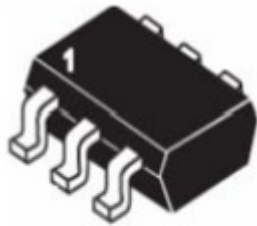
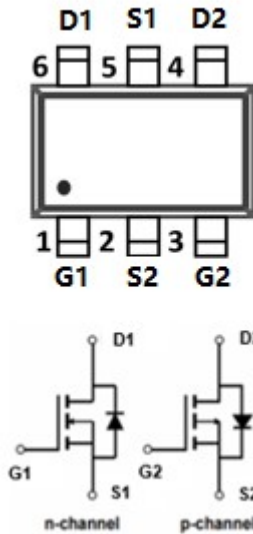


N-Channel and P-Channel Complementary Power MOSFET



SOT-23-6L



Product Summary

NMOS

- V_{DS} 30V
- I_D 3.6A
- $R_{DS(ON)}$ (at $V_{GS}=10V$) <33 mohm
- $R_{DS(ON)}$ (at $V_{GS}=4.5V$) <48 mohm

PMOS

- V_{DS} -30V
- I_D -3.0A
- $R_{DS(ON)}$ (at $V_{GS}=-10V$) <75 mohm
- $R_{DS(ON)}$ (at $V_{GS}=-4.5V$) <109 mohm

General Description

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

Applications

- Wireless charger
- Load switch
- Power management

■ Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter		Symbol	N-Channel	P-Channel	Unit
Drain-source Voltage		V_{DS}	30	-30	V
Gate-source Voltage		V_{GS}	± 20	± 20	V
Drain Current	$T_A=25^\circ\text{C}$ @ Steady State	I_D	3.6	-3.0	A
	$T_A=70^\circ\text{C}$ @ Steady State		2.9	-2.4	
Pulsed Drain Current ^A		I_{DM}	15	-13	A
Total Power Dissipation @ $T_A=25^\circ\text{C}$		P_D	1.3	1.3	W
Thermal Resistance Junction-to-Ambient @ Steady State ^B		$R_{\theta JA}$	96	96	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range		T_J, T_{STG}	-55~+150	-55~+150	$^\circ\text{C}$

■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJJ3724A	F2	3724A	3000	30000	120000	7" reel



YJJ3724A

■ N-MOS Electrical Characteristics (T_J=25°C 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			1	μA
Gate-Body Leakage Current	I _{GSS1}	V _{GS} =± 20V, V _{DS} =0V			± 100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =250μA	1.0	1.5	2.2	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =3.6A		26	33	mΩ
		V _{GS} =4.5V, I _D =2.0A		39	48	
Diode Forward Voltage	V _{SD}	I _S =3.6A,V _{GS} =0V			1.2	V
Dynamic Parameters						
Input Capacitance	C _{iSS}	V _{DS} =15V,V _{GS} =0V,f=1MHZ		314		pF
Output Capacitance	C _{oss}			59		
Reverse Transfer Capacitance	C _{rSS}			48		
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =10V,V _{DS} =15V,I _D =3.6A		6.08		nC
Gate-Source Charge	Q _{gs}			1.26		
Gate-Drain Charge	Q _{gd}			1.32		
Reverse Recovery Chrage	Q _{rr}	I _F =3.6A, di/dt=100A/us		1.66		ns
Reverse Recovery Time	t _{rr}			17.33		
Turn-on Delay Time	t _{D(on)}	V _{GS} =10V, V _{DS} =15V, R _L =4.1Ω R _{GEN} =3Ω		3.8		
Turn-on Rise Time	t _r			23.2		
Turn-off Delay Time	t _{D(off)}			7		
Turn-off fall Time	t _f			18.6		

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

B. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.



