

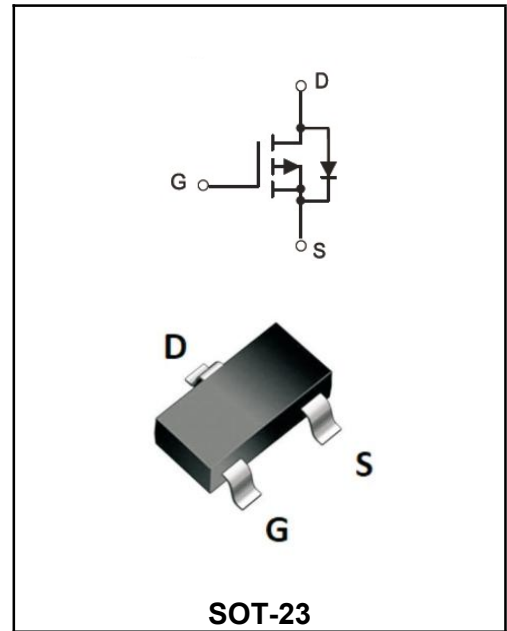
**-12V P-CHANNEL ENHANCEMENT MODE MOSFET**

**MAIN CHARACTERISTICS**

<b>I<sub>D</sub></b>	-8.1A
<b>V<sub>DSS</sub></b>	-12V
<b>R<sub>DS(on)-typ</sub>(@V<sub>GS</sub>=-10V)</b>	< 24mΩ( <b>Type:18 mΩ</b> )
<b>R<sub>DS(on)-typ</sub>(@V<sub>GS</sub>=-4.5V)</b>	< 26mΩ( <b>Type:20 mΩ</b> )

**Application**

- ◆electronic cigarette
- ◆Load switch



**Marking Code**

YFW2311A	2311A
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**Maximum Ratings at T<sub>c</sub>=25°C unless otherwise specified**

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V <sub>DS</sub>	-12	V
Gate - Source Voltage	V <sub>GS</sub>	±12	V
Continuous Drain Current, V <sub>GS</sub> @ 10V <sup>1</sup> @T <sub>c</sub> =25°C	I <sub>D</sub>	-8.1	A
Continuous Drain Current, V <sub>GS</sub> @ 10V <sup>1</sup> @T <sub>c</sub> =100°C	I <sub>D</sub>	-4.6	A
Pulsed Drain Current <sup>note1</sup>	I <sub>DM</sub>	-22	A
Power Dissipation @T <sub>c</sub> =25°C	P <sub>D</sub>	1.6	W
Thermal Resistance Junction-Ambient	R <sub>θJA</sub>	125	°C/W
Operating Junction Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

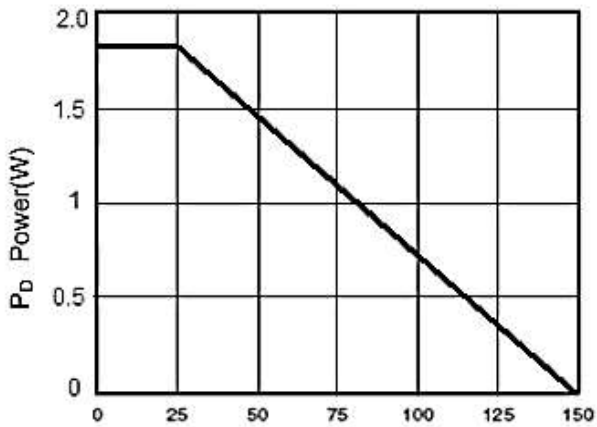
**Maximum Ratings at Tc=25°C unless otherwise specified**

