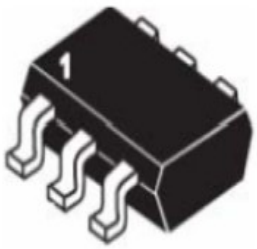
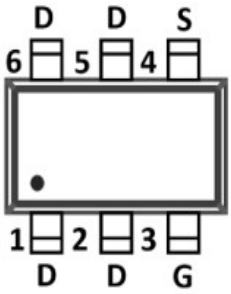
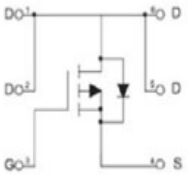
P-Channel Enhancement Mode Field Effect Transistor







SOT-23-6L

Product Summary

- V_{DS} -30V
- I_D -6.0A
- $R_{DS(ON)}$(at V_{GS}=-10V) ＜49 mohm
- $R_{DS(ON)}$(at V_{GS}=-4.5V) ＜65 mohm

General Description

- Trench Power LV MOSFET technology
- High density cell design for Low $R_{DS(ON)}$
- High Speed switching

Applications

- Battery protection
- Load switch
- Power management

■ Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

Parameter		Symbol	Maximum	Unit
Drain-source Voltage		V_{DS}	-30	V
Gate-source Voltage		V_{GS}	±20	V
Drain Current	T_A=25℃ @ Steady State	I_D	-6.0	A
	T_A=70℃ @ Steady State		-4.8	
Pulsed Drain Current [A]		I_{DM}	-25	A
Total Power Dissipation	T_A=25℃	P_D	1.2	W
	T_A=70℃		1.0	
Thermal Resistance Junction-to-Ambient @ Steady State [B]		$R_{\theta JA}$	104	℃/ W
Junction and Storage Temperature Range		T_J ,T_{STG}	-55～+150	℃

■ Ordering Information (Example)

PREFERED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJJ06P03A	F2	0306	3000	30000	120000	7" reel

■ Electrical Characteristics (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}= 0V, I_D=-250μA	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-30V,V_{GS}=0V,T_C=25℃			-1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}= ±20V, V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=-250μA	-1	-1.5	-2.4	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= -10V, I_D=-6.0A		36	49	mΩ
		V_{GS}= -4.5V, I_D=-4.0A		52	65	
Diode Forward Voltage	V_{SD}	I_S=-6.0A,V_{GS}=0V			-1.2	V
Maximum Body-Diode Continuous Current	I_S				-6.0	A
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{DS}=-15V,V_{GS}=0V,f=1MHZ		572		pF
Output Capacitance	C_{oss}			82		
Reverse Transfer Capacitance	C_{rss}			70		
Switching Parameters						
Total Gate Charge	Q_g	V_{GS}=-10V,V_{DS}=-15V,I_D=-6A		11.7		nC
Gate Source Charge	Q_{gs}			2.3		
Gate Drain Charge	Q_{gd}			2.1		
Reverse Recovery Chrage	Q_{rr}	I_F=-6A, di/dt=100A/us		0.64		
Reverse Recovery Time	t_{rr}			15.7		ns
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=-10V, V_{DS}=-15V, R_L=15Ω R_{GEN}=2.5Ω		3.8		
Turn-on Rise Time	t_r			17.6		
Turn-off Delay Time	$t_{D(off)}$			17.8		
Turn-off Fall Time	t_f			21.8		

A. Pulse Test: Pulse Width≤300us,Duty cycle ≤2%.

B. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance, where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design, while $R_{\theta JA}$ is determined by the board design. The maximum rating presented here is based on mounting on a 1 in^2 FR-4 board with 2oz copper.

