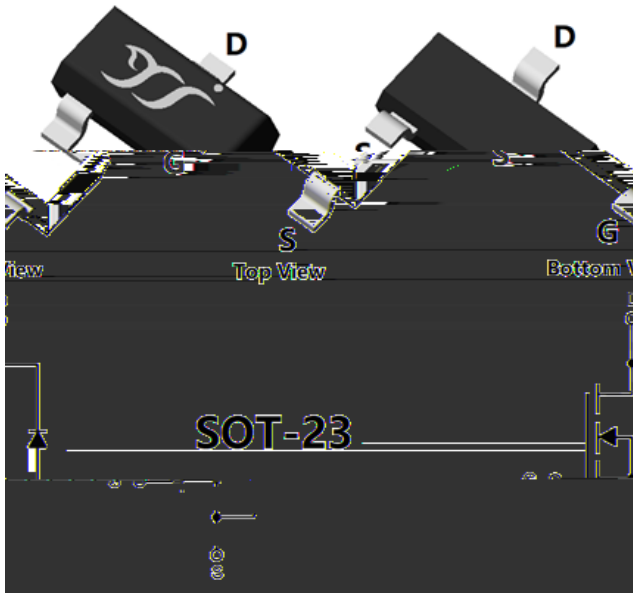


## N-Channel Enhancement Mode Field Effect Transistor



### Product Summary

- $V_{DS}$  60V
- $I_D$  3.0A
- $R_{DS(ON)}$ ( at  $V_{GS}= 10V$ ) <100mohm
- $R_{DS(ON)}$ ( at  $V_{GS}= 4.5V$ ) <120mohm
- $R_{DS(ON)}$ ( at  $V_{GS}= 2.5V$ ) <200mohm

### General Description

- Trench Power LV MOSFET technology
- High Density Cell Design for Low RDS(ON)
- High Speed switching
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free

### Applications

- Battery protection
- Load switch
- Power management

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

Parameter		Symbol	Limit	Unit
Drain-source Voltage		$V_{DS}$	60	V
Gate-source Voltage		$V_{GS}$	$\pm 16$	V
Drain Current	$T_A=25^\circ\text{C}$	$I_D$	3	A
	$T_A=70^\circ\text{C}$		2.4	
Pulsed Drain Current <sup>A</sup>		$I_{DM}$	12	A
Total Power Dissipation @ $T_A=25^\circ\text{C}$ Steady State		$P_D$	1.2	W
Thermal Resistance Junction-to-Ambient <sup>B</sup>		$R_{\theta JA}$	105	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range		$T_J, T_{STG}$	-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
YJL03N06B	F2	S10B.	3000	30000	120000	7" reel



# YJL03N06B

## ■ Electrical Characteristics ( $T_J=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
<b>Static Parameter</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	60			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=60V, V_{GS}=0V$			1	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 16V, V_{DS}=0V$			$\pm 100$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.65	0.95	1.55	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=3A$		86	100	m $\Omega$
		$V_{GS}=4.5V, I_D=2A$		90	120	
		$V_{GS}=2.5V, I_D=1A$		100	200	
Diode Forward Voltage	$V_{SD}$	$I_S=3.0A, V_{GS}=0V$		0.8	1.2	V
<b>Dynamic Parameters</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=30V, V_{GS}=0V, f=1\text{MHz}$		451		pF
Output Capacitance	$C_{oss}$			38		

