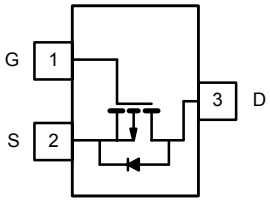
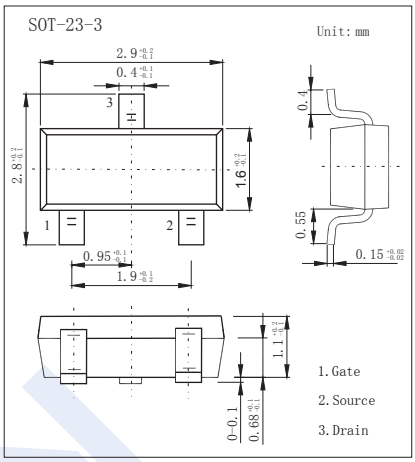
P-Channel Enhancement MOSFET

SI2303BDS (KI2303BDS)

■ Features

- $V_{DS\ (V)}$ =-30V
- $R_{DS(ON)}$ < 200mΩ (V_{GS} =-10V)
- $R_{DS(ON)}$ < 380mΩ (V_{GS} =-4.5V)





■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	5 sec	Steady State	Unit
Drain-Source Voltage	V_{DS}	-30		V
Gate-Source Voltage	V_{GS}	±20		
Continuous Drain Current (T_J=150℃)*1 Ta = 25℃	I_D	-1.4	-1.3	A
Ta = 70℃		-1.1	-1.0	
Pulsed Drain Current *2	I_{DM}	-10		
Power Dissipation *1 Ta = 25℃	P_D	0.9	0.7	W
Ta = 70℃		0.57	0.45	
Thermal Resistance.Junction- to-Ambient *1	R_{thJA}	120	145	℃/W
*3		140	175	
Junction Temperature	T_J	150		℃
Storage Temperature Range	T_{stg}	-55 to 150		

*1 Pulse width limited by maximum junction temperature.

*2 Surface Mounted on FR4 Board, t ≤ 5 sec.

*3 Surface Mounted on FR4 Board.

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=-250μA, V_{GS}=0V	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-30V, V_{GS}=0V			-1	μA
		V_{DS}=-30V, V_{GS}=0V, T_J=55℃			-10	
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=-250μA	-1.0		-3.0	V
Static Drain-Source On-Resistance *1	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-1.7A		150	200	mΩ
		V_{GS}=-4.5V, I_D=-1.3A		285	380	
On state drain current *1	$I_{D(ON)}$	V_{GS}=-10V, V_{DS} ≤ -5V	-6			A
Forward Transconductance	g_{FS}	V_{DS}=-5V, I_D=-1.7A		2.0		S
Input Capacitance *2	C_{iss}	V_{GS}=0V, V_{DS}=-15V, f=1MHz		180		pF
Output Capacitance *2	C_{oss}			50		
Reverse Transfer Capacitance *2	C_{rss}			35		
Total Gate Charge *2	Q_g	V_{GS}=-10 V, V_{DS}=-15V, I_D=-1.7A		4.3	10	nC
Gate Source Charge *2	Q_{gs}			0.8		
Gate Drain Charge *2	Q_{gd}			1.3		
Turn-On DelayTime *3	$t_{d(on)}$	V_{GS}=-4.5V, V_{DS}=-15V, R_L=15Ω, R_{GEN}=6Ω I_D=1.0A		55	80	ns
Turn-On Rise Time *3	t_r			40	60	
Turn-Off DelayTime *3	$t_{d(off)}$			10	20	
Turn-Off Fall Time *3	t_f			10	20	
Maximum Body-Diode Continuous Current	I_S	5 sec			-0.75	A
		Steady State			-0.6	
Diode Forward Voltage	V_{SD}	I_S=-0.75A,V_{GS}=0V		-0.85	-1.2	V

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

*2 For DESIGN AID ONLY, not subject to production testing.

