

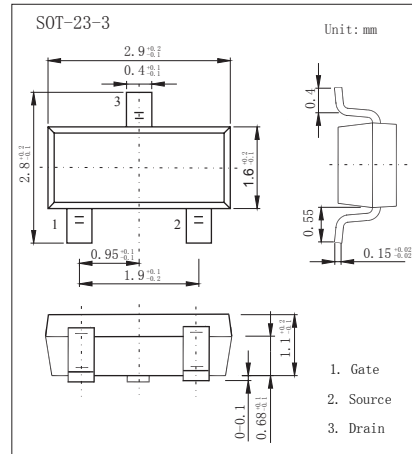
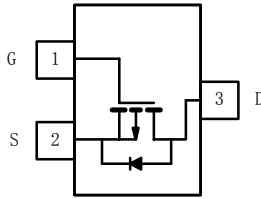


SOT-23-3 Plastic-Encapsulate MOSFETS

SI2301 P-Channel Enhancement MOSFET

■ Features

- $V_{DS} (V) = -20V$
- $R_{DS(ON)} < 100m\Omega (V_{GS} = -4.5V)$
- $R_{DS(ON)} < 150m\Omega (V_{GS} = -2.5V)$



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

Parameter	Symbol	5 sec	Steady State	Unit
Drain-Source Voltage	V_{DS}	-20		V
Gate-Source Voltage	V_{GS}	± 8		
Continuous Drain Current ($T_J = 150^\circ C$)*1	I_D	$T_a = 25^\circ C$	-2.4	A
		$T_a = 70^\circ C$	-1.9	
Pulsed Drain Current *2	I_{DM}	-10		
Power Dissipation *1	P_D	$T_a = 25^\circ C$	0.9	W
		$T_a = 70^\circ C$	0.57	
Thermal Resistance.Junction- to-Ambient *1 *3	R_{thJA}		120	$^\circ C/W$
			140	
Junction Temperature	T_J	150		$^\circ C$
Storage Temperature Range	T_{stg}	-55 to 150		

*1 Surface Mounted on FR4 Board, $t \leq 5$ sec.

*2 Pulse width limited by maximum junction temperature.

*3 Surface Mounted on FR4 Board.

■ 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	-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°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	-0.45		-0.95	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-4.5V, I _D =-2.8A		80	100	mΩ
		V _{GS} =-2.5V, I _D =-2.0A		110	150	
On state drain current *1	I _{D(ON)}	V _{GS} =-4.5V, V _{DS} ≤ -5V	-6			A
		V _{GS} =-2.5V, V _{DS} ≤ -5V	-3			
Forward Transconductance *1	g _{FS}	V _{DS} =-5V, I _D =-2.8A		6.5		S
Input Capacitance *2	C _{iss}	V _{GS} =0V, V _{DS} =-6V, f=1MHz		375		pF
Output Capacitance *2	C _{oss}			95		
Reverse Transfer Capacitance *2	C _{rss}			65		
Total Gate Charge *2	Q _g	V _{GS} =-4.5V, V _{DS} =-6V, I _D =-2.8A		4.5	10	nC
Gate Source Charge *2	Q _{gs}			0.7		
Gate Drain Charge *2	Q _{gd}			1.1		
Turn-On DelayTime *3	t _{d(on)}	V _{GS} =-4.5V, V _{DS} =-6V, R _L =6 Ω, R _{GEN} =6 Ω I _D =-1.0A		20	30	ns
Turn-On Rise Time *3	t _r			40	60	
Turn-Off DelayTime *3	t _{d(off)}			30	45	
Turn-Off Fall Time *3	t _f			20	30	
Maximum Body-Diode Continuous Current	I _S	5 sec			-0.72	A
		Steady State			-0.6	
Diode Forward Voltage	V _{SD}	I _S =-0.75A, V _{GS} =0V		-0.8	-1.2	V

