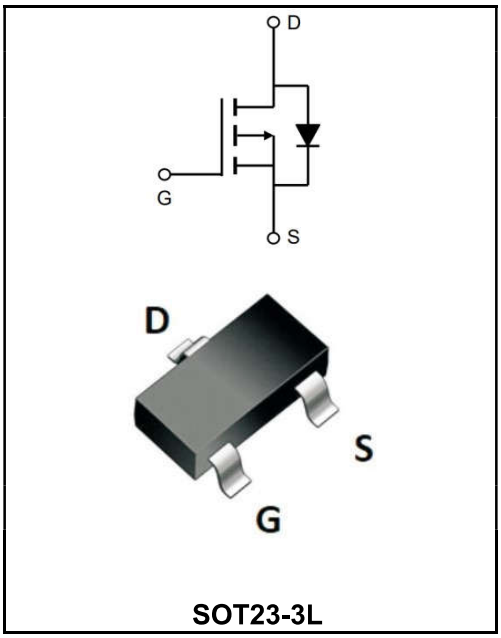
-30V P-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

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



SOT23-3L

Application

- Battery protection
- Load switch
- Uninterruptible power supply

Product Specification Classification

Part Number	Package	Marking	Pack
YFW3407MI	SOT23-3L	X7AC	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}	±20	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	$R_{\theta JA}$	104	°C/W
Thermal Resistance from Junction to Ambient[2]	$R_{\theta JC}$	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=-250uA	V(BR)DSS	-30	-	-	V
Zero Gate Voltage Drain Current	V_{DS}=-30V , V_{GS}=0V	I_{DSS}	-	-	1	μA
Gate Source Leakage	V_{GS}=±20V, V_{DS}=0V	I_{GSS}	-	-	±100	nA
Gate-Source Threshold voltage	V_{DS}= V_{GS}, I_D=-250μA	$V_{GS(th)}$	-1	-1.5	-2.5	V
Drain-Source on-State Resistance[3]	V_{GS}=-10V, I_D=-4.1A	$R_{DS(ON)}$	-	40	55	mΩ
	V_{GS}=-4.5V, I_D=-3A		-	54	65	
Input Capacitance	V_{DS}=-15V V_{GS}=0V f=1MHz	C_{iss}	-	530	-	pF
Output Capacitance		C_{oss}	-	70	-	
Reverse Transfer Capacitance		C_{rss}	-	56	-	
Total Gate Charge	V_{DS}=-15V V_{GS}=-10V I_D=-4.1A	Q_g	-	6.8	-	nC
Gate-Source Charge		Q_{gs}	-	1.0	-	
Gate-Drain Charge		Q_{gd}	-	1.4	-	
Turn-on delay time	V_{DS}=-15V V_{GS}=-10V R_L=15Ω R_{GEN}=2.5Ω	$t_{d(on)}$	-	14	-	ns
Rise Time		T_r	-	61	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	19	-	
Fall Time		t_f	-	10	-	
Diode Forward Voltage[3]	I_S = -4.1A, V_{GS} = 0V	V_{SD}	-	-	-1.2	A
Continuous Source Current		I_S	-	-	-4.1	A

