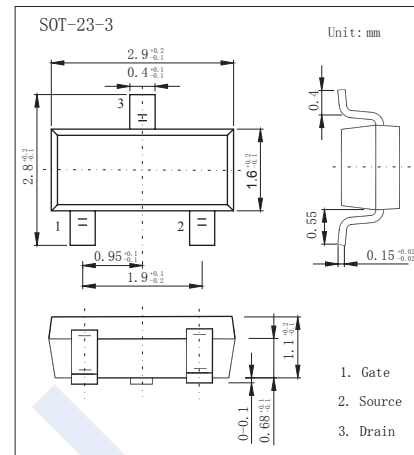
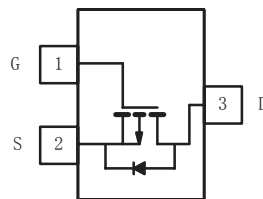


P-Channel Enhancement MOSFET

SI2333CDS (KI2333CDS)

■ Features

- V_{DS} (V) = -12V
- I_D = -5.1A (V_{GS} = -4.5V)
- $R_{DS(ON)}$ < 35m Ω (V_{GS} = -4.5V)
- $R_{DS(ON)}$ < 45m Ω (V_{GS} = -2.5V)
- $R_{DS(ON)}$ < 59m Ω (V_{GS} = -1.8V)



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

Parameter	Symbol	5 sec	Steady State	Unit	
Drain-Source Voltage	V_{DS}	-12		V	
Gate-Source Voltage	V_{GS}	± 8			
Continuous Drain Current ($T_J = 150^\circ\text{C}$) *1	I_D	$T_a = 25^\circ\text{C}$	-7.1	-5.1	A
		$T_a = 70^\circ\text{C}$	-5.7	-4.0	
Pulsed Drain Current	I_{DM}	-20			
Power Dissipation	P_D	$T_a = 25^\circ\text{C}$	2.5	1.25	W
		$T_a = 70^\circ\text{C}$	1.6	0.8	
Thermal Resistance.Junction- to-Ambient	R_{thJA}	100		$^\circ\text{C}/\text{W}$	
Thermal Resistance.Junction- to-Foot	R_{thJF}	50			
Junction Temperature	T_J	150		$^\circ\text{C}$	
Storage Temperature Range	T_{stg}	-55 to 150			

*1 Surface Mounted on 1" x 1" FR4 Board.

P-Channel Enhancement MOSFET

SI2333CDS (KI2333CDS)

■ 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	-12			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-12V, V _{GS} =0V			-1	μA
		V _{DS} =-12V, V _{GS} =0V, T _J =55°C			-10	
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
Static Drain-Source On-Resistance *1	R _{DS(on)}	V _{GS} =-4.5V, I _D =-5.1A		28.5	35	mΩ
		V _{GS} =-2.5V, I _D =-4.5A		36	45	
		V _{GS} =-1.8V, I _D =-2.0A		46	59	
On state drain current *1	I _{D(ON)}	V _{GS} =-4.5V, V _{DS} =-5V	-20			A
Forward Transconductance *1	g _{FS}	V _{DS} =-5V, I _D =-1.9A		1.6		S
Gate Resistance	R _g	f=1.0MHz		4.0		Ω
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =-6V, f=1MHz		1225		pF
Output Capacitance	C _{oss}			315		
Reverse Transfer Capacitance	C _{rss}			260		
Total Gate Charge	Q _g	V _{GS} =-4.5V, V _{DS} =-6V, I _D =-5.1A		15	25	nC
				9	15	
Gate Source Charge	Q _{gs}	V _{GS} =-2.5V, V _{DS} =-6V, I _D =-5.1A		1.9		
Gate Drain Charge	Q _{gd}			3.8		
Turn-On DelayTime	t _{d(on)}	V _{GS} =-4.5V, V _{DS} =-6V, R _L =6Ω, R _{GEN} =1Ω I _D =-1.0A		13	20	ns
Turn-On Rise Time	t _r			35	60	
Turn-Off DelayTime	t _{d(off)}			45	70	
Turn-Off Fall Time	t _f			12	20	
Body Diode Reverse Recovery Charge	Q _{rr}	I _F = 1.0 A, di/dt = 100 A/ us, T _J =25°C		20	40	nC
Body Diode Reverse Recovery Time	t _{rr}			32	50	ns
Reverse Recovery Fall Time	t _a			16		
Reverse Recovery Rise Time	t _b			16		
Maximum Body-Diode Continuous Current	I _S	T _C =25°C			-1.0	A
Pulse Diode Forward Current *1	I _{SM}				-20	
Diode Forward Voltage	V _{SD}	I _S =-1.0A, V _{GS} =0V		-0.7	-1.2	V

