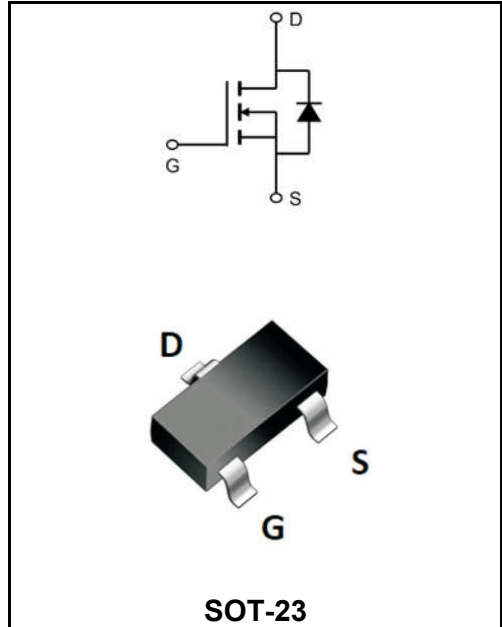


**30V N-CHANNEL ENHANCEMENT MODE MOSFET**

**MAIN CHARACTERISTICS**

<b>I<sub>D</sub></b>	6.2A
<b>V<sub>DSS</sub></b>	30V
<b>R<sub>DS(on)-typ(@V<sub>GS</sub>=10V)</sub></b>	< 28mΩ <b>(Type:20 mΩ)</b>



**Application**

- ◆ Lithium battery protection
- ◆ Wireless impact
- ◆ Mobile phone fast charging

**Product Specification Classification**

Part Number	Package	Marking	Pack
YFW3400A	SOT-23	A09T	3000PCS/Tape
YFW3400A	SOT-23	MOV	3000PCS/Tape

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

Characteristics	Symbols	Value	Units
Drain-Source Voltage	<b>V<sub>DS</sub></b>	30	<b>V</b>
Gate - Source Voltage	<b>V<sub>GS</sub></b>	± 12	<b>V</b>
Continuous Drain Current @T <sub>A</sub> =25°C	<b>I<sub>D</sub></b>	6.2	<b>A</b>
Continuous Drain Current @T <sub>A</sub> =70°C	<b>I<sub>D</sub></b>	4.9	<b>A</b>
Pulsed Drain Current <sup>2</sup>	<b>I<sub>DM</sub></b>	20	<b>A</b>
Total Power Dissipation <sup>3</sup> @T <sub>A</sub> =25°C	<b>P<sub>D</sub></b>	1	<b>W</b>
Storage Temperature Range	<b>T<sub>STG</sub></b>	-55 to +150	<b>°C</b>
Operating Junction Temperature Range	<b>T<sub>J</sub></b>	-55 to +150	<b>°C</b>
Thermal Resistance Junction-ambient <sup>1</sup>	<b>R<sub>θJA</sub></b>	125	<b>°C/W</b>
Thermal Resistance Junction-Ambient 1 (t ≤ 10s)	<b>R<sub>θJA</sub></b>	85	<b>°C/W</b>