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

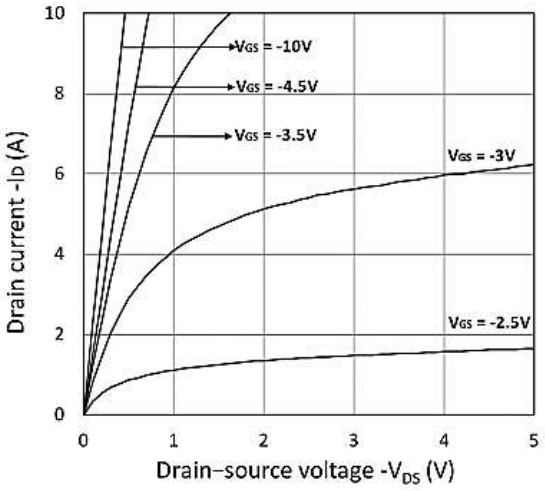


Figure 1. Output Characteristics

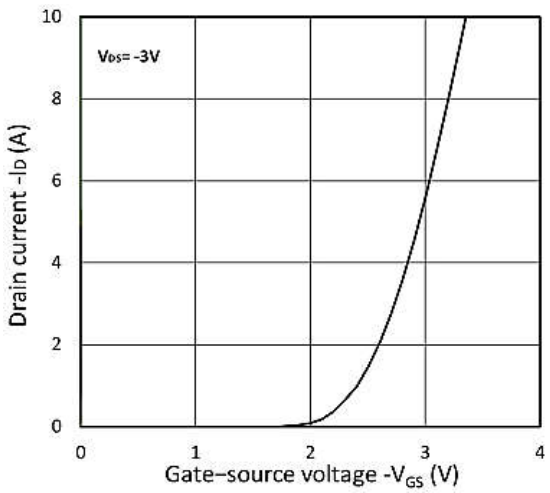


Figure 2. Transfer Characteristics

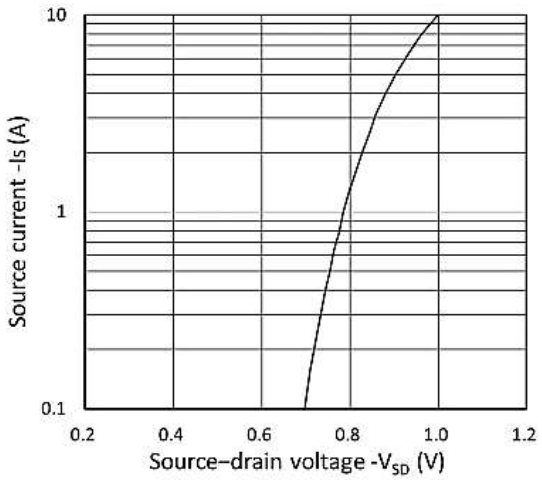


Figure 3. Forward Characteristics of Reverse

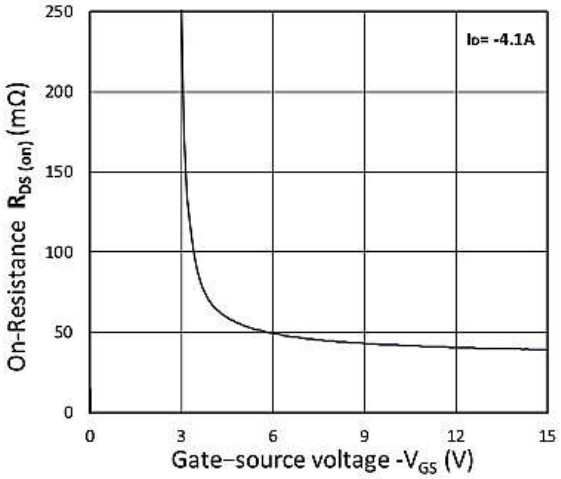


Figure 4. R DS(ON) vs. V GS

