omega$ ($V_{GS} = -1.5V$)



■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	± 8	
Continuous Drain Current ($T_J = 150^\circ C$)	$T_C = 25^\circ C$	I_D	-4.4	A
	$T_C = 70^\circ C$		-3.5	
	$T_a = 25^\circ C$		-3.7	
	$T_a = 70^\circ C$		-2.9	
Pulsed Drain Current		I_{DM}	-20	
Power Dissipation	$T_C = 25^\circ C$	P_D	1.8	W
	$T_C = 70^\circ C$		1.1	
	$T_a = 25^\circ C$		1.25	
	$T_a = 70^\circ C$		0.8	
Thermal Resistance.Junction- to-Ambient	$t \leq 5 s$	R_{thJA}	100	$^\circ C/W$
Thermal Resistance.Junction- to-Foot		R_{thJF}	70	
Junction Temperature		T_J	150	$^\circ C$
Storage Temperature Range		T_{stg}	-55 to 150	

P-Channel MOSFET

SI2377EDS (KI2377EDS)

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =-250 μA, V _{GS} =0V	-20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V			-1	μA
		V _{DS} =-20V, V _{GS} =0V, T _J =55°C			-10	
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±8V			±6	μA
		V _{DS} =0V, V _{GS} =±4.5V			±0.5	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250 μA	-0.4		-1	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-4.5V, I _D =-3.2A			61	mΩ
		V _{GS} =-2.5V, I _D =-2.8A			80	
		V _{GS} =-1.8V, I _D =-1.5A			110	
		V _{GS} =-1.5V, I _D =-0.5A			165	
On State Drain Current	I _{D(on)}	V _{GS} =-4.5V, V _{DS} ≤-5V	-15			A
Forward Transconductance	g _{FS}	V _{DS} =-10V, I _D =-3.2A		12		S
Gate Resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz	0.4	2	4	KΩ
Total Gate Charge	Q _g	V _{GS} =-8V, V _{DS} =-10V, I _D =-5.3A		14	21	nC
				7.6	12	
Gate Source Charge	Q _{gs}	V _{GS} =-4.5V, V _{DS} =-10V, I _D =-5.3A		0.8		
Gate Drain Charge	Q _{gd}			3.1		
Turn-On DelayTime	t _{d(on)}	V _{DD} =-10 V, R _L =2.3Ω I _D =-4.3A, V _{GEN} =-4.5V, R _g = 1Ω		0.2	0.3	ns
Turn-On Rise Time	t _r			1	1.5	
Turn-Off DelayTime	t _{d(off)}			4	6	
Turn-Off Fall Time	t _f			2	3	
Turn-On DelayTime	t _{d(on)}	V _{DD} =-10 V, R _L =2.3Ω I _D =-4.3A, V _{GEN} =-8V, R _g = 1Ω		0.09	0.14	
Turn-On Rise Time	t _r			0.4	0.6	
Turn-Off DelayTime	t _{d(off)}			5.2	7.8	
Turn-Off Fall Time	t _f			2.3	3.5	
Body Diode Reverse Recovery Time	t _{rr}	I _F = -3A, di/dt= 100A/μs, T _J = 25°C		30	60	nC
Body Diode Reverse Recovery Charge	Q _{rr}			20	40	
Reverse Recovery Fall Time	t _a			13		ns
Reverse Recovery Rise Time	t _b			17		
Maximum Body-Diode Continuous Current	I _S	T _c = 25°C			-1.5	A
Pulse Diode Forward Current (t = 100 μs)	I _{SM}				-20	
Diode Forward Voltage	V _{SD}	I _S =-3A, V _{GS} =0V			-1.2	V

Note. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2 %.

