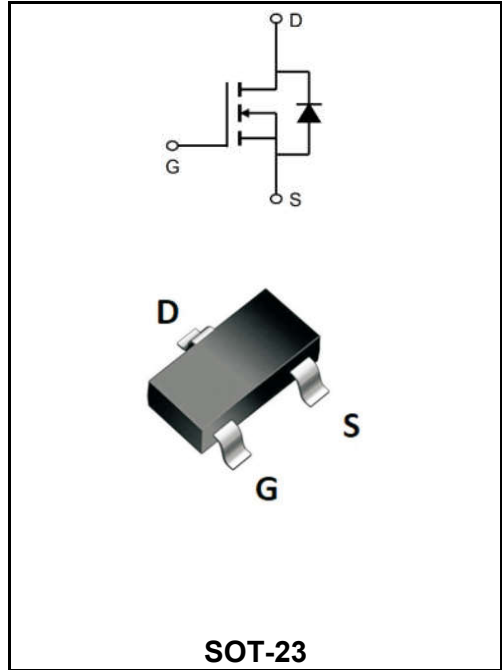


20V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

$I_D$	2.3A
$V_{DSS}$	20V
$R_{DS(on)-typ}(@V_{GS}=4.5V)$	< 65mΩ (Type: 55 mΩ)



Application

- ◆ Battery protection
- ◆ Load switch
- ◆ Uninterruptible power supply

Product Specification Classification

Part Number	Package	Marking	Pack
YFW2302C	SOT-23	A2SHB	3000PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	$V_{DS}$	30	V
Gate - Source Voltage	$V_{GS}$	±12	V
Continuous Drain Current @T <sub>A</sub> =25°C	$I_D$	2.3	A
Pulsed Drain Current	$I_{DM}$	6.9	A
Power Dissipation T <sub>A</sub> = 25°C	$P_D$	0.77	W
Thermal Resistance, Junction to Case	$R_{θJA}$	125	°C/W
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	°C

**Maximum Ratings at Tc=25°C unless otherwise specified**

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	<b>V(BR)DSS</b>	20	22	-	<b>V</b>
Zero Gate Voltage Drain Current	$V_{DS}=20V, V_{GS}=0V$	<b>I<sub>DSS</sub></b>	-	-	1.0	<b>μA</b>
Gate to Body Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0V$	<b>I<sub>GSS</sub></b>	-	-	±100	<b>nA</b>
Gate -Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	<b>V<sub>GS(th)</sub></b>	0.5	0.65	1.2	<b>V</b>
Static Drain-Source On-Resistance note2	$V_{GS}=4.5V, I_D=3A$	<b>R<sub>DS(ON)</sub></b>	-	55	65	<b>mΩ</b>
	$V_{GS}=2.5V, I_D=2A$		-	75	90	
Input Capacitance	$V_{DS}=10V$ $V_{GS}=0V$ $f=1.0MHz$	<b>C<sub>iss</sub></b>	-	150	-	<b>pF</b>
Output Capacitance		<b>C<sub>oss</sub></b>	-	34	-	
Reverse Transfer Capacitance		<b>C<sub>rss</sub></b>	-	26	-	
Total Gate Charge	$V_{GS}=4.5V$ $V_{DS}=10V$ $I_D=3A$	<b>Q<sub>g</sub></b>	-	2.4	-	<b>nC</b>
Gate-Source Charge		<b>Q<sub>gs</sub></b>	-	0.88	-	
Gate-Drain("Miller") Charge		<b>Q<sub>gd</sub></b>	-	0.77	-	
Turn-on delay time	$V_{DS}=10V$ $I_D=3A$ $R_{GEN}=3\Omega$ $V_{GS}=4.5V$	<b>t<sub>d(on)</sub></b>	-	6.8	-	<b>ns</b>
Turn-on Rise Time		<b>T<sub>r</sub></b>	-	57	-	
Turn-Off Delay Time		<b>t<sub>d(OFF)</sub></b>	-	14	-	
Turn-Off Fall Time		<b>t<sub>f</sub></b>	-	53	-	
Maximum Continuous Drain to Source Diode Forward Current		<b>I<sub>S</sub></b>	-	-	2.3	<b>A</b>
Maximum Pulsed Drain to Source Diode Forward Current		<b>I<sub>SM</sub></b>	-	-	6.8	<b>A</b>
Drain to Source Diode Forward Voltage	$V_{GS}=0V, I_S=3A$	<b>V<sub>SD</sub></b>	-	-	1.3	<b>V</b>