YJJ3724A

■ P-MOS Electrical Characteristics ($T_J=25^{\circ}\text{C}$ 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			-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	-1.0	-1.5	-2.4	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-3.0A		56	75	mΩ
		V _{GS} =-4.5V, I _D =-2.0A		79	109	
Diode Forward Voltage	V _{SD}	I _S =-3A,V _{GS} =0V			-1.2	V
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =-15V,V _{GS} =0V,f=1MHZ		365		pF
Output Capacitance	C _{oss}			59		
Reverse Transfer Capacitance	C _{rss}			45		
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =-10V,V _{DS} =-15V,I _D =-3A		7.6		nC
Gate-Source Charge	Q _{gs}			1.64		
Gate-Drain Charge	Q _{gd}			1.22		
Reverse Recovery Chrage	Q _{rr}	I _F =-3A, di/dt=100A/us		3.8		ns
Reverse Recovery Time	t _{rr}			25		
Turn-on Delay Time	t _{D(on)}	V _{GS} =-10V, V _{DS} =-15V, I _D =-1A R _{GEN} =2.5Ω		3.2		
Turn-on Rise Time	t _r			17.8		
Turn-off Delay Time	t _{D(off)}			18		
Turn-off fall Time	t _f			23.2		

C. Pulse Test: Pulse Width $\leq 300\mu s$, Duty cycle $\leq 2\%$.

D. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.



