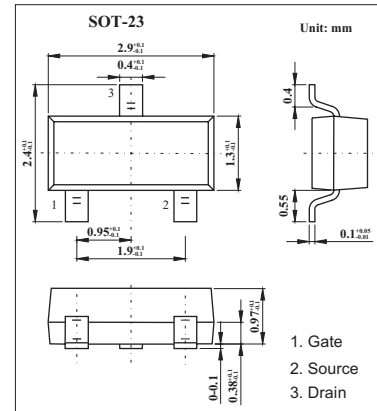




## N-Channel Enhancement Mode Field Effect Transistor SI2300

### ■ Features

- $V_{DS}=20V, R_{DS(ON)}=30m\Omega @V_{GS}=10V, I_D=6.0A$
- $V_{DS}=20V, R_{DS(ON)}=40m\Omega @V_{GS}=4.5V, I_D=3.0A$
- $V_{DS}=20V, R_{DS(ON)}=55m\Omega @V_{GS}=2.5V, I_D=2.0A$



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

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	$V_{DS}$	20	V	
Gate-Source Voltage	$V_{GS}$	$\pm 10$	V	
Drain-Current	-Continuous * $T_J=125^\circ C$	$I_D$	6.0	A
	-Pulsed	$I_{DM}$	20	A
Power Dissipation *	$P_D$	1.25	W	
Thermal Resistance, Junction- to-Ambient	$R_{thJA}$	100	$^\circ C/W$	
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to 150	$^\circ C$	

\* Surface Mounted on FR 4 Board ,  $t \leq 10$  sec.



Shenzhen Tuofeng Semiconductor Technology Co., Ltd

## N-Channel Enhancement Mode Field Effect Transistor

### SI2300

■ Electrical Characteristics Ta = 25°C

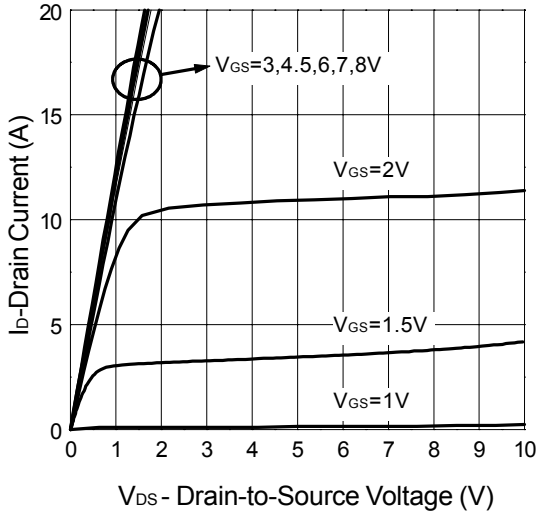
Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	20			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =16V, V <sub>GS</sub> =0V			1	uA
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>GS</sub> =±10V, V <sub>DS</sub> =0V			±100	nA
Gate Threshold Voltage *	V <sub>GS(th)</sub>	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =250uA	0.5	0.78	1.0	V
Drain- Source on-state Resistance *	R <sub>DS(on)</sub>	V <sub>GS</sub> =10.0V, I <sub>D</sub> =6.0A		28	30	m Ω
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =3.0A		38	40	m Ω
		V <sub>GS</sub> =1.8V, I <sub>D</sub> =2.0A		52	55	m Ω
On-State Drain Current *	I <sub>D(on)</sub>	V <sub>DS</sub> =5V, V <sub>GS</sub> =4.5V	5			A
Forward Transconductance *	g <sub>FS</sub>	V <sub>DS</sub> =15V, I <sub>D</sub> =6A	30			S
Input Capacitance	C <sub>ISS</sub>	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0V, f =1.0MHZ		888		pF
Output Capacitance	C <sub>OSS</sub>			144		pF
Reverse Transfer Capacitance	C <sub>RSS</sub>			115		pF
Turn-On Delay Time	t <sub>D(on)</sub>	V <sub>DD</sub> =10V, I <sub>D</sub> =1A, V <sub>GS</sub> =4.5V, R <sub>L</sub> =10Ω, R <sub>GEN</sub> =6Ω		31.8		ns
Rise Time	t <sub>r</sub>			14.5		ns
Turn-Off Delay Time	t <sub>D(off)</sub>			50.3		ns
Fall Time	t <sub>f</sub>			31.9		ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 10V, I <sub>D</sub> = 3.5A, V <sub>GS</sub> = 4.5V		16.8		nC
Gate-Source Charge	Q <sub>gs</sub>			2.5		nC
Gate-Drain Charge	Q <sub>gd</sub>			5.4		nC
Drain-Source Diode Forward Current *	I <sub>S</sub>				1.25	A
Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =1.25A		0.825	1.3	V