Reverse



### Typical Performance Characteristics

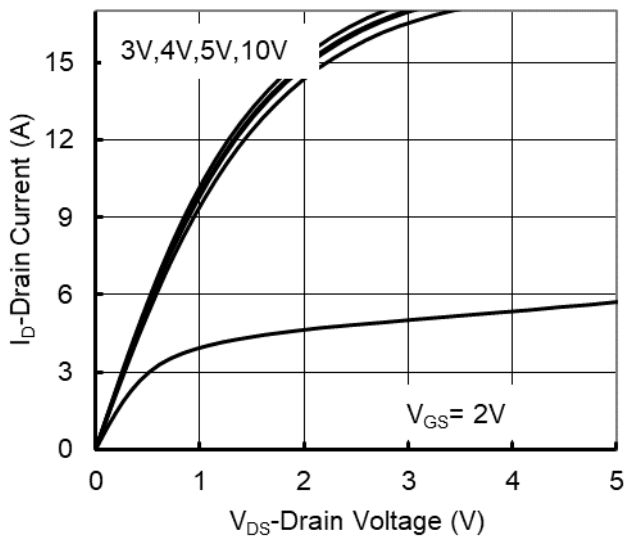


Figure1. Output Characteristics

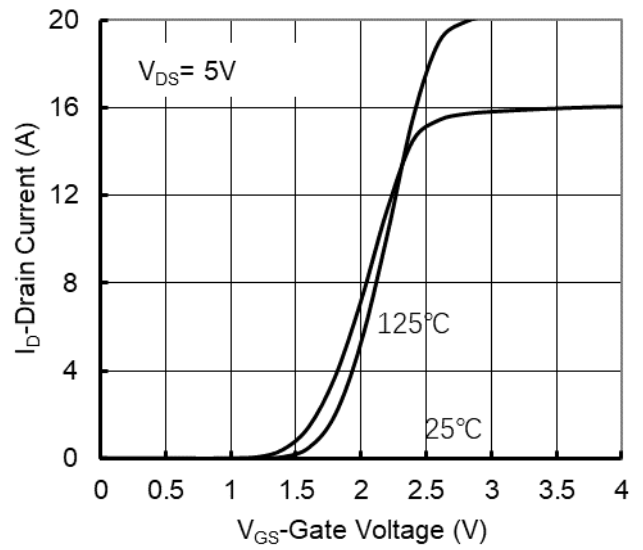


Figure2. Transfer Characteristics

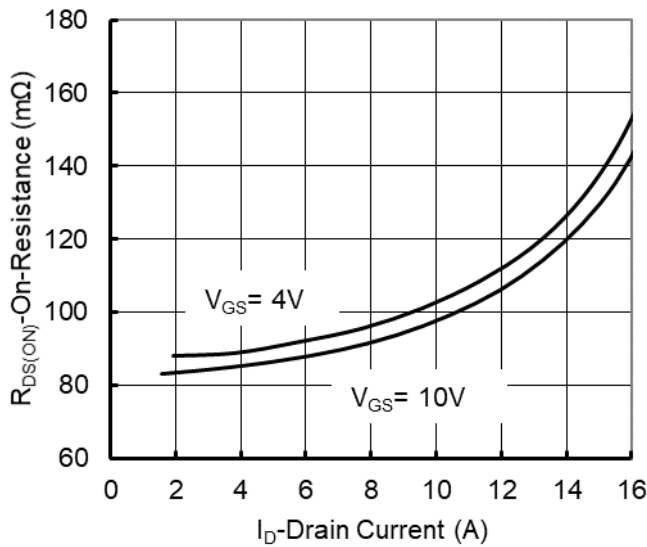


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