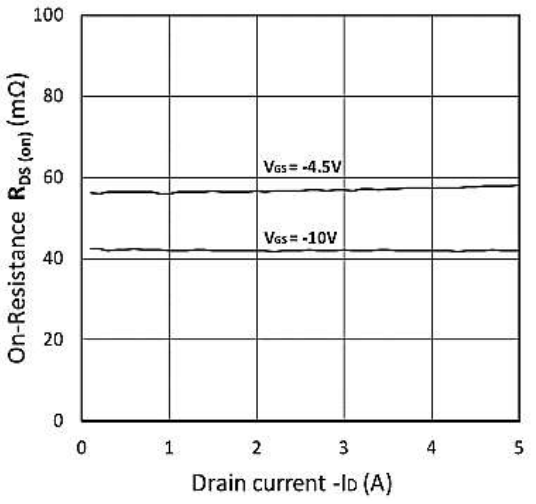


Figure 5. RDS(ON) vs. ID

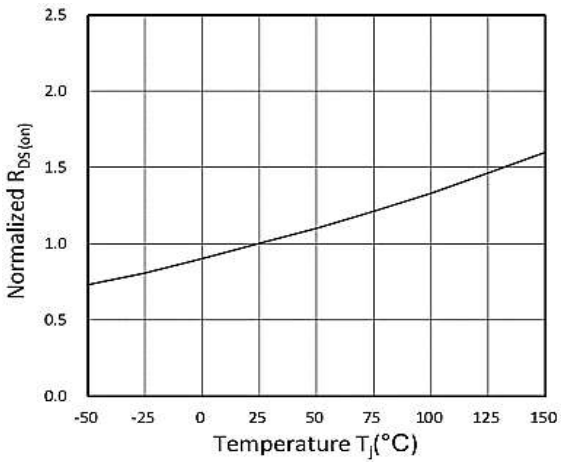


Figure 6. Normalized R DS(on) vs. Temperature

Ratings and Characteristic Curves

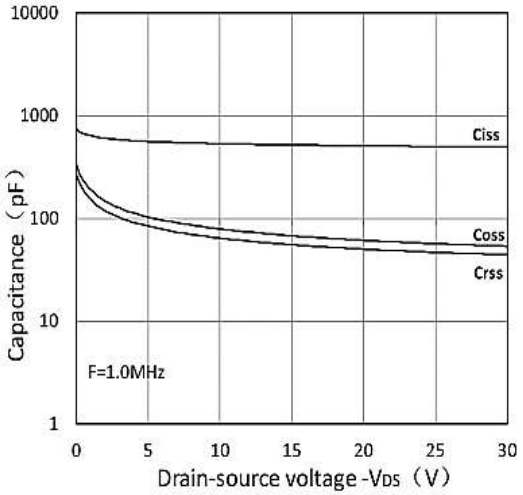


Figure 7. Capacitance Characteristics

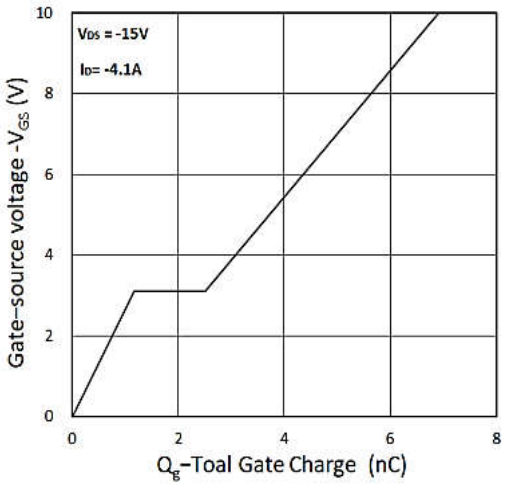


Figure 8. Gate Charge Characteristics

