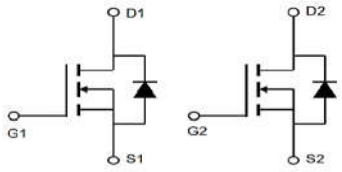
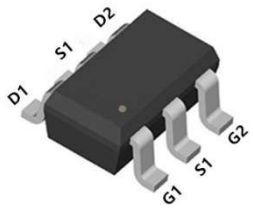
40V N+N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	6.3A
V_{DSS}	40V
R_{DSON}-typ(@V_{GS}=10V)	<38mΩ(Type:28 mΩ)





SOT23-6L

lead-free ROHS

Application

- Wireless charging
- Boost driver
- Brushless motor

Product Specification Classification

Part Number	Package	Marking	Pack
YFW6H04LI	SOT23-6L	YFW 6H04LI	3000PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current[1] @T_A=25℃	I_D	6.3	A
Continuous Drain Current[1] @T_A=70℃	I_D	4.2	A
Pulsed Drain Current[2]	IDM	30	A
Single Pulse Avalanche Energy[3]	EAS	31	mJ
Total Power Dissipation[1] @T_A=25℃	P_D	1.9	W
Storage Temperature Range	TSTG	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55 to +150	°C
Thermal Resistance Junction-ambient[1] (t≤10s)	$R_{\theta}JA$	125	°C/W
Thermal Resistance Junction- ambient[1]	$R_{\theta}JC$	60	°C/W

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Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS} = 0 V,I_D = 250 μA	BV_{DSS}	40	-	-	V
BVDSS Temperature Coefficient	Reference to 25℃ , I_D=-1mA	$\Delta BV_{DSS}/\Delta T_J$	-	0.032	-	V/℃
Static Drain-Source On-Resistance[2]	V_{GS}=10V , I_D=4A	$R_{DS(ON)}$	-	28	38	mΩ
	V_{GS}=4.5V , I_D=3A		-	40	50	
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		$\triangle V_{GS(th)}$	-	-4.5	-	mV/℃
Drain-Source Leakage Current	V_{DS}=32V , V_{GS}=0V , T_J=25℃	I_{DSS}	-	-	1	uA
	V_{DS}=32V , 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}	-	8	-	S
Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	R_g		2.4	4.8	Ω
Total Gate Charge (4.5V)	V_{DS}=15V , V_{GS}=4.5V , I_D=3A	Q_g	-	5	-	nC
Gate-Source Charge		Q_{gs}	-	1.54	-	
Gate-Drain Charge		Q_{gd}	-	1.84	-	
Turn-on delay time	V_{DD}=15V V_{GS}=10V R_G=3.3Ω I_D=1A	Td(on)	-	7.8	-	nS
Rise Time		Tr	-	2.1	-	
Turn-Off Delay Time		td(OFF)	-	29	-	
Fall Time		Tf	-	2.1	-	
Input Capacitance	V_{DS}=15V , V_{GS}=0V , f=1MHz	C_{iss}	-	452	-	pF
Output Capacitance		C_{oss}	-	51	-	
Reverse Transfer Capacitance		C_{rss}	-	38	-	
Continuous Source Current[1,4]	V_G=V_D=0V , Force Current	I_S	-	-	4.5	A
Pulsed Source Current[2,4]		I_{SM}	-	-	14	A
Diode Forward Voltage[2]	V_{GS}=0V , I_S=1A , T_J=25℃	V_{SD}	-	-	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 I_D and I_{DM} , in real applications , should be limited by total power dissipation.

