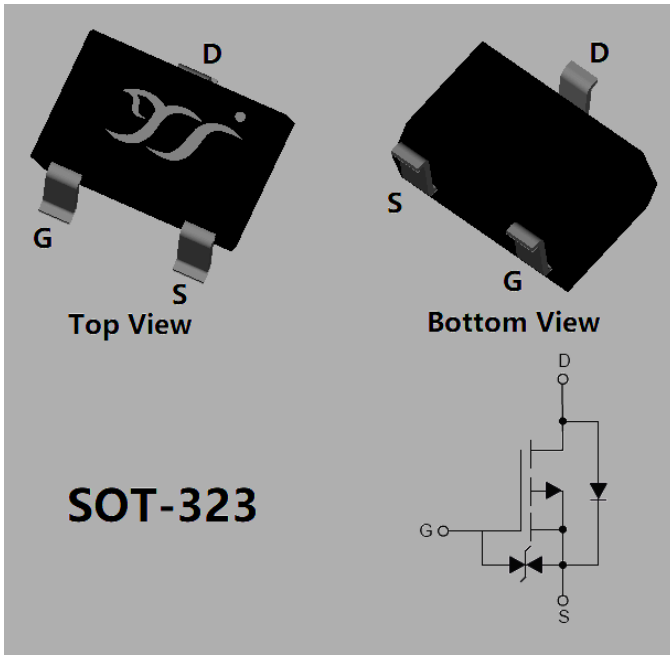




## P-Channel Enhancement Mode Field Effect Transistor



### Product Summary

$V_{DS}$	-20V
$I_D$	-0.5A
$R_{DS(ON)}$ ( at $V_{GS}=-4.5V$ )	850 mohm
$R_{DS(ON)}$ ( at $V_{GS}=-2.5V$ )	1200 mohm
$R_{DS(ON)}$ ( at $V_{GS}=-1.8V$ )	2000 mohm
ESD Protected Up to 2.0KV (HBM)	

### General Description

Trench Power LV MOSFET technology  
High Density Cell Design for Low  $R_{DS(ON)}$   
High Speed switching

### Applications

Interfacing, Logic switch  
Load switch  
Power management

### Absolute Maximum Ratings ( $T_A=25$ unless otherwise noted)

Parameter	Symbol	Maximum	Unit
Drain-source Voltage	$V_{DS}$	-20	V
Gate-source Voltage	$V_{GS}$	$\pm 12$	V
Drain Current	$I_D$	$T_A=25$ Steady State	-0.5
		$T_A=70$ Steady State	-0.4
Pulsed Drain Current <sup>A</sup>	$I_{DM}$	-2.6	A
Total Power Dissipation @ $T_A=25$ Steady State	$P_D$	0.15	W
Thermal Resistance Junction-to-Ambient @ Steady State <sup>B</sup>	$R_{JA}$	833	/ W
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 +150	

					E I 5 B H = H M f	8 9 @ = J 9 F M A C 8 9
YJL3139KBW	F2	39KB.	3000	30000	120000	7" reel



# YJL3139KBW

## Electrical Characteristics (T<sub>J</sub>=25 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, T <sub>C</sub> =25			-1	μA
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ± 10V, V <sub>DS</sub> =0V		± 1.5	± 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	-0.62	-1.2	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = -4.5V, I <sub>D</sub> =-0.5A		580	850	m
		V <sub>GS</sub> = -2.5V, I <sub>D</sub> =-0.3A		855	1200	
		V <sub>GS</sub> = -1.8V, I <sub>D</sub> =-0.2A		1350	2000	
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =-0.5A, V <sub>GS</sub> =0V		-0.8	-1.2	V
Maximum Body-Diode Continuous Current	I <sub>S</sub>				-0.5	A
<b>Dynamic Parameters</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-10V, V <sub>GS</sub> =0V, f=1MHZ		71		pF
Output Capacitance	C <sub>oss</sub>			20		
Reverse Transfer Capacitance	C <sub>rss</sub>			15		
<b>Switching Parameters</b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> =-4.5V, V <sub>DD</sub> =-10V, I <sub>D</sub> =-0.5A		1.24		nC
Gate Source Charge	Q <sub>gs</sub>			0.37		
Gate Drain Charge	Q <sub>gd</sub>			0.27		
Reverse Recovery Chrage	Q <sub>rr</sub>	I <sub>F</sub> =-0.5A, di/dt=-20A/us		0.97		
Reverse Recovery Time	t <sub>rr</sub>			26		
Turn-on Delay Time	t <sub>D(on)</sub>	V <sub>GS</sub> =-4.5V, V <sub>DD</sub> =-10V, R <sub>L</sub> =2.5 , R <sub>GEN</sub> =3		4		ns
Turn-on Rise Time	t <sub>r</sub>			19		
Turn-off Delay Time	t <sub>D(off)</sub>			16		
Turn-off Fall Time	t <sub>f</sub>			25		