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>	-12	-18	-	<b>V</b>
Zero Gate Voltage Drain Current	$V_{DS}=-20V, V_{GS}=0V$	<b>I<sub>DSS</sub></b>	-	-	-1	<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	-1.0	<b>V</b>
Static Drain-Source on-Resistance note2	$V_{GS}=-10V, I_D=-6.0A$	<b>R<sub>DS(on)</sub></b>	-	18	24	<b>mΩ</b>
	$V_{GS}=-4.5V, I_D=-5.2A$		-	20	26	
	$V_{GS}=-2.5V, I_D=-4.2A$		-	28	35	
Input Capacitance	$V_{DS}=-6V$ $V_{GS}=0V$ $f=1MHz$	<b>C<sub>iss</sub></b>	-	1100	-	<b>pF</b>
Output Capacitance		<b>C<sub>oss</sub></b>	-	390	-	
Reverse Transfer Capacitance		<b>C<sub>rss</sub></b>	-	300	-	
Total Gate Charge	$V_{DS}=-4V$ $I_D=-4.1A$ $V_{GS}=-4.5V$	<b>Q<sub>g</sub></b>	-	11.5	-	<b>nC</b>
Gate-Source Charge		<b>Q<sub>gs</sub></b>	-	1.5	-	
Gate-Drain("Miller") Charge		<b>Q<sub>gd</sub></b>	-	3.2	-	
Turn-on delay time	$V_{DD}=-4V$ $I_D=-3.3A$ $R_G=1.0\Omega$ $V_{GEN}=-4.5V$ $R_L=1.2\Omega$	<b>t<sub>d(on)</sub></b>	-	25	-	<b>ns</b>
Turn-on Rise Time		<b>T<sub>r</sub></b>	-	45	-	
Turn-Off Delay Time		<b>t<sub>d(OFF)</sub></b>	-	72	-	
Turn-Off Fall Time		<b>t<sub>f</sub></b>	-	60	-	
Maximum Continuous Drain to Source Diode Forward Current		<b>I<sub>S</sub></b>	-	-	-6.0	<b>A</b>
Maximum Pulsed Drain to Source Diode Forward Current		<b>I<sub>SM</sub></b>	-	-	-16	<b>A</b>
Drain to Source Diode Forward Voltage	$V_{GS}=0V, I_S=-4.1A$	<b>V<sub>SD</sub></b>	-	-	-1.2	<b>V</b>
Reverse Recovery Time	$I_S=-4.1A, di/dt=100A/\mu s,$ $V_{GS}=0V$	<b>t<sub>rr</sub></b>	-	20	-	<b>ns</b>
Reverse Recovery Charge		<b>Q<sub>rr</sub></b>	-	9	-	<b>nC</b>

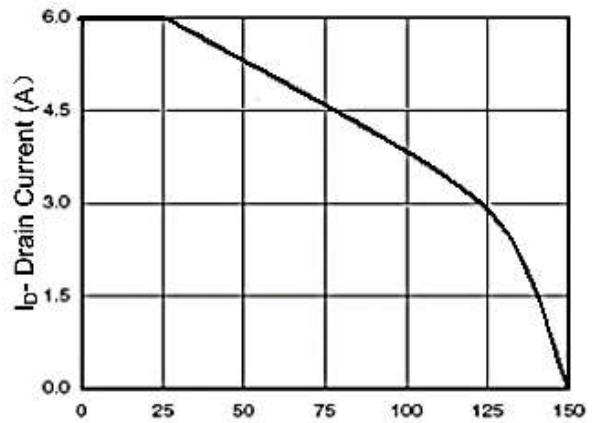
Note :

- 1、The data tested by surface mounted on a 1 inch2 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.

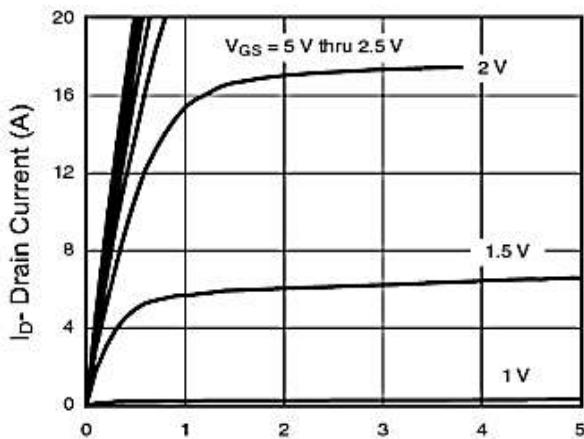
Ratings and Characteristic Curves



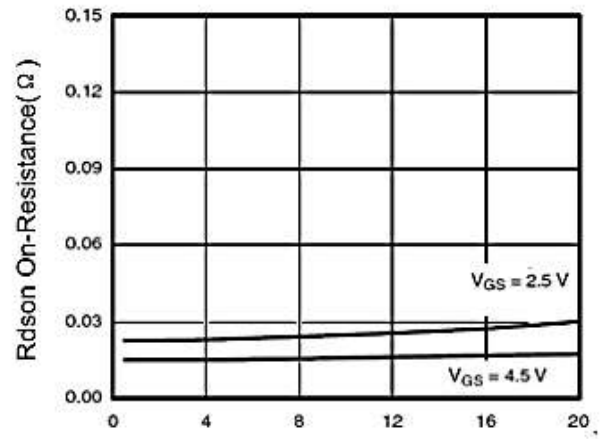
T<sub>J</sub>-Junction Temperature(°C)  
**Figure 1 Power Dissipation**