N-MOS Typical Performance Characteristics

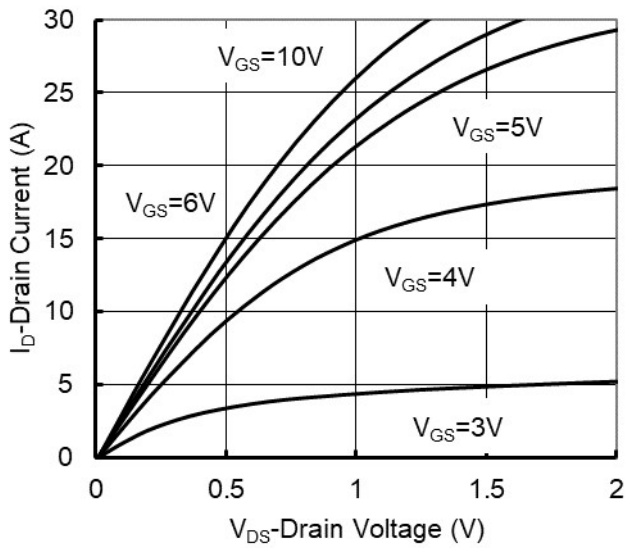


Figure1. Output Characteristics

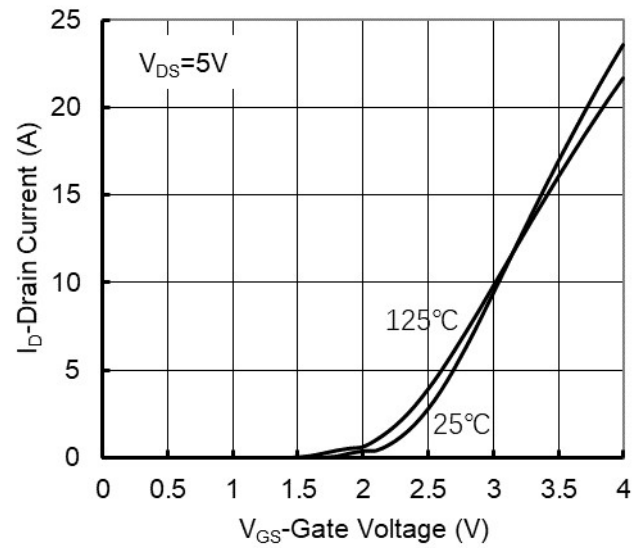


Figure2. Transfer Characteristics

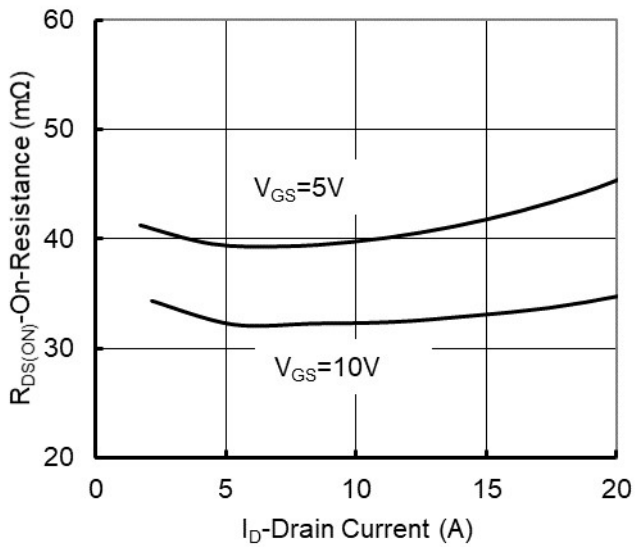


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

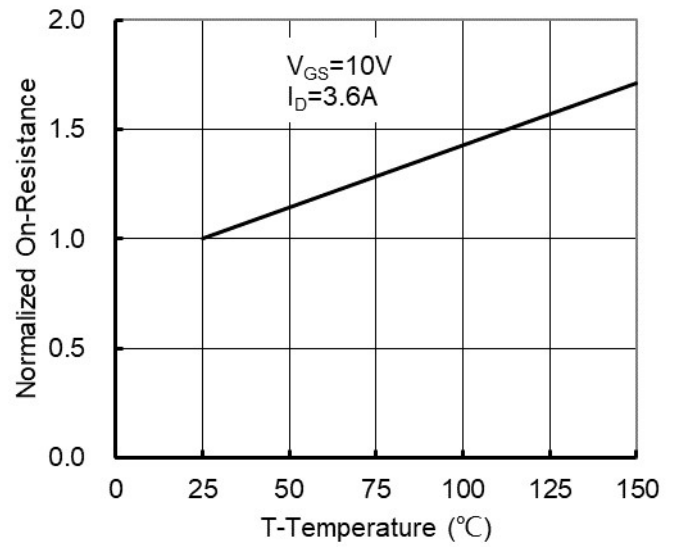