- 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.

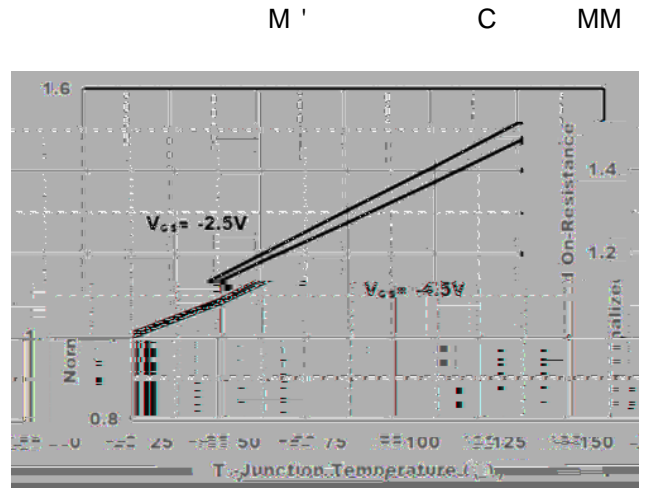


Typical Performance Characteristics

Figure1. Output Characteristics

Figure2. Transfer Characteristics

Figure3. Capacitance Characteristics



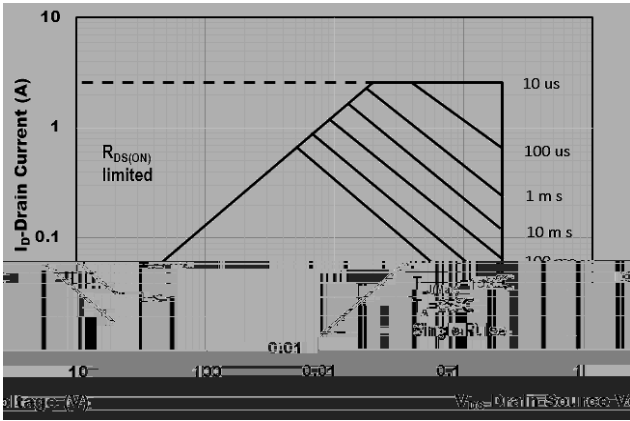


