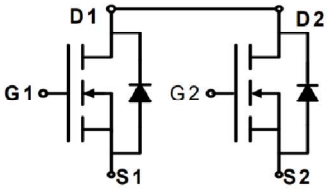
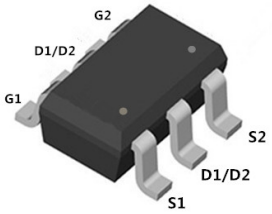
20V N+N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	6.0A
V_{DSS}	20V
R_{DSON}-typ(@V_{GS}=10V)	<25mΩ(Type:21 mΩ)





SOT23-6L

Pb ROHS lead-free

Application

- Lithium battery protection
- Mobile phone fast charging

Product Specification Classification

Part Number	Package	Marking	Pack
YFW8205SLI	SOT23-6L	8205S	3000PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current1 @T_A=25℃	I_D	6.0	A
Continuous Drain Current1 @T_A=70℃	I_D	4.8	A
Pulsed Drain Current2	I_{DM}	24	A
Total Power Dissipation3 @TA=25℃	P_D	1.5	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]	$R_{\theta JA}$	85	°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} = 0 V,I_D = 250 μA	BV_{DSS}	20	22	-	V
Static Drain-Source On-Resistance[2]	V_{GS}= 4.5V , I_D= 5A	$R_{DS(ON)}$	-	21	25	mΩ
	V_{GS}= 2.5V , I_D= 4A		-	28	40	
Gate Threshold Voltage	V_{DS} = V_{GS} , I_D = 250 μA	$V_{GS(th)}$	0.5	0.7	1.2	V
Drain-Source Leakage Current	V_{DS}=16V ,V_{GS}=0V ,T_J=25℃	I_{DSS}	-	-	1	uA
Gate-Source Leakage Current	V_{GS} = ± 8 V, V_{DS} = 0 V	I_{GSS}	-	-	±100	nA
Forward Transconductance	V_{DS}=5V , I_D=3.5A	g_{fs}	-	20	-	S
Total Gate Charge(4.5V)	I_D= 7A V_{DS}= 15V V_{GS}= 4.5V	Q_g	-	11.4	-	nC
Gate-Source Charge		Q_{gs}	-	1.6	-	
Gate-Drain Charge		Q_{gd}	-	2.9	-	
Turn-on Delay time	V_{DD}= 10V V_{GS}= 4.5V R_G= 3.3 I_D= 5A	Td(on)	-	5	-	nS
Rise Time		Tr	-	32.4	-	
Turn-Off Delay Time		td(OFF)	-	28	-	
Fall Time		Tf	-	9	-	
Input Capacitance	V_{GS}=0V V_{DS}=15V f=1MHz	C_{iss}	-	863	-	pF
Output Capacitance		C_{oss}	-	87	-	
Reverse Transfer Capacitance		C_{rss}	-	71	-	
Continuous Source Current[1,4]	V_G=V_D=0V , Force Current	I_S	-	-	6	A
Diode Forward Voltage[2]	V_{DS}=0V ,I_S=1V ,T_J=25℃	V_{SD}	-	-	1.2	V

Note :
1、The data tested by surface mounted on a 1 inch2 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 175℃ 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

