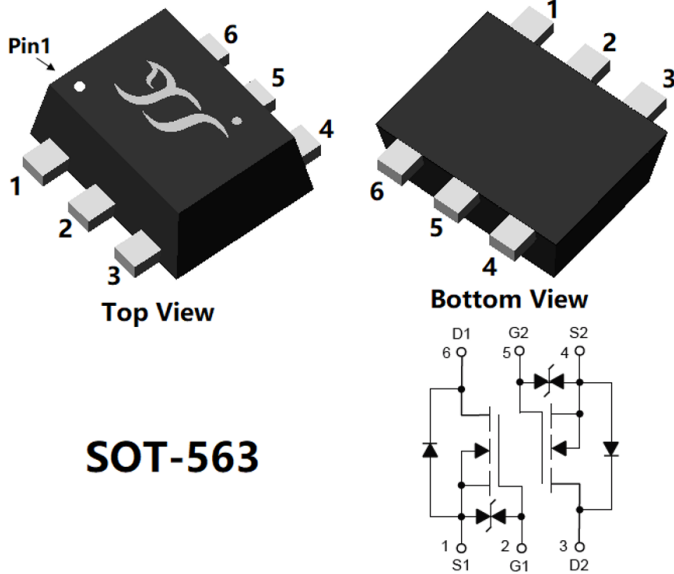


## N-Channel Enhancement Mode Field Effect Transistor



### Product Summary

- $V_{DS}$  20 V
- $I_D$  0.5 A
- $R_{DS(ON)}$  ( at  $V_{GS}=4.5V$  ) < 300 mohm
- $R_{DS(ON)}$  ( at  $V_{GS}=2.5V$  ) < 400 mohm
- $R_{DS(ON)}$  ( at  $V_{GS}=1.8V$  ) < 700 mohm
- ESD Protected Up to 2.0KV (HBM)

### General Description

- Trench Power LV MOSFET technology
- High Power and current handling capability
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free

### Applications

- PWM application
- Load switch

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

Parameter	Symbol	Limit	Unit
Drain-source Voltage	$V_{DS}$	20	V
Gate-source Voltage	$V_{GS}$	$\pm 12$	V
Drain Current	$I_D$	$T_A=25^\circ C$ @ Steady State	0.5
		$T_A=70^\circ C$ @ Steady State	0.4
Pulsed Drain Current <sup>A</sup>	$I_{DM}$	3.3	A
Total Power Dissipation @ $T_A=25^\circ C$	$P_D$	0.18	W
Thermal Resistance Junction-to-Ambient @ Steady State	$R_{\theta JA}$	694	$^\circ C/W$
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55~+150	$^\circ C$

### ■ Ordering Information

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJL3134KAX	F2	34A	3000	30000	120000	7" reel



# YJL3134KAX

## ■ 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	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	20			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=20V, V_{GS}=0V$			1	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 10V, V_{DS}=0V$		2.5	$\pm 10$	$\mu A$
		$V_{GS}=\pm 8V, V_{DS}=0V$		500	$\pm 2000$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.35	0.75	1.1	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=0.5A$		220	300	m $\Omega$
		$V_{GS}=2.5V, I_D=0.45A$		290	400	
		$V_{GS}=1.8V, I_D=0.2A$		420	700	
Diode Forward Voltage <sup>C</sup>	$V_{SD}$	$I_S=0.5A, V_{GS}=0V$		0.85	1.2	V
Maximum Body-Diode Continuous Current	$I_S$				0.5	A
Gate Resistance	$R_g$	$f=1\text{ MHz, Open drain}$		50		$\Omega$
<b>Dynamic Parameters <sup>B</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS}=10V, V_{GS}=0V, f=1\text{ MHz}$		33		pF
Output Capacitance	$C_{oss}$			20		
Reverse Transfer Capacitance	$C_{rss}$			10		
<b>Switching Parameters <sup>B</sup></b>						
Total Gate Charge	$Q_g$	$V_{GS}=4.5V, V_{DS}=10V, I_D=0.5A$		0.8		nC
Gate Source Charge	$Q_{gs}$			0.3		
Gate Drain Charge	$Q_{gd}$			0.15		
Reverse Recovery Charge	$Q_{rr}$	$I_F=0.5A, di/dt=20A/\mu s$		0.4		ns
Reverse Recovery Time	$t_{rr}$			14.4		
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=4.5V, V_{DD}=10V, R_G=10\Omega, I_D=500mA$		4		ns
Turn-on Rise Time	$t_r$			18.8		
Turn-off Delay Time	$t_{D(off)}$			10		
Turn-off Fall Time	$t_f$			23		

