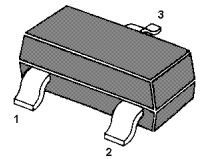
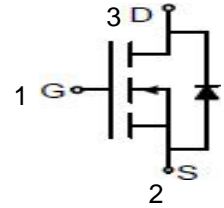




## MT2310-Plastic-Encapsulate MOSFETS

N-Channel MOSFET

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
60 V	105mΩ@10 V	3A
	125mΩ@4.5V	



**SOT-23**

### DESCRIPTION

The MT2310 uses advanced trench technology to provide excellent  $R_{DS(ON)}$ , low gate charge and operation with gate voltage as low as 2.5V. This device is suitable for use as a battery protection or in other switching application.

### FEATURE

- High power and current handing capability
- Lead free product is acquired
- Surface mount package

### APPLICATION

- Battery Switch
- DC/DC Converter

**MARKING** : S10

**Maximum ratings ( $T_a=25^{\circ}C$  unless otherwise noted)**

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	3	A
Pulsed Drain Current (note 1)	$I_{DM}$	10	A
Power Dissipation	$P_D$	0.35	W
Thermal Resistance from Junction to Ambient (note 2)	$R_{\theta JA}$	357	$^{\circ}C/W$
Junction Temperature	$T_J$	150	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55~+150	$^{\circ}C$



## MOSFET ELECTRICAL CHARACTERISTICS

T<sub>a</sub>=25 °C unless otherwise specified

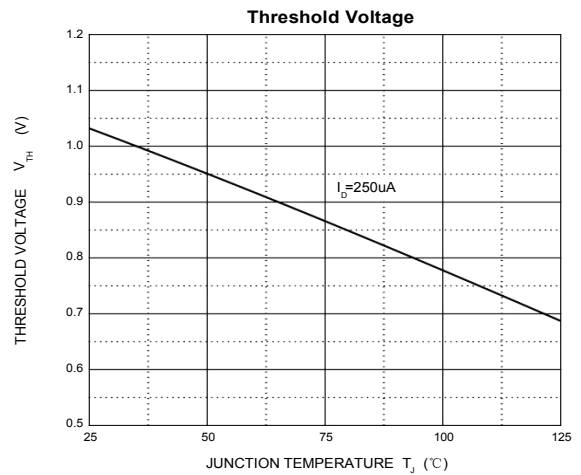
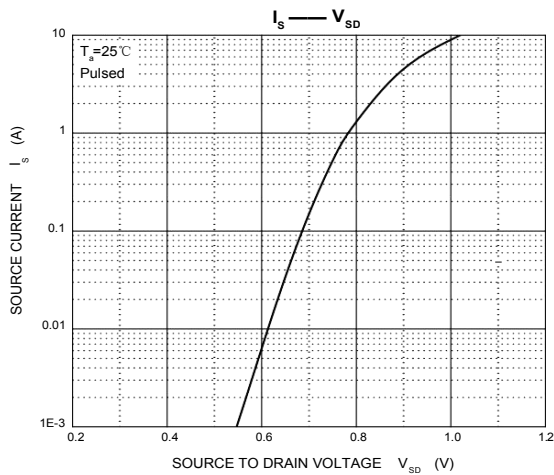
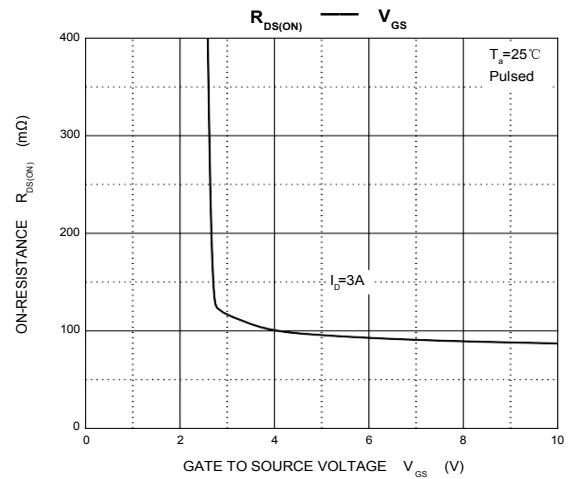
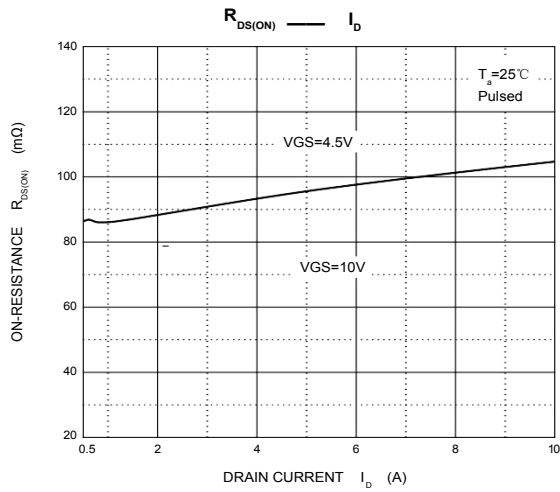
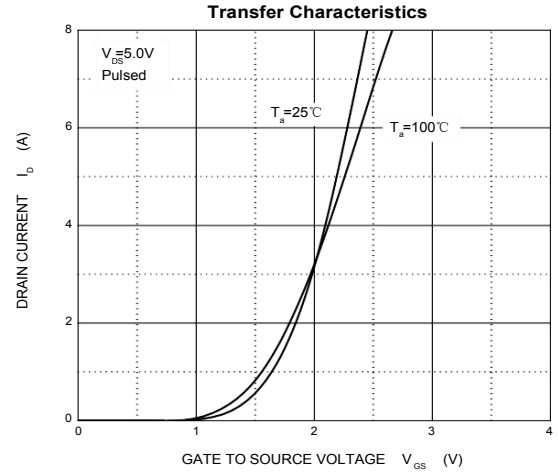
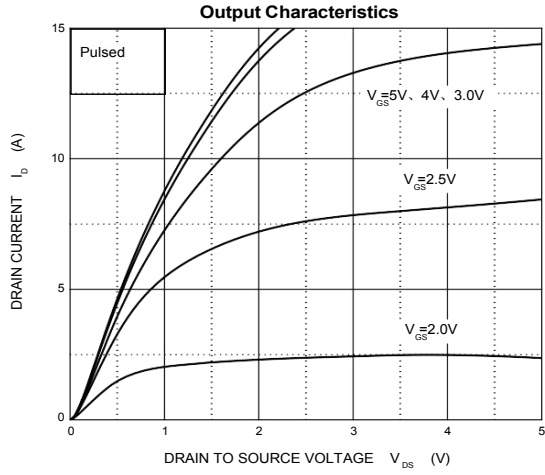
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit	
<b>STATIC CHARACTERISTICS</b>							
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	60			V	
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = 60V, V <sub>GS</sub> = 0V			1	μA	
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V			±100	nA	
Gate threshold voltage (note 3)	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	0.5		2	V	
Drain-source on-resistance (note 3)	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 3A			105	mΩ	
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 3A			125	mΩ	
Forward tranconductance (note 3)	g <sub>FS</sub>	V <sub>DS</sub> = 15V, I <sub>D</sub> = 2A	1.4			S	
Diode forward voltage (note 3)	V <sub>SD</sub>	I <sub>S</sub> = 3A, V <sub>GS</sub> = 0V			1.2	V	
<b>DYNAMIC CHARACTERISTICS (note 4)</b>							
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 30V, V <sub>GS</sub> = 0V, f = 1MHz		247		pF	
Output Capacitance	C <sub>oss</sub>				34		pF
Reverse Transfer Capacitance	C <sub>rss</sub>				19.5		pF
<b>SWITCHING CHARACTERISTICS (note 4)</b>							
Turn-on delay time	t <sub>d(on)</sub>	V <sub>GS</sub> = 10V, V <sub>DD</sub> = 30V, I <sub>D</sub> = 1.5A, R <sub>GEN</sub> = 1Ω		6		ns	
Turn-on rise time	t <sub>r</sub>				15		ns
Turn-off delay time	t <sub>d(off)</sub>				15		ns
Turn-off fall time	t <sub>f</sub>				10		ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 30V, V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 3A		6		nC	
Gate-Source Charge	Q <sub>gs</sub>				1		nC
Gate-Drain Charge	Q <sub>gd</sub>				1.3		nC