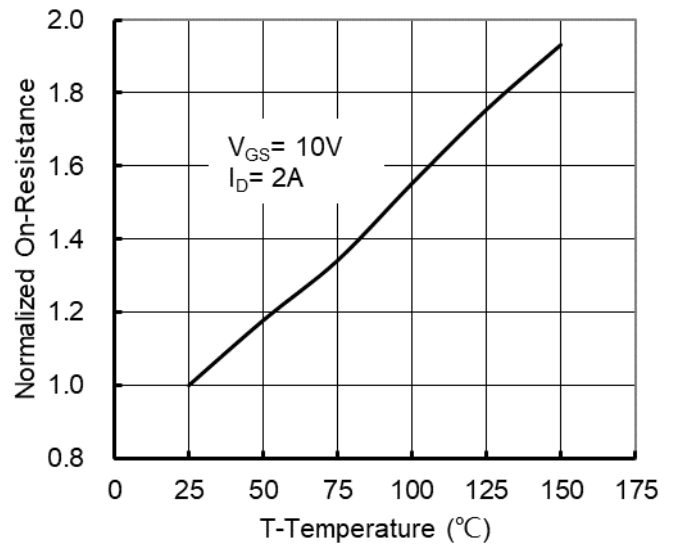


Figure 4: On-Resistance vs. Junction Temperature

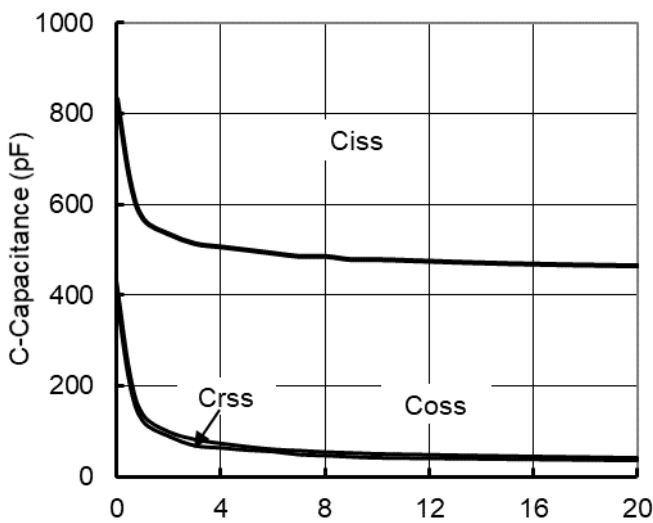


Figure5. Capacitance Characteristics

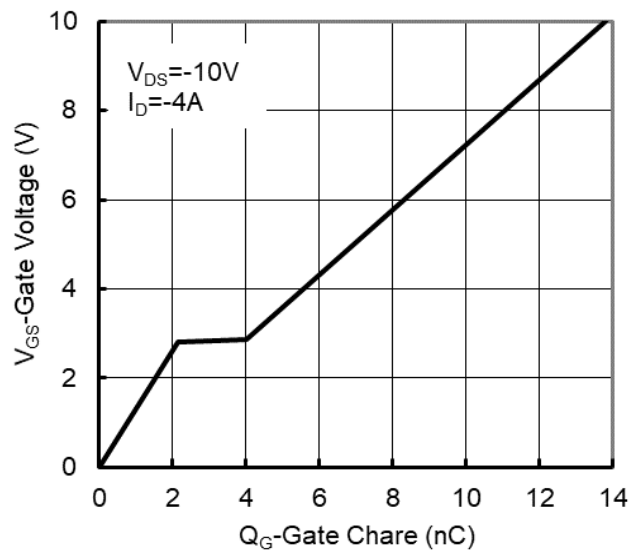


Figure6. Gate Charge

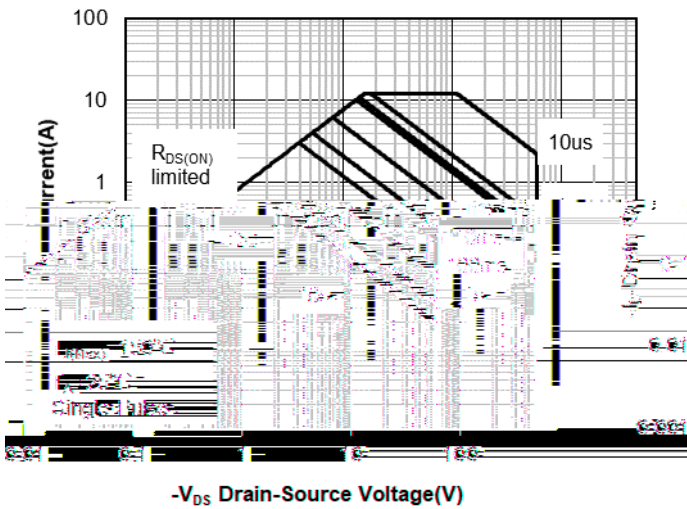


Figure7. Safe Operation Area

