

■ **N-Channel MOSFET**

■ **Features**

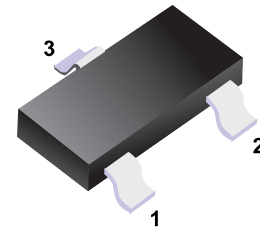
- High power and current handing capability
- Lead free product is acquired
- Surface mount package

■ **Application**

- Battery Switch
- DC/DC Converter

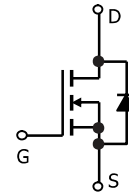
■ **Description**

The YFW2310 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.



- 1. Gate
- 2. Source
- 3. Drain

■ **Simplified outline(SOT-23)**



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

■ **MARKING**

Marking	S10
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■ **Absolute Maximum Ratings** $T_a = 25^\circ\text{C}$

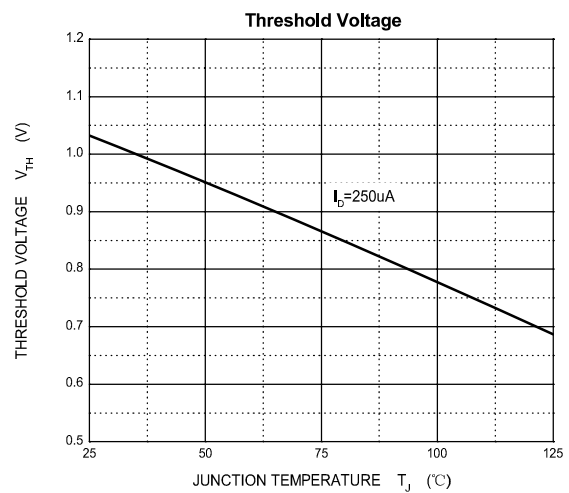
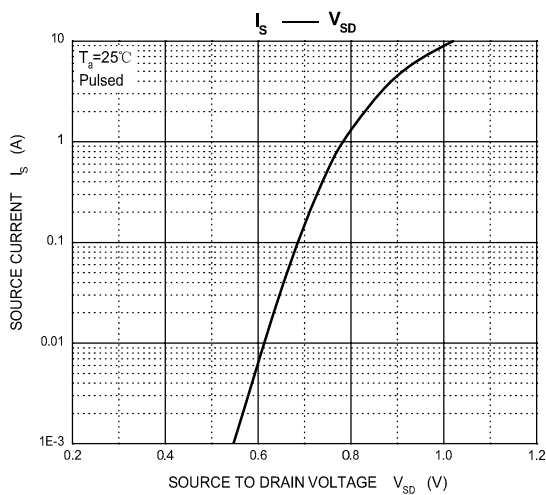
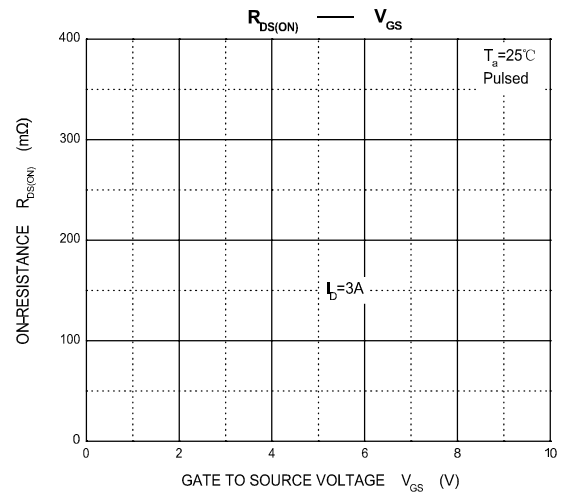
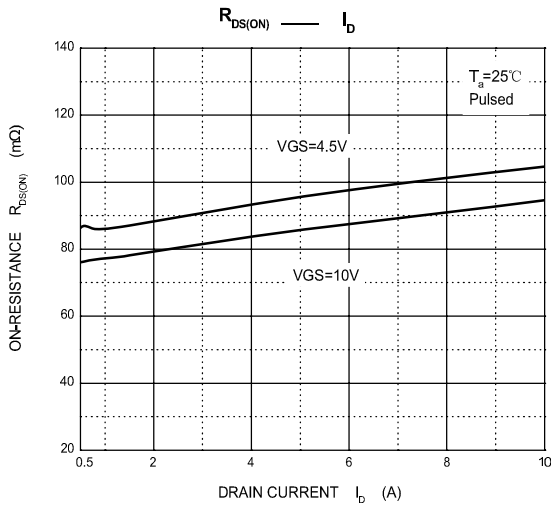
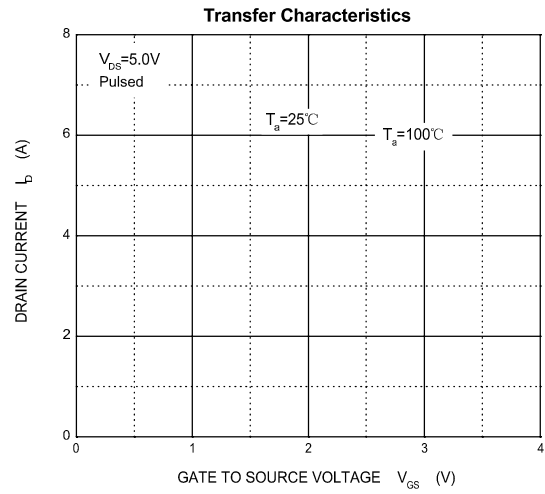
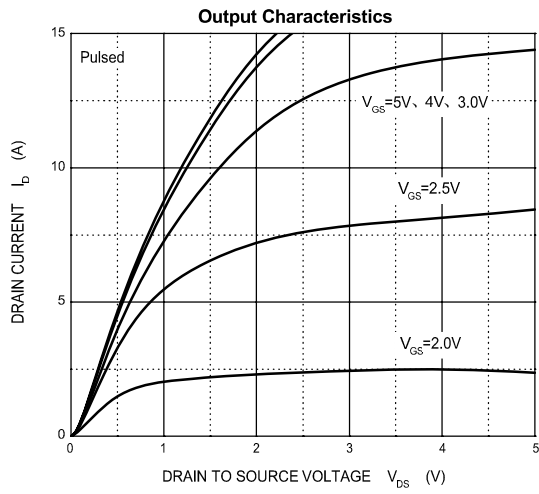
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	3	A
Pulsed Drain Current (note 1)	I_{DM}	10	A
Power Dissipation	P_D	0.35	W
Thermal Resistance from Junction to Ambient (note 2)	$R_{\theta JA}$	357	°C/W
Junction Temperature	T_J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