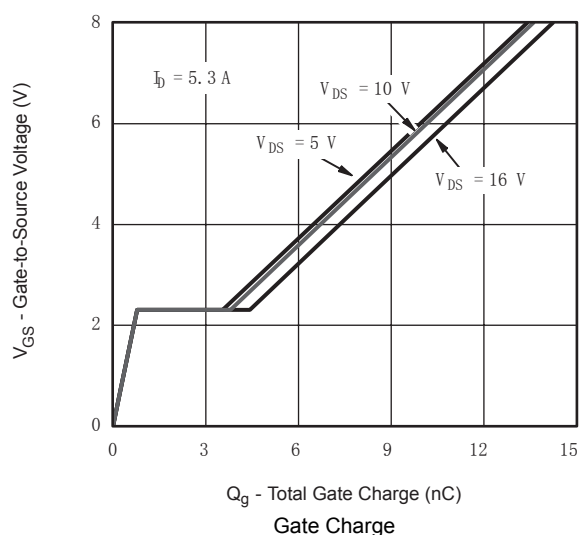
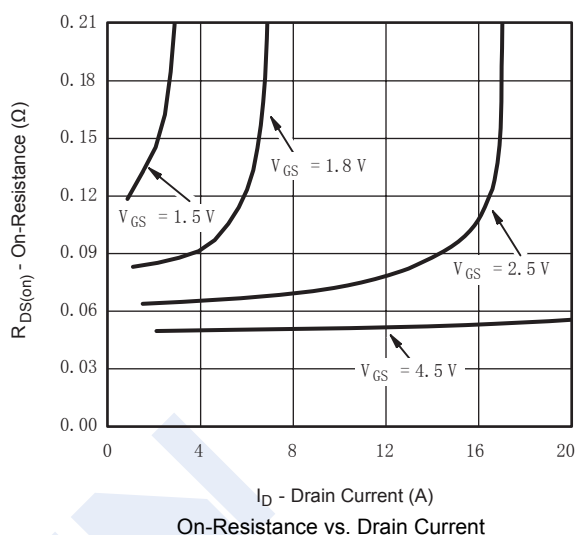
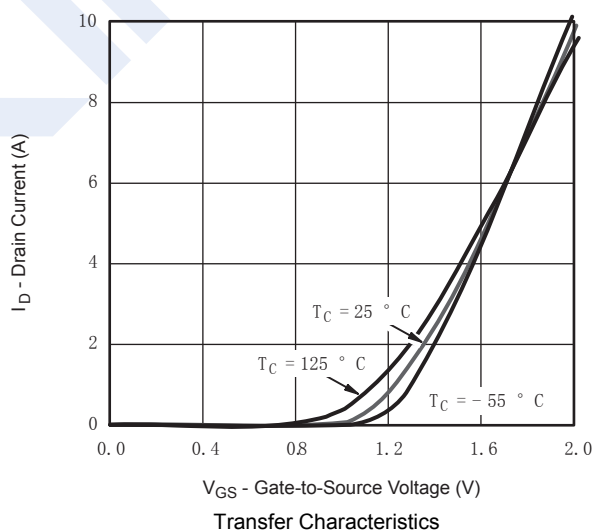
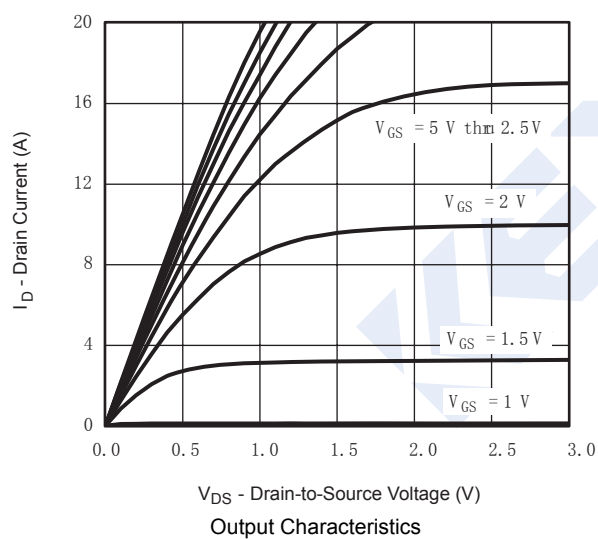
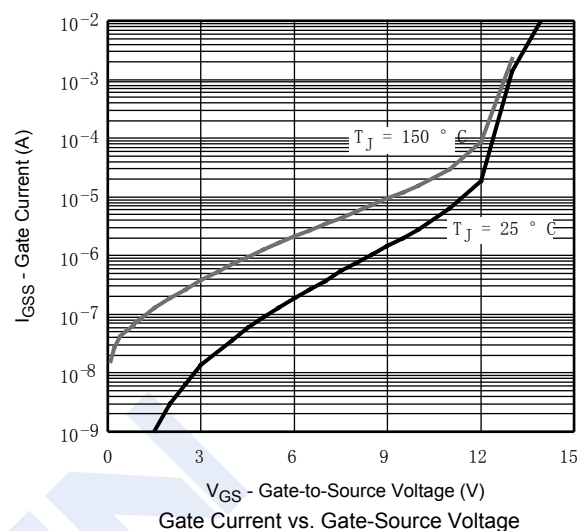
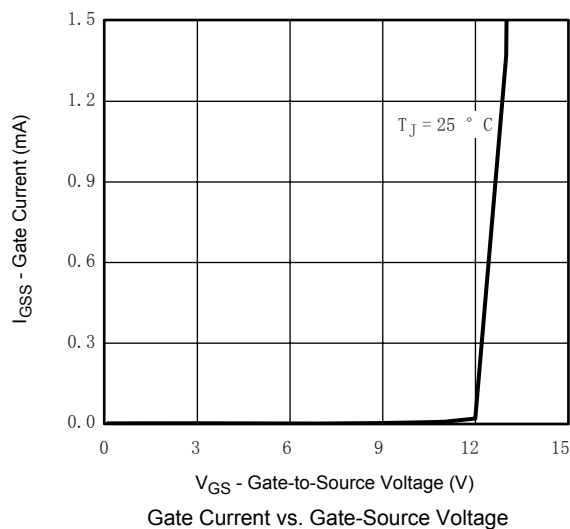
■ Marking