Figure 4: On-Resistance vs. Junction Temperature

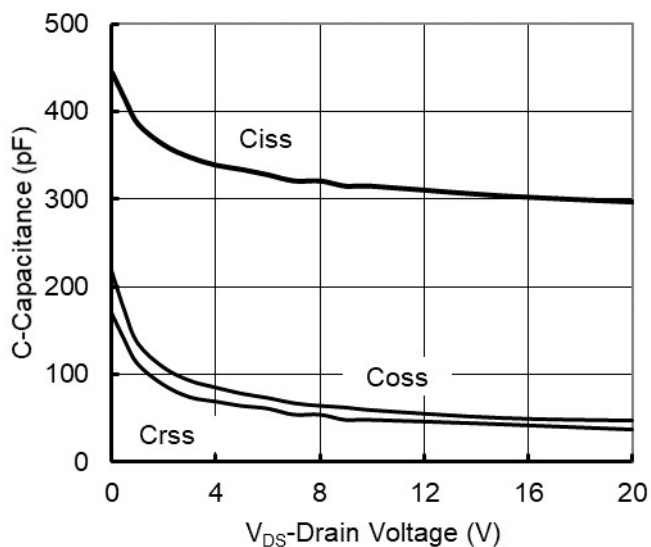


Figure5. Capacitance Characteristics

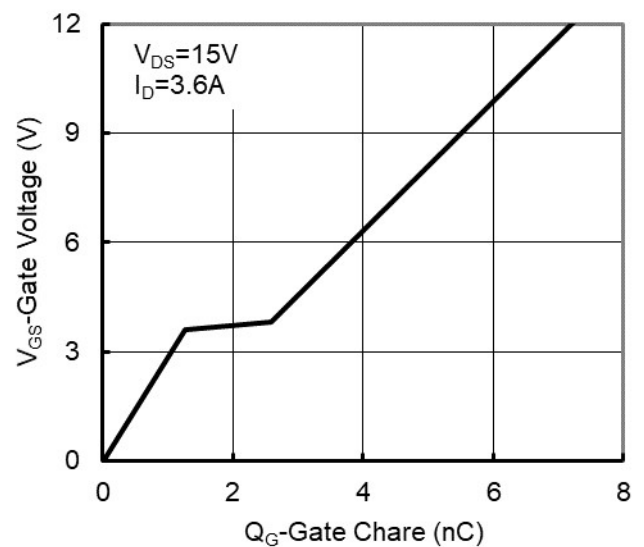


Figure6. Gate Charge

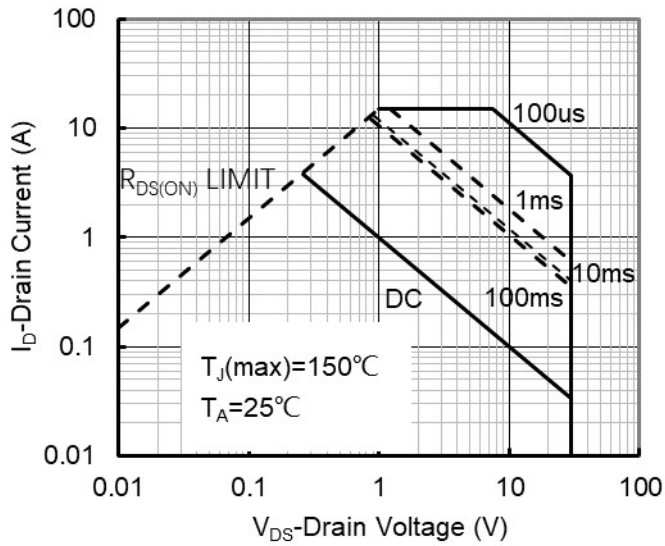


Figure7. Safe Operation Area

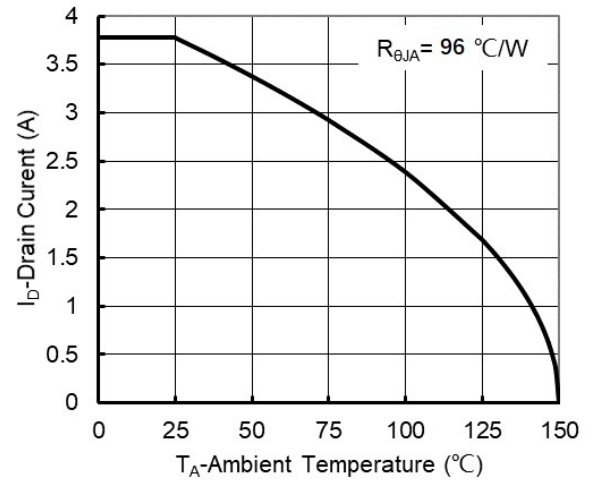


