

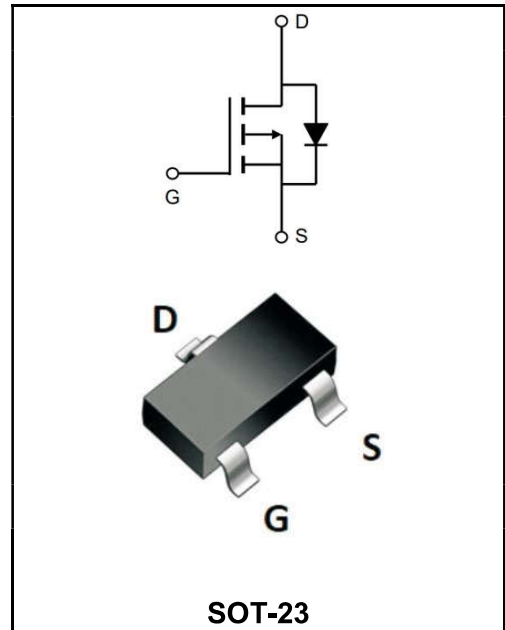
-30V P-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

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

Application

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



Product Specification Classification

Part Number	Package	Marking	Pack
YFW3401MI	SOT23-3L	X1HV	3000PCS/Tape

Maximum Ratings at T_c=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°C	I_D	-4.8	A
Continuous Drain Current, V _{GS} @ -10V ¹ @T _c =100°C	I_D	-3.3	A
Pulsed Drain Current ^{note1}	I_{DM}	-20.4	A
Power Dissipation T _A =25°C	P_D	2.15	W
Thermal Resistance Junction-Ambient ¹	R_{θJA}	125	°C/W
Thermal Resistance Junction-Case ¹	R_{θJC}	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	$V_{GS}=0V, I_D=-250\mu A$	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	$V_{GS}=\pm 20V, V_{DS}=0V$	I_{GSS}	-	-	±100	nA
Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	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	$V_{DD}=-15V$ $V_{GS}=-10V$ $I_D=-1A$ $R_{GEN}=2.5\Omega$	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 $\leq 300\mu s$, 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