A. Repetitive Rating: Pulse width limited by maximum junction temperature.

B. These parameters have no way to verify.

C. Pulse Test: Pulse Width $\leq 300\mu s$ , Duty Cycle $\leq 0.5\%$ .



## ■ Typical Performance Characteristics

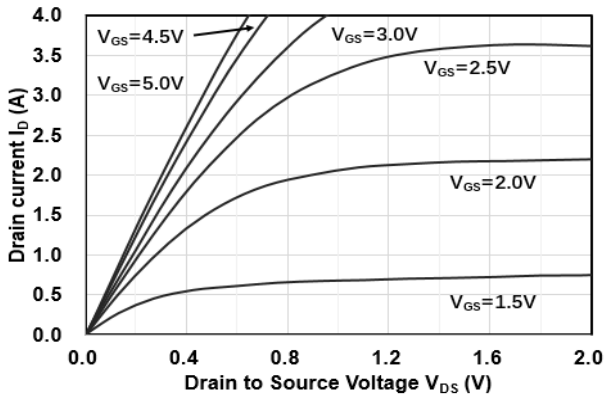


Figure1. Output Characteristics

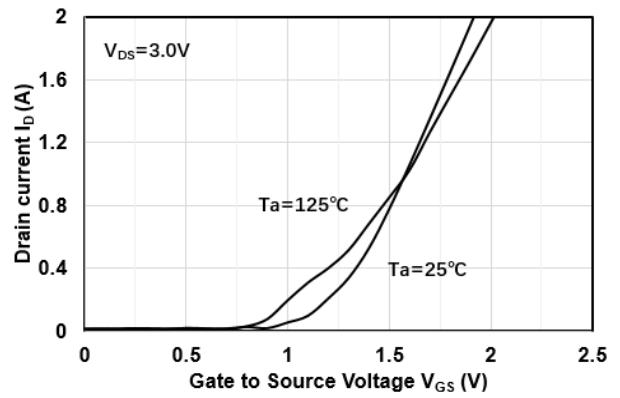


Figure2. Transfer Characteristics

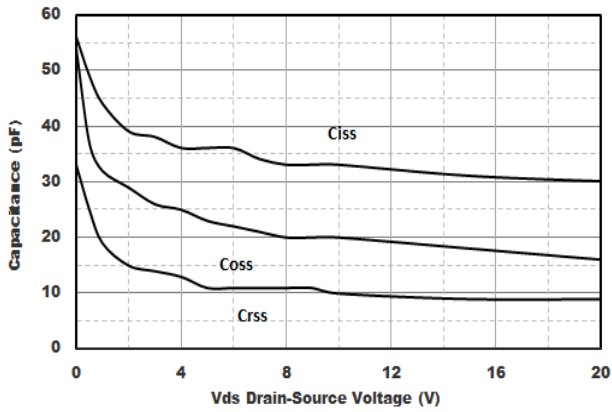


Figure3. Capacitance Characteristics

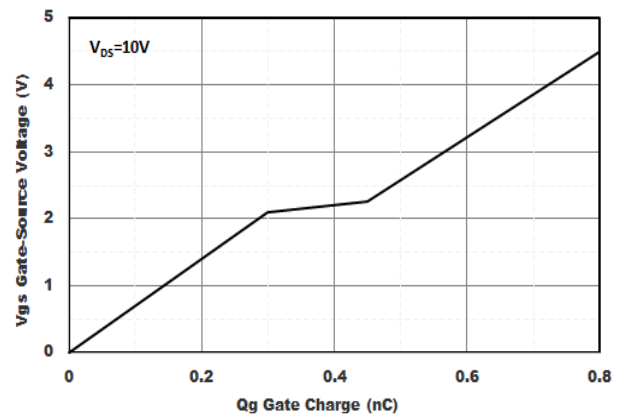


Figure4. Gate Charge

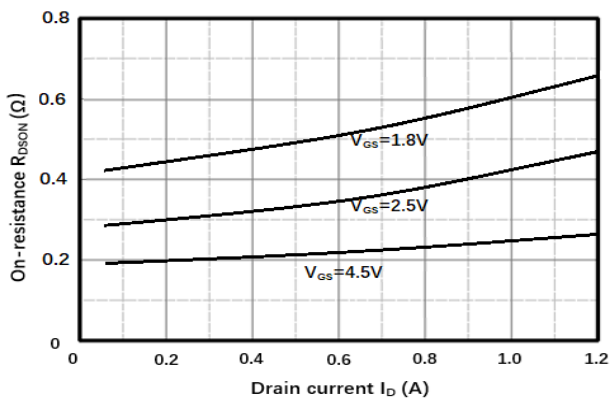


Figure5. Drain-Source on Resistance

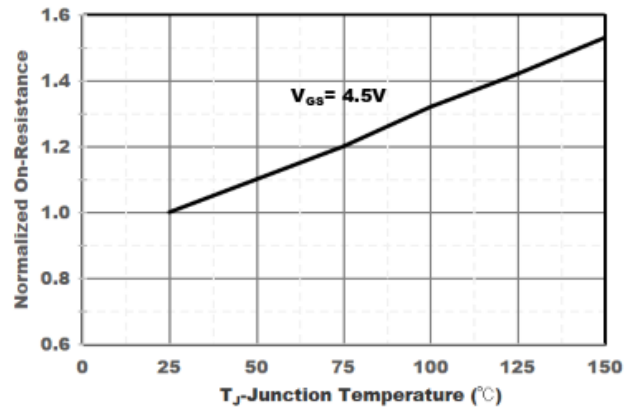


Figure6. Drain-Source on Resistance



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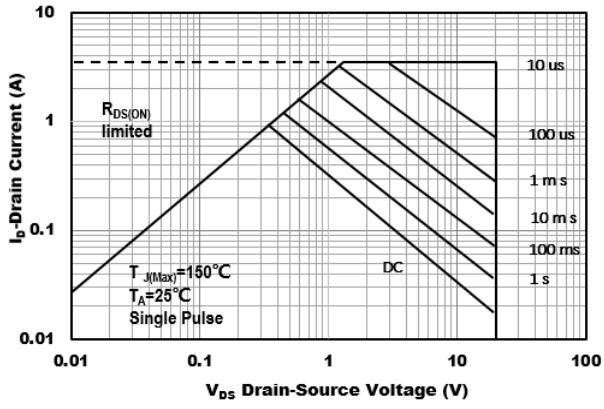