\* Pulse Test:Pulse Width≤300 μ ,Duty Cycle≤2%

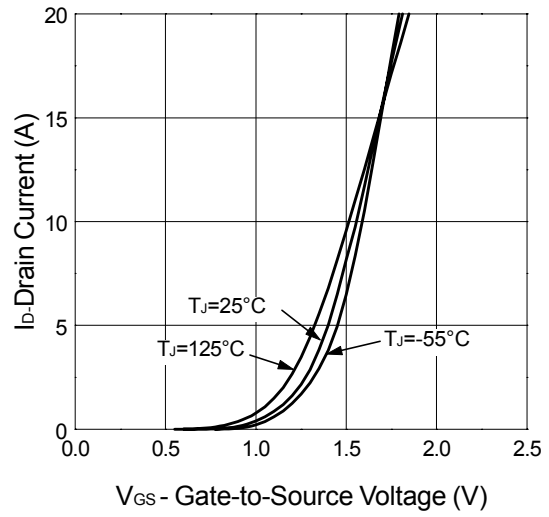


## Typical Characteristics

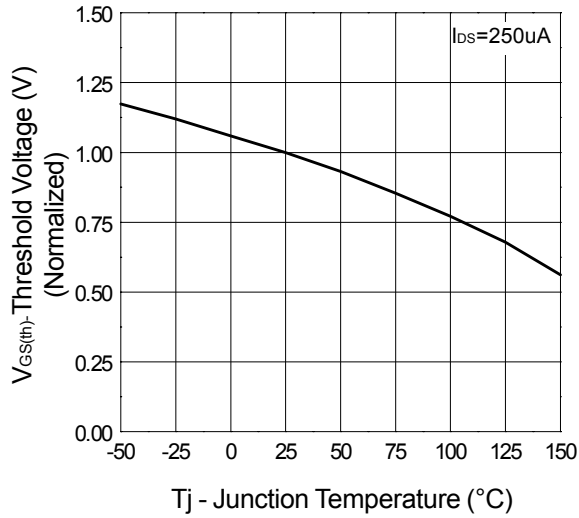
Output Characteristics



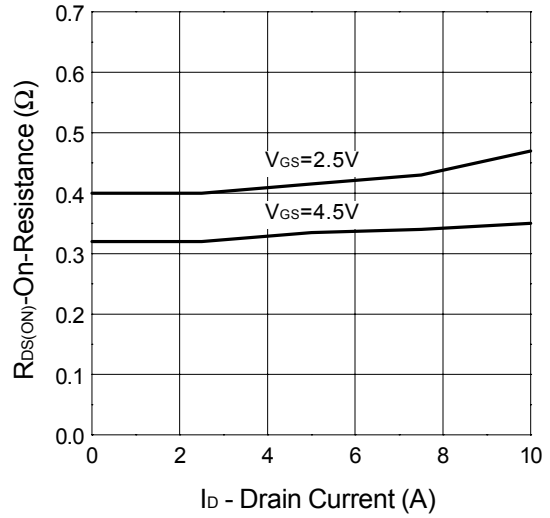
Transfer Characteristics



Threshold Voltage vs. Junction Temperature