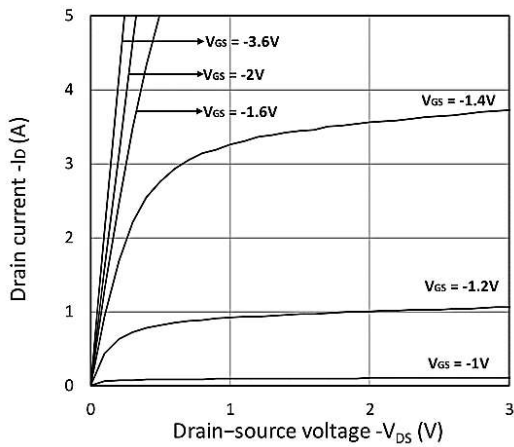


Figure 1. Output Characteristics

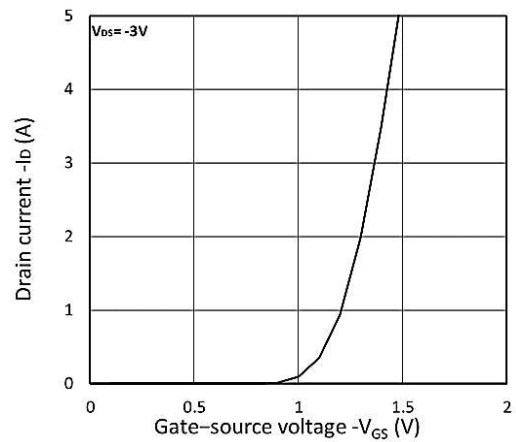


Figure 2. Transfer Characteristics

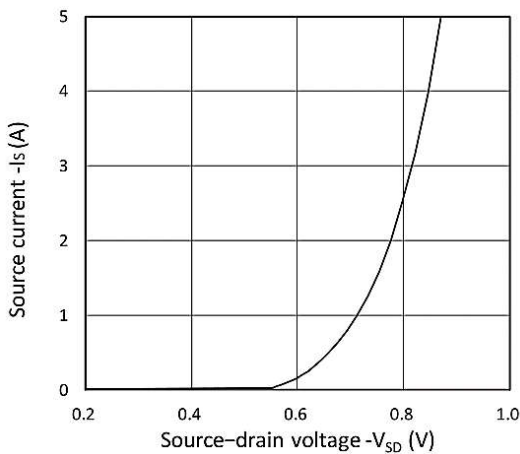


Figure 3. Forward Characteristics of Reverse

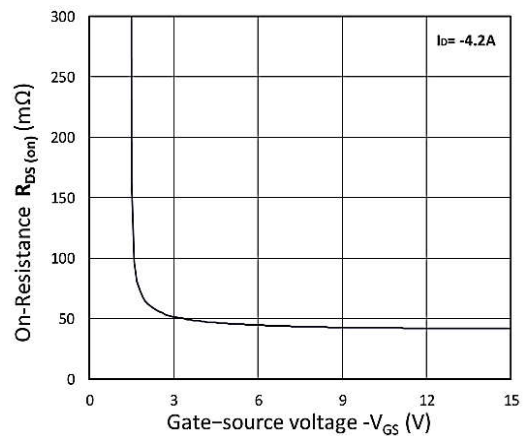


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

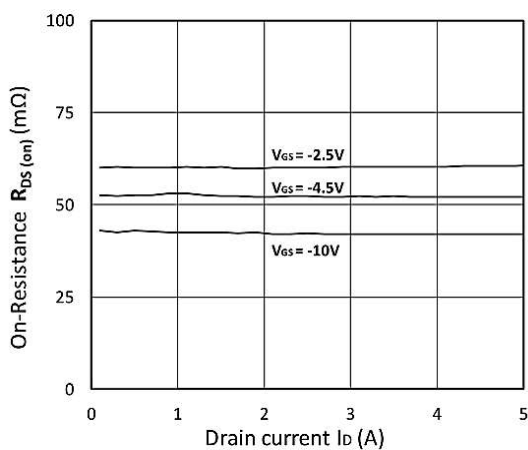


Figure 5. $R_{DS(ON)}$ vs. I_D

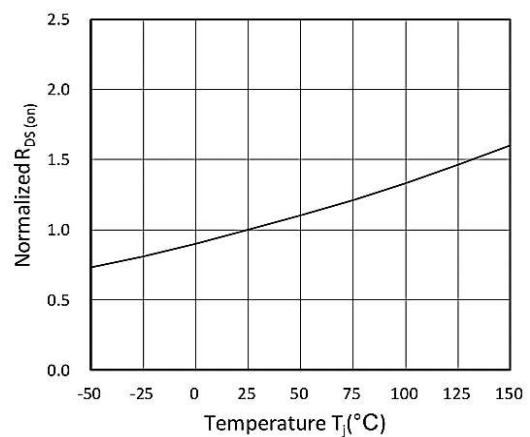


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

Ratings and Characteristic Curves