Figure7. Safe Operation Area

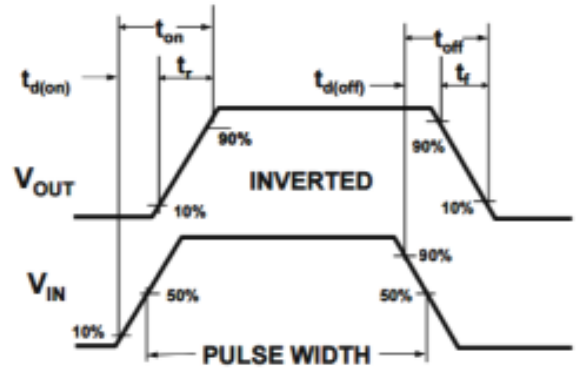
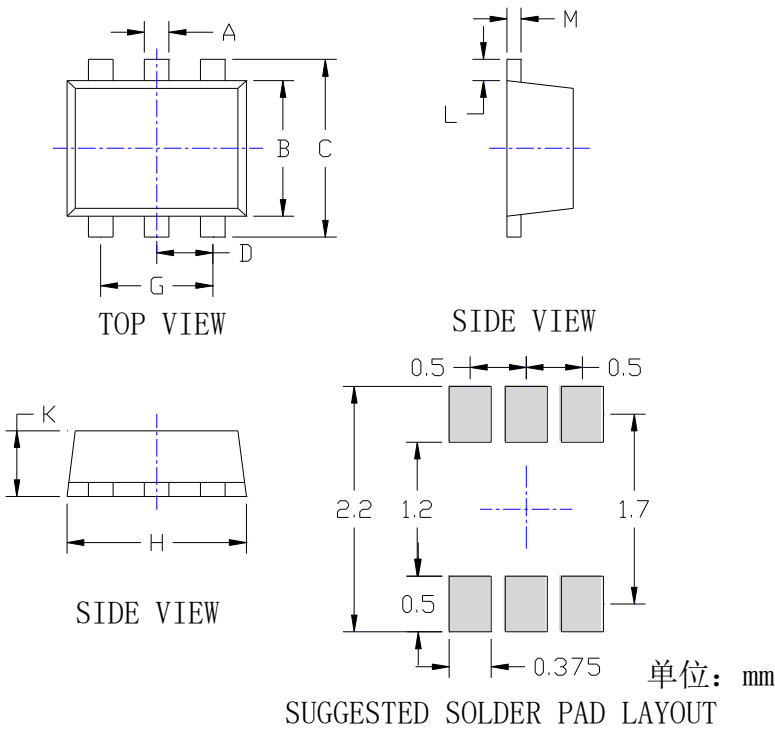


Figure8. Switching wave



# YJL3134KAX

## ■SOT-563 Package information



SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.006	0.011	0.150	0.300
B	0.043	0.051	1.100	1.300
C	0.059	0.067	1.500	1.700
D	0.016	0.024	0.400	0.600
G	0.035	0.043	0.900	1.100
H	0.059	0.067	1.500	1.700
K	0.021	0.026	0.550	0.650
L	0.004	0.011	0.100	0.300
M	0.004	0.007	0.100	0.180

**NOTE:**

- 1.PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
- 2.TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
- 3.THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.



## YJL3134KAX

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