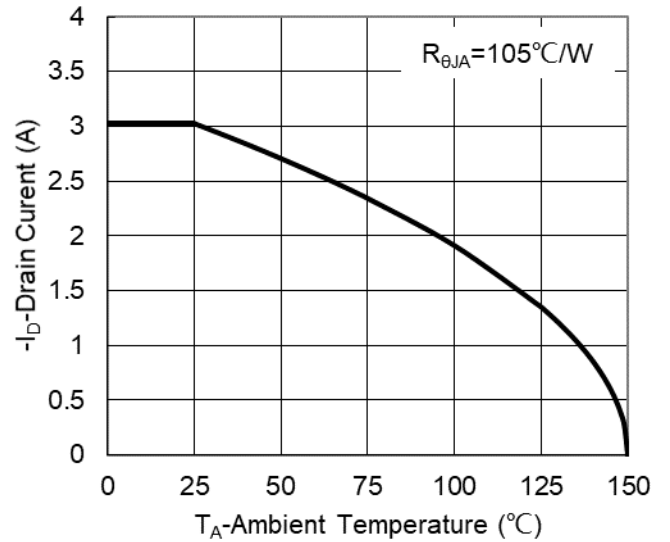


Figure8. Maximum Continuous Drain Current vs Ambient Temperature

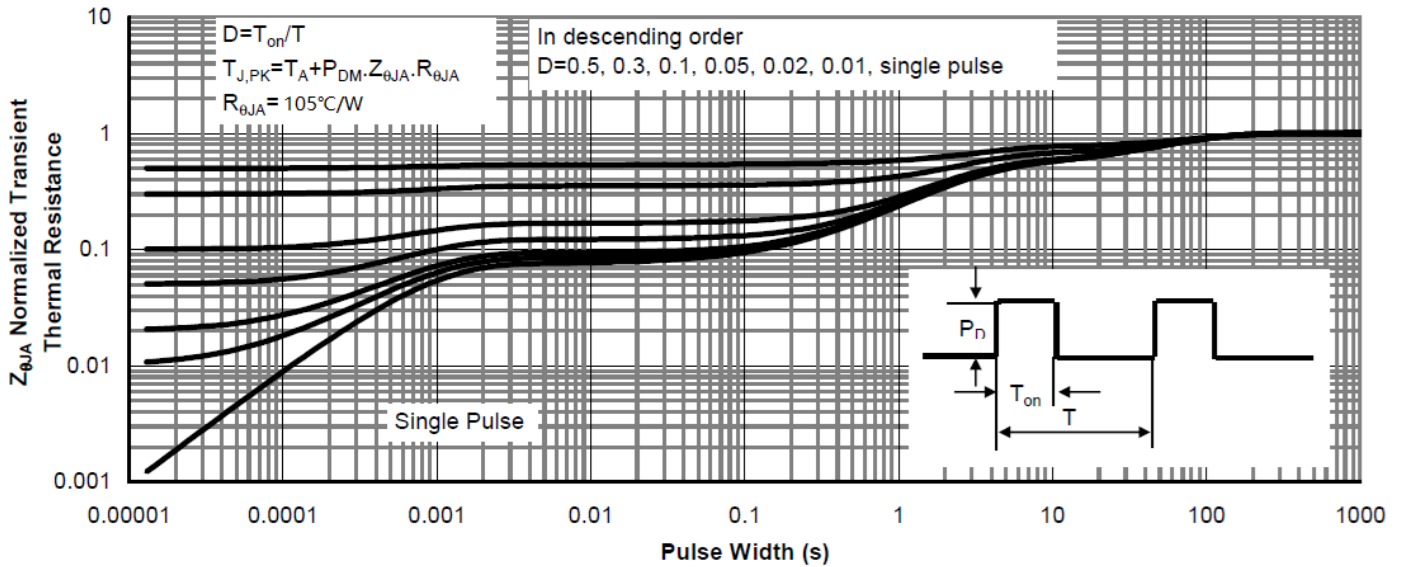
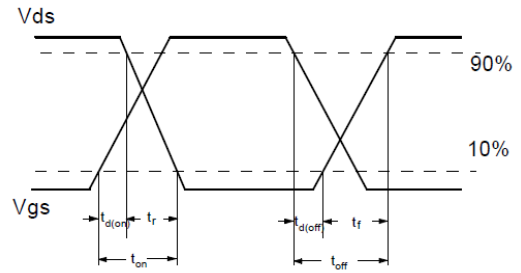
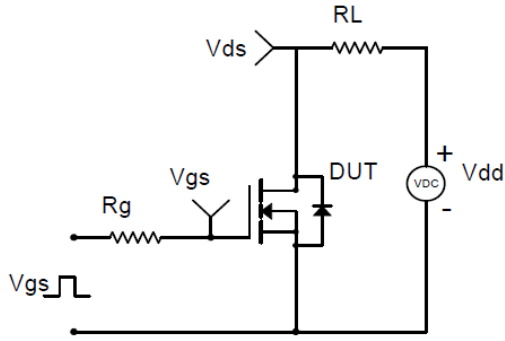
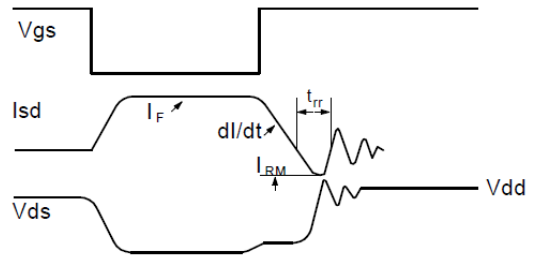
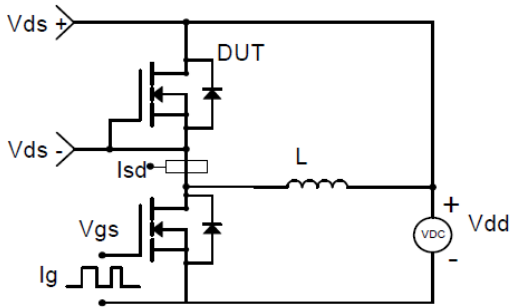


