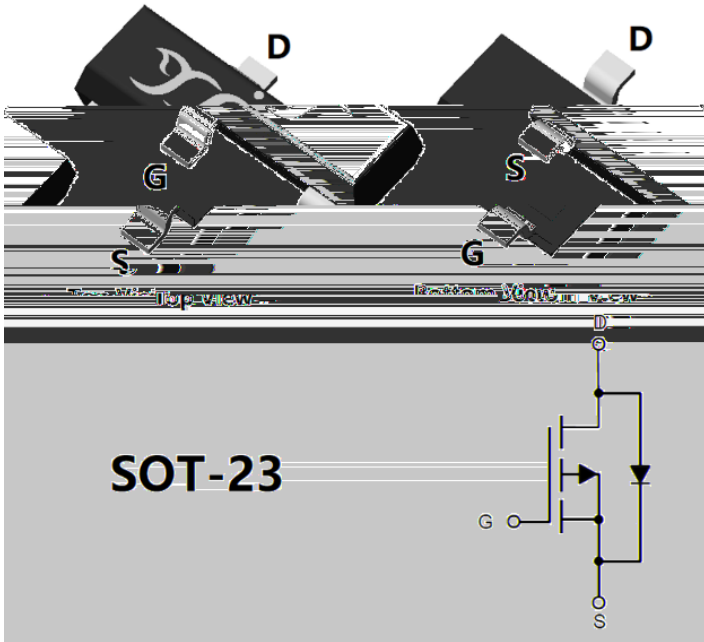




P-Channel Enhancement Mode Field Effect Transistor



Product Summary

V_{DS}	-20V
I_D	-2A
$R_{DS(ON)}$ (at $V_{GS}=-4.5V$)	<94 mohm
$R_{DS(ON)}$ (at $V_{GS}=-2.5V$)	<127 mohm
$R_{DS(ON)}$ (at $V_{GS}=-1.8V$)	<215 mohm

General Description

Trench Power LV MOSFET technology
 Low $R_{DS(ON)}$
 Low Gate Charge
 Moisture Sensitivity Level 1
 Epoxy Meets UL 94 V-0 Flammability Rating
 Halogen Free

Applications

Video monitor
 Power management

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

Parameter	Symbol	Maximum	Unit
Drain-source Voltage	V_{DS}	-20	V
Gate-source Voltage	V_{GS}	± 10	V
Drain Current	I_D	$T_A=25^\circ\text{C}$ @ Steady State	-2
		$T_A=70^\circ\text{C}$ @ Steady State	-1.6
Pulsed Drain Current ^A	I_{DM}	-8	A
Total Power Dissipation @ $T_A=25^\circ\text{C}$	P_D	0.7	W
Thermal Resistance Junction-to-Ambient ^B	R_{JA}	178	$^\circ\text{C}/\text{W}$
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
YJL2301F	F2	2301F.	3000	30000	120000	reel



YJL2301F

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 =-250	-20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V, T _C =25°C			-1	
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±10V, V _{DS} =0V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =-250	-0.4	-0.62	-1.0	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -4.5V, I _D =-1.5A		81	94	
		V _{GS} = -2.5V, I _D =-1.5A		109	127	
		V _{GS} = -1.8V, I _D =-1.5A		183	215	
Diode Forward Voltage	V _{SD}	I _S =-2A, V _{GS} =0V		-0.8	-1.2	V
Maximum Body-Diode Continuous Current	I _S				-2	A
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =-10V, V _{GS} =0V, f=1MHZ		327		pF
Output Capacitance	C _{oss}			62		
Reverse Transfer Capacitance	C _{rss}			55		
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =-4.5V, V _{DS} =-10V, I _D =-2A		4.5		nC
Gate Source Charge	Q _{gs}			0.85		
Gate Drain Charge	Q _{gd}			1.4		
Reverse Recovery Charge	Q _{rr}	I _F =-2A, di/dt=100A/us		2.3		
Reverse Recovery Time	t _{rr}			27		
Turn-on Delay Time	t _{D(on)}	V _{GS} =-4.5V, V _{DD} =-10V, I _D =-1A, R _{GEN} =2.5		6		ns
Turn-on Rise Time	t _r			30		
Turn-off Delay Time	t _{D(off)}			45		
Turn-off Fall Time	t _f			46		