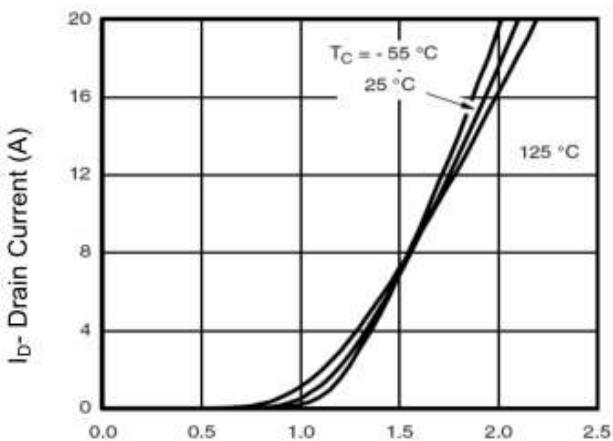
T<sub>J</sub>-Junction Temperature(°C)  
**Figure 2 Drain Current**



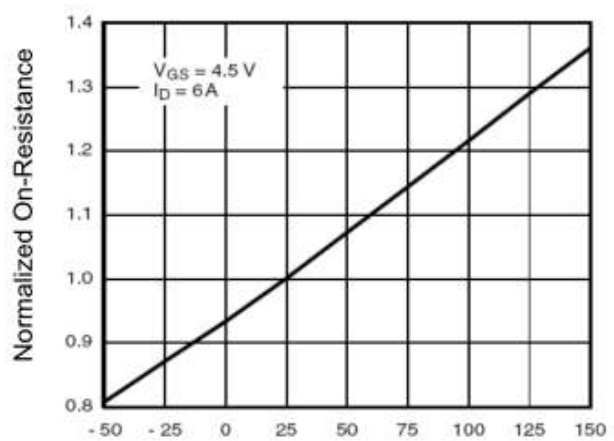
V<sub>GS</sub> = 5 V thru 2.5 V  
V<sub>DS</sub> Drain-Source Voltage (V)  
**Figure 3 Output Characteristics**



V<sub>GS</sub> = 2.5 V  
V<sub>GS</sub> = 4.5 V  
I<sub>D</sub>- Drain Current (A)  
**Figure 4 Drain-Source On-Resistance**

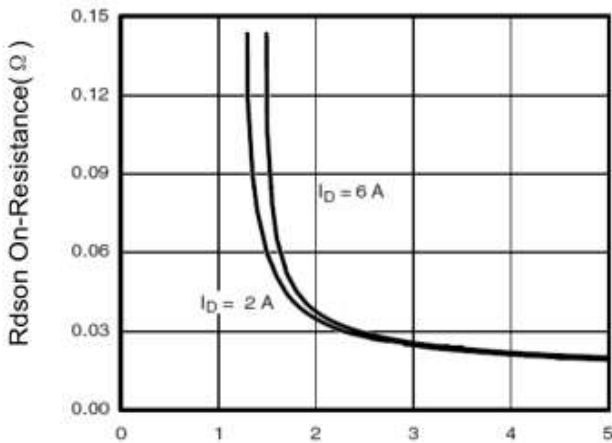


T<sub>C</sub> = -55 °C  
25 °C  
125 °C  
V<sub>GS</sub> Gate-Source Voltage (V)  
**Figure 5 Transfer Characteristics**

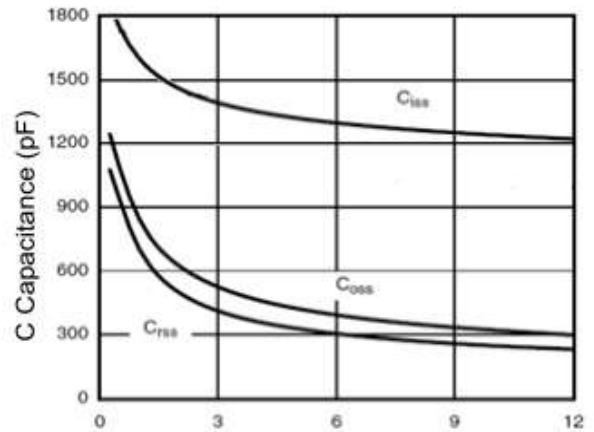


V<sub>GS</sub> = 4.5 V  
I<sub>D</sub> = 6 A  
T<sub>J</sub>-Junction Temperature(°C)  
**Figure 6 Drain-Source On-Resistance**