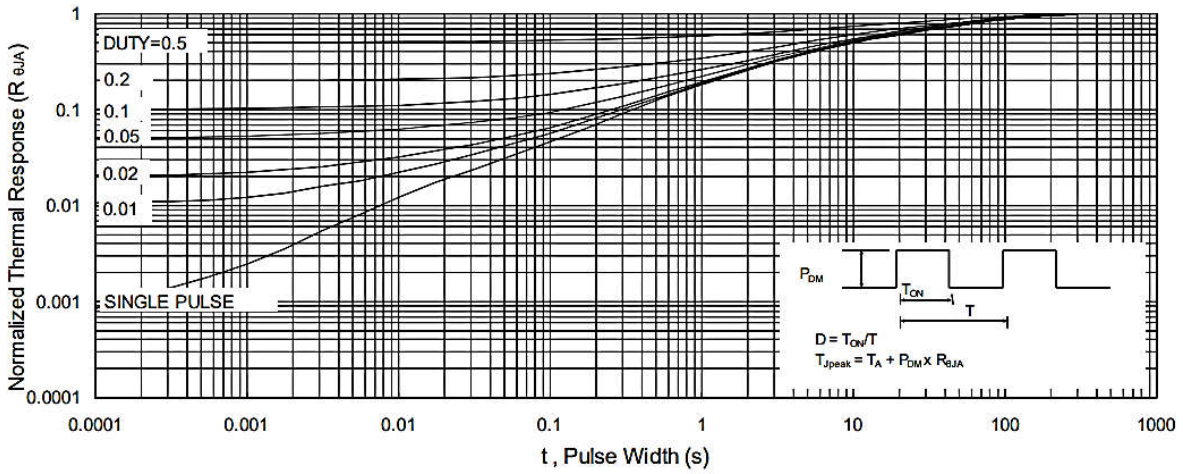


Figure 9 Normalized Maximum Transient Thermal Impedance

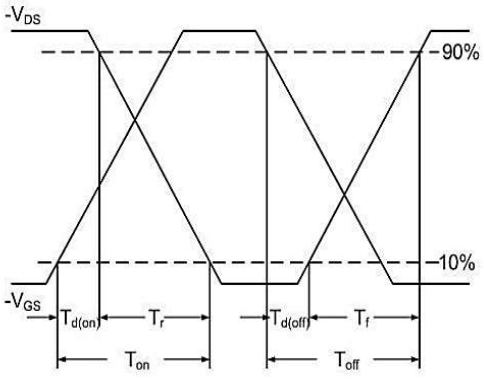


Figure.10 Switching Time Waveform

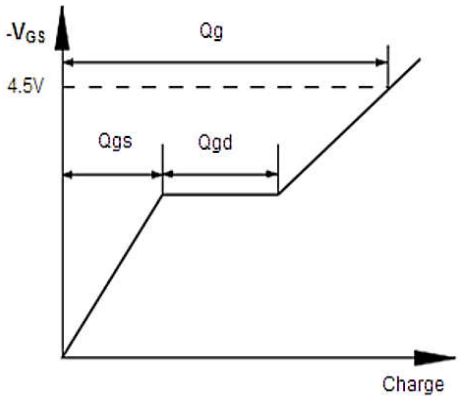
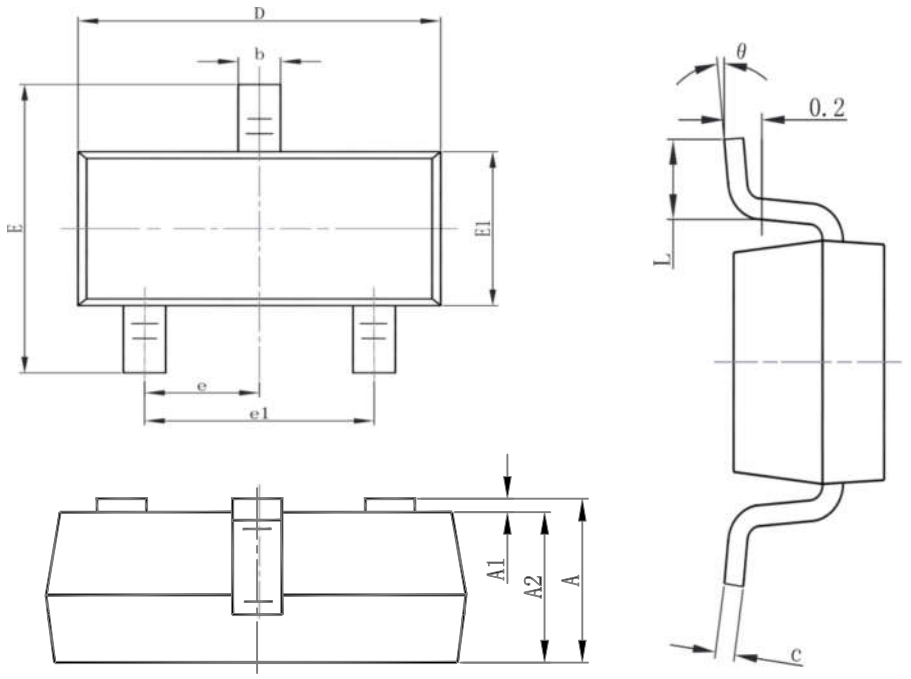


Figure.11 Gate Charge Waveform

Package Outline Dimensions Millimeters

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°