A. 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

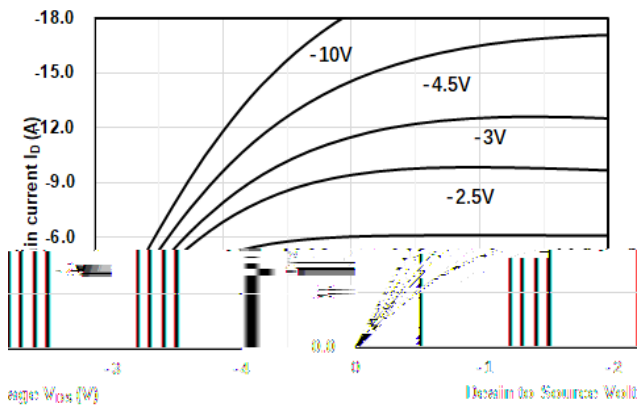


Figure1. Output Characteristics

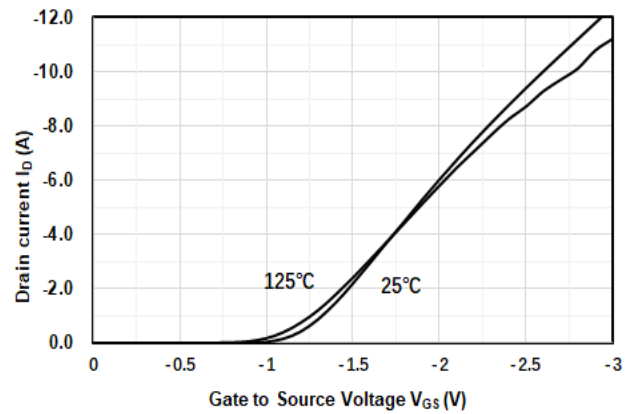


Figure2. Transfer Characteristics

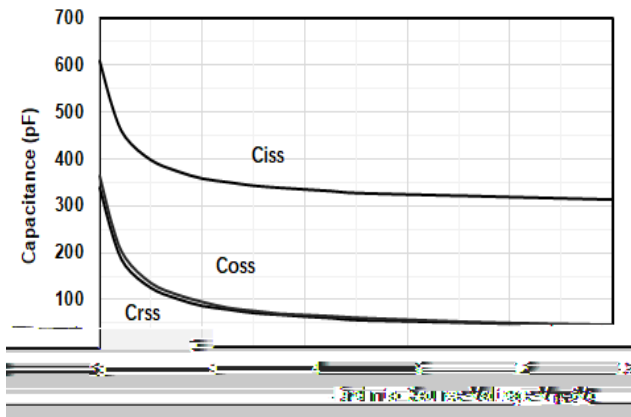


Figure3. Capacitance Characteristics

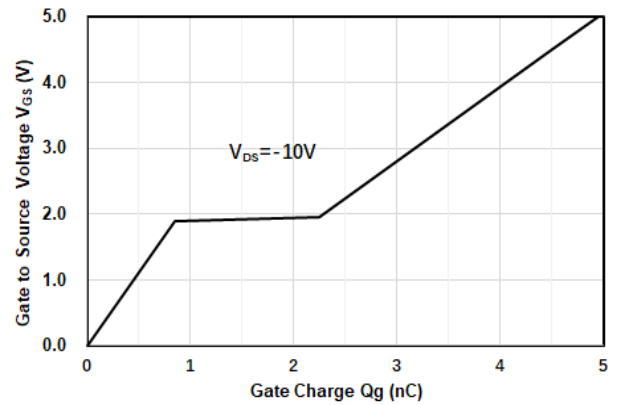


Figure4. Gate Charge

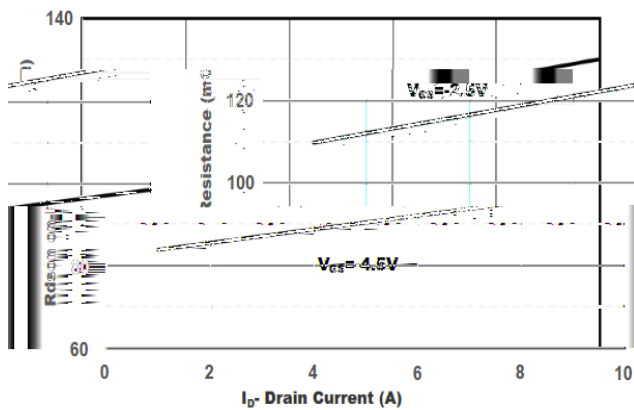


Figure5. Drain-Source on Resistance

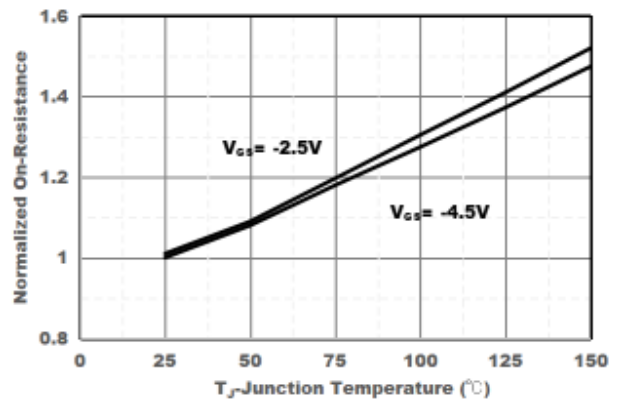


Figure6. Drain-Source on Resistance