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

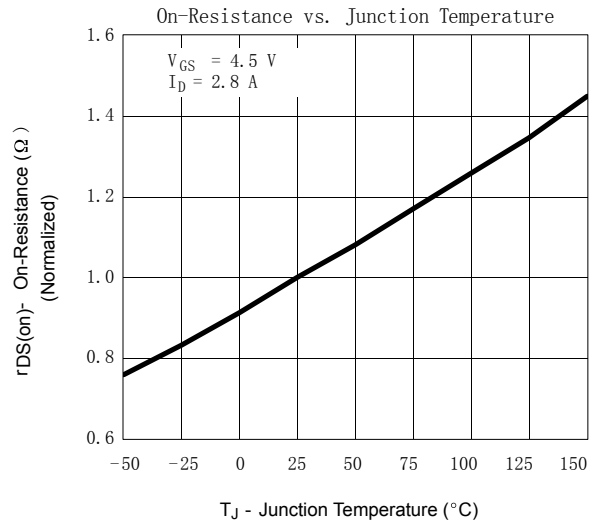
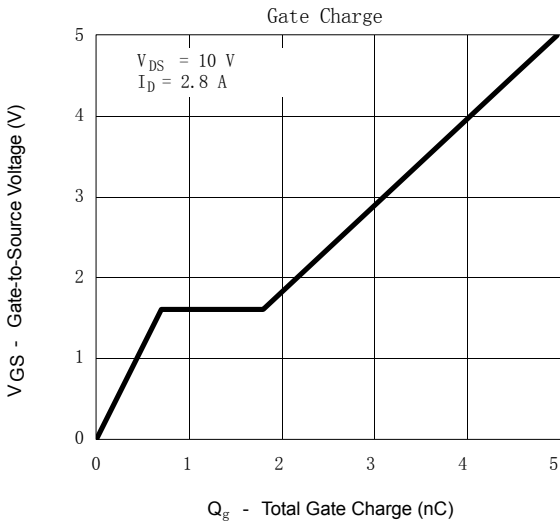
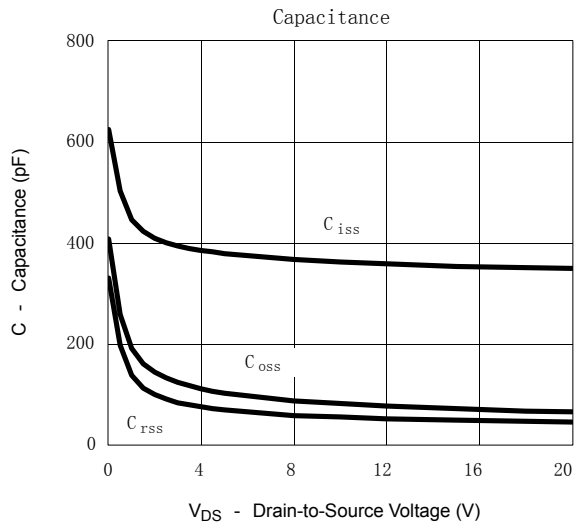