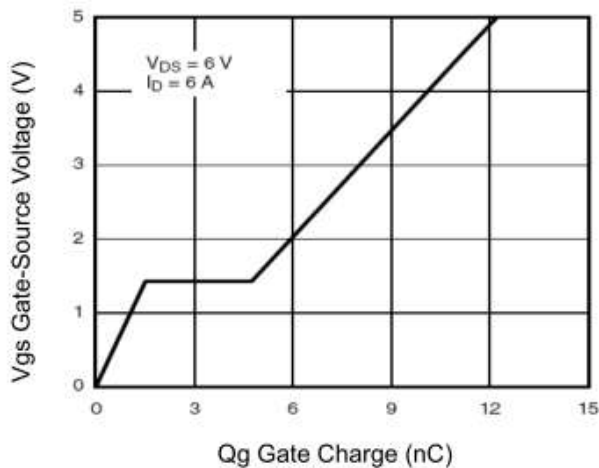
Ratings and Characteristic Curves



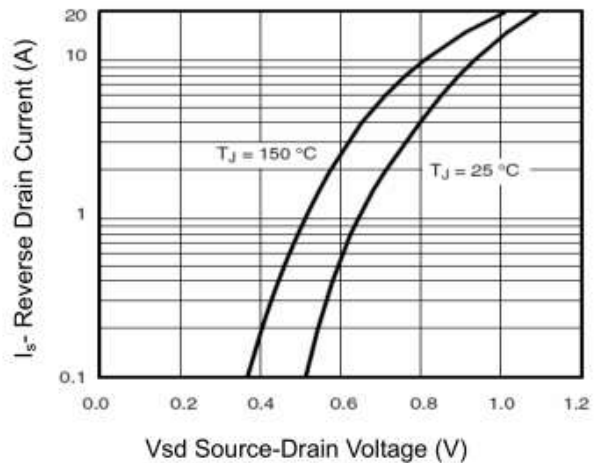
Vgs Gate-Source Voltage (V)  
**Figure 7 Rdson vs Vgs**



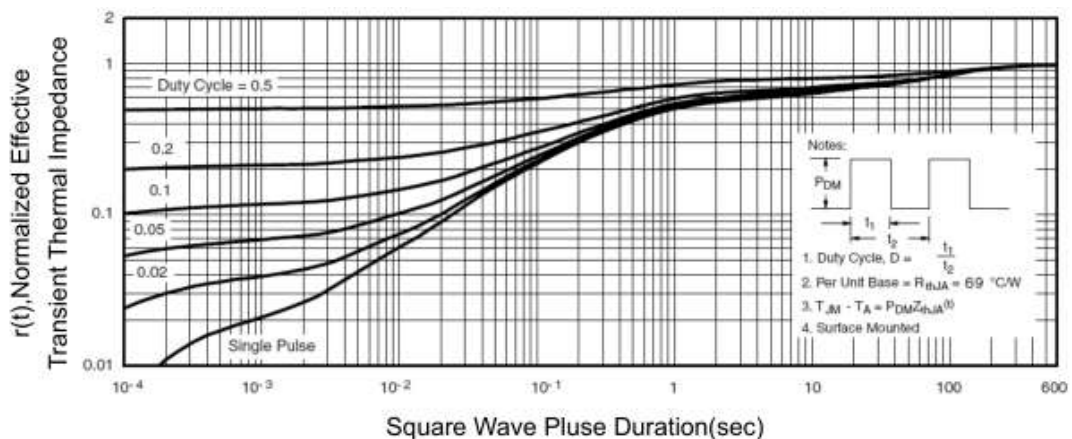
Vds Drain-Source Voltage (V)  
**Figure 8 Capacitance vs Vds**



Qg Gate Charge (nC)  
**Figure 9 Gate Charge**



Vsd Source-Drain Voltage (V)  
**Figure 10 Source- Drain Diode Forward**



**Figure 12 Normalized Maximum Transient Thermal Impedance**

Ordering information

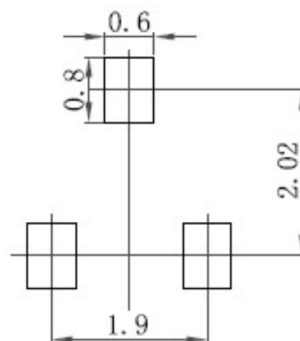
Package	Packing Description	Base Quantity	Packing Quantity
SOT-23	Tape/Reel,7"reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

Package Dimensions

SOT-23

Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	0.9	1.15	35	45
A1	0.1		3.9	
bp	0.38	0.48	15	19
C	0.09	0.15	3.54	5.9
D	2.8	3.0	110	118
E	1.2	1.4	47	55
E	1.9		75	
E1	0.95		37	
HE	2.1	2.55	83	100
Lp	0.15	0.45	5.9	18
Q	0.45	0.55	18	22
v	0.2		7.9	
W	0.1		4	

The recommended mounting pad size



## Disclaimer

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