Marking	P6*
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P-Channel MOSFET

SI2377EDS (KI2377EDS)

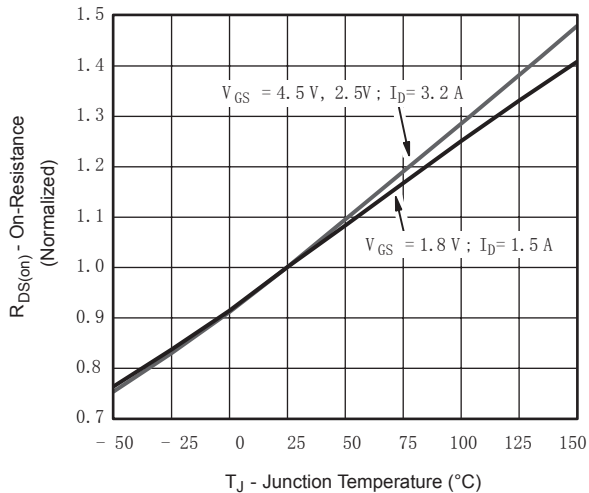
■ Typical Characteristics



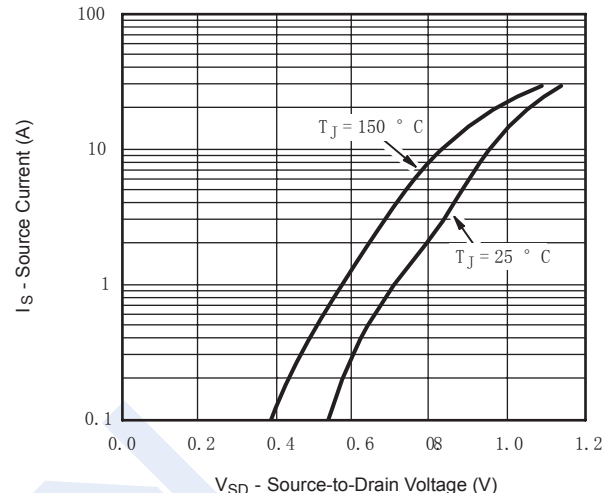
P-Channel MOSFET

SI2377EDS (K12377EDS)