Figure8. Maximum Continuous Drain Current vs Ambient Temperature

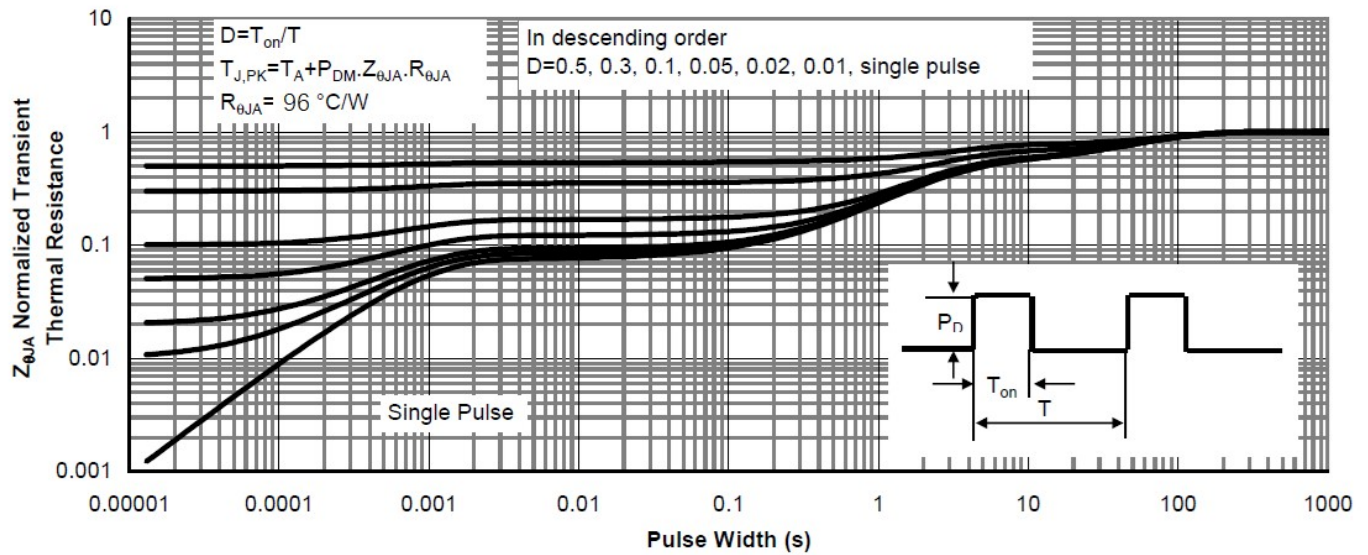


Figure9. Normalized Maximum Transient Thermal Impedance



P-MOS Typical Performance Characteristics

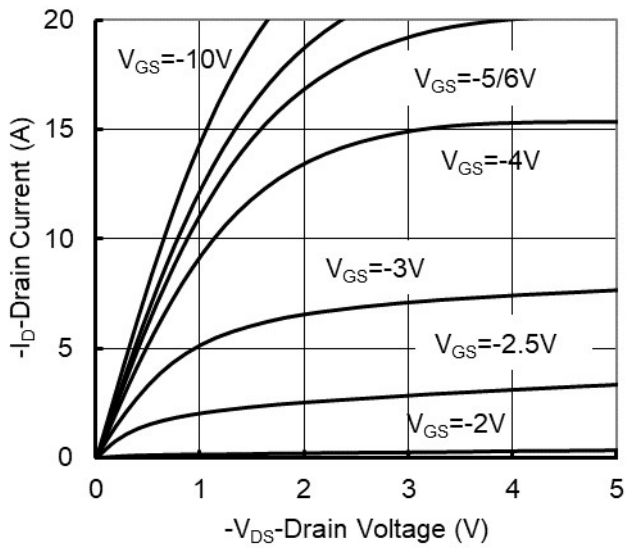


Figure1. Output Characteristics

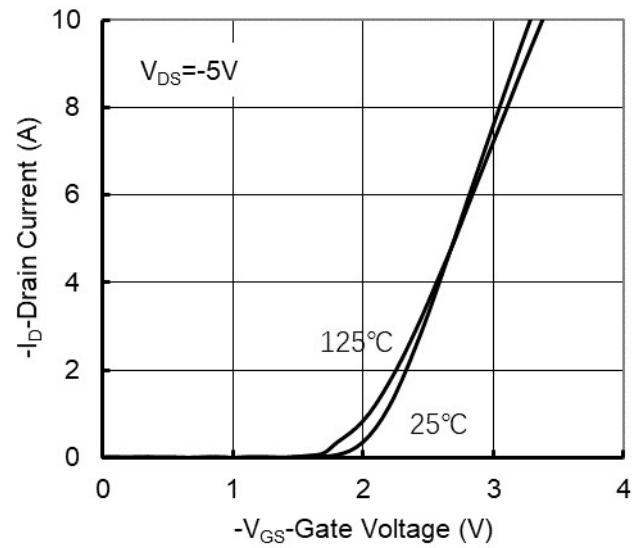