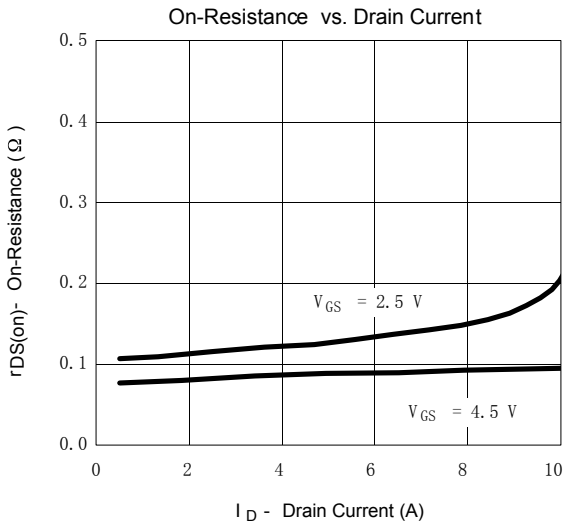
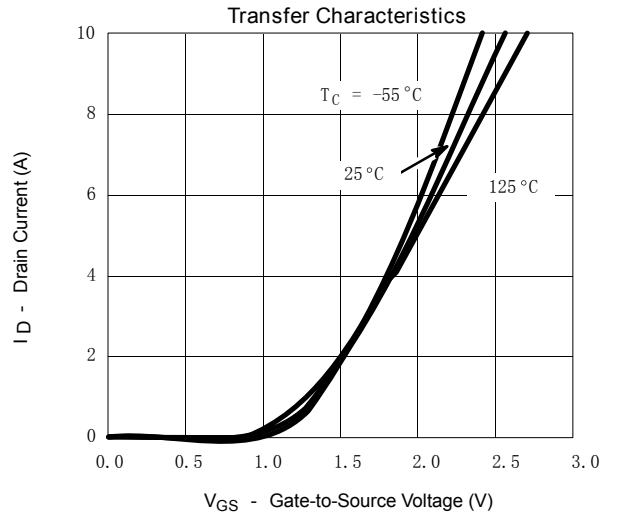
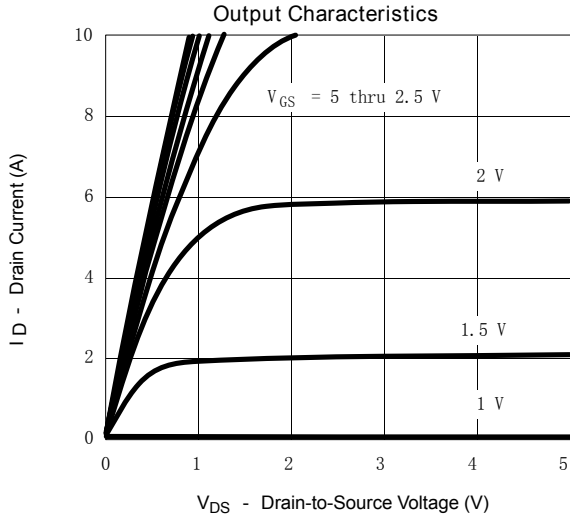
*2 For DESIGN AID ONLY, not subject to production testing.