*3 Switching time is essentially independent of operating temperature.

■ Marking

Marking	L3*

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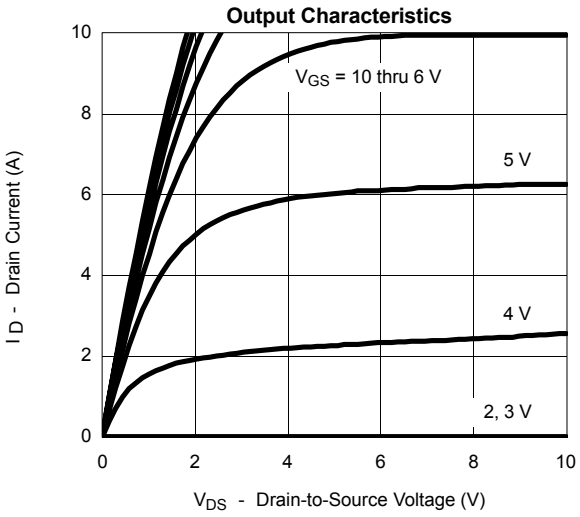
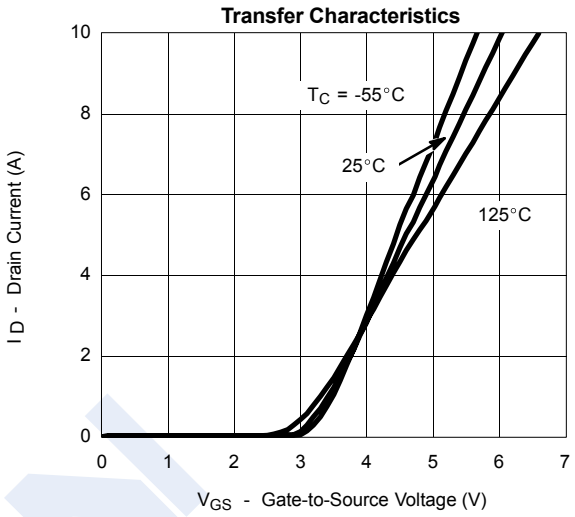
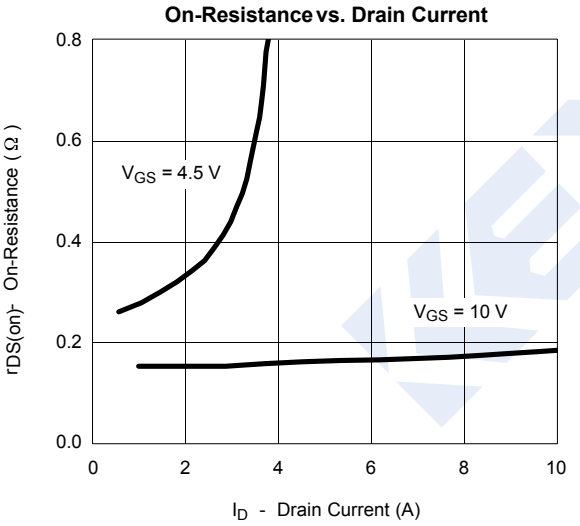
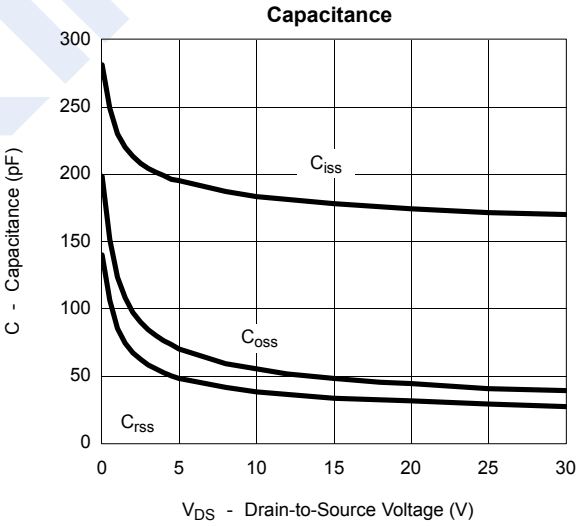
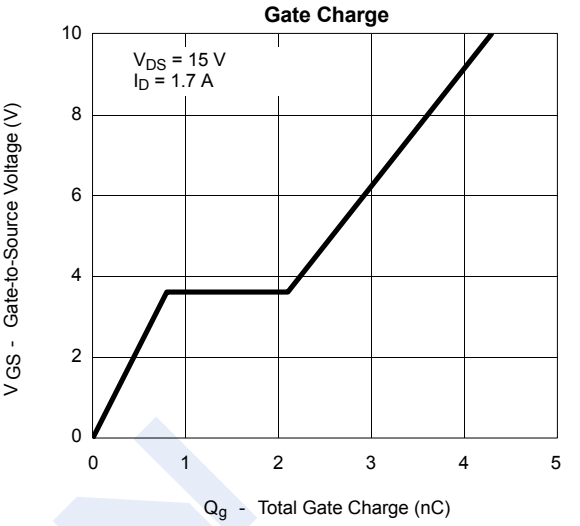
■ Typical Characterisitics

