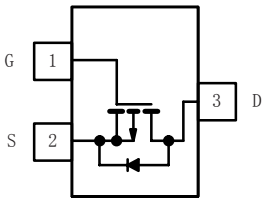
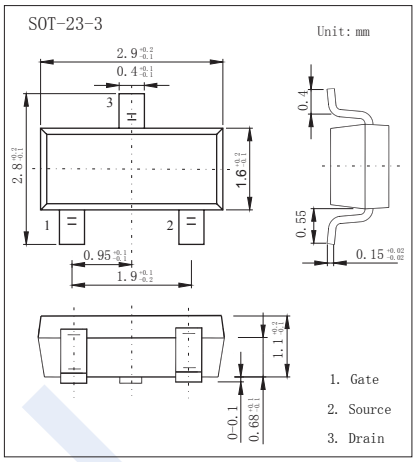
P-Channel Enhancement MOSFET

SI2315BDS (KI2315BDS)

■ Features

- $V_{DS\ (V)}$ =-12V
- I_D =-3.85A (V_{GS} =-4.5V)
- $R_{DS(ON)}$ < 50mΩ (V_{GS} =-4.5V)
- $R_{DS(ON)}$ < 65mΩ (V_{GS} =-2.5V)
- $R_{DS(ON)}$ < 100mΩ (V_{GS} =-1.8V)





■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	5 sec	Steady State	Unit
Drain-Source Voltage	V_{DS}	-12		V
Gate-Source Voltage	V_{GS}	±8		
Continuous Drain Current (TJ=150℃) *1 Ta = 25℃	I_D	-3.85	-3.0	A
Ta = 70℃		-3.0	-2.45	
Pulsed Drain Current *1	I_{DM}	-12		
Power Dissipation *1 Ta = 25℃	P_D	1.19	0.75	W
Ta = 70℃		0.76	0.48	
Thermal Resistance.Junction- to-Ambient t≤5 sec	R_{thJA} *1	105		℃/W
Steady State		166		
Thermal Resistance.Junction- to-Foot	R_{thJF}	75		
Junction Temperature	T_J	150		℃
Storage Temperature Range	T_{stg}	-55 to 150		

*1Surface Mounted on FR4 board,t ≤ 5 sec.

P-Channel Enhancement MOSFET

SI2315BDS (KI2315BDS)

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=-250μA, 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℃			-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=-250μA	-0.45		-0.9	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-3.85A		40	50	mΩ
		V_{GS}=-2.5V, I_D=-3.4A		50	65	
		V_{GS}=-1.8V, I_D=-2.7A		71	100	
On state drain current	$I_{D(ON)}$	V_{GS}=-4.5V, V_{DS}=-5V	-6			A
		V_{GS}=-2.5V, V_{DS}=-5V	-3			
Forward Transconductance	g_{FS}	V_{DS}=-5V, I_D=-3.85A		7		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-6V, f=1MHz *1		715		pF
Output Capacitance	C_{oss}			275		
Reverse Transfer Capacitance	C_{rss}			200		
Total Gate Charge	Q_g	V_{GS}=-4.5V, V_{DS}=-6V, I_D=-3.85A *1		8	15	nC
Gate Source Charge	Q_{gs}			1.1		
Gate Drain Charge	Q_{gd}			2.3		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=-4.5V, V_{DS}=-6V, R_L=6Ω,R_{GEN}=6Ω I_D=1.0A *1		15	20	ns
Turn-On Rise Time	t_r			35	50	
Turn-Off DelayTime	$t_{d(off)}$			50	70	
Turn-Off Fall Time	t_f			50	75	
Maximum Body-Diode Continuous Current	I_S				-1.6	A
Diode Forward Voltage	V_{SD}	I_S=-1.6A,V_{GS}=0V			-1.2	V