■ Typical Performance Characteristics

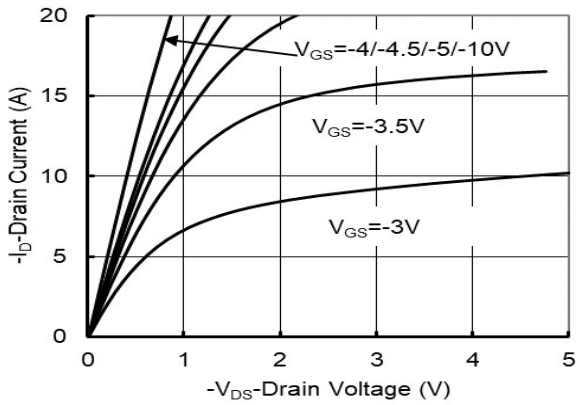


Figure1. Output Characteristics

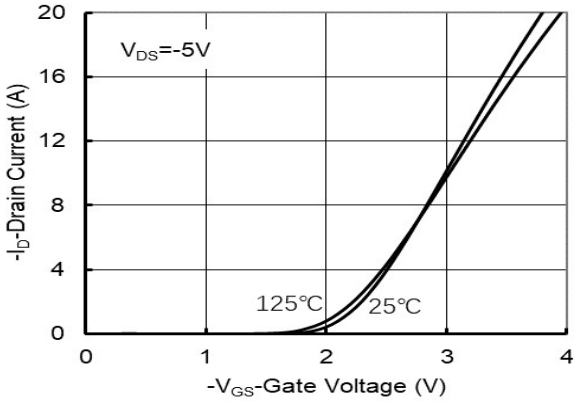


Figure2. Transfer Characteristics

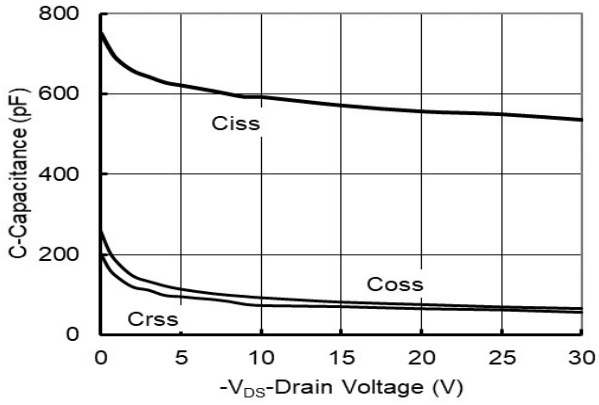


Figure3. Capacitance Characteristics

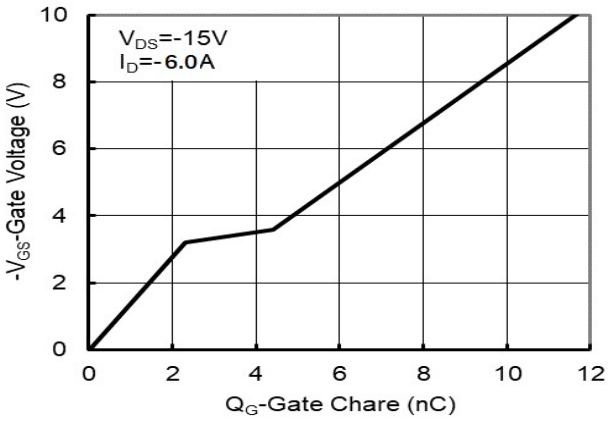


Figure4. Gate Charge

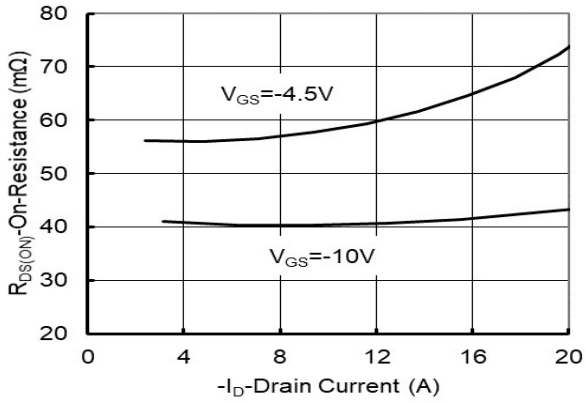


Figure5. Drain-Source on Resistance