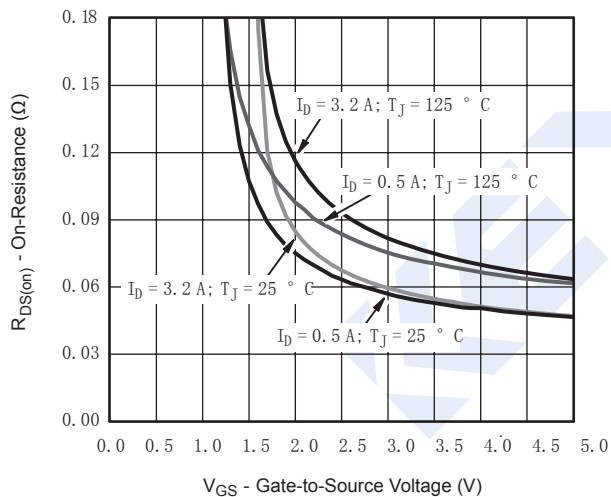
Typical Characteristics



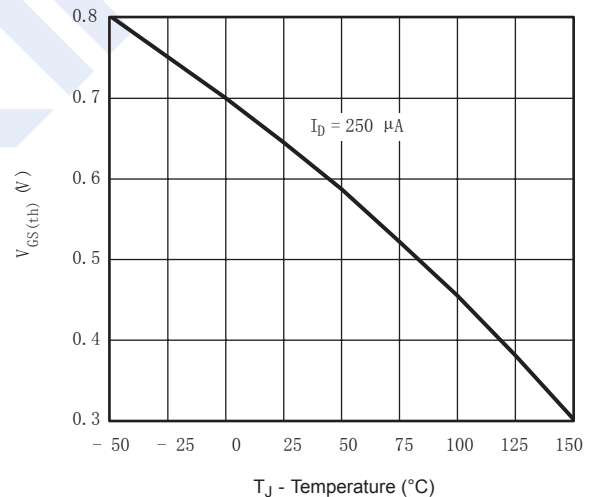
On-Resistance vs. Junction Temperature



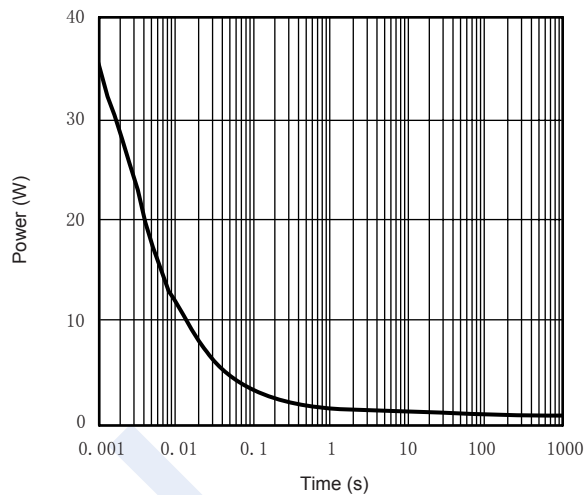
Source-Drain Diode Forward Voltage



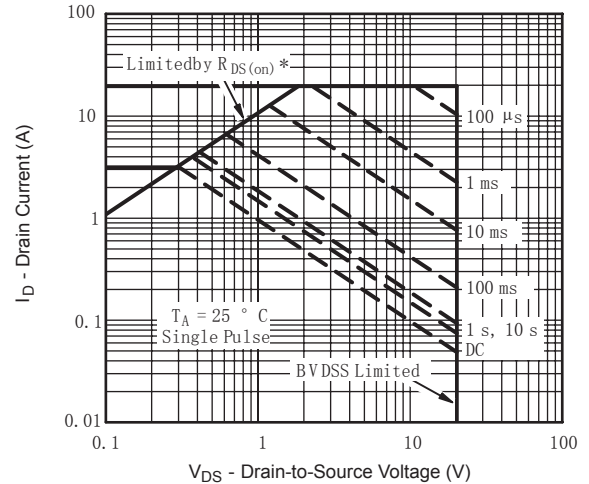
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power, Junction-to-Ambient



* $V_{GS} >$ minimum V_{GS} at which $R_{DS(on)}$ is specified
Safe Operating Area, Junction-to-Ambient

P-Channel MOSFET

SI2377EDS (KI2377EDS)

■ Typical Characteristics