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

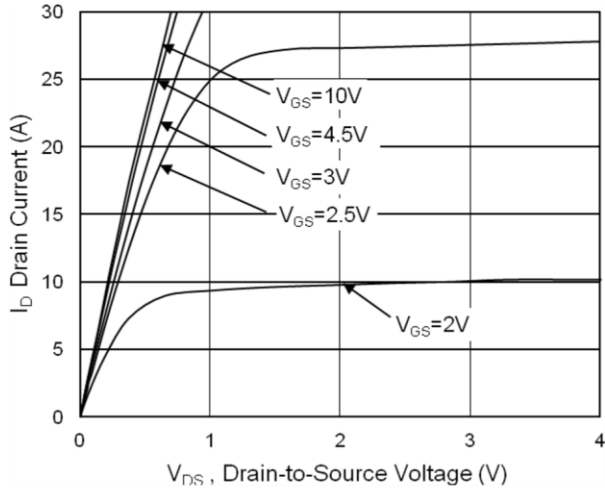
Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	$BV_{DSS}$	30	33	-	V
BVDSS Temperature Coefficient	Reference to 25°C , $I_D=1mA$	$\Delta BV_{DSS}/\Delta T_J$	-	0.029	-	V/°C
Static Drain-Source On-Resistance <sup>2</sup>	$V_{GS}=10V, I_D=5.8A$	$R_{DS(ON)}$	-	20	28	mΩ
	$V_{GS}=4.5V, I_D=5A$		-	24	32	
	$V_{GS}=2.5V, I_D=4A$		-	31	55	
Gate -Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	0.5	0.85	1.2	V
$V_{GS(th)}$ Temperature Coefficient		$\Delta V_{GS(th)}$	-	-2.82	-	mV/°C
Drain-Source Leakage Current	$V_{DS}=24V, V_{GS}=0V, T_J=25^\circ C$	$I_{DSS}$	-	-	1	μA
	$V_{DS}=24V, V_{GS}=0V, T_J=55^\circ C$		-	-	5	
Gate -Source Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0V$	$I_{GSS}$	-	-	±100	nA
Forward Transconductance	$V_{DS}=5V, I_D=5A$	$g_{fs}$	-	25	-	S
Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1MHz$	$R_g$	-	1.5	-	Ω
Total Gate Charge(4.5V)	$V_{DS}=15V$ $V_{GS}=4.5V$ $I_D=5.8A$	$Q_g$	-	11.5	-	nC
Gate-Source Charge		$Q_{gs}$	-	1.6	-	
Gate-Drain Charge		$Q_{gd}$	-	2.9	-	
Turn-on delay time	$V_{DD}=15V$ $V_{GS}=10V$ $I_D=5A$ $R_G=3\Omega$	$t_{d(on)}$	-	5	-	ns
Rise Time		$T_r$	-	47	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	26	-	
Fall Time		$t_f$	-	8	-	
Input Capacitance	$V_{DS}=15V$ $V_{GS}=0V$ $f=1.0MHz$	$C_{iss}$	-	860	-	pF
Output Capacitance		$C_{oss}$	-	84	-	
Reverse Transfer Capacitance		$C_{rss}$	-	70	-	
Continuous Source Current <sup>1,4</sup>	$V_G=V_D=0V, \text{Force Current}$	$I_S$	-	-	5.8	A
Diode Forward Voltage <sup>2</sup>	$V_{GS}=0V, I_S=1A, T_J=25^\circ C$	$V_{SD}$	-	-	1.2	V

Note :

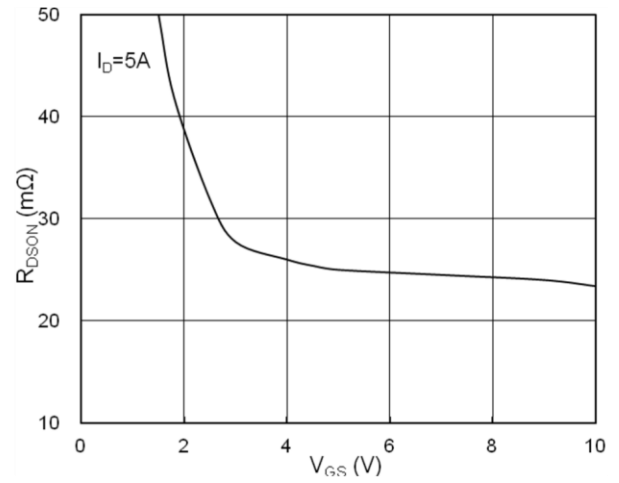
- 1、.The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2OZ copper.
- 2、 The data tested by pulsed , pulse width  $\leq 300\mu s$  , duty cycle  $\leq 2\%$
- 3、 The power dissipation is limited by 150°C junction temperature
- 4、 The data is theoretically the same as ID and IDM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