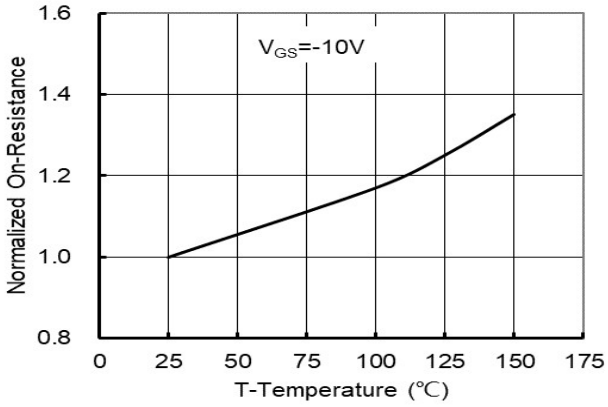


Figure6. Drain-Source on Resistance

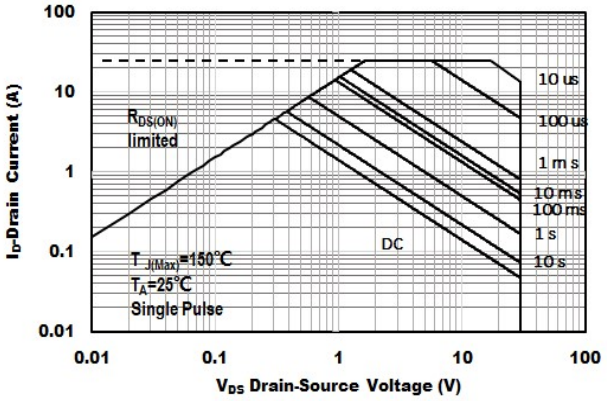


Figure7. Safe Operation Area

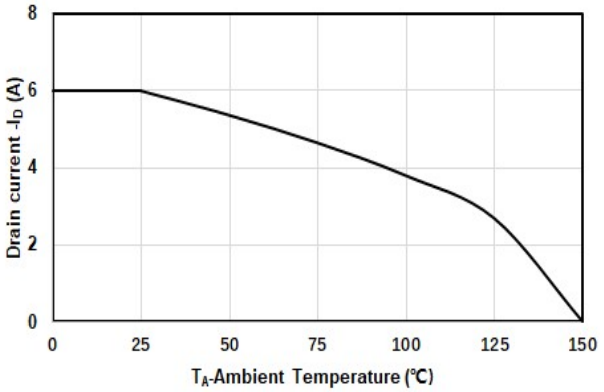


Figure8. Maximum Continuous Drain Current vs Ambient Temperature

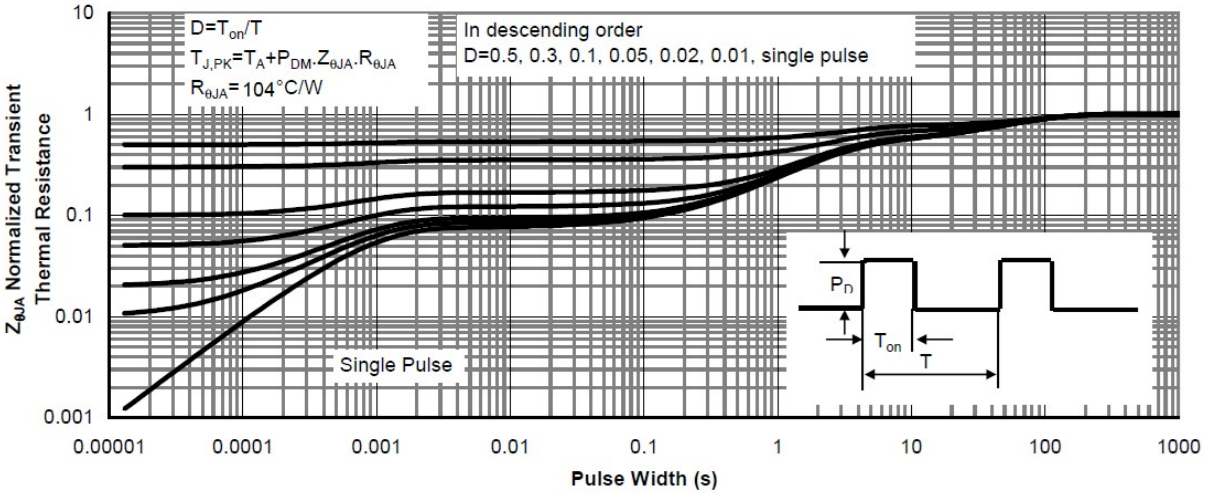
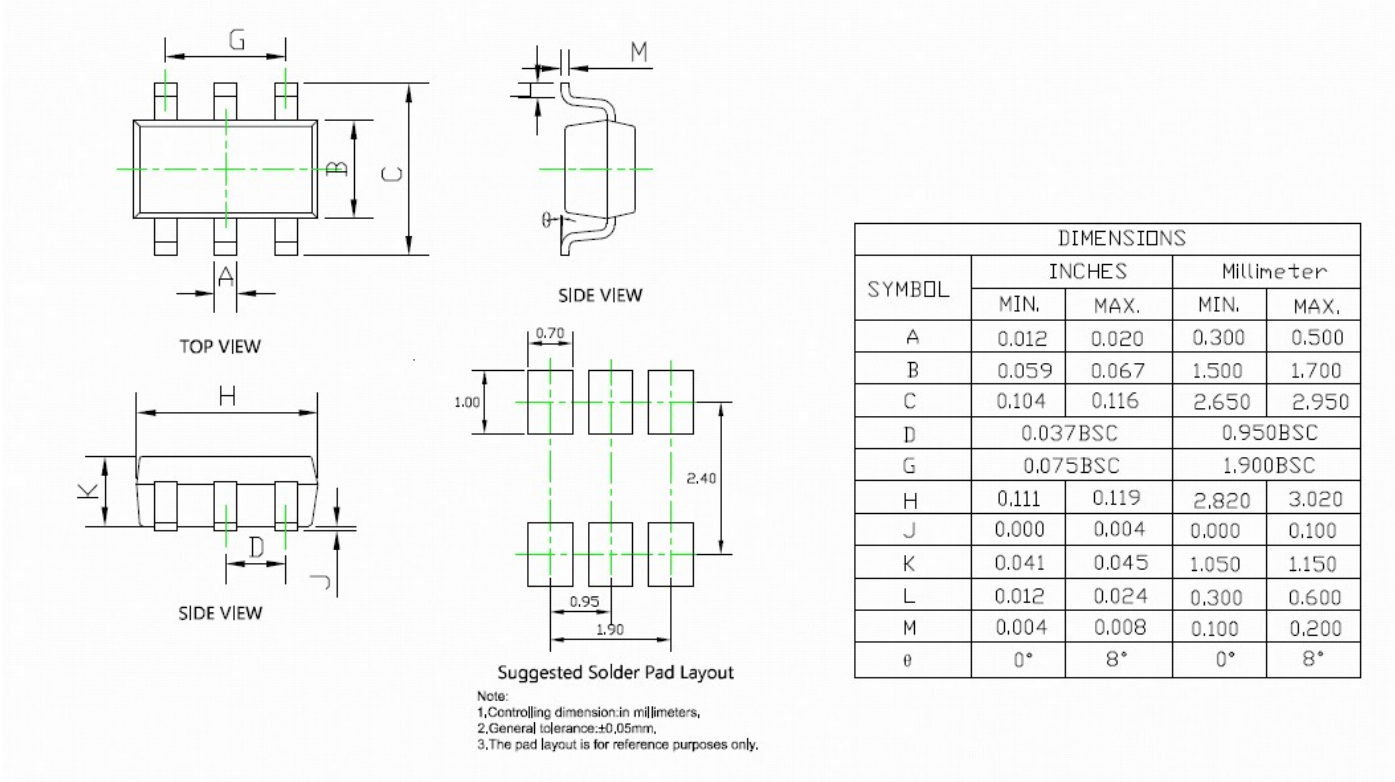


Figure9. Normalized Maximum Transient Thermal Impedance

■ SOT-23-6L Package information



DIMENSIONS				
SYMBOL	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.012	0.020	0.300	0.500
B	0.059	0.067	1.500	1.700
C	0.104	0.116	2.650	2.950
D	0.037BSC		0.950BSC	
G	0.075BSC		1.900BSC	
H	0.111	0.119	2.820	3.020
J	0.000	0.004	0.000	0.100
K	0.041	0.045	1.050	1.150
L	0.012	0.024	0.300	0.600
M	0.004	0.008	0.100	0.200
θ	0°	8°	0°	8°

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