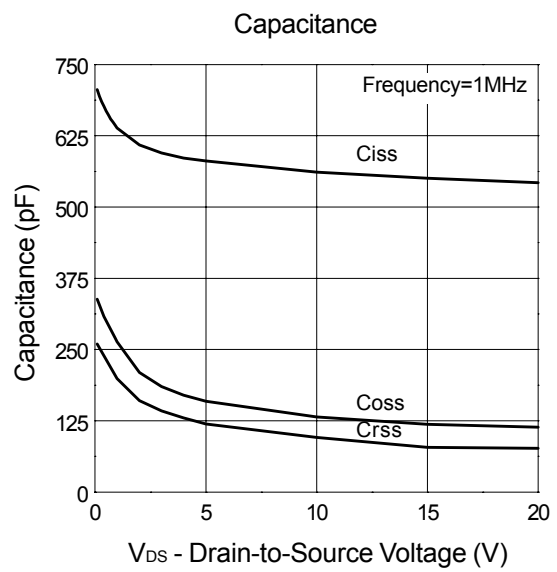
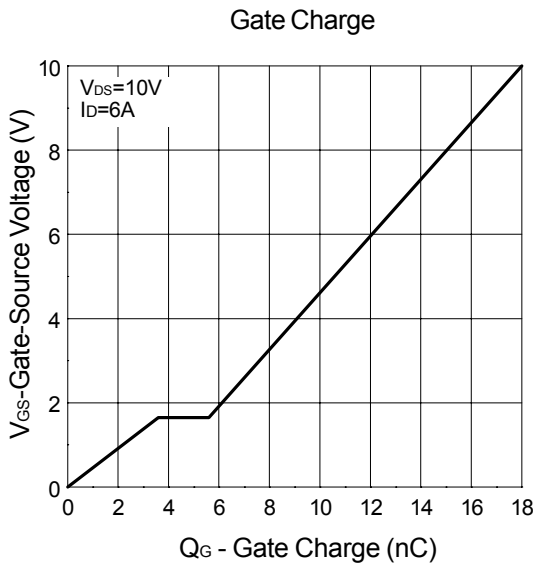
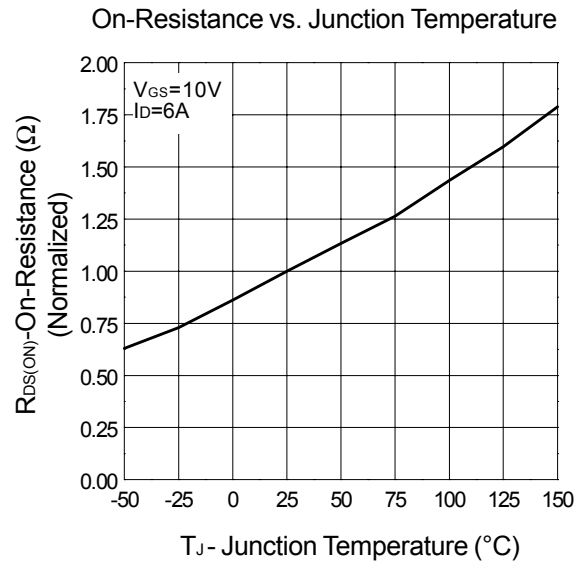
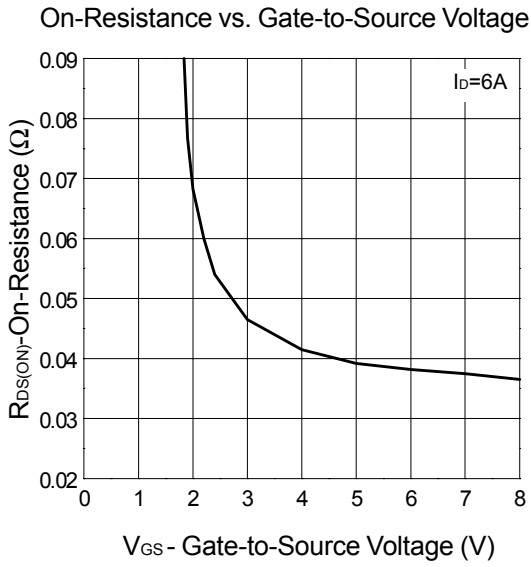


On-Resistance vs. Drain Current





### Typical Characteristics (Cont.)





## Typical Characteristics (Cont.)

