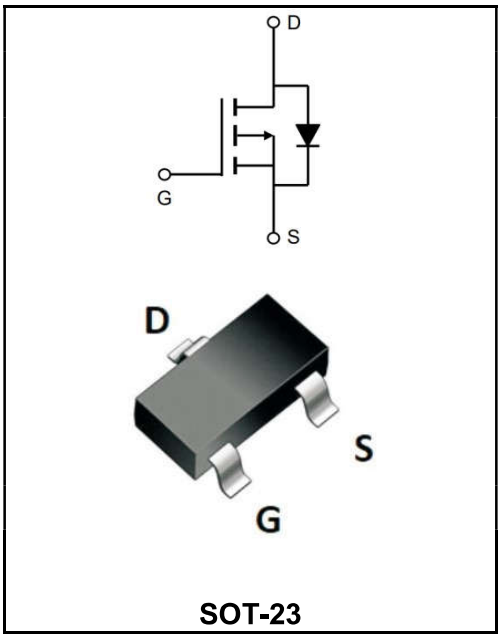
-30V P-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	-4.8A
V_{DSS}	-30V
R_{DSON}-typ(@V_{GS}=10V)	< 50mΩ(Type:40 mΩ)
R_{DSON}-typ(@V_{GS}=4.5V)	< 55mΩ(Type:45 mΩ)



SOT-23

Application

- Battery protection
- Load switch
- Uninterruptible power supply

Product Specification Classification

Part Number	Package	Marking	Pack
YFW3401A	SOT-23	A19T	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, V_{GS} @ -10V[1] @T_C=25℃	I_D	-4.8	A
Continuous Drain Current, V_{GS} @ -10V[1] @T_C=100℃	I_D	-3.3	A
Pulsed Drain Current[note1]	I_{DM}	-20.4	A
Power Dissipation T_A=25℃	P_D	2.15	W
Thermal Resistance Junction-Ambient [1]	$R_{\theta JA}$	125	°C/W
Thermal Resistance Junction-Case[1]	$R_{\theta JC}$	104	°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=-250uA	V(BR)DSS	-30	-34	-	V
Zero Gate Voltage Drain Current	V_{DS}=-30V , V_{GS}=0V	I_{DSS}	-	-	1	μA
Gate to Body Leakage Current	V_{GS}=±20V, V_{DS}=0V	I_{GSS}	-	-	±100	nA
Gate Threshold Voltage	V_{DS}= V_{GS}, I_D=-250μA	$V_{GS(th)}$	-0.5	-1.0	-1.5	V
Static Drain-Source on-Resistance note2	V_{GS}=-10V, I_D=-5A	$R_{DS(ON)}$	-	40	50	mΩ
	V_{GS}=-4.5V, I_D=-4A		-	45	55	
	V_{GS}=-2.5V, I_D=-1A		-	55	80	
Input Capacitance	V_{DS}=-15V V_{GS}=0V f=1MHz	C_{iss}	-	745	-	pF
Output Capacitance		C_{oss}	-	70	-	
Reverse Transfer Capacitance		C_{rss}	-	57	-	
Total Gate Charge	V_{DS}=-15V V_{GS}=-10V I_D=-5.1A	Q_g	-	8	-	nC
Gate-Source Charge		Q_{gs}	-	1.8	-	
Gate-Drain("Miller") Charge		Q_{gd}	-	2.7	-	
Turn-on delay time	V_{DD}=-15V V_{GS}=-10V I_D=-1A R_{GEN}=2.5Ω	$t_{d(on)}$	-	7	-	ns
Turn-on Rise Time		T_r	-	3	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	30	-	
Turn-Off Fall Time		t_f	-	12	-	
Maximum Continuous Drain to Source Diode Forward Current		I_S	-	-	-4.8	A
Maximum Pulsed Drain to Source Diode Forward Current		I_{SM}	-	-	-16.4	A
Drain to Source Diode Forward Voltage	V_{GS}=0V , I_S=-5.1A	V_{SD}	-	-0.8	-1.2	V

Note :
1、The data tested by surface mounted on a 1 inch 2 FR-4 board with 2OZ copper.
2、The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
3、The power dissipation is limited by 150℃ 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