Note :

- 1、 The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2OZ copper.
- 2、 The data tested by pulsed , pulse width  $\cong 300\mu s$  , duty cycle  $\cong 2\%$
- 3、 The power dissipation is limited by 150°C junction temperature
- 4、 The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation

Ratings and Characteristic Curves

Typical Characteristics

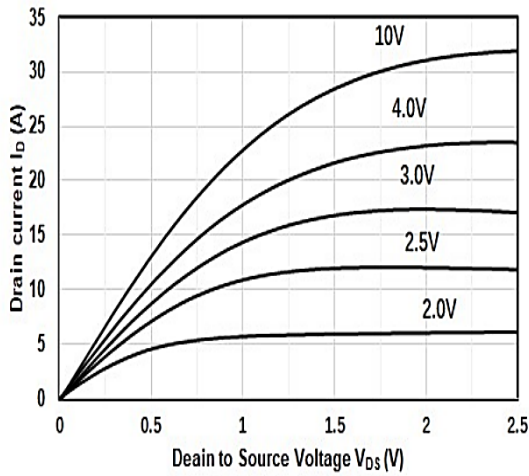


Figure1. Output Characteristics

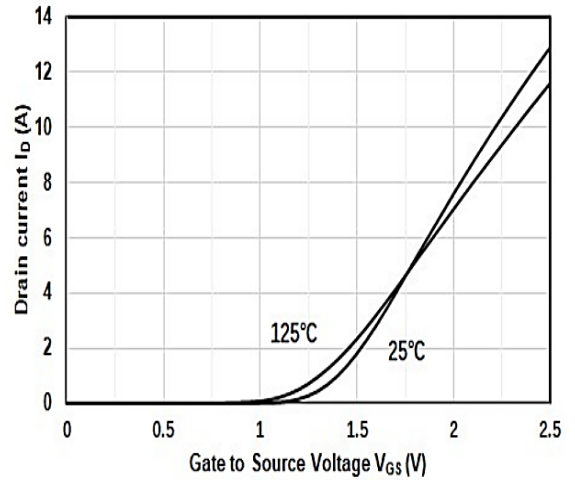