**Ratings and Characteristic Curves**

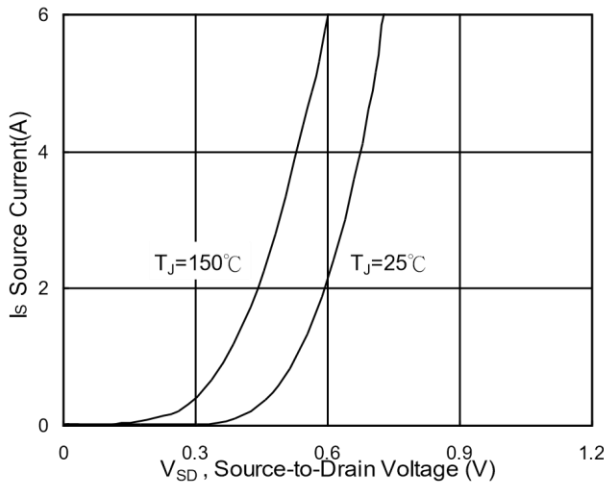
**Typical Characteristics**



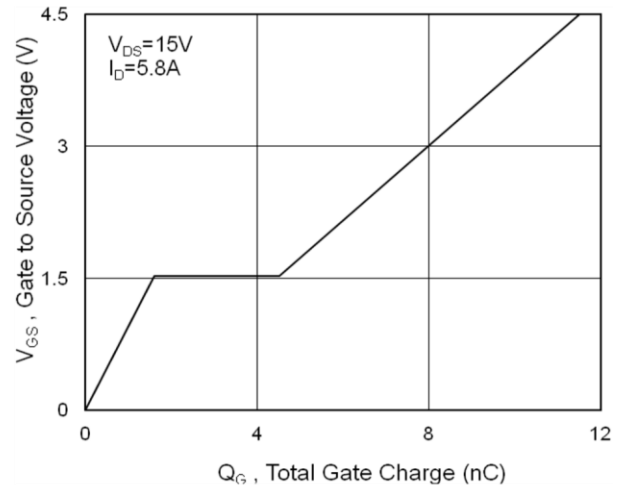
**Fig.1 Typical Output Characteristics**



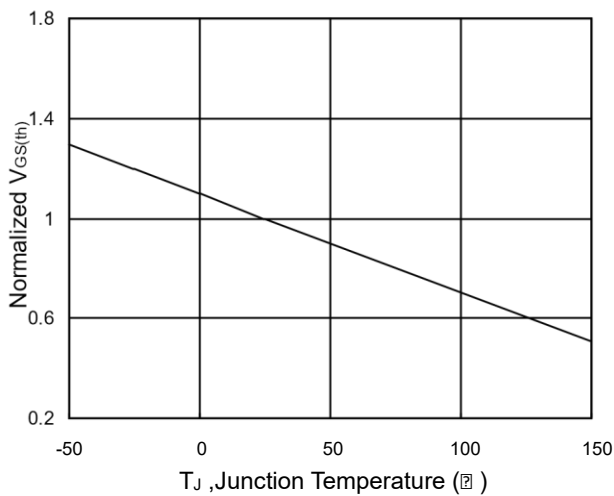
**Fig.2 On-Resistance vs. Gate-Source**



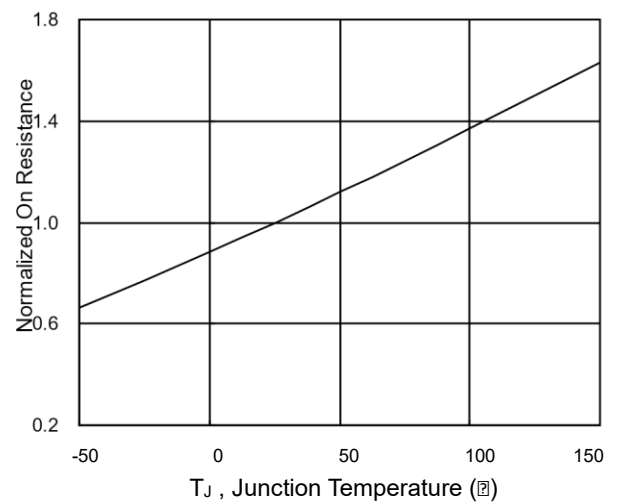
**Fig.3 Forward Characteristics Of Reverse**