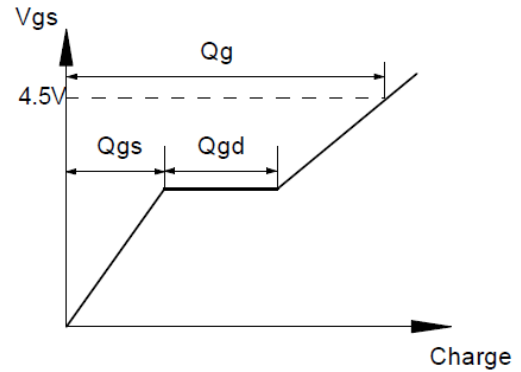
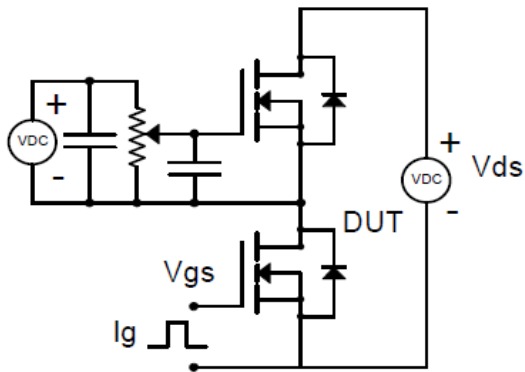
Figure9. Normalized Maximum Transient Thermal Impedance



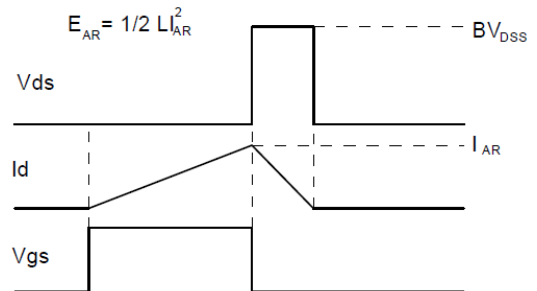
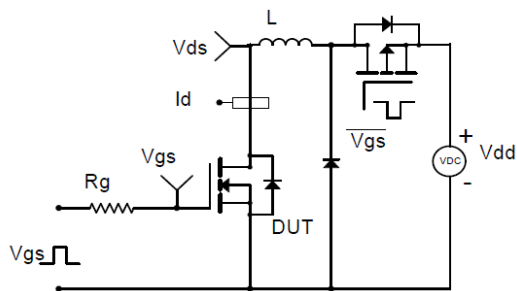
**Resistive Switching Test Circuit & Waveforms**



**Diode Recovery Test Circuit & Waveforms**



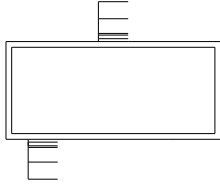
**Gate Charge Test Circuit & Waveform**



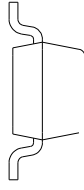
**Unclamped Inductive Switching (UIS) Test Circuit & Waveforms**



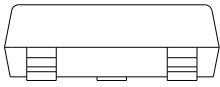
■ SOT-23 Package Information



TOP VIEW



SIDE VIEW



UNIT: mm

SUGGESTED SOLDER PAD LAYOUT



## YJL03N06B

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