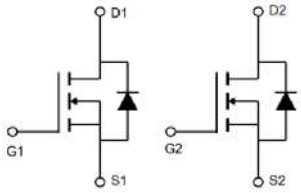
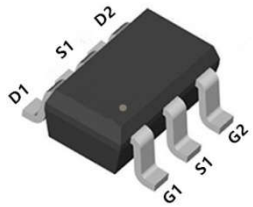
30V N+N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	3.6A
V_{DSS}	30V
R_{DSON}-typ(@V_{GS}=10V)	<60mΩ(Type:35 mΩ)
R_{DSON}-typ(@V_{GS}=4.5V)	<75mΩ(Type:52 mΩ)





SOT23-6L

Application

- Battery protection
- Load switch
- Uninterruptible power supply

Product Specification Classification

Part Number	Package	Marking	Pack
YFW3H03LI	SOT23-6L	H26D	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} @ 10 V[1] @T_A=25℃	I_D	3.6	A
Continuous Drain Current, V_{GS} @ 10V[1] @T_A=70℃	I_D	2.7	A
Pulsed Drain Current[2]	I_{DM}	18.4	A
Total Power Dissipation[3] @ T_A =25℃	P_D	1	W
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55 to +150	°C
Thermal Resistance Junction-Ambient [1]	$R_{\theta}JA$	125	°C/W
Thermal Resistance Junction-Case[1]	$R_{\theta}JC$	80	°C/W

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 μA	BV_{DSS}	30	-	-	V
BVDSS Temperature Coefficient	Reference to 25℃ , I_D=1mA	$\Delta BV_{DSS}/\Delta T_J$	-	0.023	-	V/℃
Static Drain-Source On-Resistance[2]	V_{GS}=10V , ID=3.1A	$R_{DS(ON)}$	-	35	60	mΩ
	V_{GS}=4.5V , ID=2A		-	52	75	
Gate Threshold Voltage	V_{DS} = V_{GS} , I_D = 250 μA	$V_{GS(th)}$	1.0	1.5	2.5	V
V_{GS}(th) Temperature Coefficient		$\triangle V_{GS(th)}$	-	-4.2	-	mV/℃
Drain-Source Leakage Current	V_{DS}=24V , V_{GS}=0V , T_J=25℃	I_{DSS}	-	-	1	uA
	V_{DS}=24V , V_{GS}=0V , T_J=55℃		-	-	5	
Gate-Source Leakage Current	V_{GS} = ± 20 V, V_{DS} = 0 V	I_{GSS}	-	-	±100	nA
Forward Transconductance	V_{DS}=5V , I_D=4A	G_{fs}	-	7	-	S
Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	R_g		2.3	4.6	Ω
Total Gate Charge (4.5V)	V_{DS}=15V , V_{GS}=4.5V , I_D=4A	Q_g	-	5.0	6.9	nC
Gate-Source Charge		Q_{gs}	-	1.1	2.2	
Gate-Drain Charge		Q_{gd}	-	2.6	2.8	
Turn-On delay time	V_{DD}=15V V_{GS}=10V R_G=3.3 I_D=4A	Td(on)	-	2	4	nS
Rise Time		Tr	-	34.4	62	
Turn-Off Delay Time		td(OFF)	-	13.2	26	
Fall Time		Tf	-	4.8	9.6	
Input Capacitance	V_{DS}=15V , V_{GS}=0V , f=1MHz	C_{iss}	-	420	582	pF
Output Capacitance		C_{oss}	-	60	87	
Reverse Transfer Capacitance		C_{rss}	-	53	71	
Continuous Source Current[1,4]	V_G=V_D=0V , Force Current	I_S	-	-	4.6	A
Pulsed Source Current[2,4]		I_{SM}	-	-	18.4	A
Diode Forward Voltage[2]	V_{GS}=0V , I_S=1A , T_J=25℃	V_{SD}	-	-	1.2	V
Reverse Recovery Time	I_F =4A , dI/dt=100A/μs , T_J=25℃	t_{rr}	-	8.7	-	nS
Reverse Recovery Charge		Q_{rr}	-	2.3	-	nC

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 I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Ratings and Characteristic Curves