**Fig.4 Gate-Charge Characteristics**

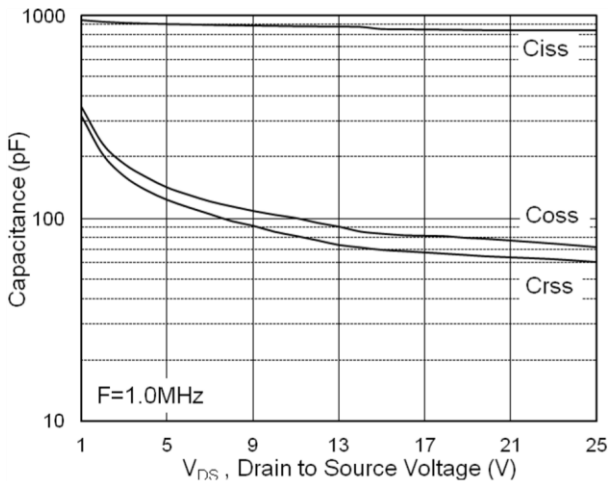


**Fig.5 Normalized  $V_{GS(th)}$  vs.  $T_J$**

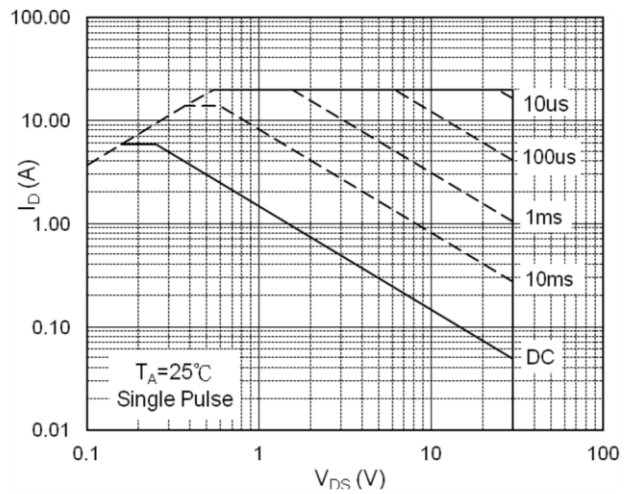


**Fig.6 Normalized  $R_{DS(on)}$  vs.  $T_J$**

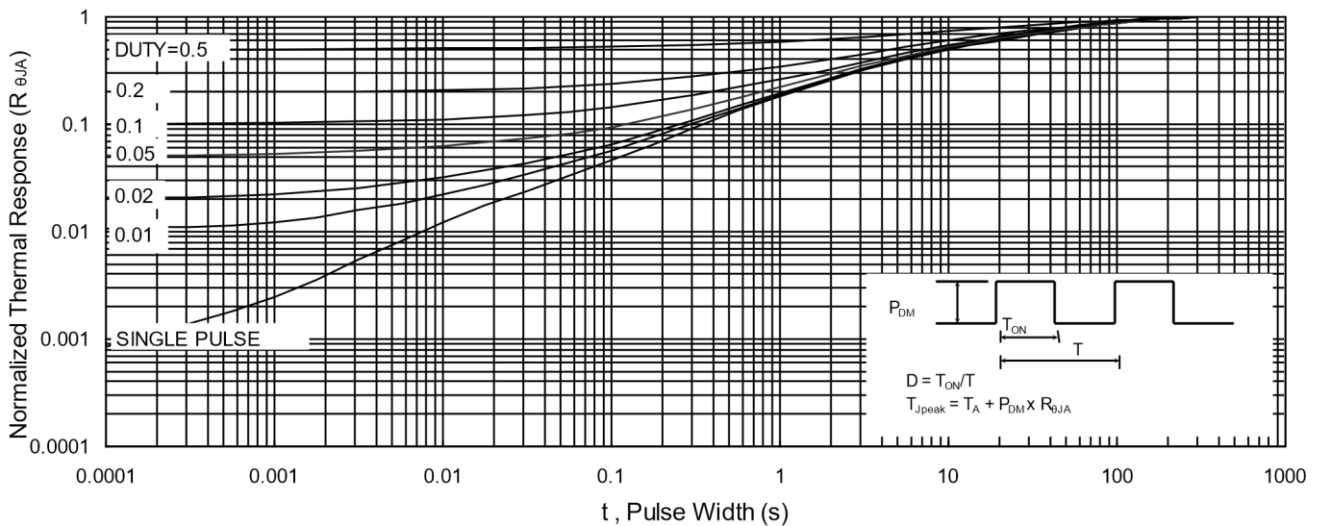
**Ratings and Characteristic Curves**



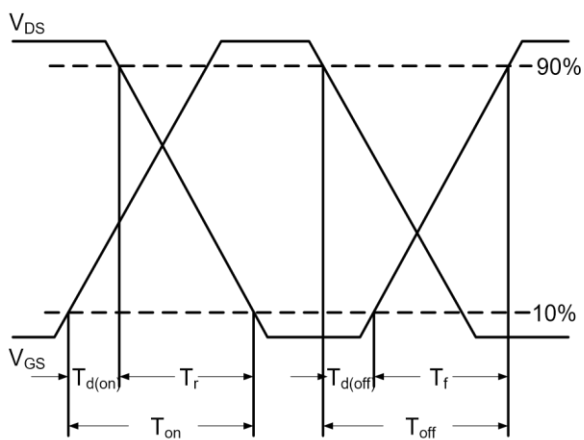