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Typical Characteristics

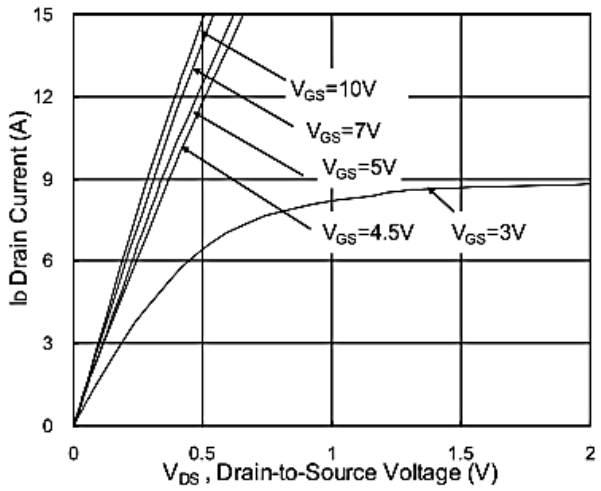


Fig.1 Typical Output Characteristics

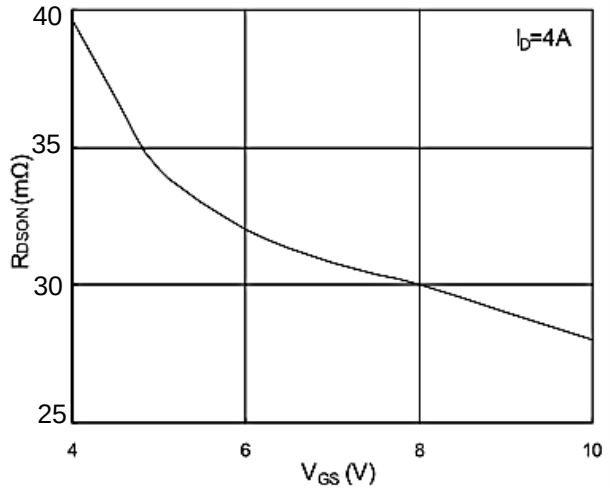


Fig.2 On-Resistance vs. Gate-Source

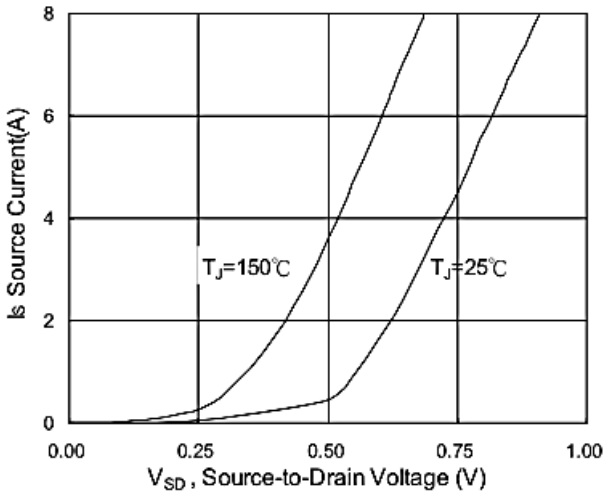


Fig.3 Forward Characteristics Of Reverse

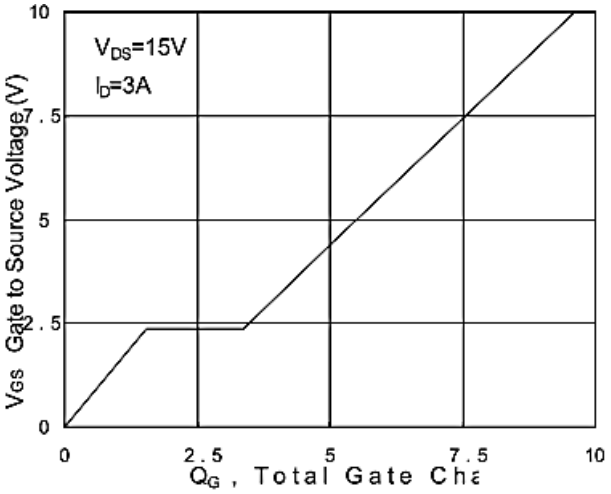


Fig.4 Gate-Charge Characteristics

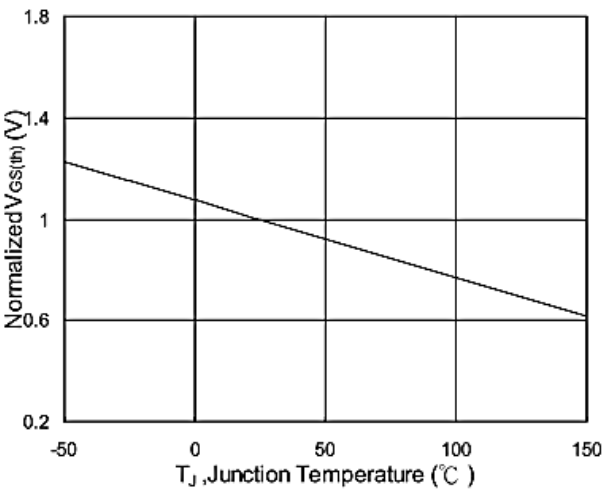


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

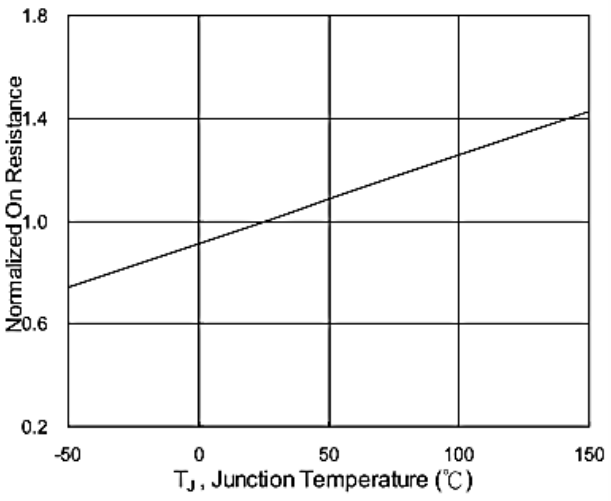


Fig.6 Normalized R_{DSON} vs. T_J

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Ratings and Characteristic Curves