Typical Characteristics

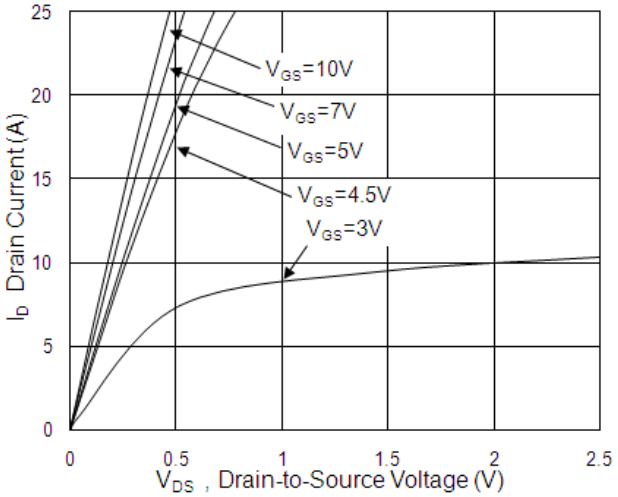


Fig.1 Typical Output Characteristics

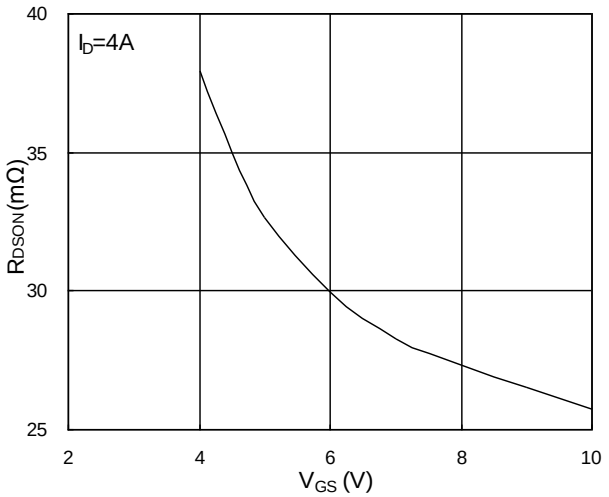


Fig.2 On-Resistance vs. Gate-Source

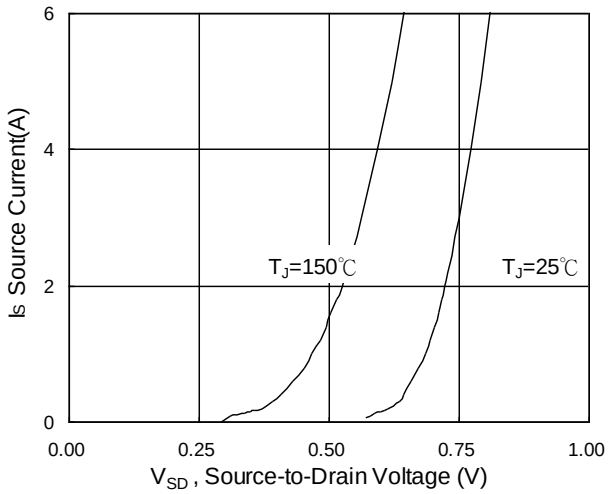


Fig.3 Forward Characteristics Of Reverse

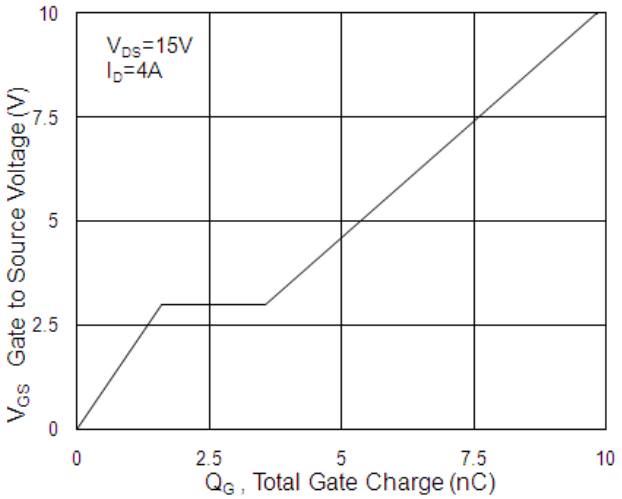