**Fig.7 Capacitance**



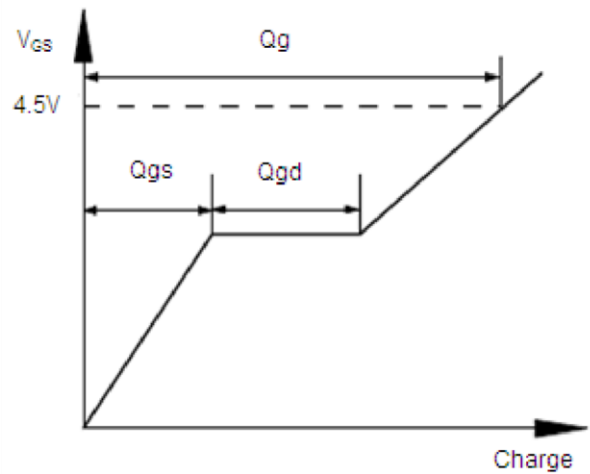
**Fig.8 Safe Operating Area**



**Fig.9 Normalized Maximum Transient Thermal Impedance**

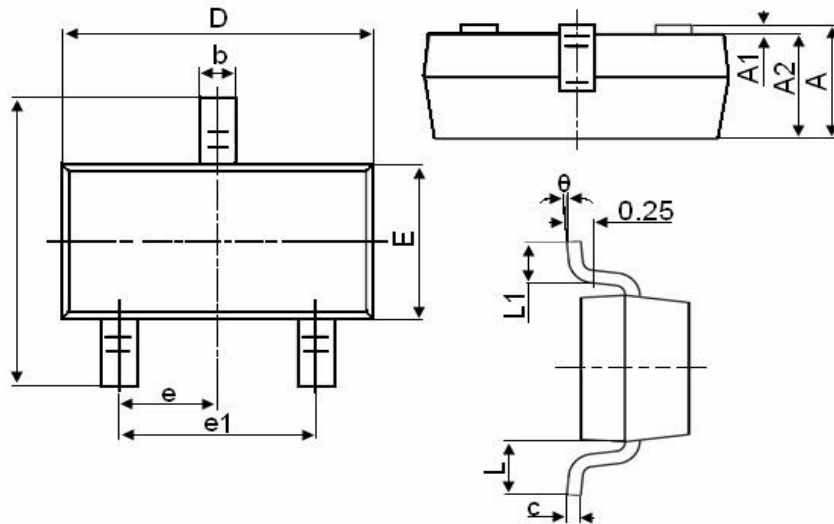


**Fig.10 Switching Time Waveform**



**Fig.11 Gate Charge Waveform**

**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
$\theta$	0°	8°