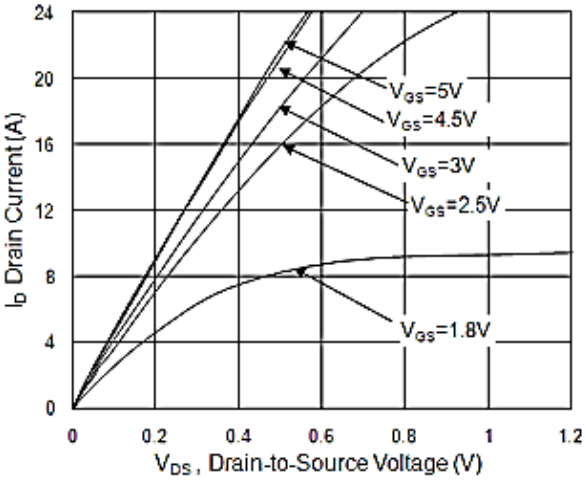


Fig.1 Typical Output Characteristics

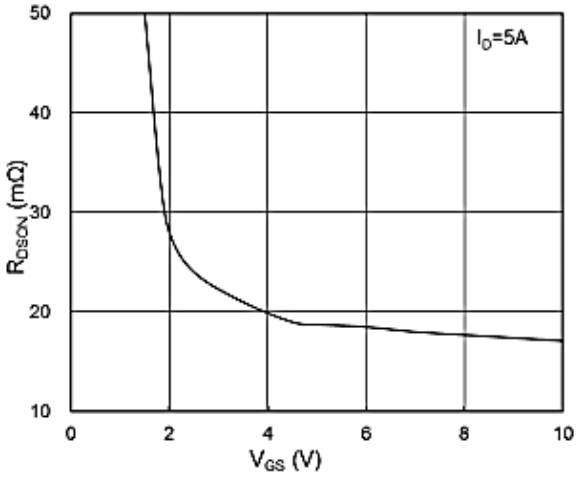


Fig.2 On-Resistance vs. Gate-Source Voltage

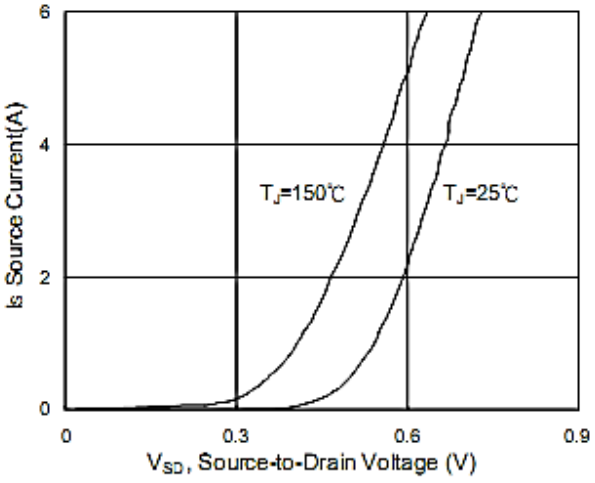


Fig.3 Forward Characteristics of Reverse

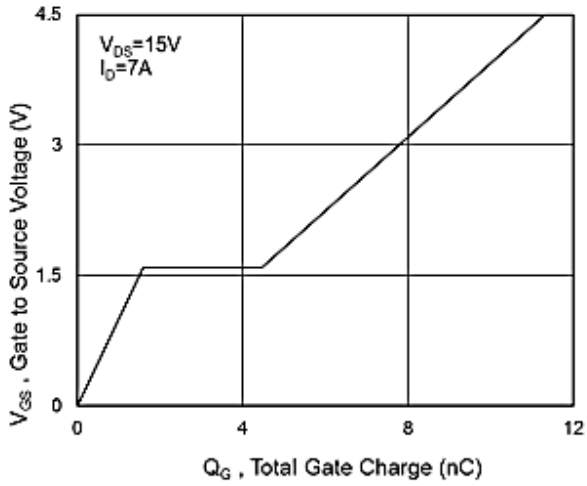


Fig.4 Gate-Charge Characteristics

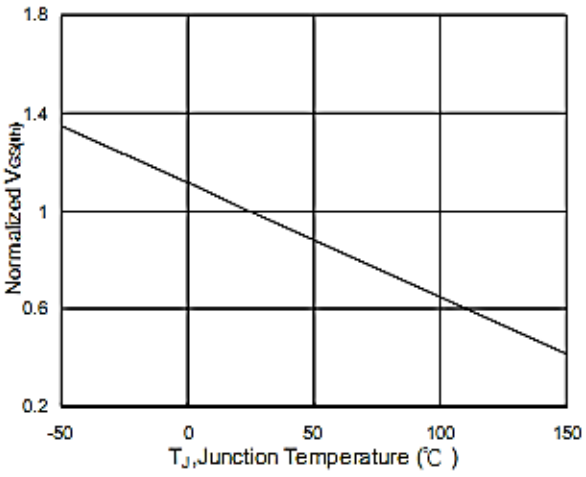


