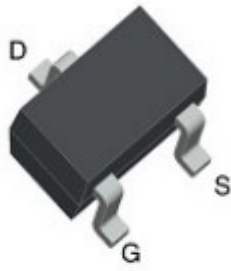
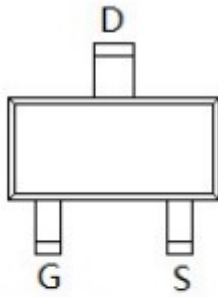


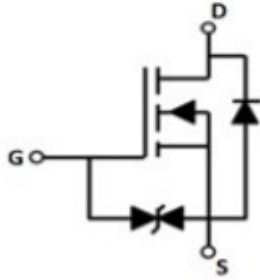
## N-Channel Enhancement Mode Field Effect Transistor



Top View



**SOT-523**



### 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

### Applications

- PWM application
- Load switch

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

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

### ■ Ordering Information

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJL3134KAE	F2	34A	3000	30000	120000	7" reel



# YJL3134KAE

## ■ Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
<b>Static Parameter</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA	20			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V			1	μA
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±10V, V <sub>DS</sub> =0V		2.0	±10	μA
		V <sub>GS</sub> = ±8V, V <sub>DS</sub> =0V		500	±2000	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> =250μA	0.35	0.75	1.1	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = 4.5V, I <sub>D</sub> =0.5A		220	300	mΩ
		V <sub>GS</sub> = 2.5V, I <sub>D</sub> =0.4A		290	400	
		V <sub>GS</sub> = 1.8V, I <sub>D</sub> =0.2A		420	700	
Diode Forward Voltage <sup>C</sup>	V <sub>SD</sub>	I <sub>S</sub> =0.5A, V <sub>GS</sub> =0V			1.2	V
Gate Resistance	R <sub>g</sub>	f=1 MHz, Open drain		50		Ω
Maximum Body-Diode Continuous Current	I <sub>S</sub>				0.5	A
<b>Dynamic Parameters<sup>B</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =0V, f=1MHZ		56		pF
Output Capacitance	C <sub>oss</sub>			20		
Reverse Transfer Capacitance	C <sub>rss</sub>			2.5		
<b>Switching Parameters<sup>B</sup></b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> =4.5V, V <sub>DS</sub> =10V, I <sub>D</sub> =0.5A		1		nC
Gate Source Charge	Q <sub>gs</sub>			0.28		
Gate Drain Charge	Q <sub>gd</sub>			0.22		
Reverse Recovery Charge	Q <sub>rr</sub>	I <sub>F</sub> =0.5A, di/dt=20A/us		0.4		
Reverse Recovery Time	t <sub>rr</sub>			14.4		
Turn-on Delay Time	t <sub>D(on)</sub>	V <sub>GS</sub> =4.5V, V <sub>DD</sub> =10V, R <sub>G</sub> =10Ω, I <sub>D</sub> =500mA		2		ns
Turn-on Rise Time	t <sub>r</sub>			18.8		
Turn-off Delay Time	t <sub>D(off)</sub>			10		
Turn-off Fall Time	t <sub>f</sub>			23		