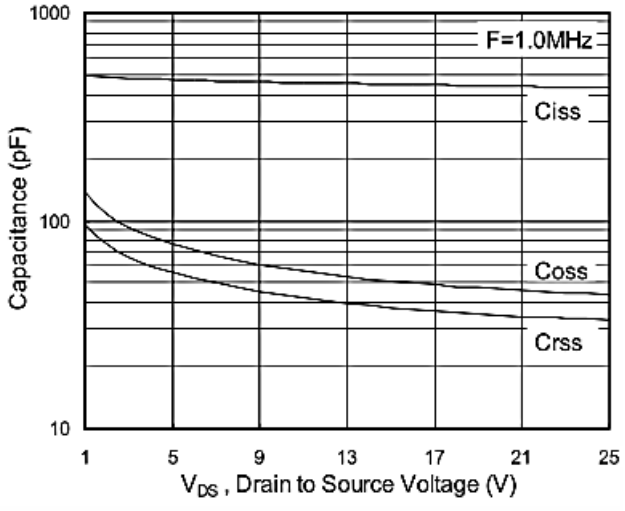


Fig.7 Capacitance

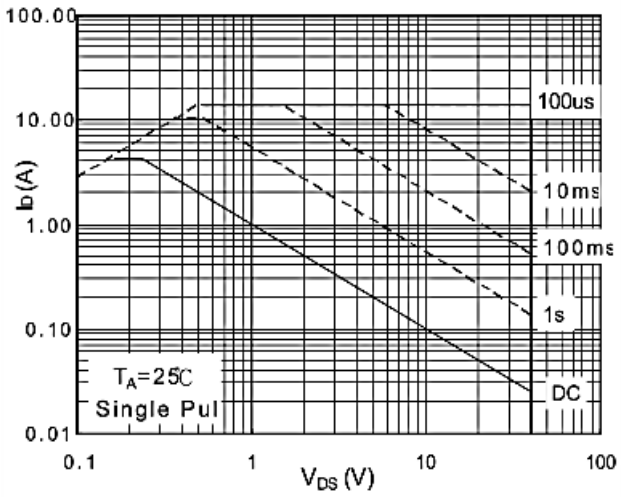


Fig.8 Safe Operating Area

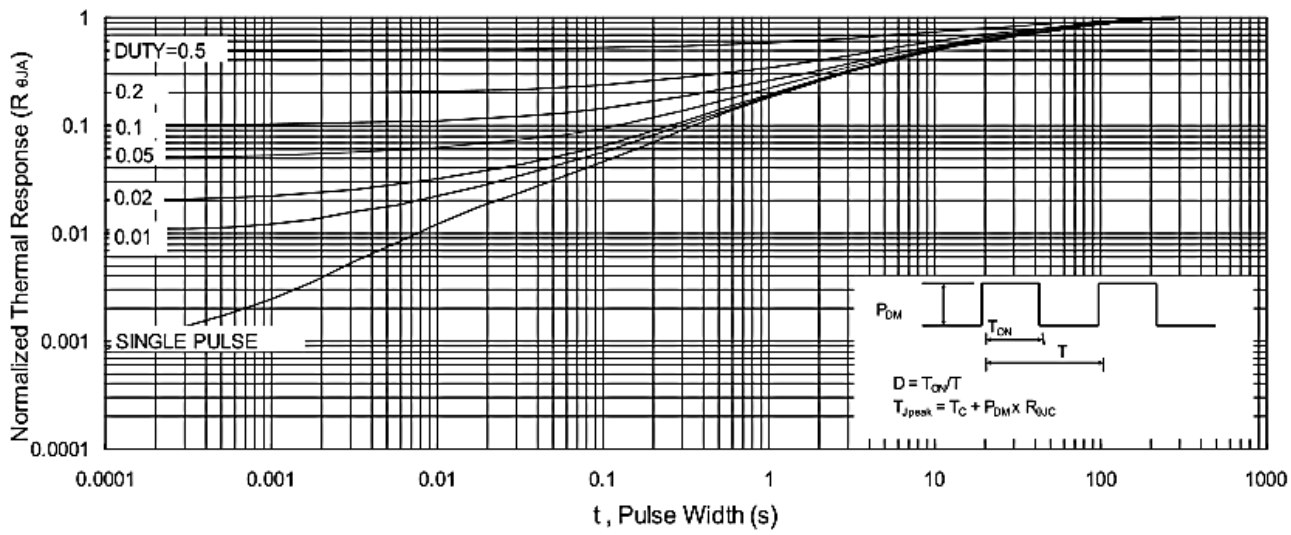


Fig.9 Normalized Maximum Transient Thermal Impedance

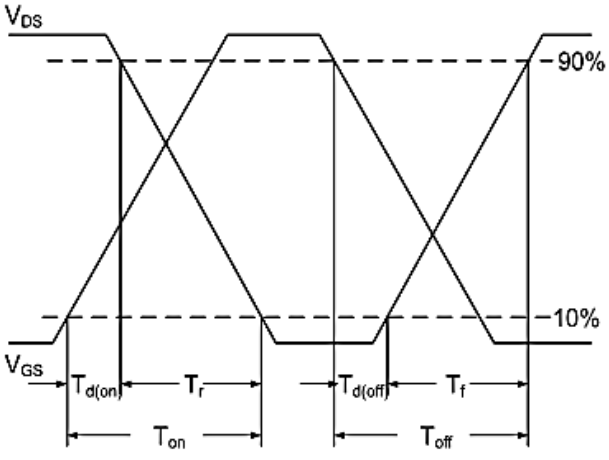


Fig.10 Switching Time Waveform

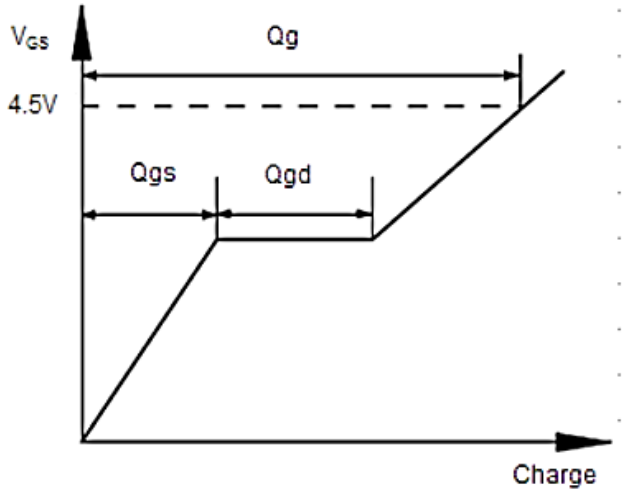
