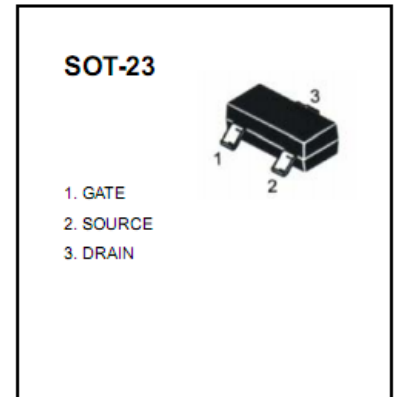
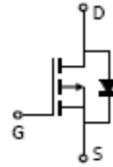


# SOT-23 Plastic-Encapsulate Transistors

## SI2301 MOSFET(P-Channel)

### FEATURES

PWM applications  
Load switch  
Power management



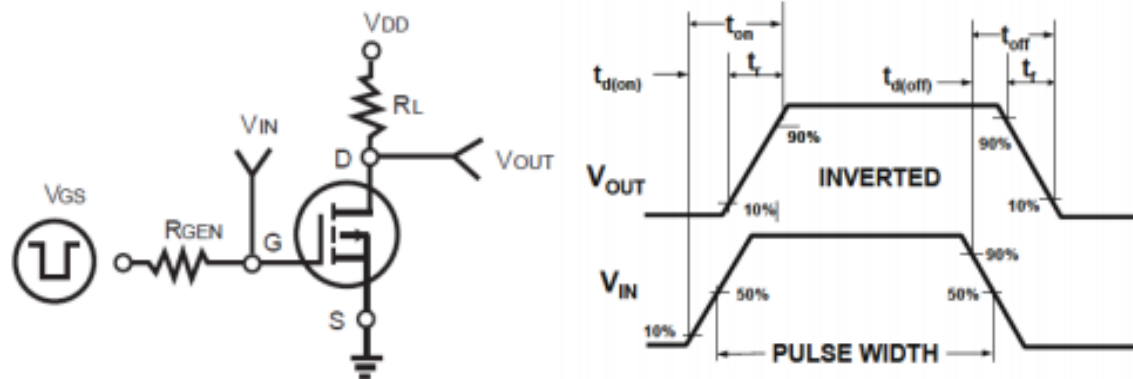
### MAXIMUM RATINGS (TA=25°C unless otherwise noted)

Symbol	Parameter	Value	Units
V <sub>DS</sub>	Drain-Source voltage	-20	V
V <sub>GS</sub>	Gate-Source voltage	±12	V
I <sub>D</sub>	Drain current	-2.5	A
P <sub>D</sub>	Power Dissipation	0.9	W
T <sub>j</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55-150	°C

### ELECTRICAL CHARACTERISTICS (T<sub>amb</sub>=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =-250uA	-20			V
Gate-Threshold Voltage	V <sub>th(GS)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> =-250 uA	-0.4	-0.7	-1	V
Gate-body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =± 12V			± 100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-20V, V <sub>GS</sub> =0V			-1	uA
Drain-Source On-Resistance	r <sub>DS(ON)</sub>	V <sub>GS</sub> =-4. 5V, I <sub>D</sub> =-2.5A		120	160	m Ω
		V <sub>GS</sub> =-2. 5V, I <sub>D</sub> =-2A		175	250	m Ω
Dynamic Characteristics						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-10V, V <sub>GS</sub> =0V, f=1MHz		290		pF
Output Capacitance	C <sub>oss</sub>			55		
Reverse Transfer Capacitance	C <sub>rss</sub>			29		
Switching Capacitance						
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>GEN</sub> =6 Ω		8		nS
Turn-on Rise Time	t <sub>r</sub>			13		nS
Turn-off Delay Time	t <sub>d(off)</sub>			13		nS
Turn-off Fall Time	t <sub>f</sub>			18		nS
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-2. 5A, V <sub>GS</sub> =-4. 5V,		3		nC
Gate-Source Charge	Q <sub>gs</sub>			0.7		nC
Gate-Drain Charge	Q <sub>gd</sub>			0.8		nC
Drain-Source Diode Characteristics						
Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =-2. 5A			-1.2	V
Diode Forward Current	I <sub>s</sub>				-2.5	A

## Switch Time Test Circuit and Switching Waveforms:



## TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS (Curves)

Figure1. Power Dissipation

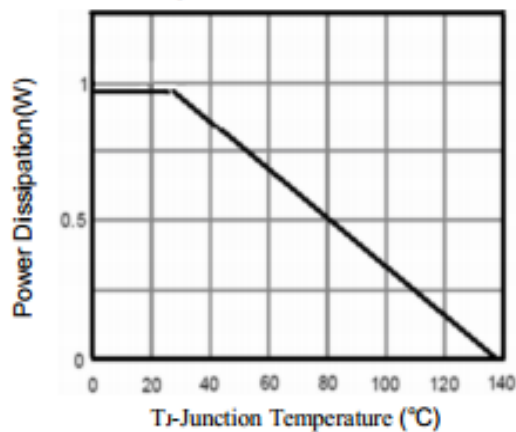


Figure2. Drain Current

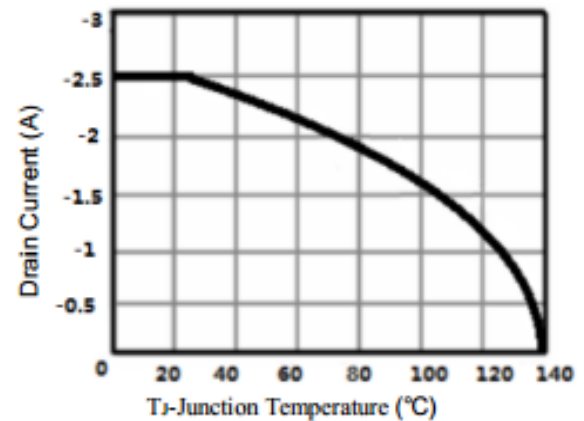


Figure3. Output Characteristics

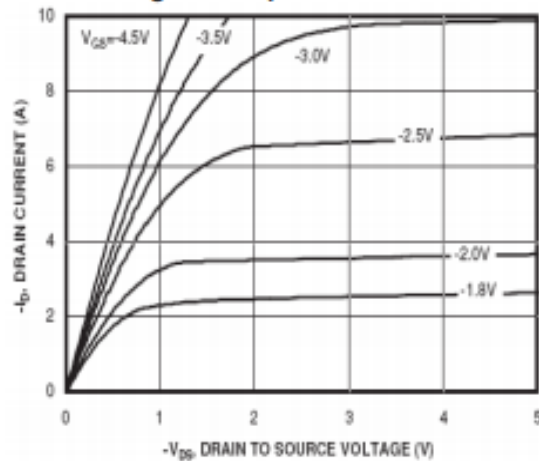


Figure4. Transfer Characteristics