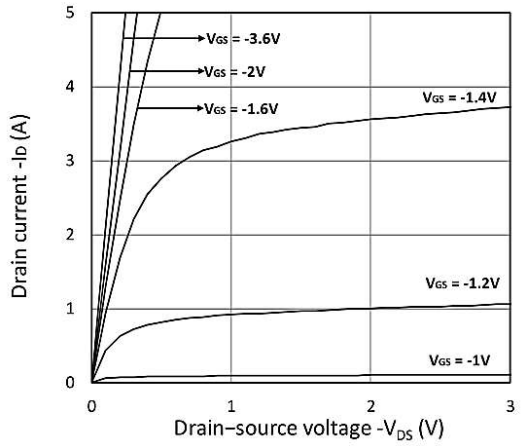


Figure 1. Output Characteristics

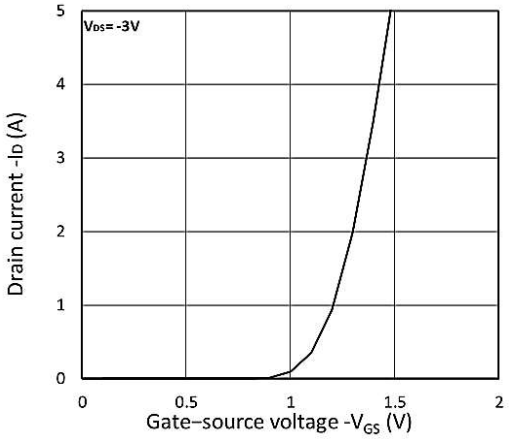


Figure 2. Transfer Characteristics

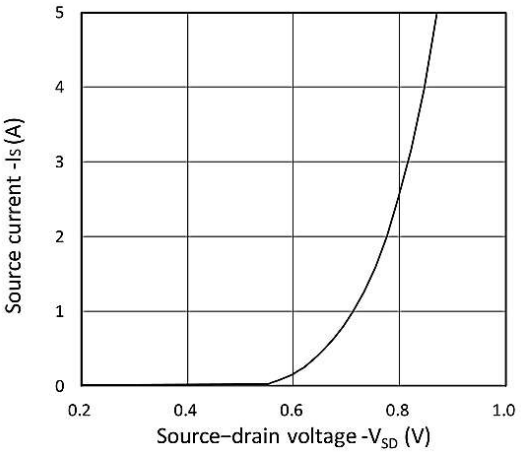


Figure 3. Forward Characteristics of Reverse

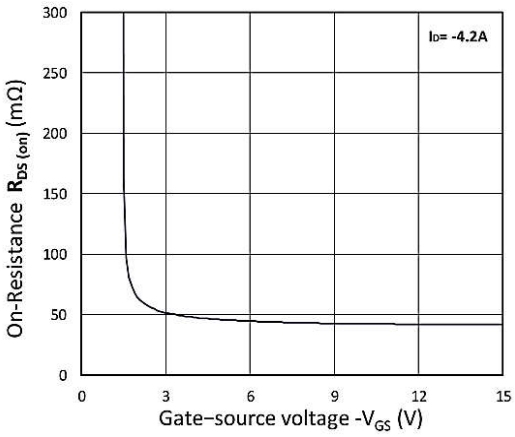


Figure 4. RDS(ON) vs. VGS

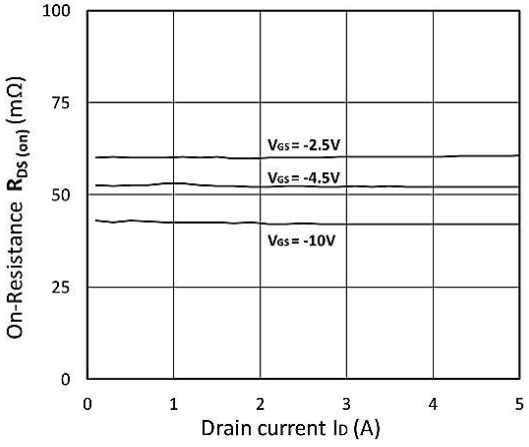


Figure 5. RDS(ON) vs. ID

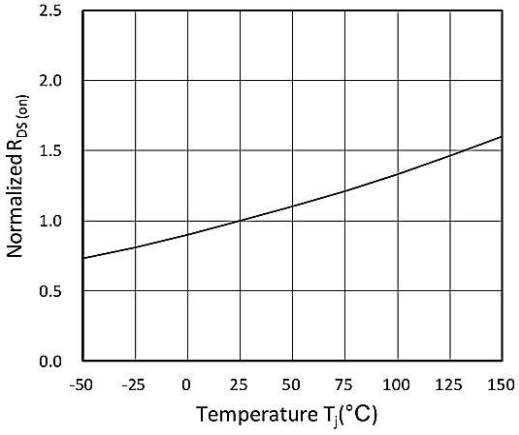


Figure 6. Normalized RDS(on) vs. Temperature

Ratings and Characteristic Curves

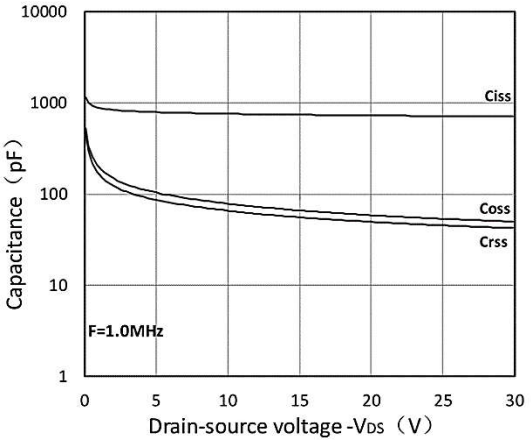