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

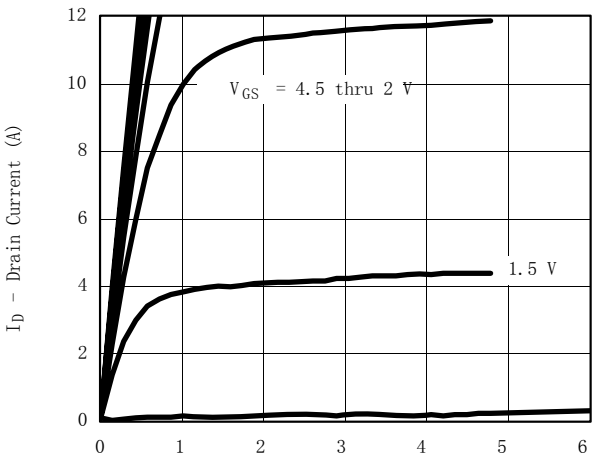
■ Marking

Marking	M5*

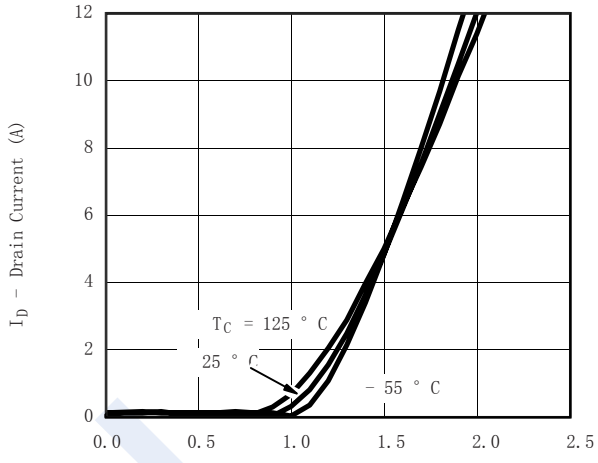
P-Channel Enhancement MOSFET

SI2315BDS (KI2315BDS)