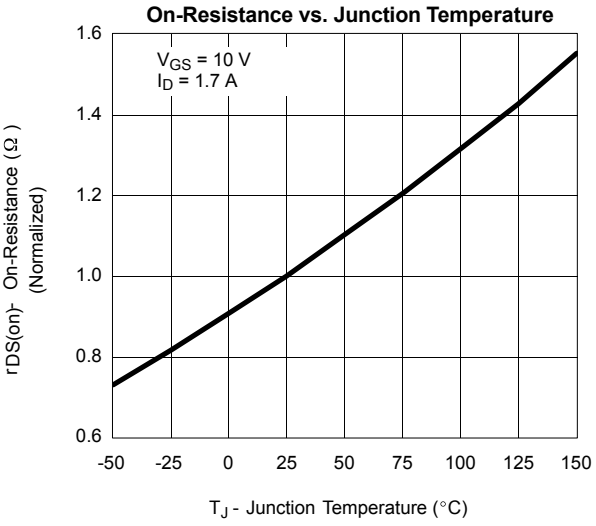












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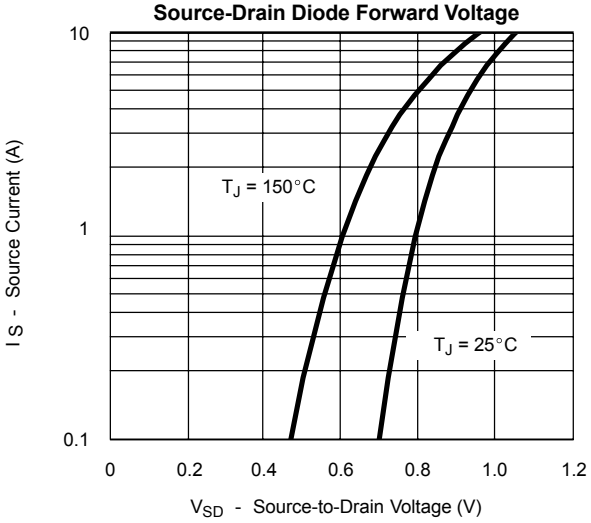
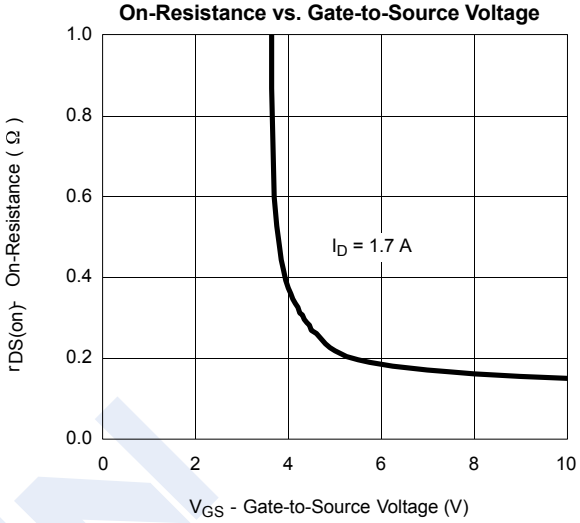
■ Typical Characterisitics