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

B. These parameters have no way to verify.

C. Pulse Test: Pulse Width≤300us, Duty Cycle≤0.5%.



■ Typical Performance Characteristics

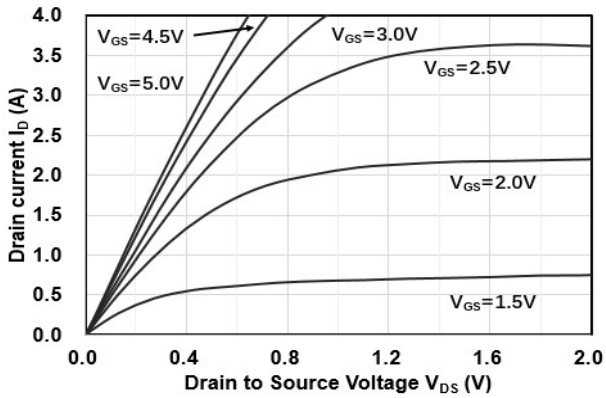


Figure1. Output Characteristics

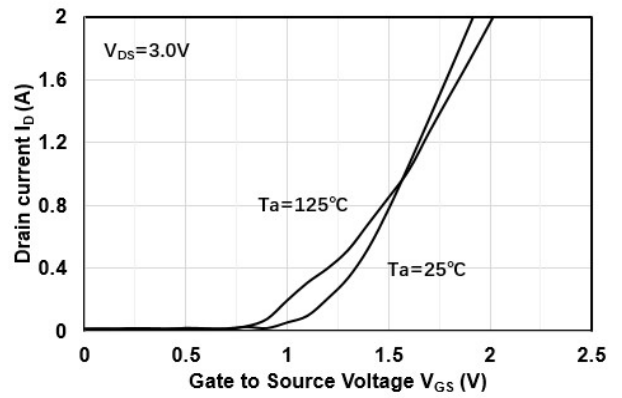


Figure2. Transfer Characteristics

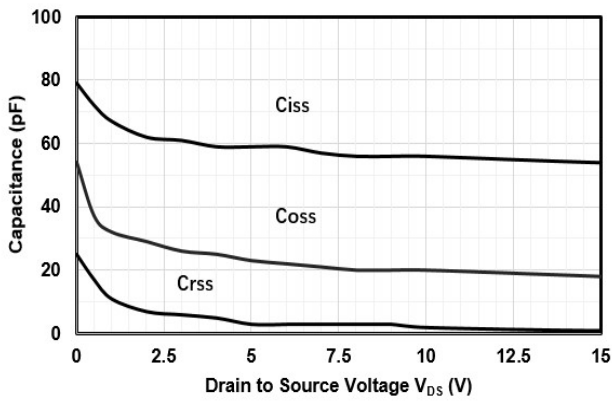


Figure3. Capacitance Characteristics

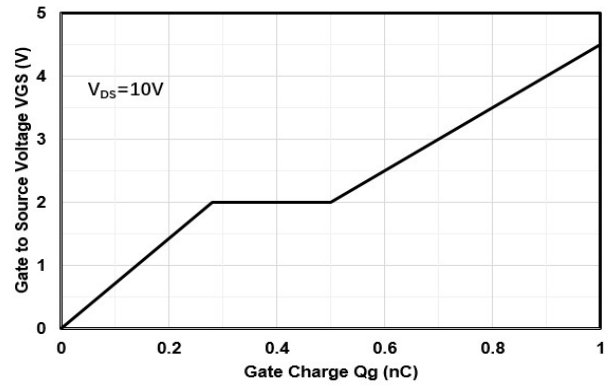


Figure4. Gate Charge

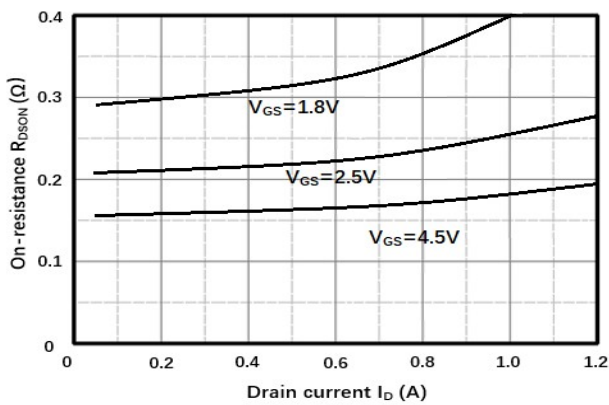


Figure5. Drain-Source on Resistance

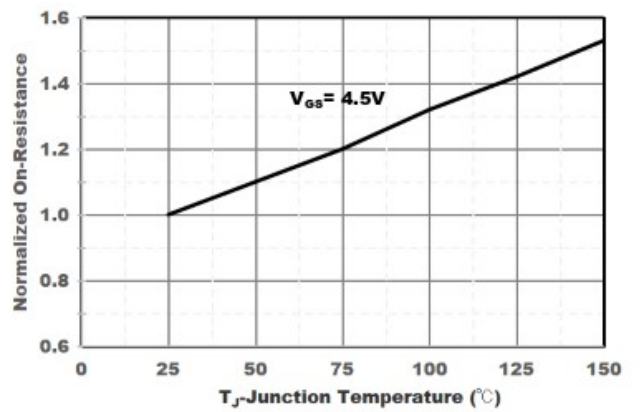


Figure6. Drain-Source on Resistance



# YJL3134KAE

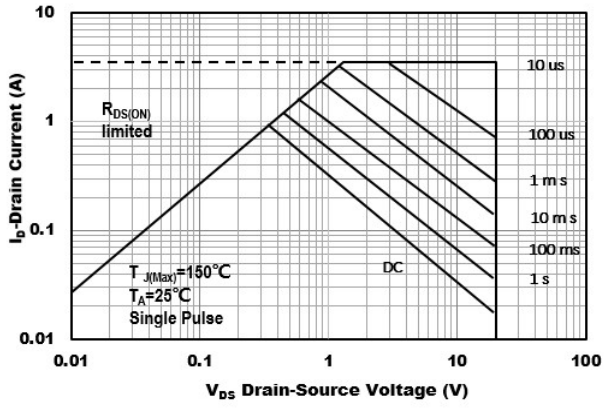


Figure7. Safe Operation Area

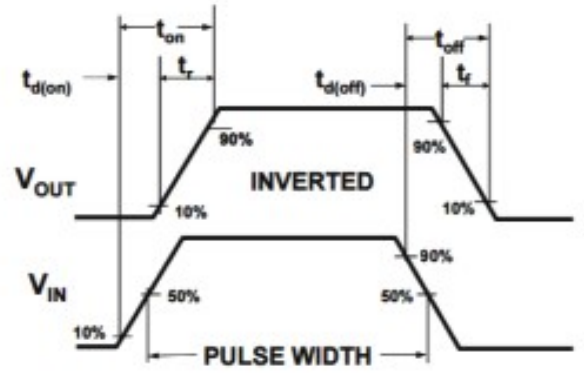
