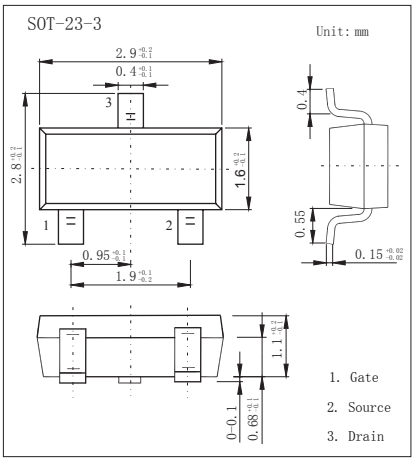
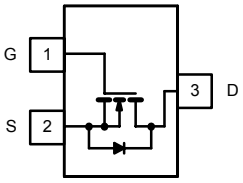
SOT-23-3 Plastic-Encapsulate MOSFETS

SI2302 N-Channel Enhancement MOSFET



■ Features

- V_{DS}=20V
- $R_{DS(on)}$= 85mΩ@V_{GS}=4.5V ,I_D=3.6A
- $R_{DS(on)}$= 115mΩ@V_{GS}=2.5V ,I_D=3.1A



■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±8	
Continuous Drain Current T_J=150℃ *1	Ta=25℃	I_D	2.8	A
	Ta=70℃		2.2	
Pulsed Drain Current		I_{DM}	10	
Power Dissipation	Ta=25℃	P_D	1.25	W
	Ta=70℃		0.8	
Thermal Resistance.Junction- to-Ambient	*1	R_{thJA}	100	℃/W
	*2		166	
Junction Temperature		TJ	150	℃
Storage Temperature Range		Tstg	-55 to 150	

Notes:

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

*2.Surface Mounted on FR4 Board.

■ Electrical Characteristics Ta = 25℃

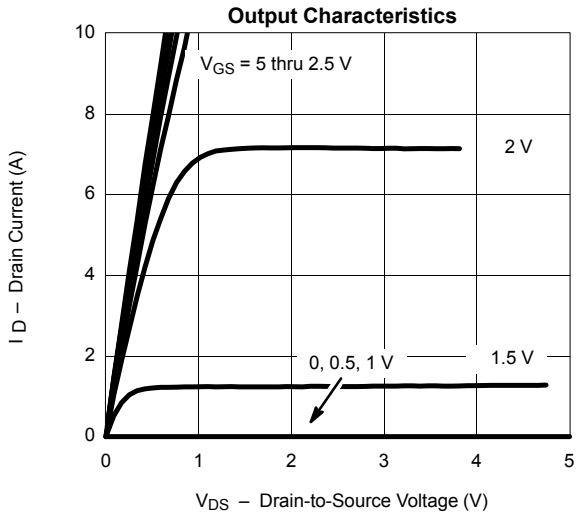
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250μA, V_{GS}=0V	20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V			1	μA
		V_{DS}=20V, V_{GS}=0V ,T_J=55 ℃			10	
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±8V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} , I_D=250μA	0.6		1.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=4.5V, I_D=3.6A		45	85	mΩ
		V_{GS}=2.5V, I_D=3.1A		70	115	
Forward Transconductance *	gfs	V_{DS}=5V,I_D=3.6A		8		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=10V, f=1MHz		300		pFYJ
Output Capacitance	C_{oss}			120		
Reverse Transfer Capacitance	C_{rss}			80		
Total Gate Charge	Q_g	V_{DS}=10V,V_{GS}=4.5V,I_D=3.6A		4	10	nC
Gate-Source Charge	Q_{gs}			0.65		
Gate-Drain Charge	Q_{gd}			1.5		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=4.5V, V_{DS}=10V, R_L=5.5Ω ,R_{GEN}=6Ω I_D=3.6A		7	15	ns
Turn-On Rise Time	t_r			55	80	
Turn-Off DelayTime	$t_{d(off)}$			16	60	
Turn-Off Fall Time	t_f			10	25	
Continuous Source Current (Diode Conduction)	I_S			1.6		A
Diode Forward Voltage	V_{SD}	Is=1.6 A,V_{GS}=0V		0.76	1.2	V