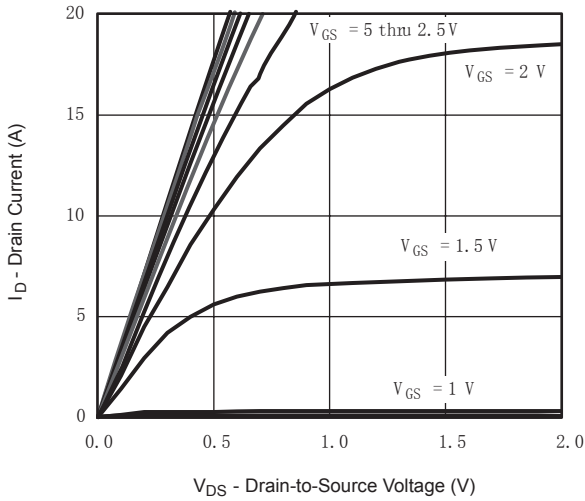
*1Pulse test: PW ≤ 300us duty cycle ≤ 2%.

■ Marking

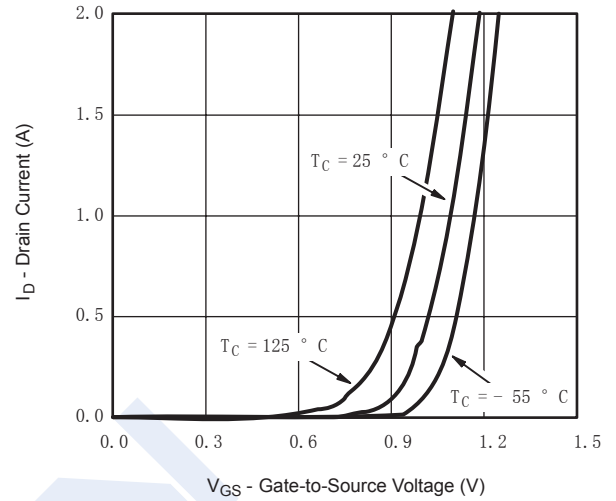
Marking	O3*
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P-Channel Enhancement MOSFET SI2333CDS (KI2333CDS)

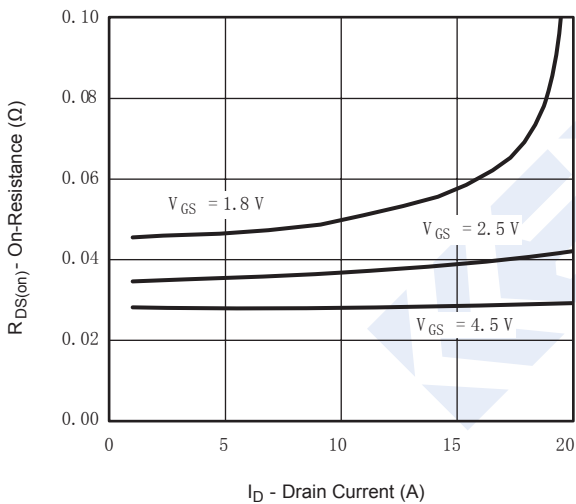
■ Typical Characteristics



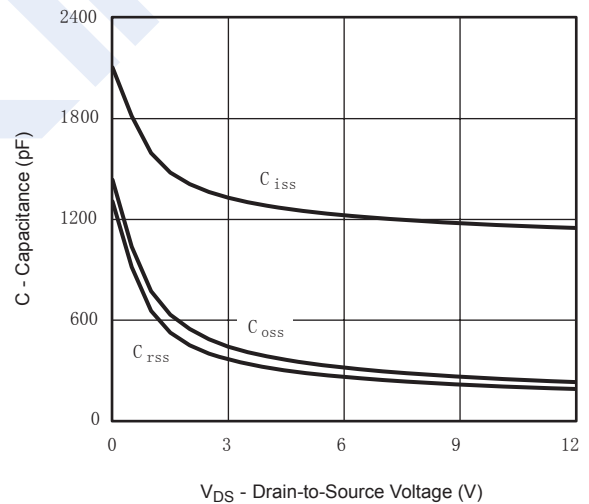
V_{DS} - Drain-to-Source Voltage (V)
Output Characteristics