Figure7. Safe Operation Area

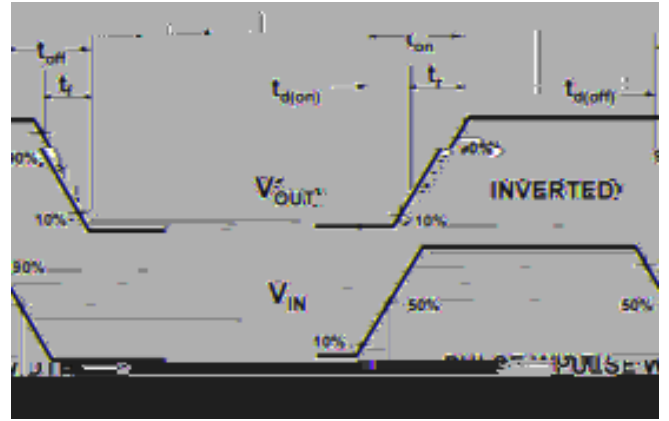
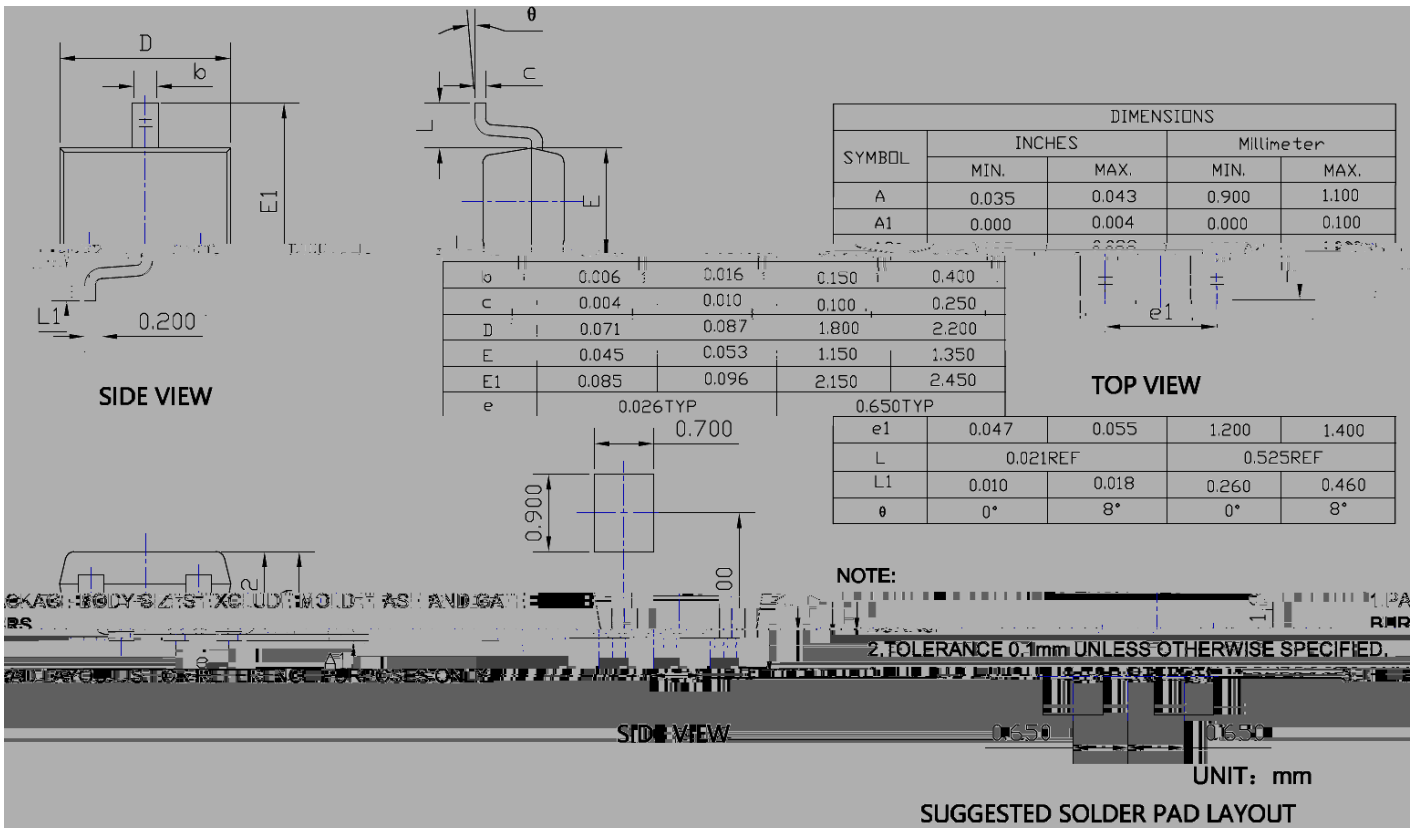


Figure8. Switching wave



# YJL3139KBW

## SOT-323 Package information





## YJL3139KBW

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