Figure2. Transfer Characteristics

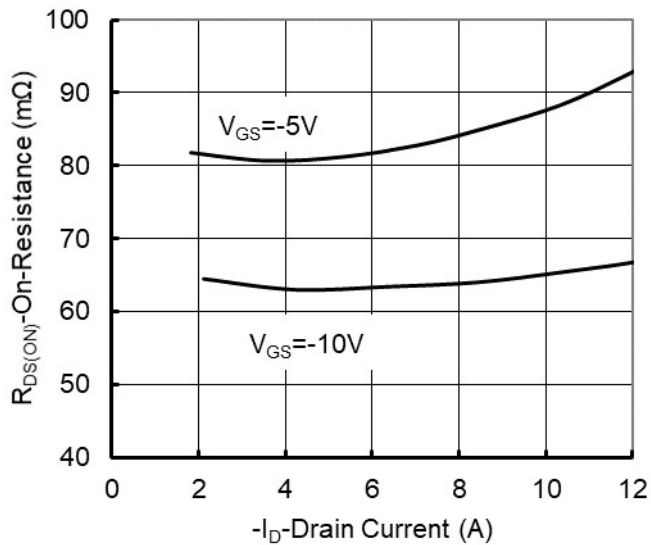


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

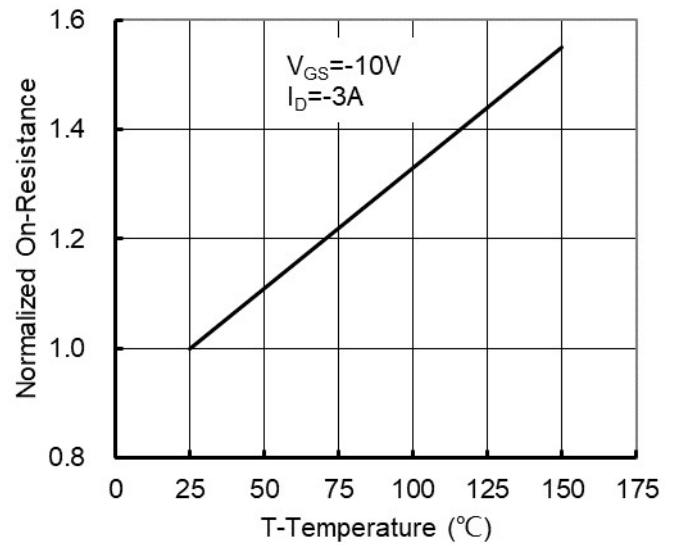


Figure 4: On-Resistance vs. Junction Temperature

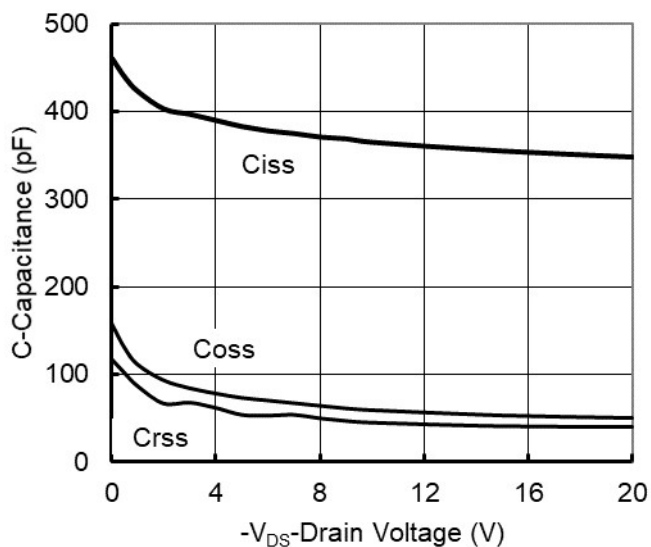


Figure5. Capacitance Characteristics