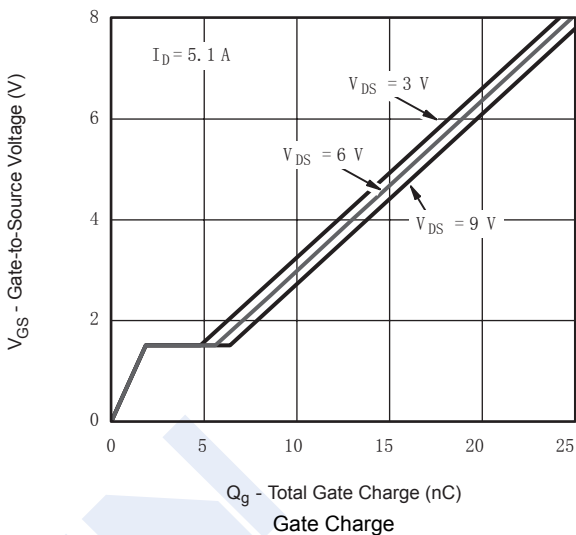
V_{GS} - Gate-to-Source Voltage (V)
Transfer Characteristics



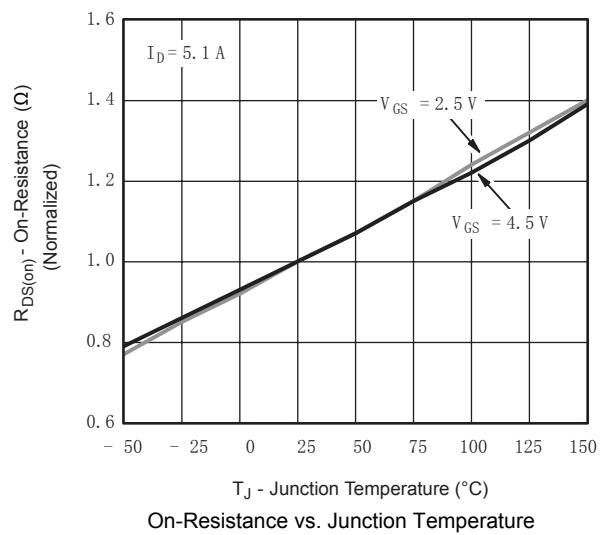
I_D - Drain Current (A)
On-Resistance vs. Drain Current and Gate Voltage