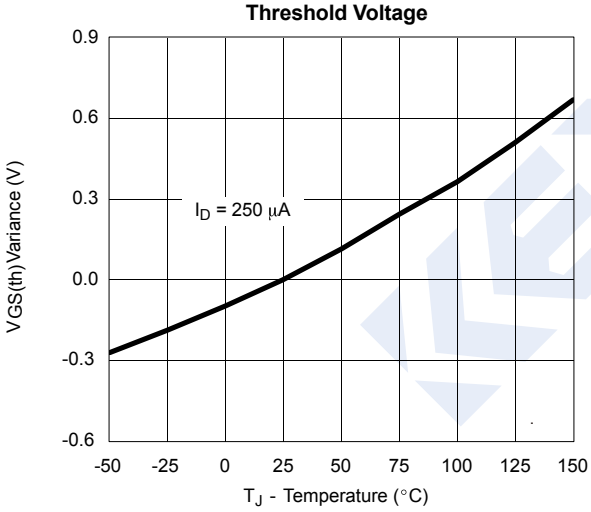
Source-Drain Diode Forward Voltage



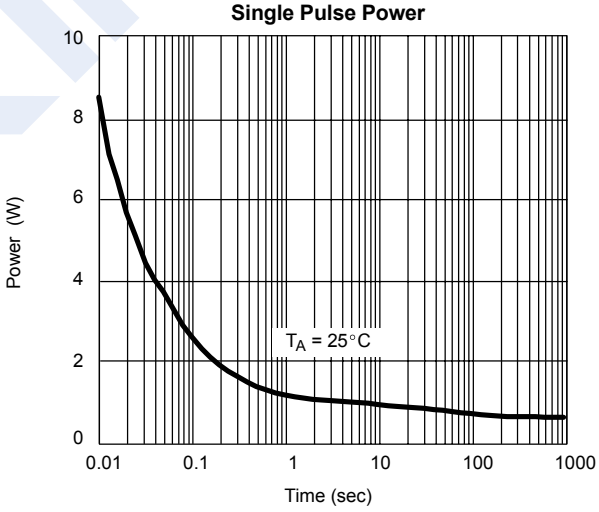
On-Resistance vs. Gate-to-Source Voltage



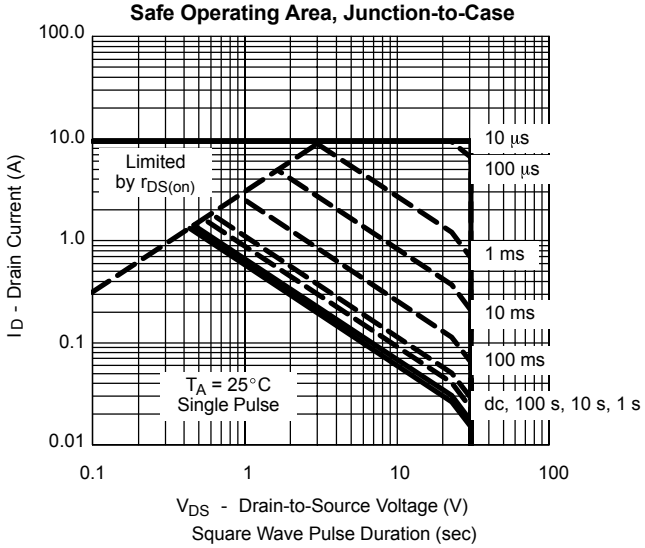
Threshold Voltage



Single Pulse Power



Safe Operating Area, Junction-to-Case



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■ Typical Characterisitics