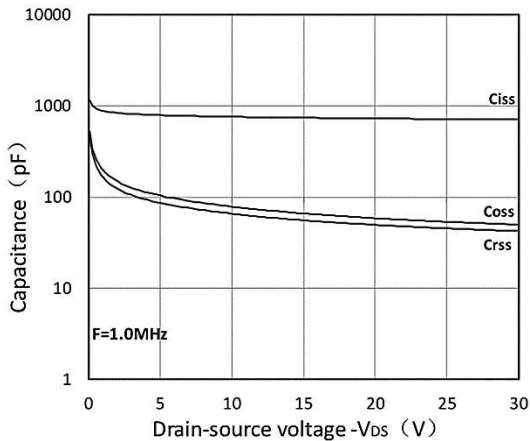


Figure 7. Capacitance Characteristics

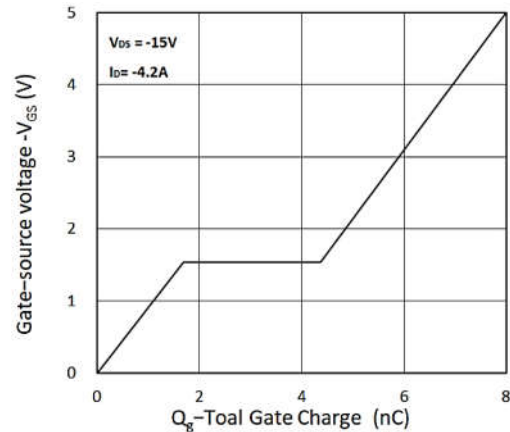


Figure 8. Gate Charge Characteristics

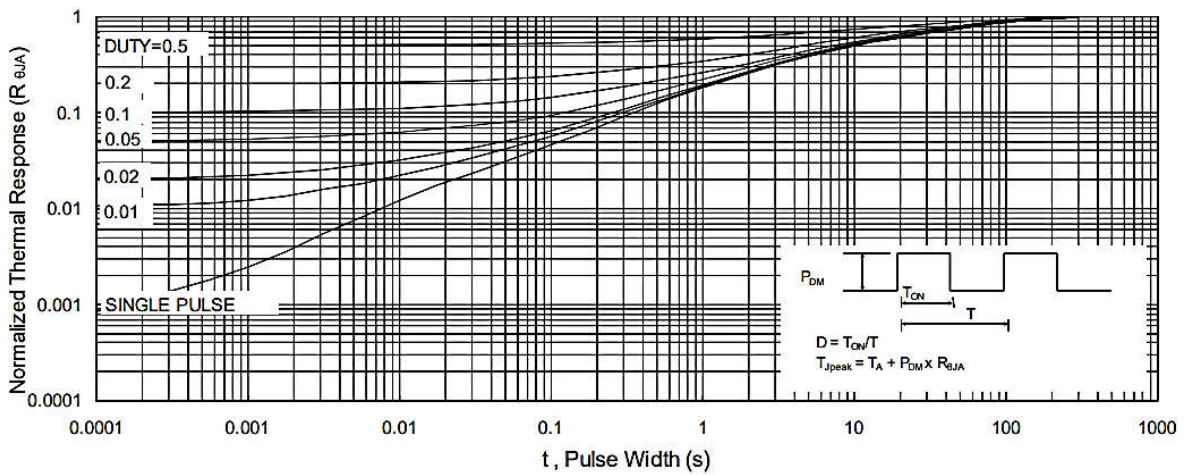


Figure 9 Normalized Maximum Transient Thermal Impedance

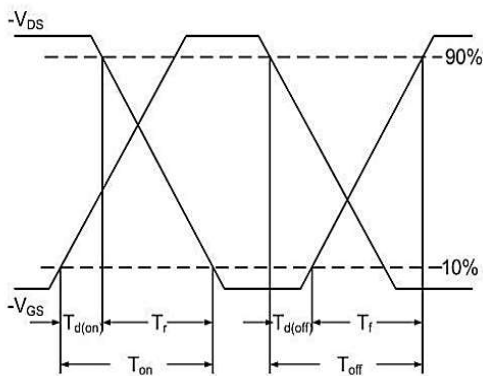


Figure.10 Switching Time Waveform

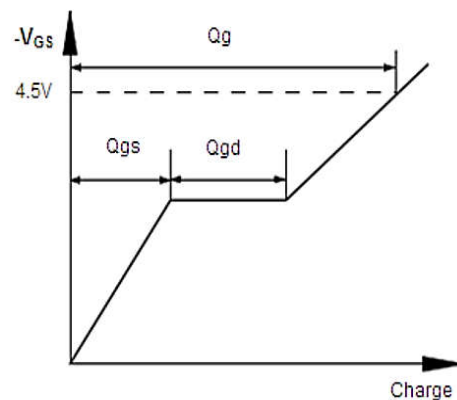
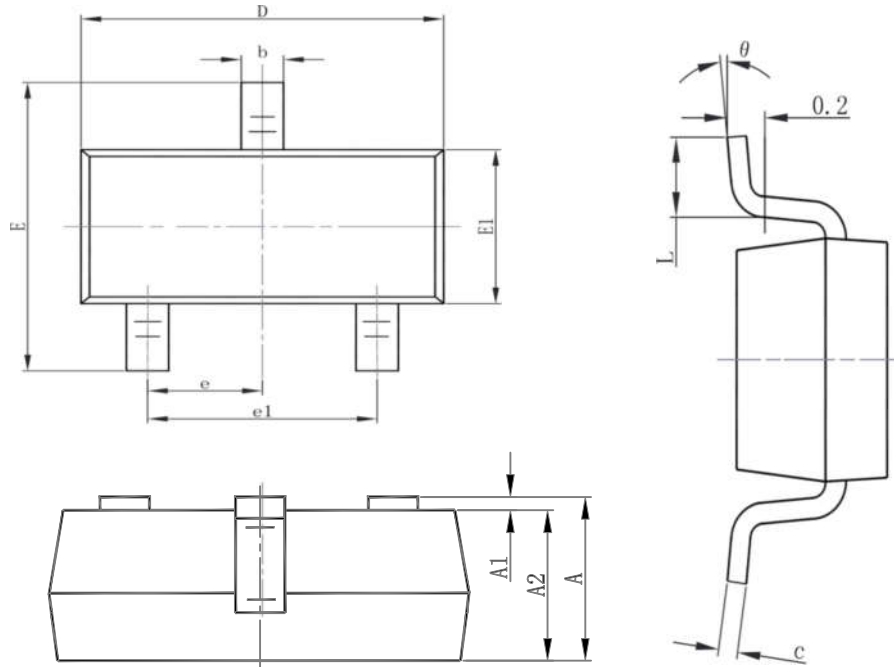


Figure.11 Gate Charge Waveform

SOT23-3L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°