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC CHARACTERISTICS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 60V, V_{GS} = 0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
Gate threshold voltage (note 3)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.5		2	V
Drain-source on-resistance (note 3)	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 3A$			105	m Ω
		$V_{GS} = 4.5V, I_D = 3A$			125	m Ω
Forward tranconductance (note 3)	g_{FS}	$V_{DS} = 15V, I_D = 2A$	1.4			S
Diode forward voltage (note 3)	V_{SD}	$I_S = 3A, V_{GS} = 0V$			1.2	V
DYNAMIC CHARACTERISTICS (note 4)						
Input Capacitance	C_{iss}	$V_{DS} = 30V, V_{GS} = 0V, f = 1MHz$		247		pF
Output Capacitance	C_{oss}			34		pF
Reverse Transfer Capacitance	C_{rss}			19.5		pF
SWITCHING CHARACTERISTICS (note 4)						
Turn-on delay time	$t_{d(on)}$	$V_{GS} = 10V, V_{DD} = 30V,$ $I_D = 1.5A, R_{GEN} = 1\Omega$		6		ns
Turn-on rise time	t_r			15		ns
Turn-off delay time	$t_{d(off)}$			15		ns
Turn-off fall time	t_f			10		ns
Total Gate Charge	Q_g	$V_{DS} = 30V, V_{GS} = 4.5V, I_D = 3A$		6		nC
Gate-Source Charge	Q_{gs}			1		nC
Gate-Drain Charge	Q_{gd}			1.3		nC

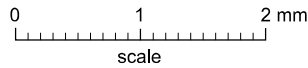
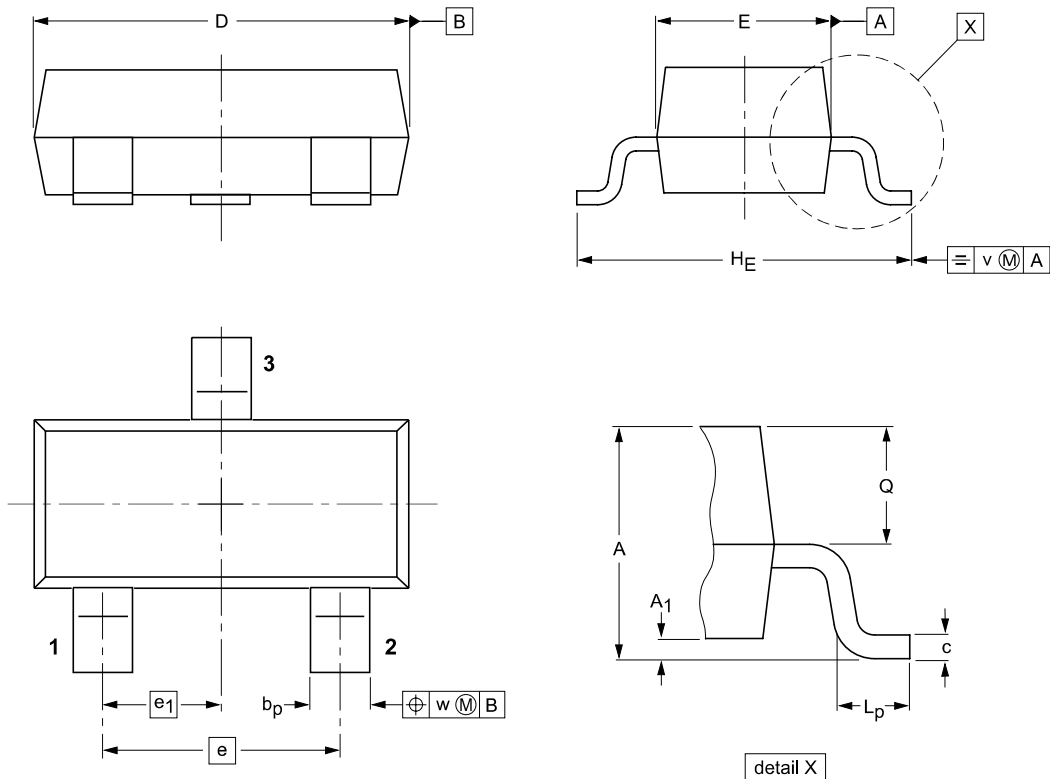
Notes :

1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board , $t \leq 10s$.
3. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$.
4. Guaranteed by design, not subject to producing.



Package Outline

SOT-23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max.	b _p	c	D	E	e	e ₁	H _E	L _p	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

Summary of Packing Options

Package	Packing Description	Packing Quantity	Industry Standard
SOT-23	Tape/Reel, 7" reel	3000	EIA-481-1