*3 Switching time is essentially independent of operating temperature.

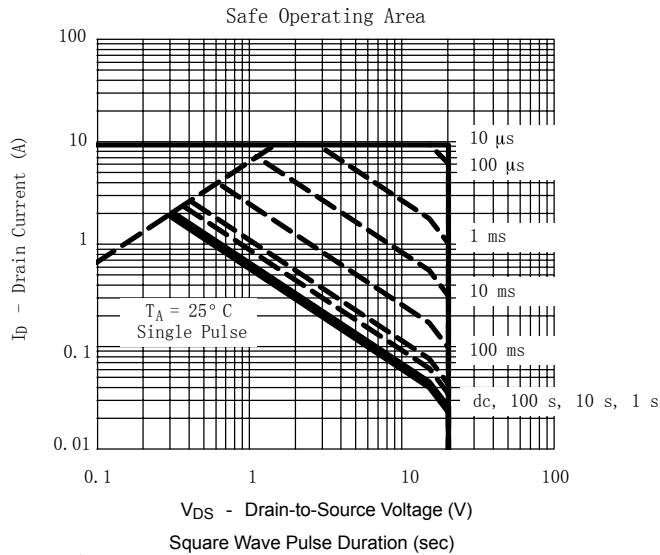
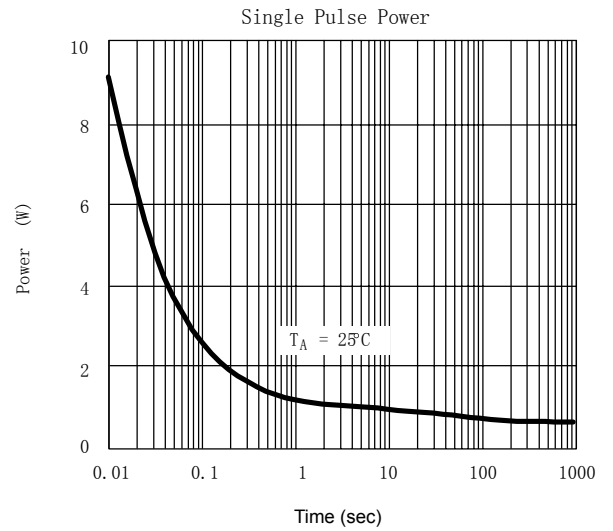
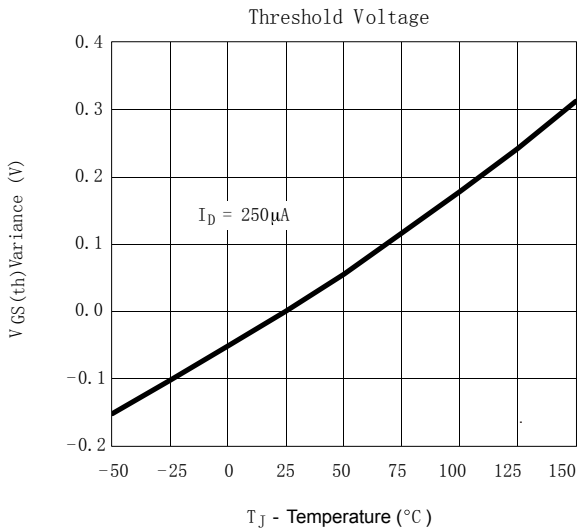
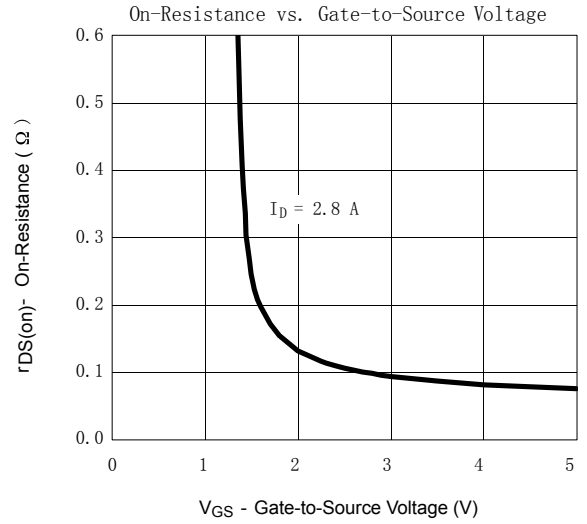
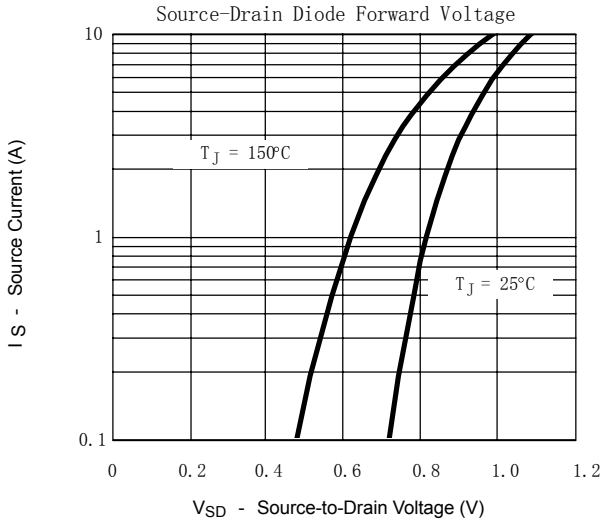
■ Marking

Marking	A1*
---------	-----

Typical Characteristics



■ Typical Characteristics



■ Typical Characteristics

