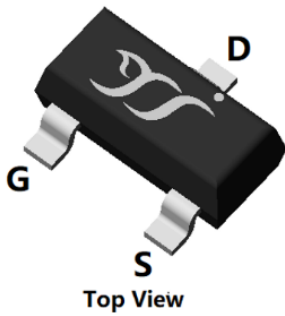
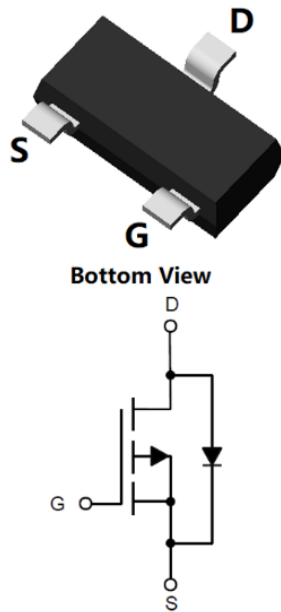




P-Channel Enhancement Mode Field Effect Transistor

**SOT-23**

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	$T_A=25^\circ\text{C}$ @ Steady State	I_D	-2	A
	$T_A=70^\circ\text{C}$ @ 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		$R_{\theta JA}$	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	7" 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 =-250μA	-20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V,V _{GS} =0V,T _C =25°C			-1	μA
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 =-250μA	-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	mΩ
		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		ns
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} =2.5Ω		6		
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