Figure2. Transfer Characteristics

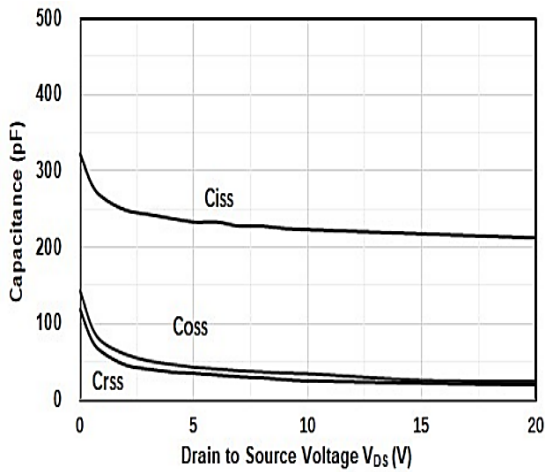


Figure3. Capacitance Characteristics

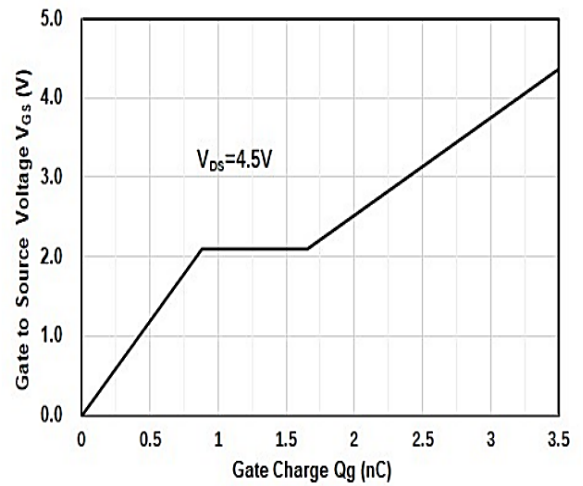


Figure4. Gate Charge

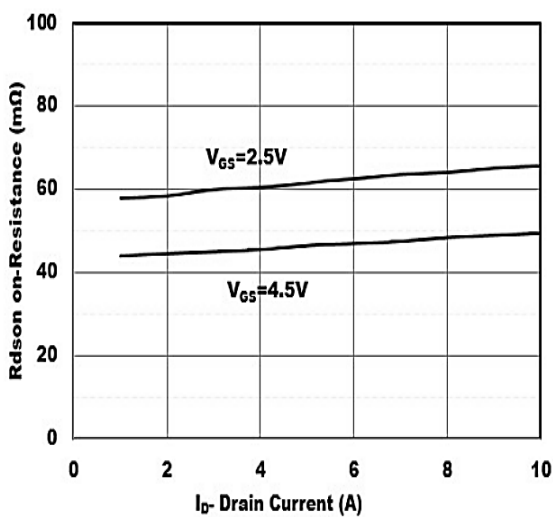


Figure5. Drain-Source on Resistance

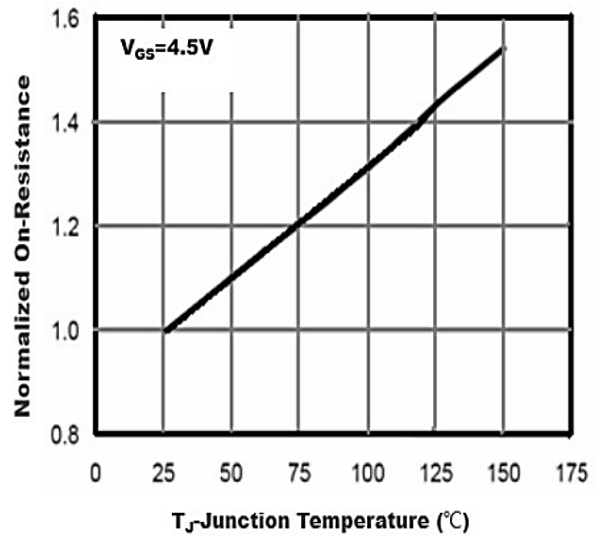
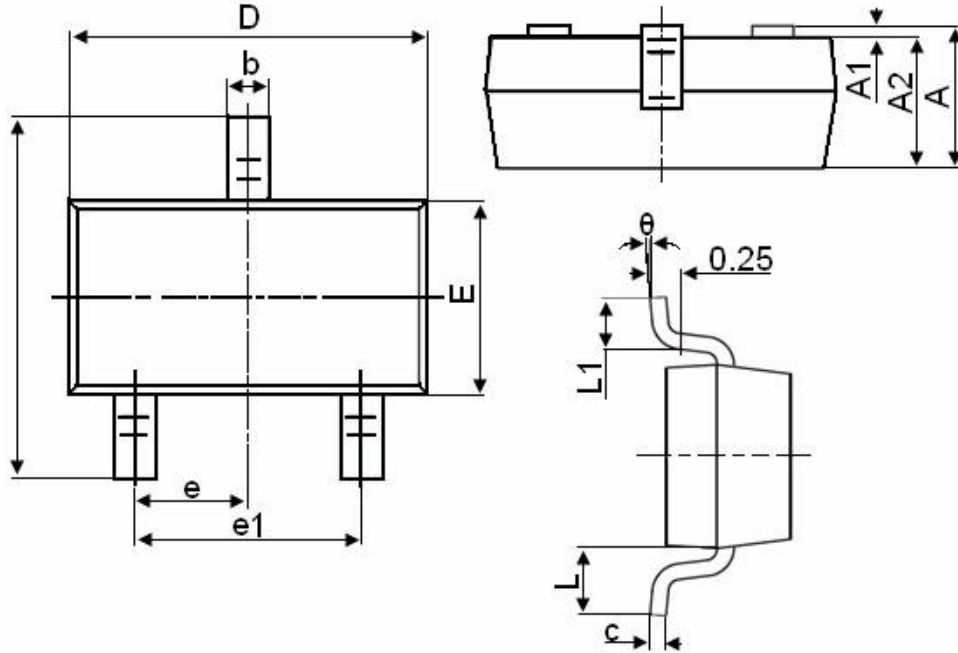


Figure6. Drain-Source on Resistance

SOT-23



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°