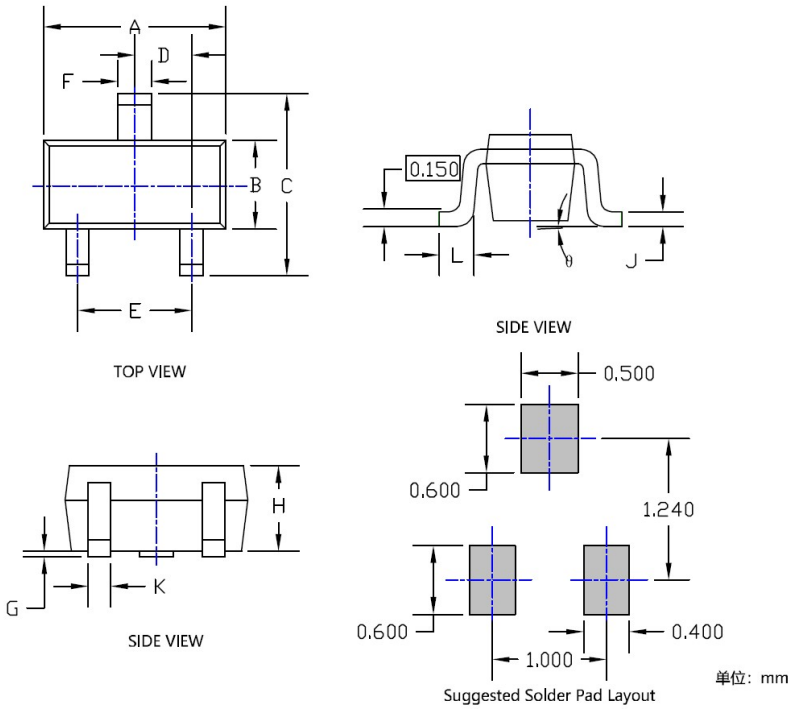


Figure8. Switching wave



# YJL3134KAE

## ■SOT-523 Package information



SYMBOL	DIMENSIONS					
	INCHES			Millimeter		
	MIN.	NDM.	MAX.	MIN.	NDM.	MAX.
A	0.059	0.063	0.067	1.500	1.600	1.700
B	0.030	0.031	0.033	0.750	0.800	0.850
C	0.057	0.063	0.069	1.450	1.600	1.750
D	0.020TYP			0.500TYP		
E	0.035	0.039	0.043	0.900	1.000	1.100
F	0.010	0.014	0.018	0.250	0.350	0.450
G	0.000	---	0.004	0.000	---	0.100
H	0.024	0.028	0.031	0.600	0.700	0.800
J	0.004	---	0.008	0.100	---	0.200
K	0.006	0.010	0.014	0.150	0.250	0.350
L	0.010	---	0.018	0.260	---	0.460
$\theta$	0°	---	8°	0°	---	8°

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.



# YJL3134KAE

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