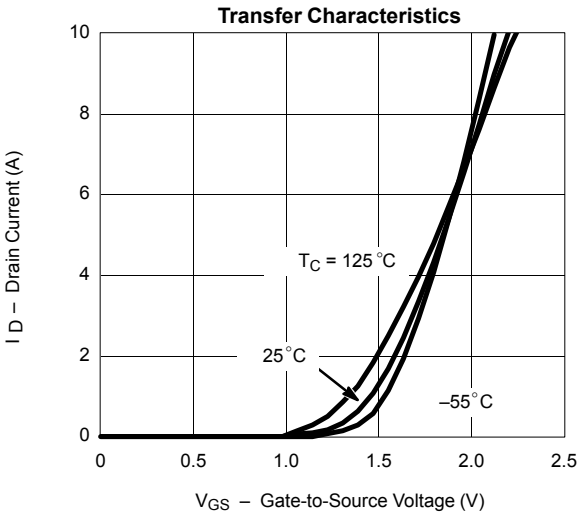
* Pulse test: PW ≤300us duty cycle≤ 2%

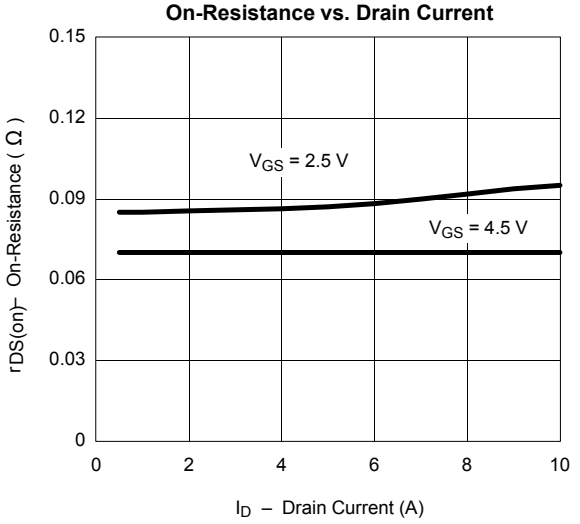
■ Marking

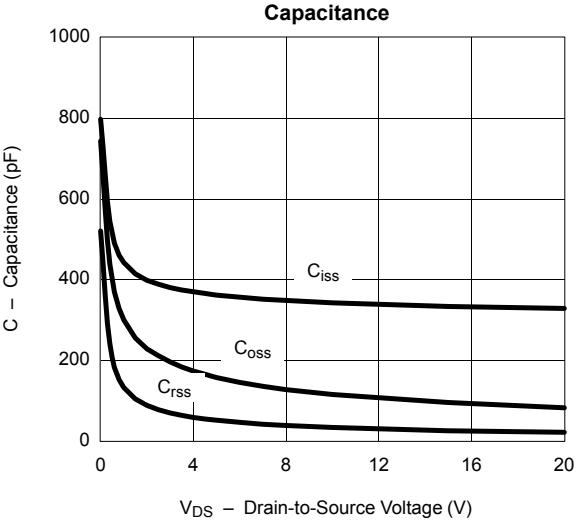
Marking	A2*

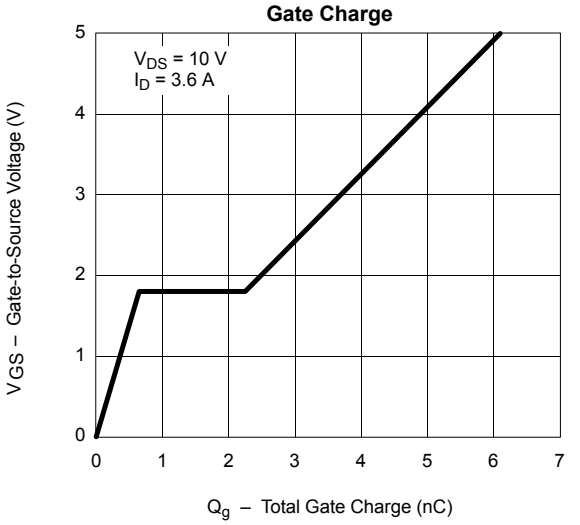
■ Typical Characterisitics

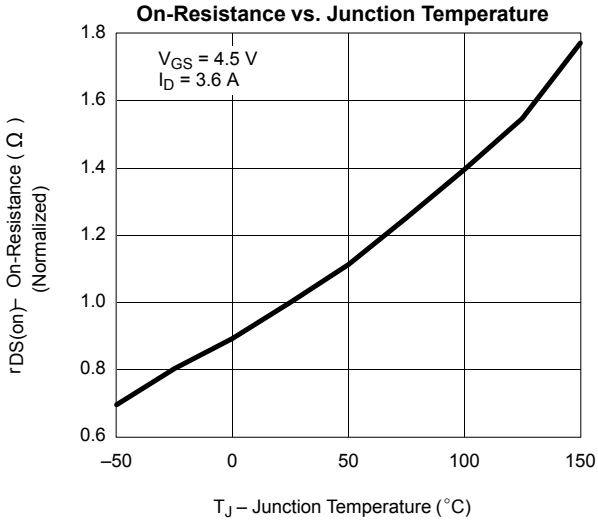






