

P-Channel MOSFET

KI2333CDS

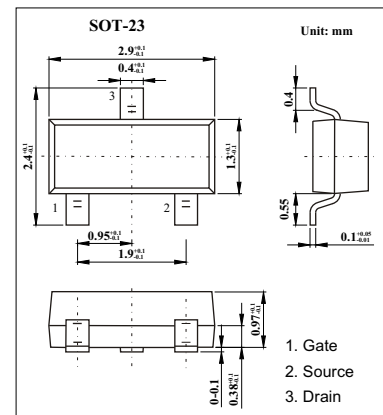
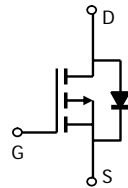
Features

$V_{DS}=-12V, I_D=-5.1A$

$R_{DS(ON)}=35m$ (MAX) @ $V_{GS}=-2.5V, I_D=-4.5A$

$R_{DS(ON)}=45m$ (MAX) @ $V_{GS}=-4.5V, I_D=-5.1A$

$R_{DS(ON)}=59m$ (MAX) @ $V_{GS}=-1.8V, I_D=-2A$



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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-12	V
Gate-Source Voltage	V_{GS}	± 8	V
Continuous Drain Current ($T_J = 150^\circ C$) (Note 1)	I_D	$T_A=25^\circ C$	-5.1
		$T_A=70^\circ C$	-4.0
Pulsed Drain Current	I_{DM}	-20	A
Continuous Source-Drain Diode Current (Note 1)	I_S	-0.63	A
Power Dissipation (Note 1)	P_D	$T_A=25^\circ C$	1.25
		$T_A=70^\circ C$	0.8
Thermal Resistance, Junction-to-Ambient (Note 1,2)	R_{thJA}	100	$^\circ C/W$
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ C$

Note 1. Surface Mounted on 1" x 1" FR4 board, $t = 5$ s.

2. Maximum under Steady State conditions is $166^\circ C/W$.

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Electrical Characteristics Ta = 25

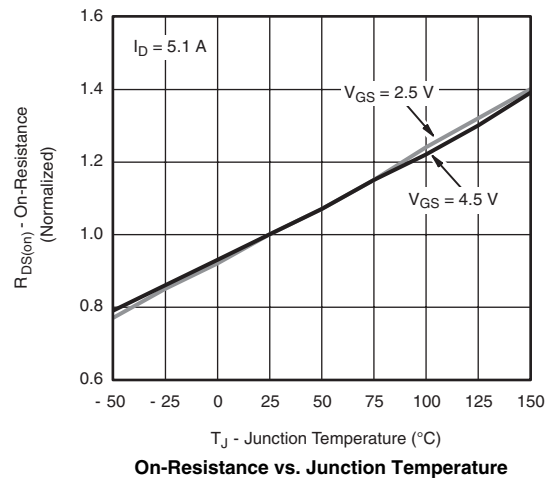
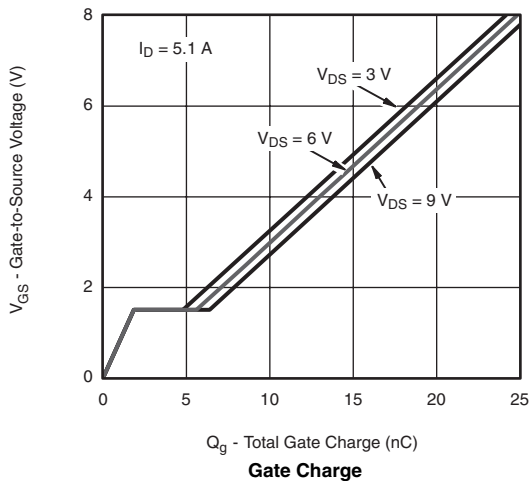
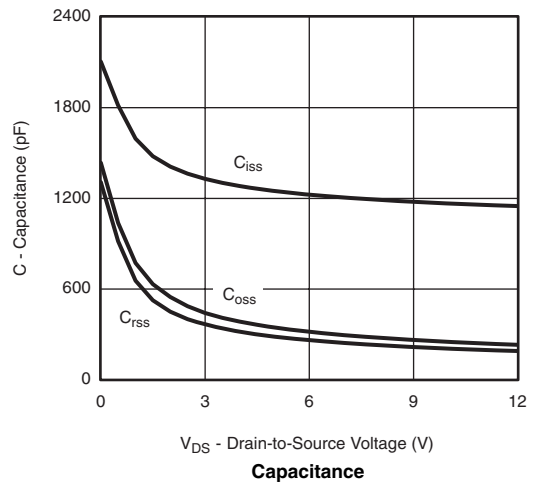
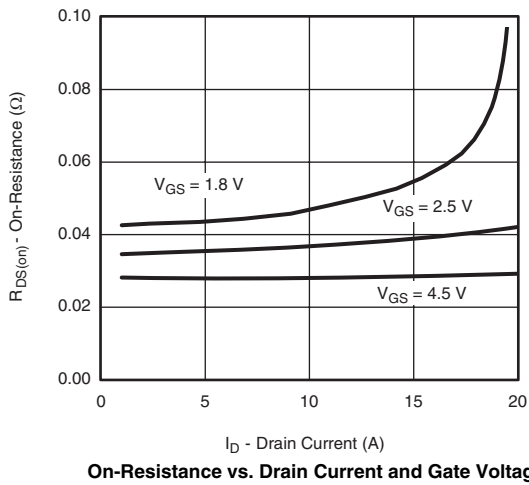
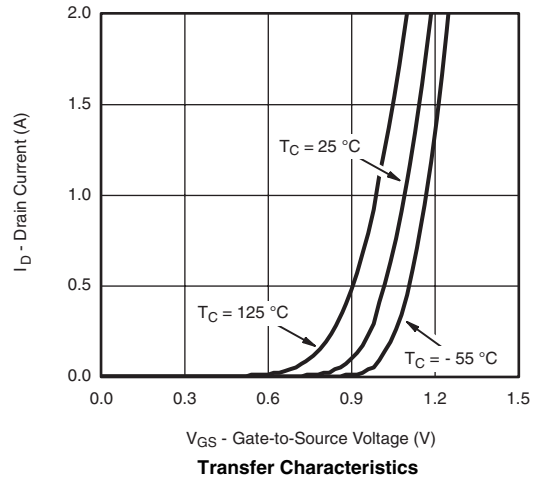
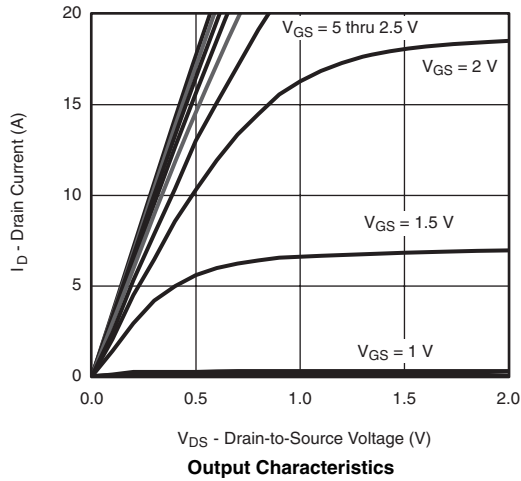
Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =-250 μA, V _{GS} =0V	-12			V
V _{DS} Temperature Coefficient	V _{DSS} / T _J	I _D =-250μA		-13		mV/
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-12V, V _{GS} =0V			-1	μA
Gate-Body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} = ± 8V			± 100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =-250 μA	-0.4		-1	V
V _{GS(th)} Temperature Coefficient	V _{GS(th)} / T _J	I _D =-250μA		-2.6		mV/
Static Drain-Source On-Resistance (Note 3)	r _{DS(on)}	V _{GS} =-4.5V, I _D =-5.1A			35	m
		V _{GS} =-2.5V, I _D =-4.5A			45	m
		V _{GS} =-1.8V, I _D =-2A			59	m
On-State Drain Current (Note 3)	I _{D(on)}	V _{DS} =-5 V, V _{GS} = -4.5 V	-20			A
Forward Transconductance (Note 3)	g _{fs}	V _{DS} =-5.0V, I _D =-1.9A		1.6		S
Input Capacitance (Note 4)	C _{iss}	V _{GS} =0V, V _{DS} =-6V, f=1MHz		1225		pF
Output Capacitance (Note 4)	C _{oss}			315		pF
Reverse Transfer Capacitance (Note 4)	C _{rss}			260		pF
Total Gate Charge (Note 4)	Q _g			9	15	nC
Gate Source Charge (Note 4)	Q _{gs}	V _{GS} =-2.5V, V _{DS} =-6V, I _D =-5.1A		1.9		nC
Gate Drain Charge (Note 4)	Q _{gd}			3.8		nC
Turn-On DelayTime (Note 4)	t _{D(on)}			13	20	ns
Turn-On Rise Time (Note 4)	t _r	V _{DD} =-6V, I _{DS} =-1A, R _L = 6 V _{GEN} =-4.5V, R _G =1		35	60	ns
Turn-Off DelayTime (Note 4)	t _{D(off)}			45	70	ns
Turn-Off Fall Time (Note 4)	t _f			12	20	ns
Continuous Source-Drain Diode Current	I _S		T _C = 25 °C			-1.0
Body Diode Reverse Recovery Time	t _{rr}	I _F = - 1.0 A, di/dt = 100 A/μs, T _J = 25 °C			50	ns
Body Diode Reverse Recovery Charge	Q _{rr}				40	nC
Body Diode Voltage	V _{SD}	I _S = - 1.0 A		-0.7	-1.2	V