V_{DS} - Drain-to-Source Voltage (V)
Capacitance



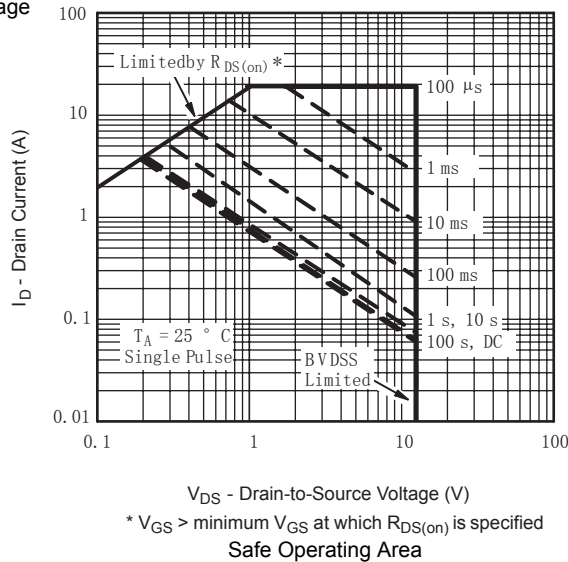
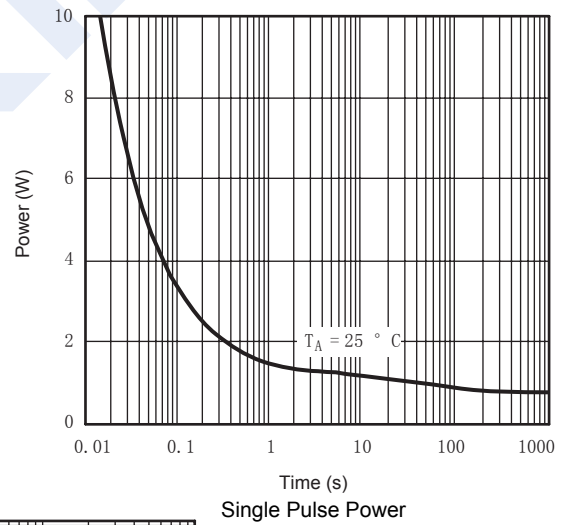
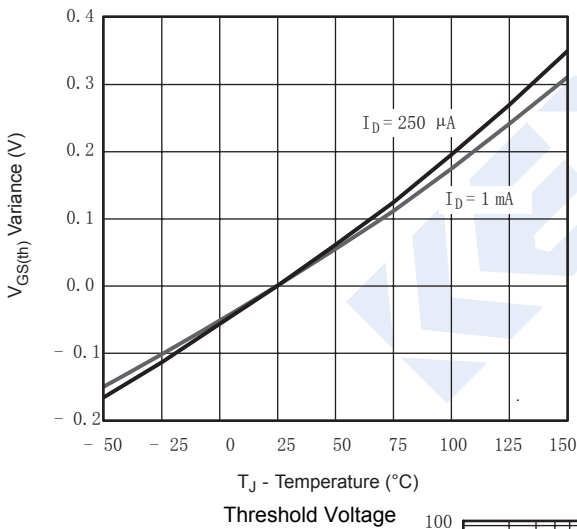
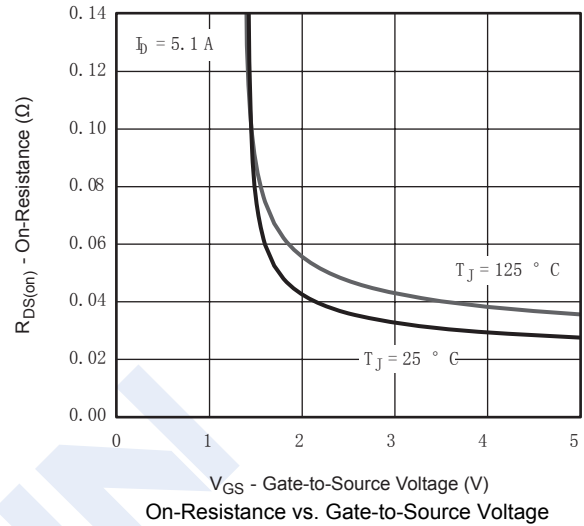
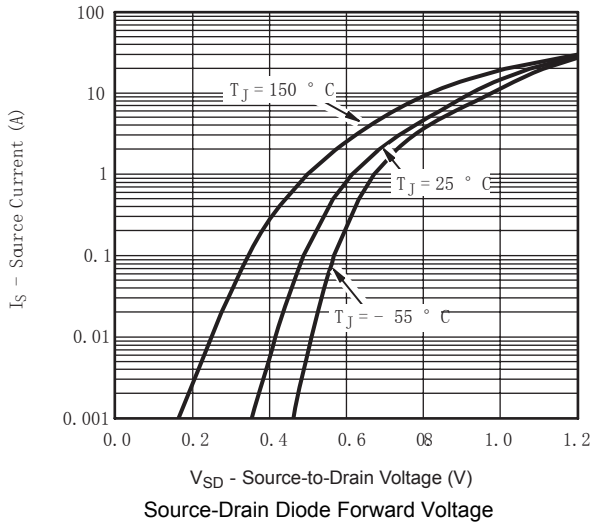
Q_g - Total Gate Charge (nC)
Gate Charge



T_J - Junction Temperature ($^\circ C$)
On-Resistance vs. Junction Temperature

P-Channel Enhancement MOSFET SI2333CDS (KI2333CDS)

■ Typical Characteristics



V_{DS} - Drain-to-Source Voltage (V)
* $V_{GS} >$ minimum V_{GS} at which $R_{DS(on)}$ is specified
Safe Operating Area

P-Channel Enhancement MOSFET SI2333CDS (KI2333CDS)

■ Typical Characteristics