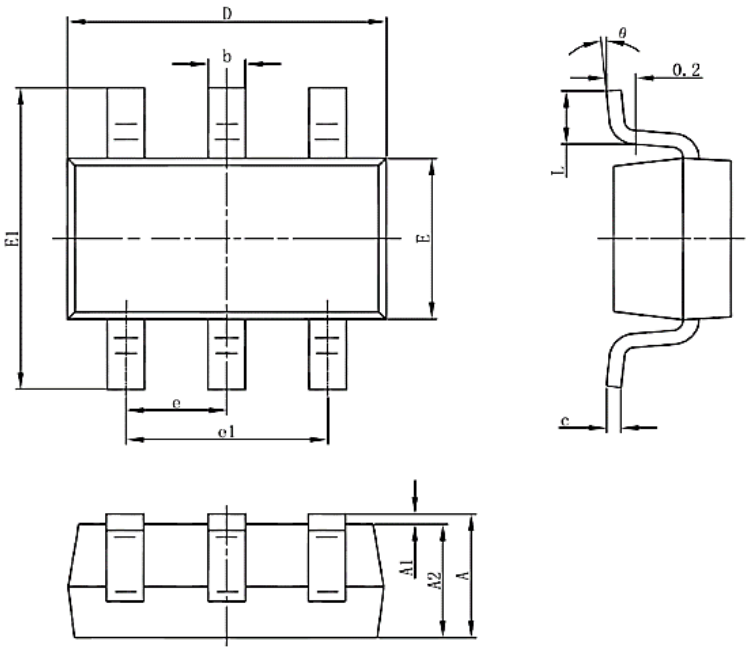


Fig.11 Gate Charge Waveform

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Package Outline Dimensions Millimeters

SOT23-6L



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
E	1.500	1.700	0.059	0.067
E1	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

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