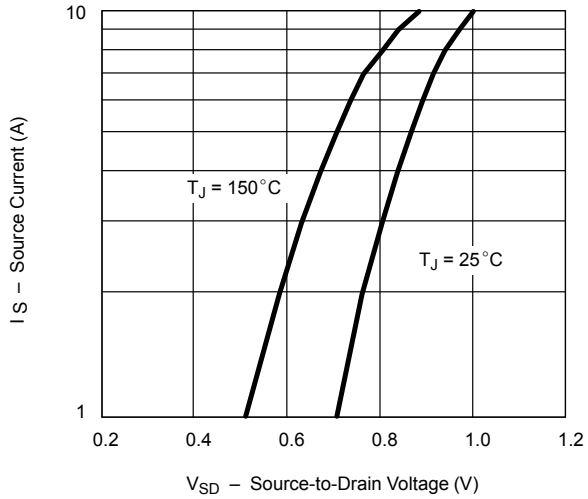




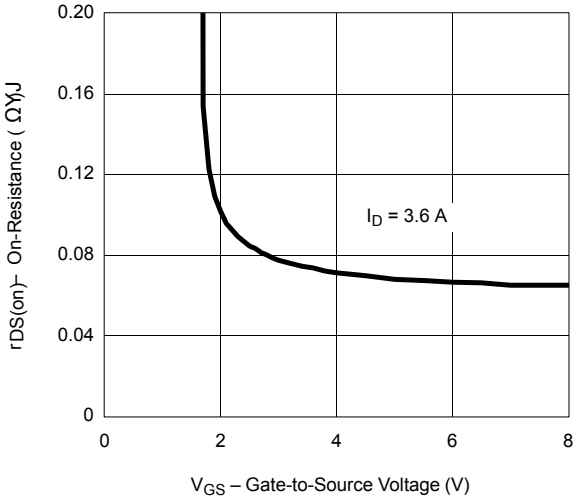


■ Typical Characterisitics

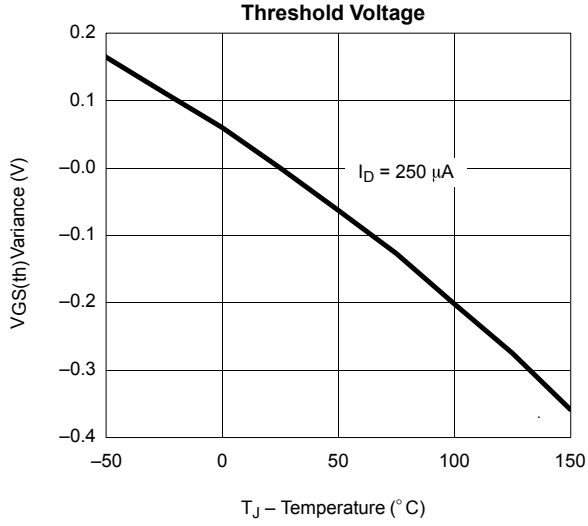
Source-Drain Diode Forward Voltage



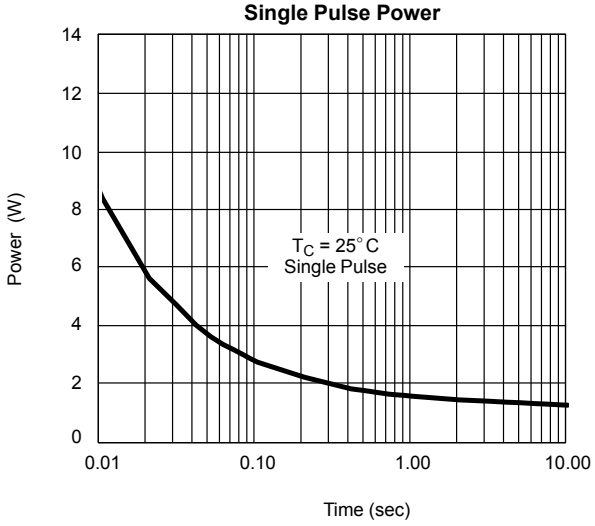
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient