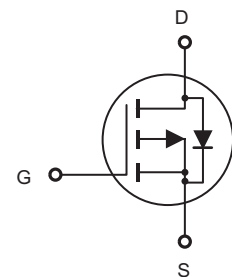
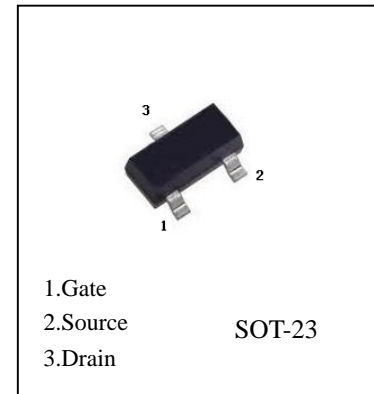


**FEATURES**

- High dense cell design for extremely low  $R_{DS(ON)}$
- Rugged and reliable
- Case Material: Molded Plastic.

Absolute Maximum Ratings (TA=25°C, unless otherwise noted)

Parameter	Symbol	Ratings	Units
Drain-Source Voltage	V <sub>DS</sub>	-20	V
Gate-Source Voltage	V <sub>GS</sub>	±8	V
Drain Current (Continuous)	I <sub>D</sub>	-2.3	A
Drain Current (Pulsed) <sup>1</sup>	I <sub>DM</sub>	-10	A
Total Power Dissipation @TA=25oC	PD	1.25	W
Operating Junction and Storage Temperature Range	T <sub>j</sub> , T <sub>stg</sub>	-55 to +150	°C
Thermal Resistance Junction to Ambient (PCB mounted) <sup>2</sup>	R <sub>JA</sub>	100	°C/W

**SI2301**  
 P-Channel MOSFET


Electrical Characteristics (TA=25°C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA	-20			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -20V, V <sub>GS</sub> = 0V			-1	μA
Gate Body Leakage Current, Forward	I <sub>GSSF</sub>	V <sub>GS</sub> = 8V, V <sub>DS</sub> = 0V			100	nA
Gate Body Leakage Current, Reverse	I <sub>GSSR</sub>	V <sub>GS</sub> = -8V, V <sub>DS</sub> = 0V			-100	nA
On Characteristics <sup>c</sup>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>GS</sub> = V <sub>DS</sub> , I <sub>D</sub> = -250μA	-0.45			V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -2.8A		80	120	m
Forward Transconductance		g <sub>FS</sub>	V <sub>DS</sub> = -5V, I <sub>D</sub> = -2.8A		8	S
Dynamic Characteristics <sup>d</sup>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = -6V, V <sub>GS</sub> = 0V, f = 1.0 MHz		880		pF
Output Capacitance	C <sub>oss</sub>			270		pF
Reverse Transfer Capacitance	C <sub>rss</sub>			175		pF
Switching Characteristics <sup>d</sup>						
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = -6V, I <sub>D</sub> = -1A, V <sub>GS</sub> = -4.5V, R <sub>GEN</sub> = 6		11	20	ns
Turn-On Rise Time	t <sub>r</sub>			5	10	ns
Turn-Off Delay Time	t <sub>d(off)</sub>			32	65	ns
Turn-Off Fall Time	t <sub>f</sub>			23	45	ns

Total Gate Charge	$Q_g$	$V_{DS} = -6V, I_D = -2.8A, V_{GS} = -4.5V$		11	14.5	nC
Gate-Source Charge	$Q_{gs}$			1.5		nC
Gate-Drain Charge	$Q_{gd}$			2.1		nC
Drain-Source Diode Characteristics and Maximun Ratings						
Drain-Source Diode Forward Current <sup>3</sup>	$I_S$				-0.75	A
Drain-Source Diode Forward Voltage <sup>4</sup>	$V_{SD}$	$V_{GS} = 0V, I_S = -0.75A$			-1.2	V

1.Repetitive Rating : Pulse width limited by maximum junction temperatu. 2.Surface Mounted on FR4 Board,t<5 sec.  
 3.Pulse Test : Pulse Width < 300μs, Duty Cycle < 2%. 4.Guaranteed by design, not subject to production testing.

### SI2301 Typical Characteristics

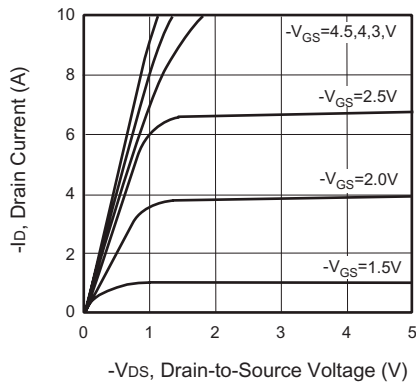


Figure 1. Output Characteristics

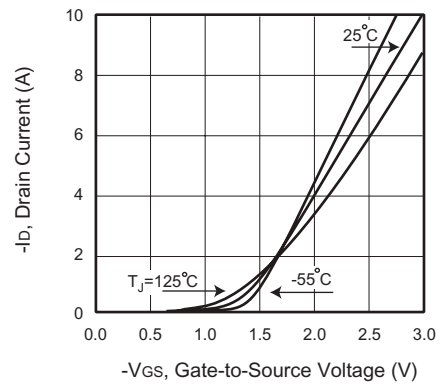


Figure 2. Transfer Characteristics

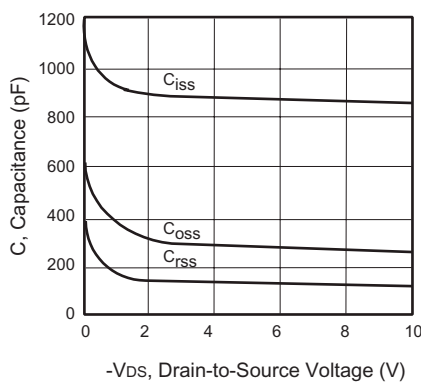


Figure 3. Capacitance

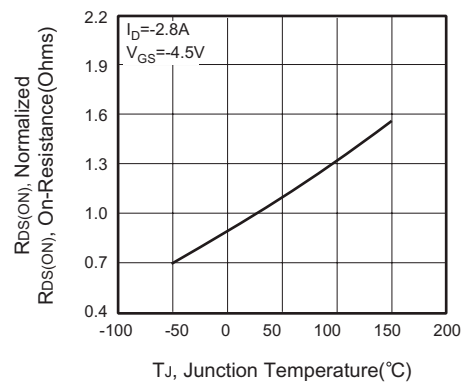
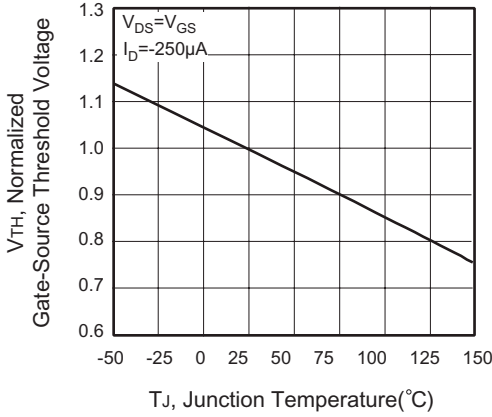
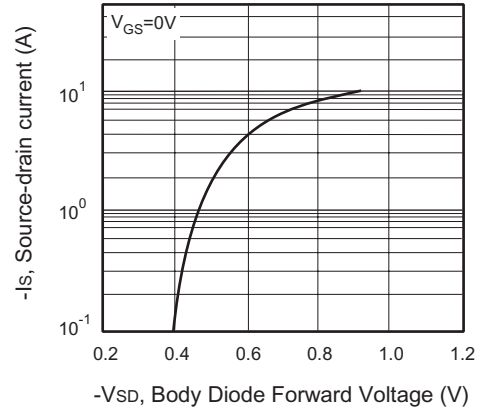


Figure 4. On-Resistance Variation with Temperature

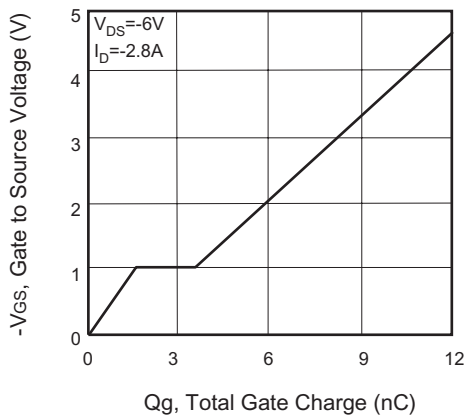
**SI2301** Typical Characteristics



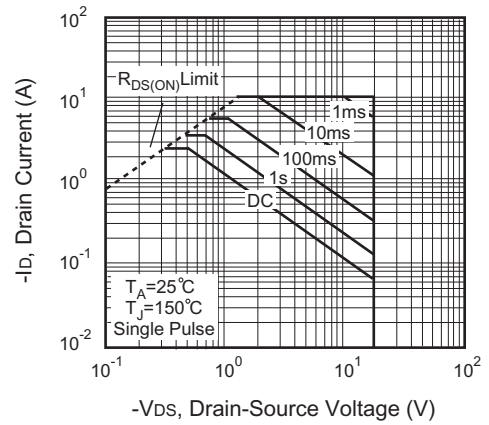
**Figure 5. Gate Threshold Variation with Temperature**



**Figure 6. Body Diode Forward Voltage Variation with Source Current**



**Figure 7. Gate Charge**



**Figure 8. Maximum Safe Operating Area**