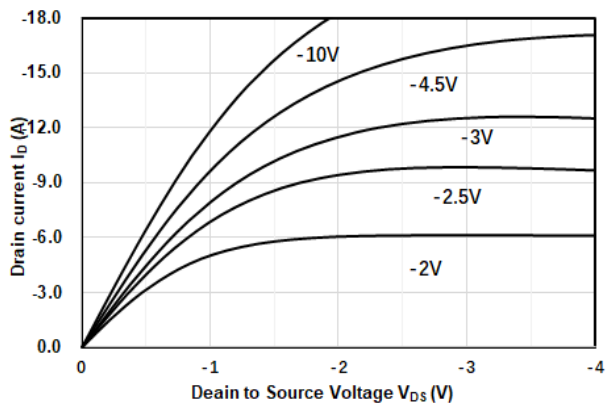


Figure1. Output Characteristics

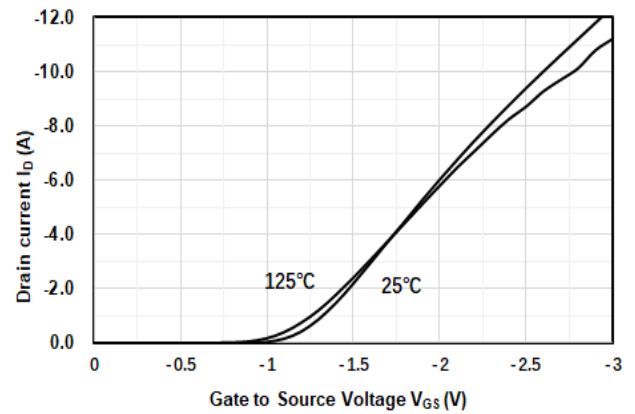


Figure2. Transfer Characteristics

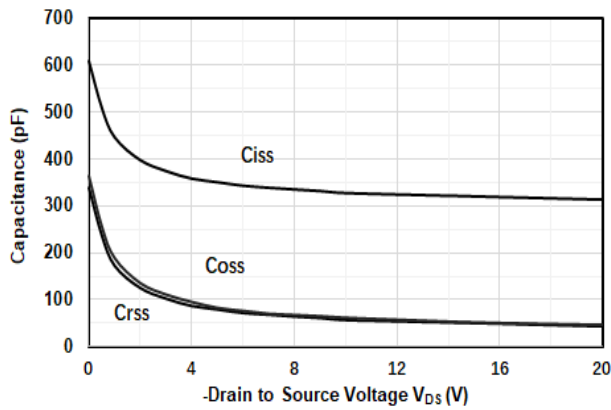


Figure3. Capacitance Characteristics

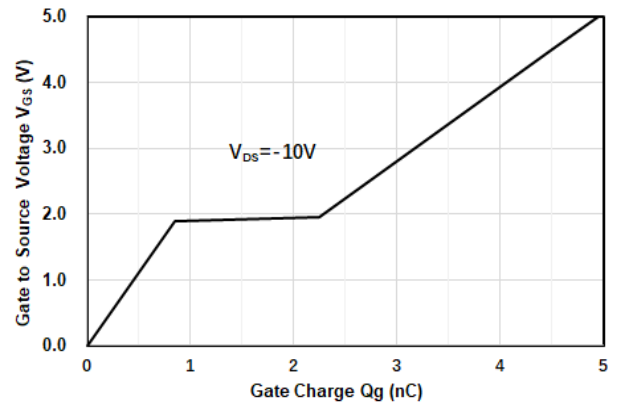


Figure4. Gate Charge

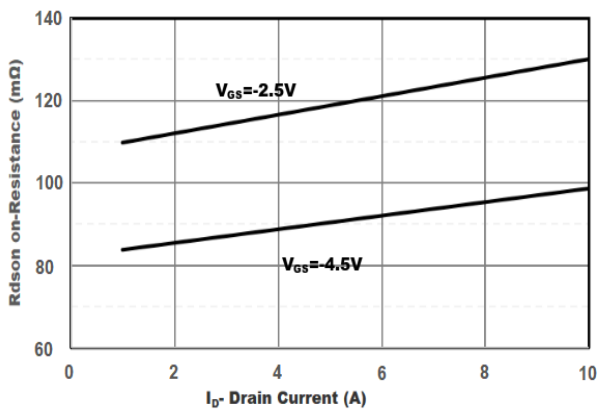


Figure5. Drain-Source on Resistance

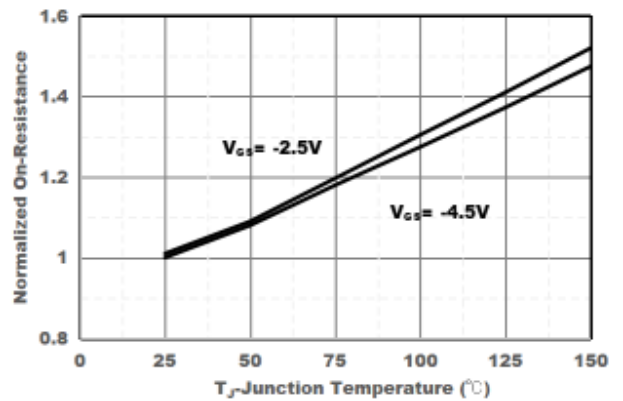


Figure6. Drain-Source on Resistance

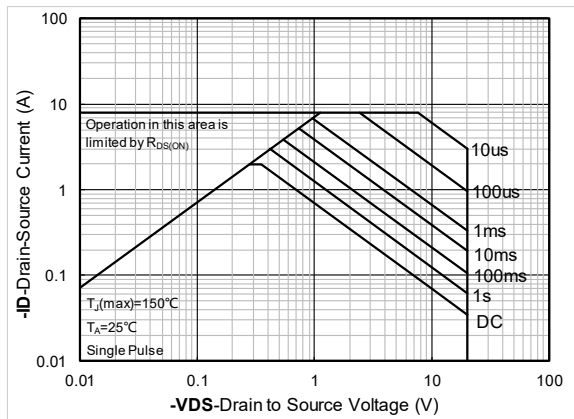


Figure7. Safe Operation Area

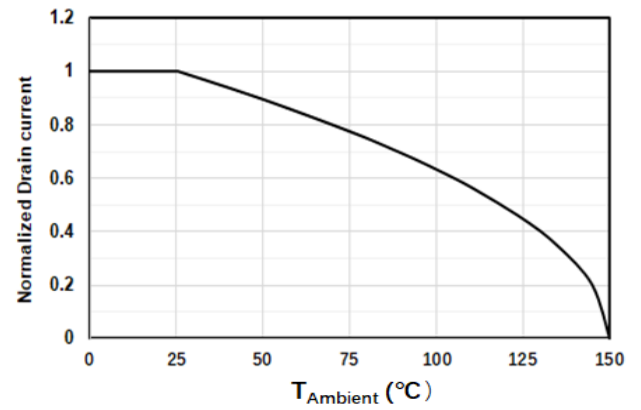


Figure8. Drain Current vs Ambient temperature

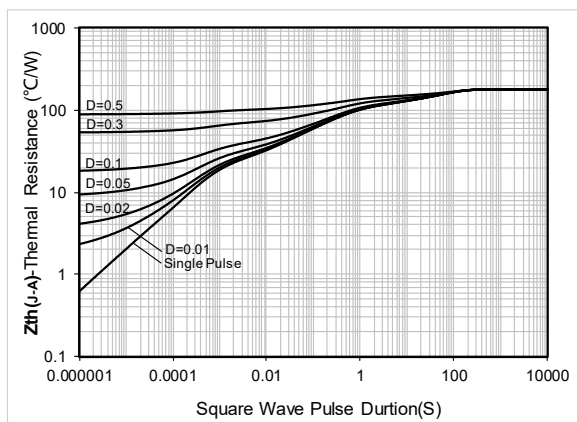
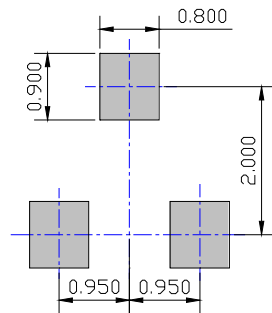
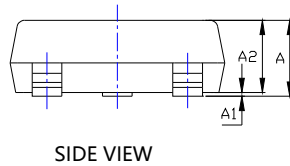
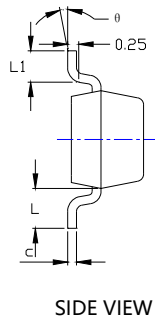
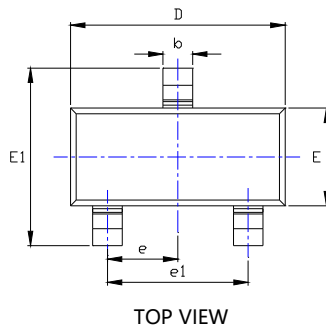


Figure9. Maximum Transient Thermal Impedance