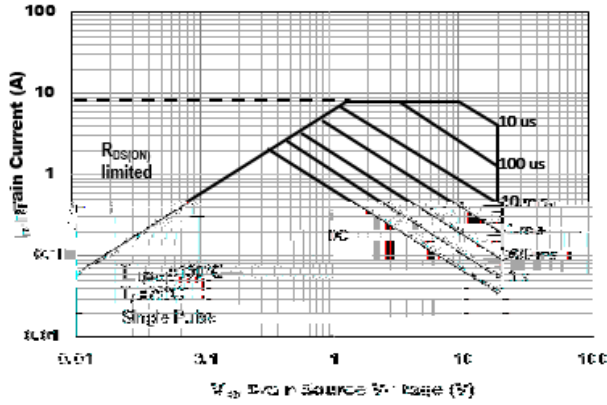


Figure7. Safe Operation Area

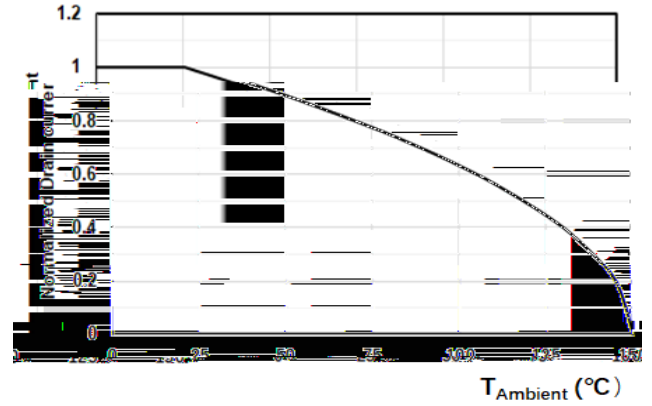


Figure8. Drain Current vs Ambient temperature

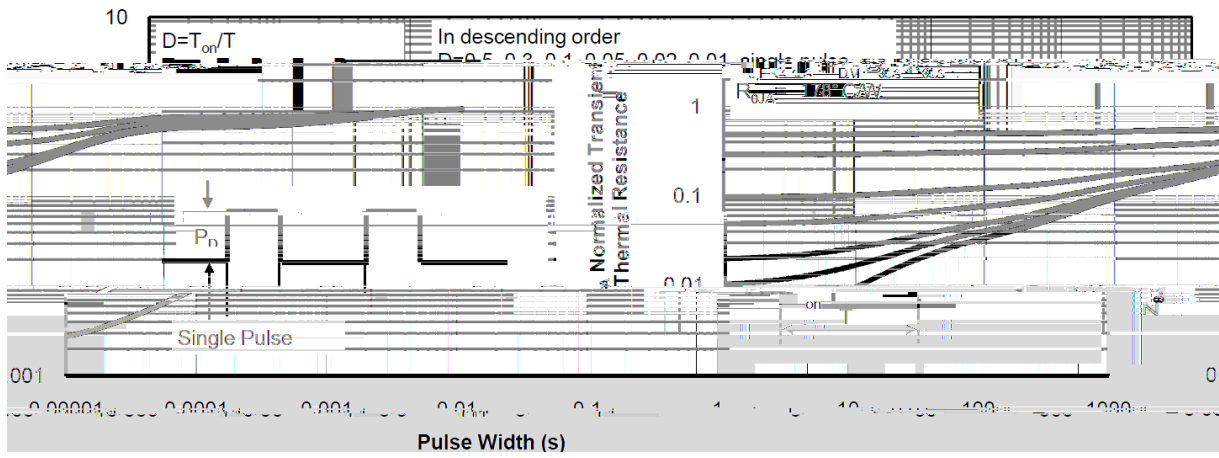
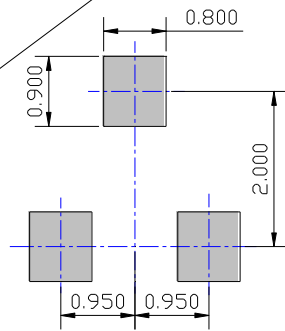
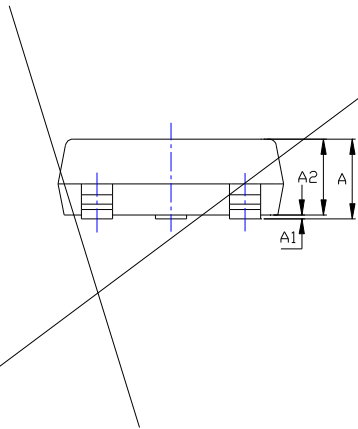
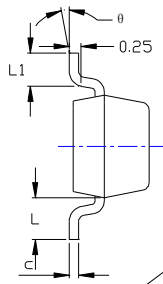
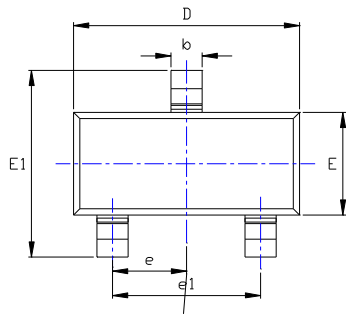


Figure9. Normalized Maximum Transient Thermal Impedance



YJL2301F

SOT-23 Package information



UNIT: mm



YJL2301F

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