Fig.5 $V_{GS(th)}$ vs. T_J

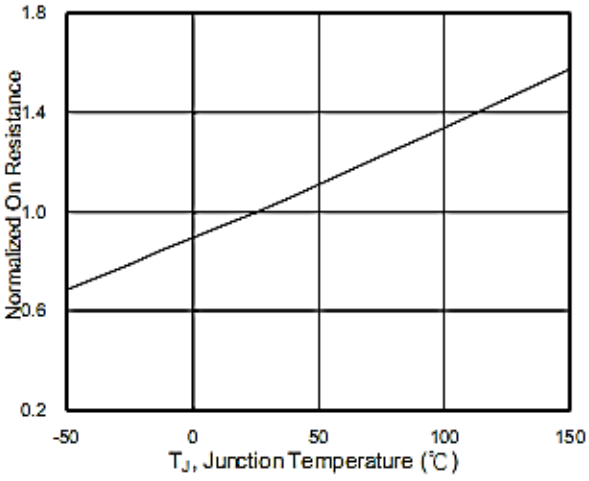


Fig.6 Normalized R_{DSON} vs. T_J

Ratings and Characteristic Curves

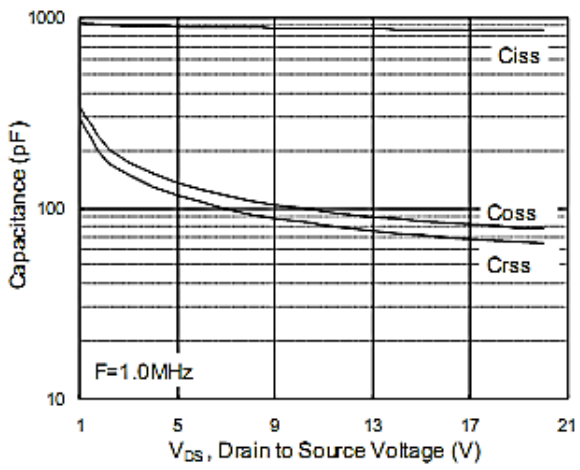


Fig.7 Capacitance

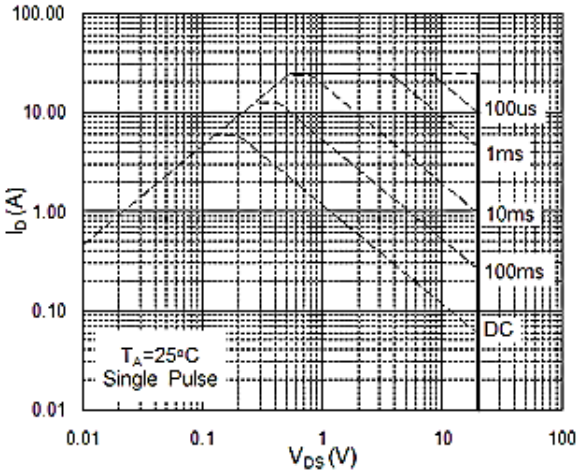


Fig.8 Safe Operating Area

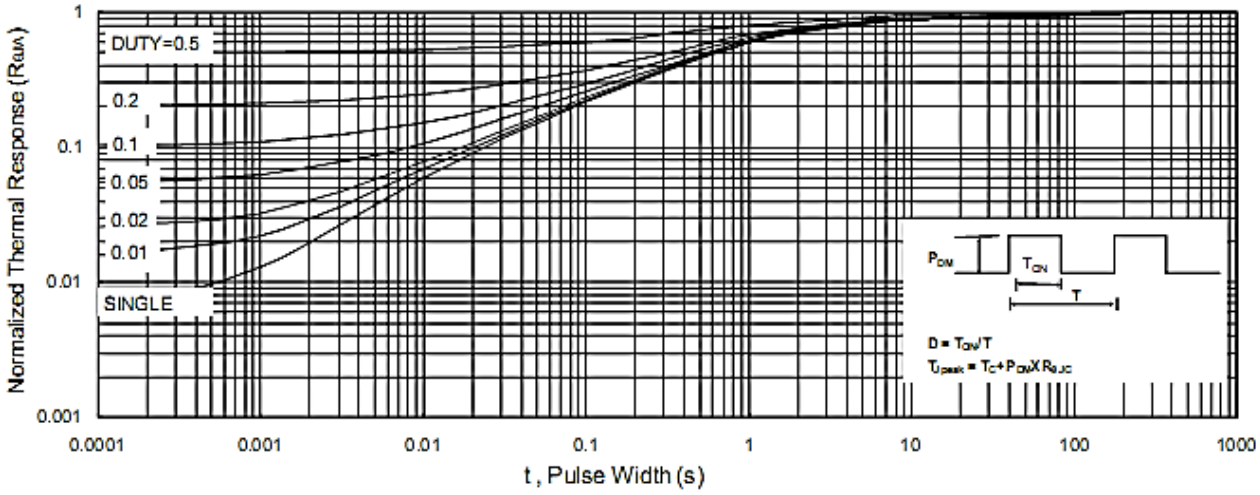


Fig.9 Normalized Maximum Transient Thermal Impedance