Fig.4 Gate-Charge Characteristics

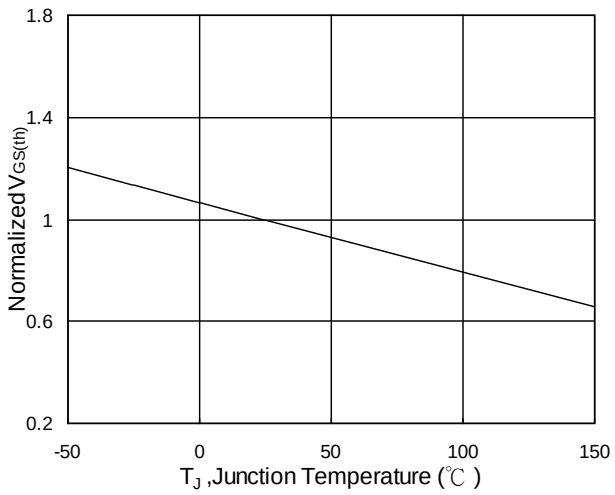


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

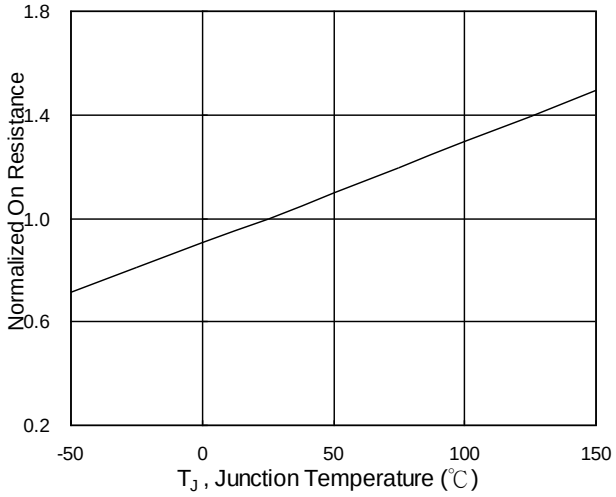


Fig.6 Normalized R_{DSON} vs. T_J

Ratings and Characteristic Curves

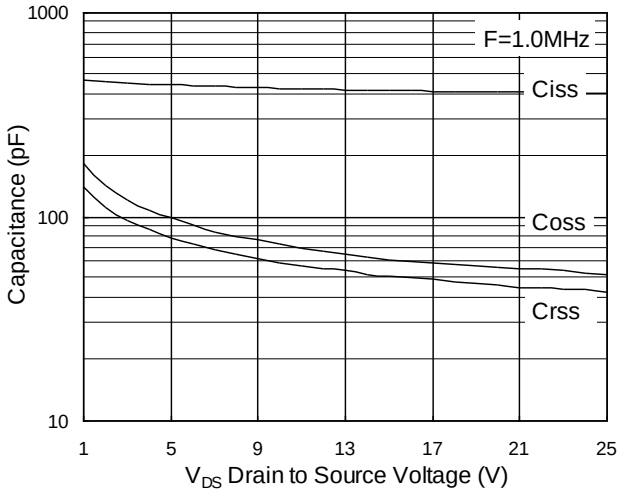


Fig.7 Capacitance

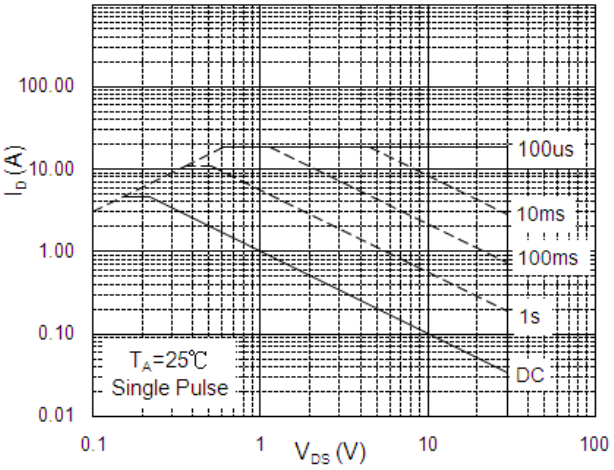