■ SOT-23 Package information



UNIT: mm

SUGGESTED SOLDER PAD LAYOUT

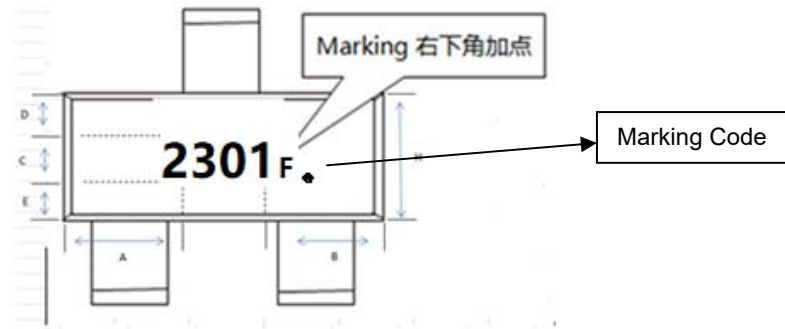
SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.045	0.900	1.150
A1	0.000	0.004	0.000	0.100
A2	0.035	0.041	0.900	1.050
b	0.012	0.020	0.300	0.500
c	0.004	0.008	0.100	0.200
D	0.110	0.118	2.800	3.000
E	0.047	0.055	1.200	1.400
E1	0.089	0.100	2.250	2.550
e	0.037TYP		0.950TYP	
e1	0.071	0.079	1.800	2.000
L	0.022REF		0.550REF	
L1	0.012	0.020	0.300	0.500
θ	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.



■ Marking Information



Note:

1. All marking is at middle of the product body
2. All marking is in laser printing
3. 2301F. is marking code
4. Body color: Black



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The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

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