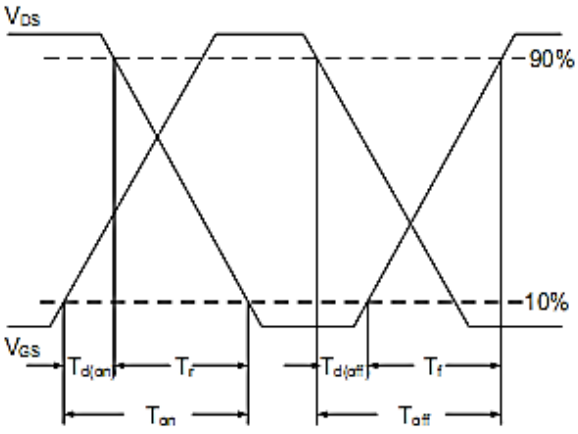


Fig.10 Switching Time Waveform

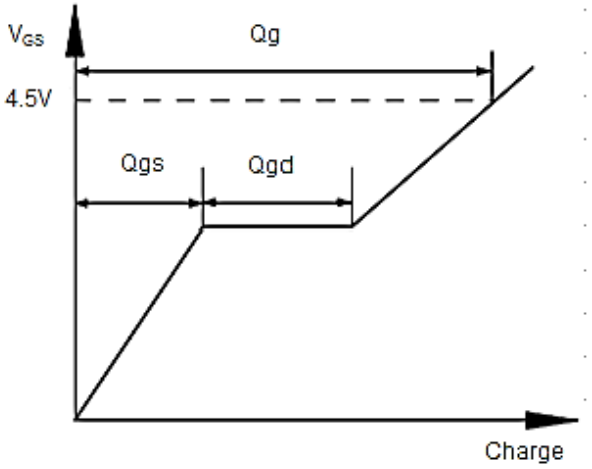
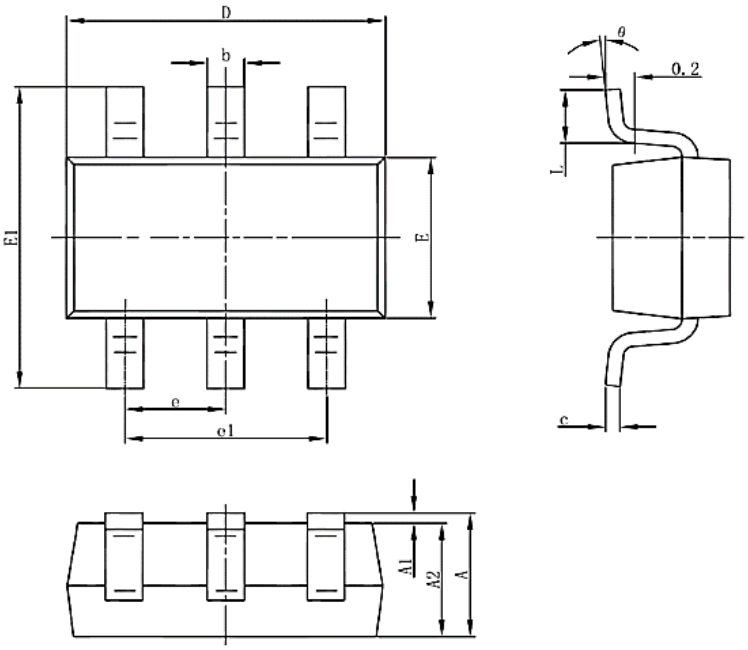


Fig.11 Gate Charge Waveform

Package Outline Dimensions Millimeters

SOT23-6L



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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