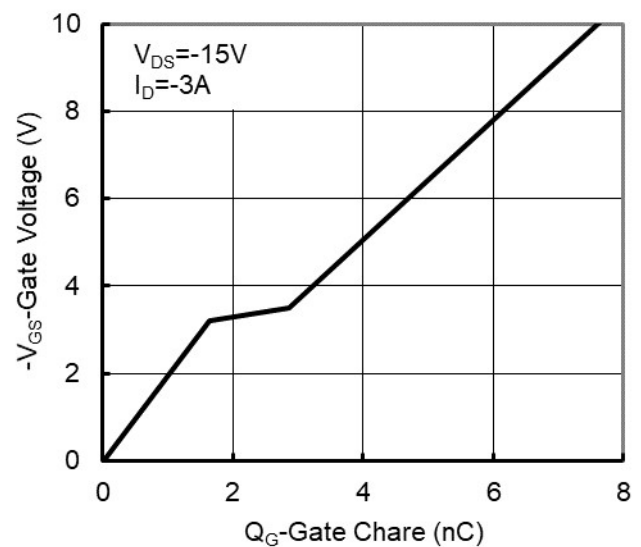


Figure6. Gate Charge

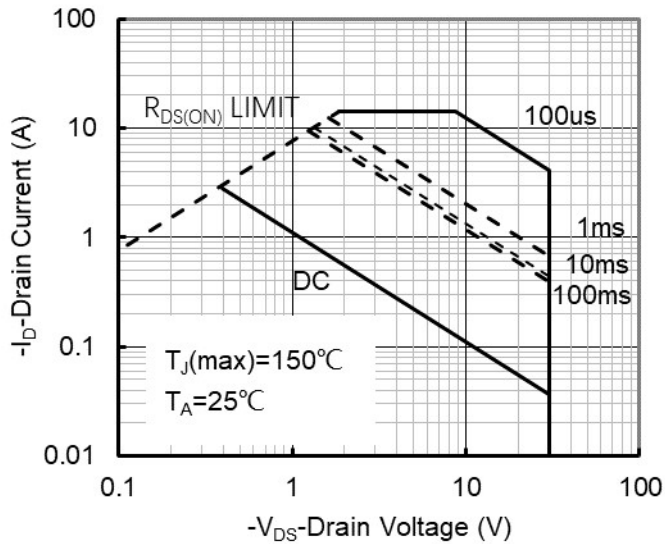


Figure7. Safe Operation Area

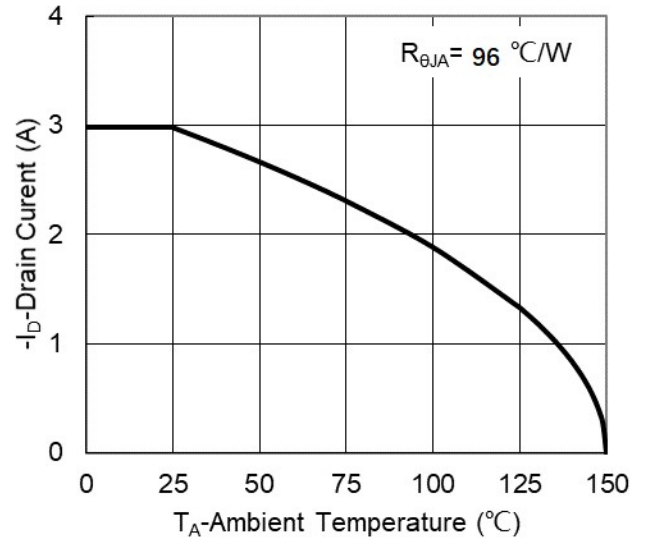


Figure8. Maximum Continuous Drain Current vs Ambient Temperature

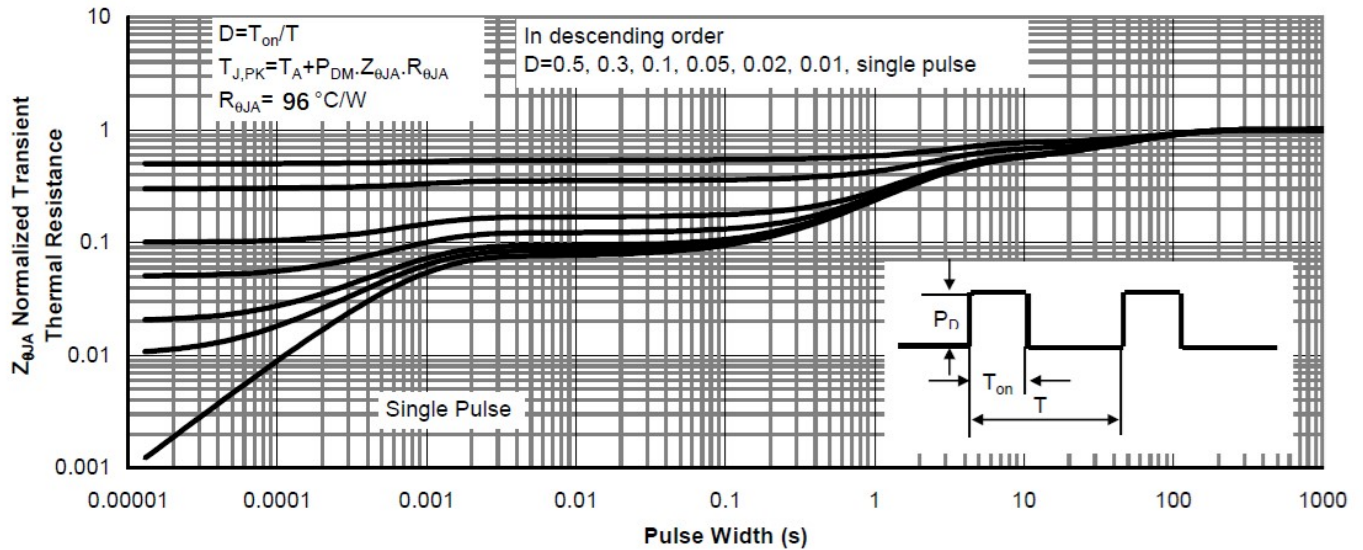
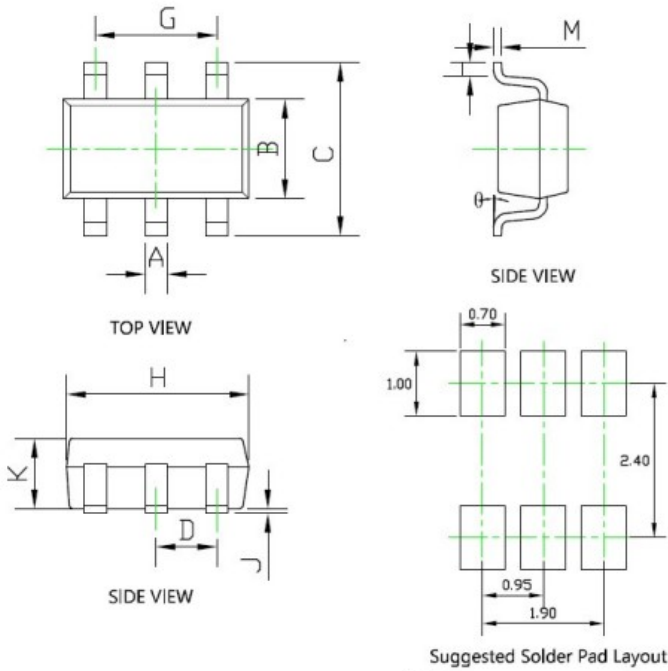


Figure9. Normalized Maximum Transient Thermal Impedance



YJJ3724A

■ SOT23-6L Package information



Note:
1. Controlling dimension in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

SYMBOL	DIMENSIONS			
	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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