### Notes :

1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board , t<sub>s</sub> ≤ 10s.
3. Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 0.5%.
4. Guaranteed by design, not subject to producing.



## Typical Characteristics

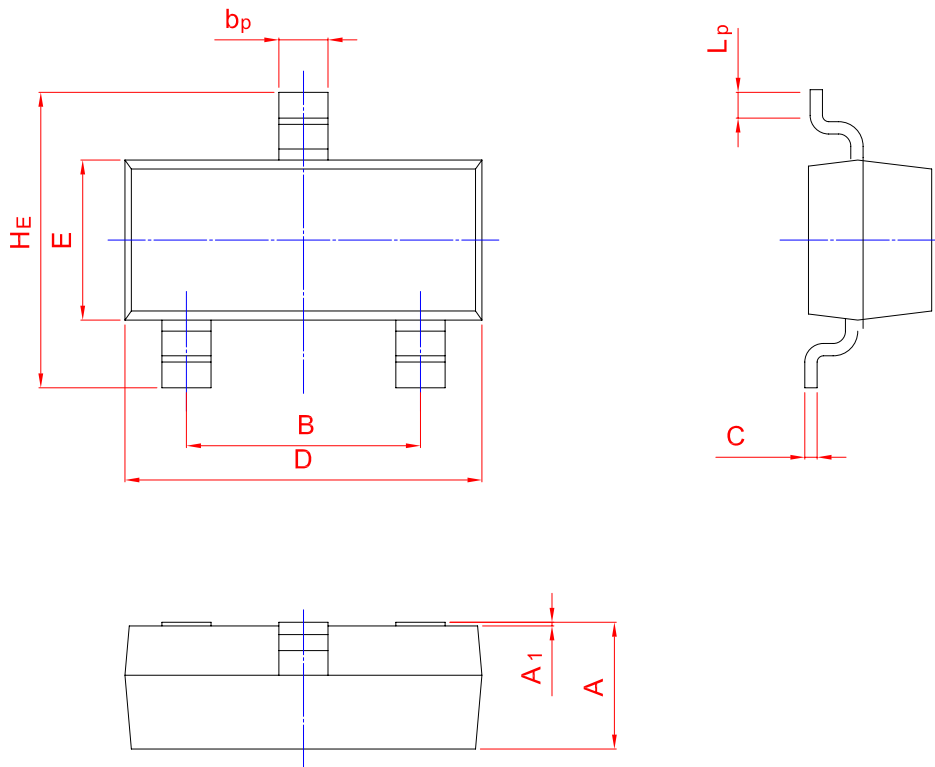
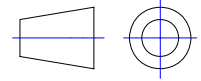




## PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



UNIT	A	B	bp	C	D	E	HE	A1	Lp
mm	1.40	2.04	0.50	0.19	3.10	1.65	3.00	0.100	0.50
	0.95	1.78	0.35	0.08	2.70	1.20	2.20	0.013	0.20