Fig.8 Safe Operating Area

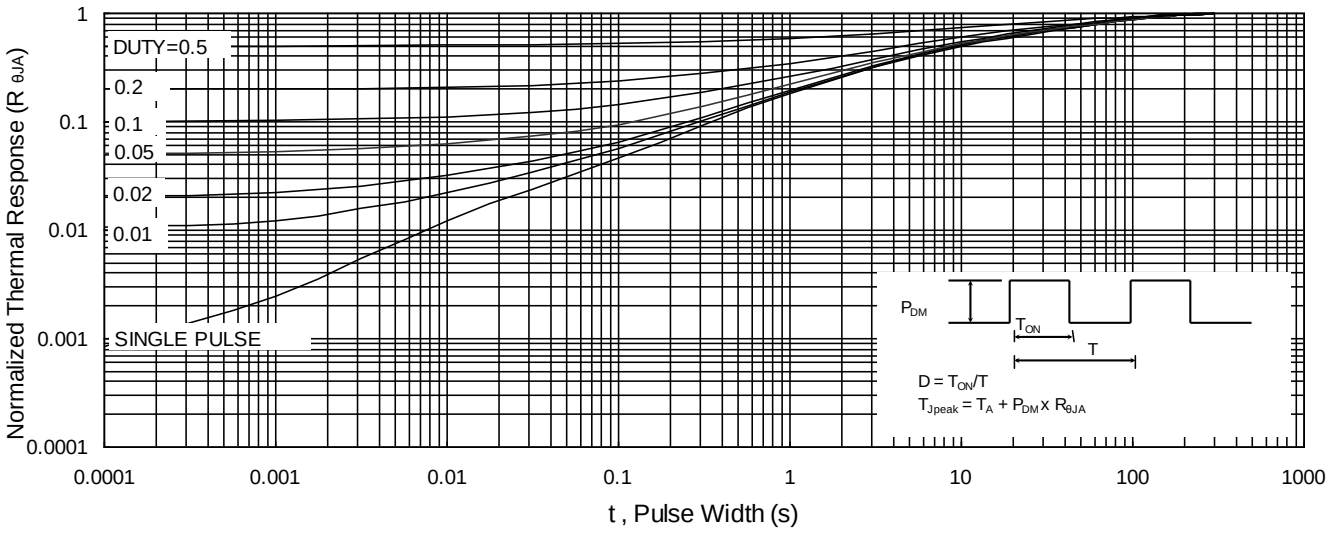


Fig.9 Normalized Maximum Transient Thermal Impedance

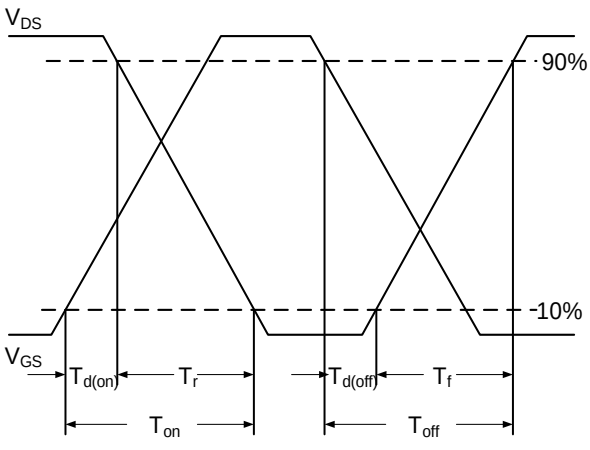


Fig.10 Switching Time Waveform

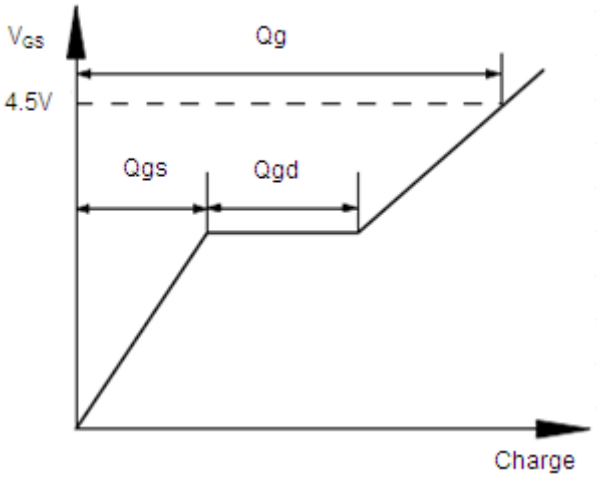


Fig.11 Gate Charge Waveform

Package Outline Dimensions Millimeters

SOT23-6L