Note 3. Pulse test; pulse width 300 μs, duty cycle 2 %

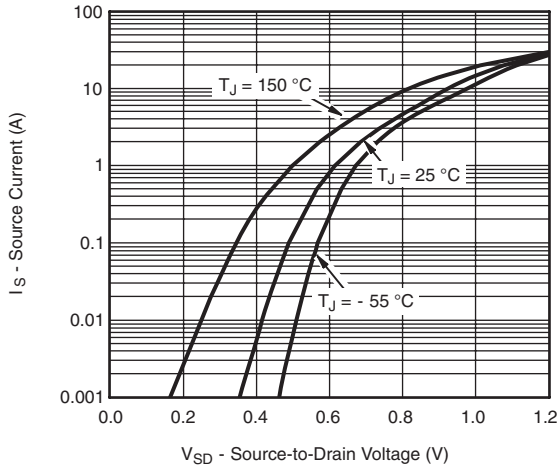
4. Guaranteed by design, not subject to production testing.

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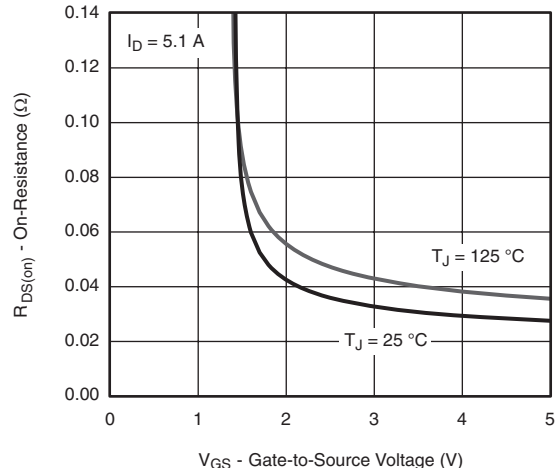
Typical Characteristics



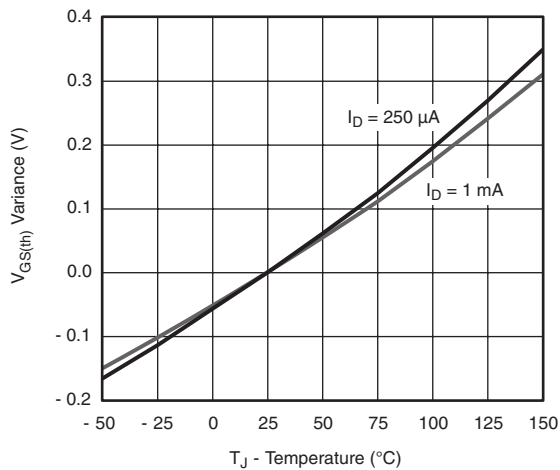
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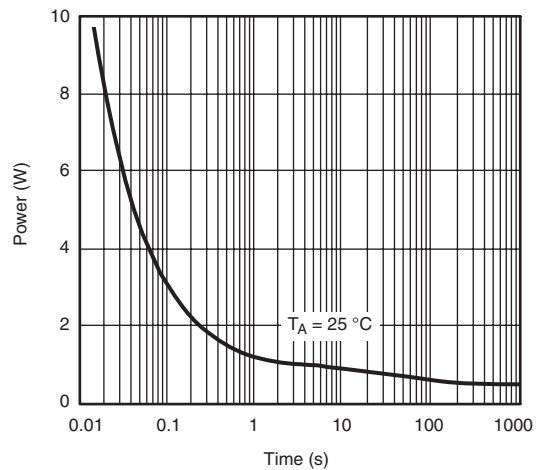
Source-Drain Diode Forward Voltage



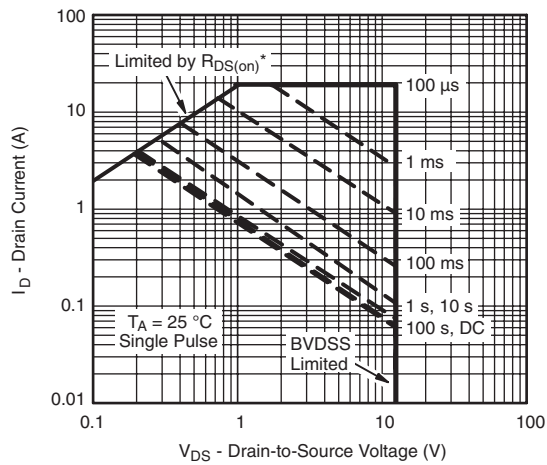
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power



* $V_{GS} >$ minimum V_{GS} at which $R_{DS(on)}$ is specified

Safe Operating Area

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