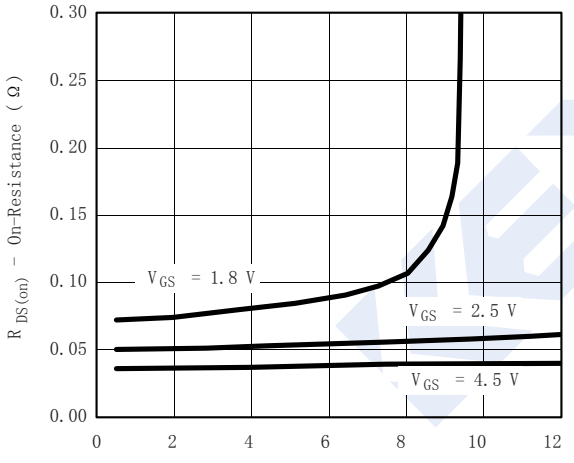
■ Typical Characterisitics



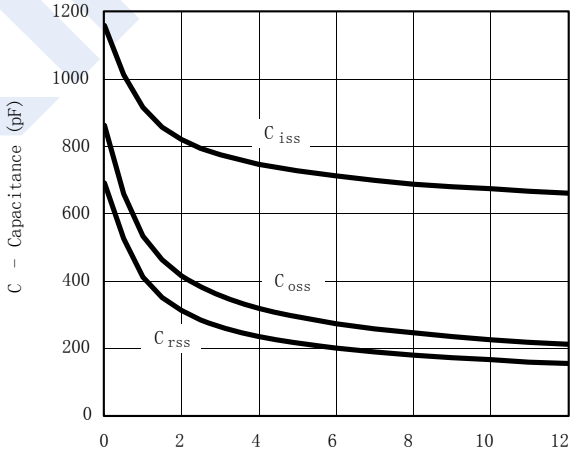
Output Characteristics



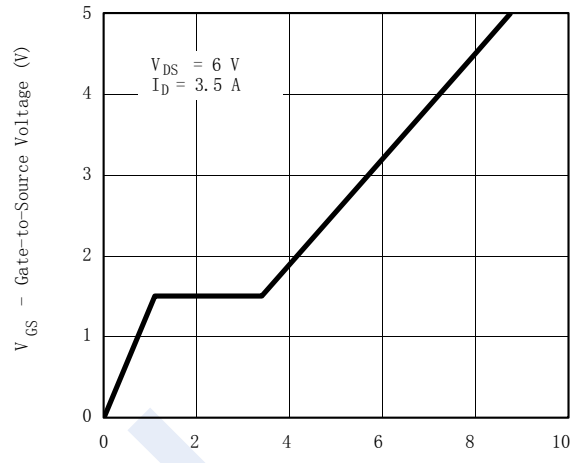
Transfer Characteristics



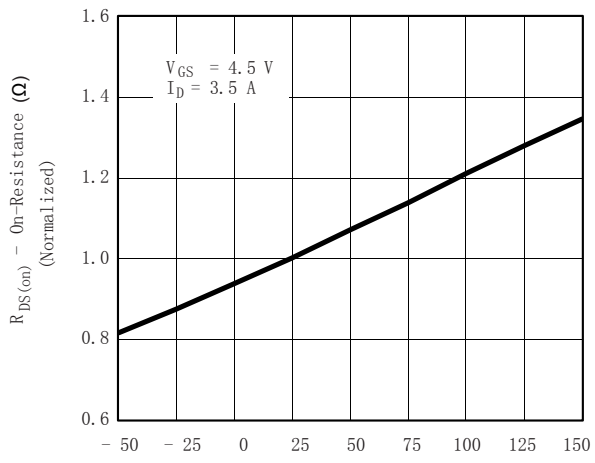
On-Resistance vs. Drain Current



Capacitance



Gate Charge

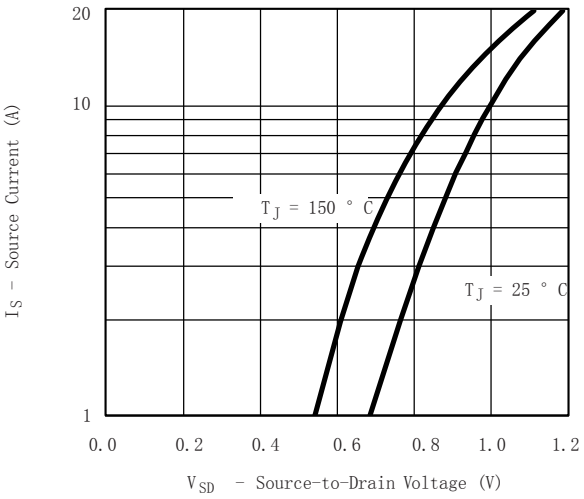


On-Resistance vs. Junction Temperature

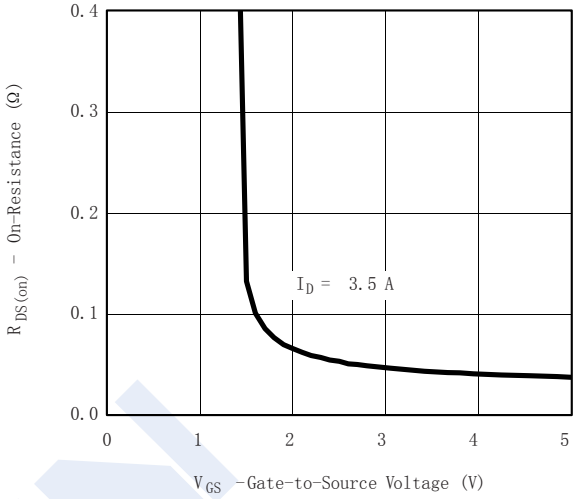
P-Channel Enhancement MOSFET

SI2315BDS (KI2315BDS)

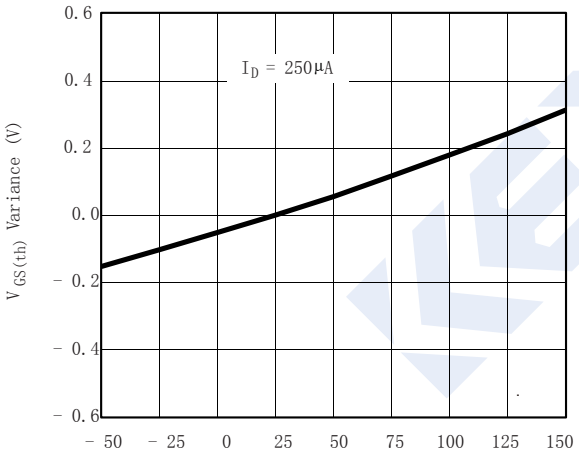
■ Typical Characterisitics



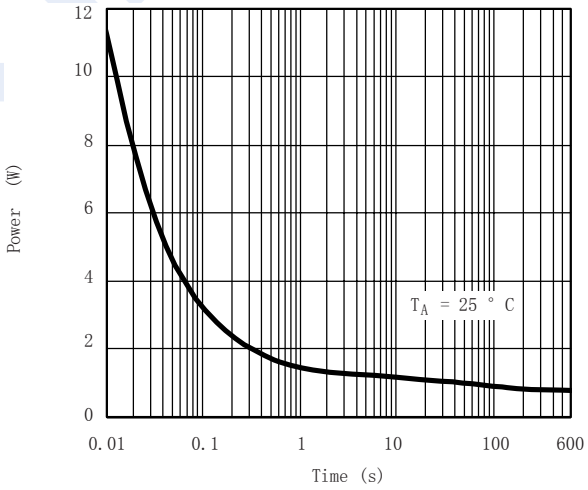
Source-Drain Diode Forward Voltage



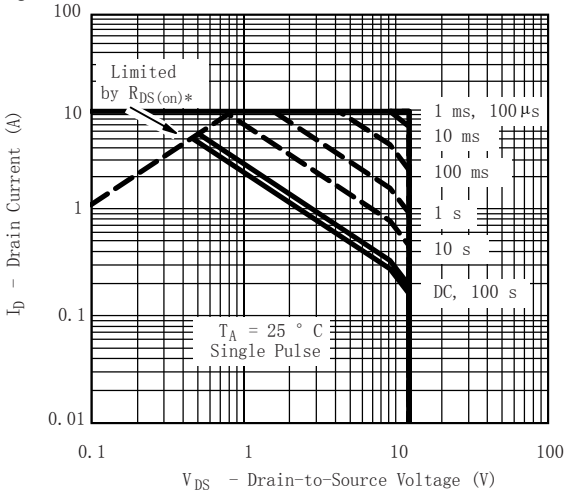
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power



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

Safe Operating Area

P-Channel Enhancement MOSFET

SI2315BDS (KI2315BDS)

■ Typical Characterisitics