Figure 7. Capacitance Characteristics

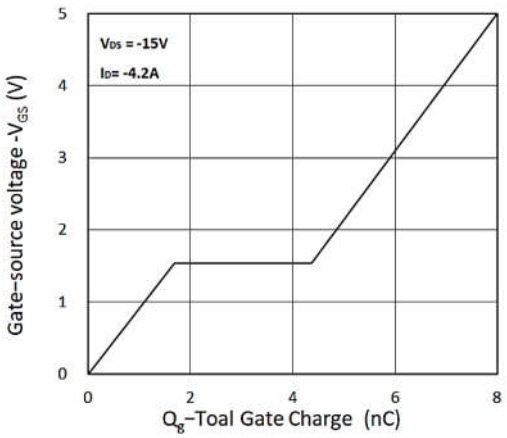


Figure 8. Gate Charge Characteristics

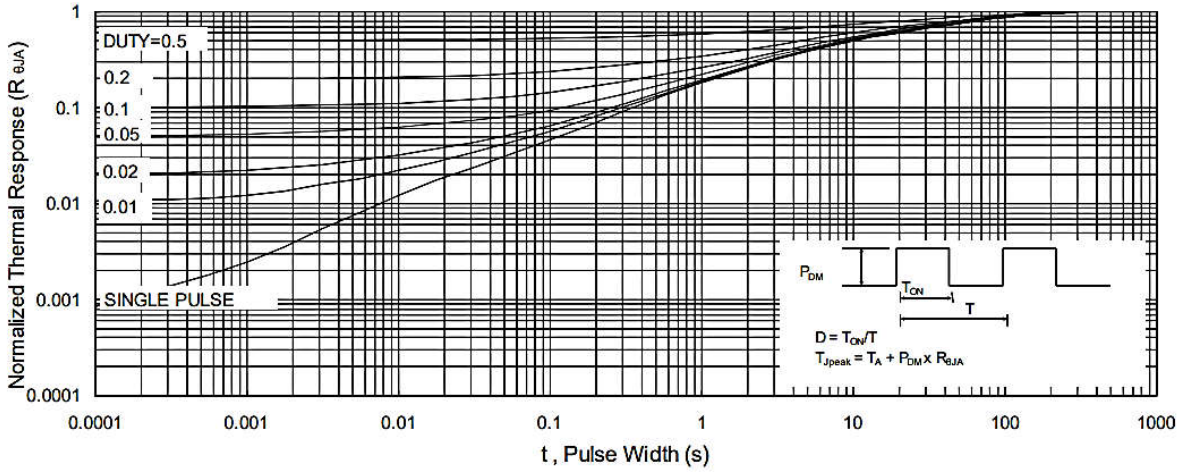


Figure 9 Normalized Maximum Transient Thermal Impedance

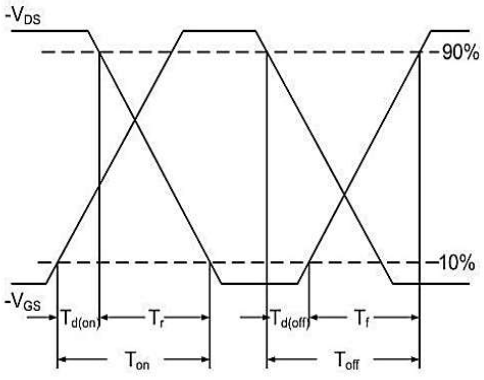


Figure.10 Switching Time Waveform

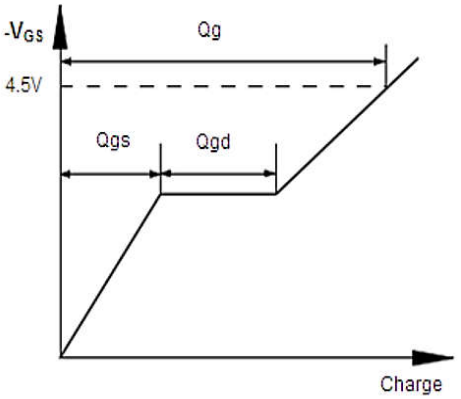
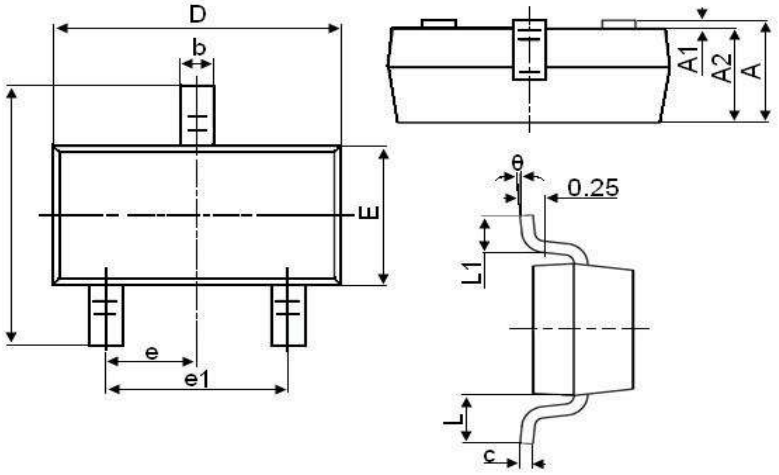


Figure.11 Gate Charge Waveform

Package Outline Dimensions Millimeters

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°