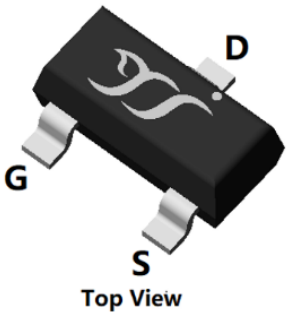
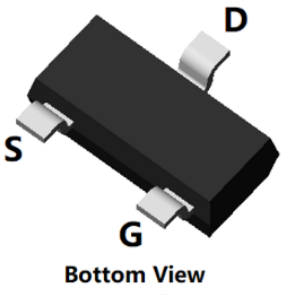
P-Channel Enhancement Mode Field Effect Transistor

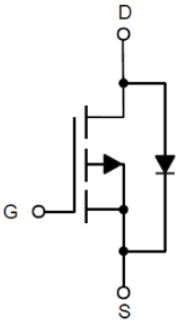


Top View



Bottom View

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 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 @ Steady State	I_D	-2	A
	T_A=70 @ Steady State		-1.6	
Pulsed Drain Current [A]		I_{DM}	-8	A
Total Power Dissipation @ T_A=25		P_D	0.7	W
Thermal Resistance Junction-to-Ambient [B]		$R_{\theta JA}$	178	W
Junction and Storage Temperature Range		T_J , T_{STG}	-55 +150	

■ Ordering Information (Example)

PREFERED 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

■ Electrical Characteristics (T_J=25 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			-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		
Reverse Recovery Time	t_{rr}			27		ns
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

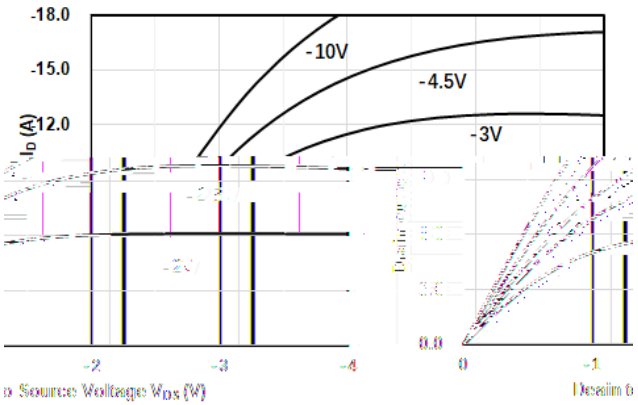


Figure1. Output Characteristics

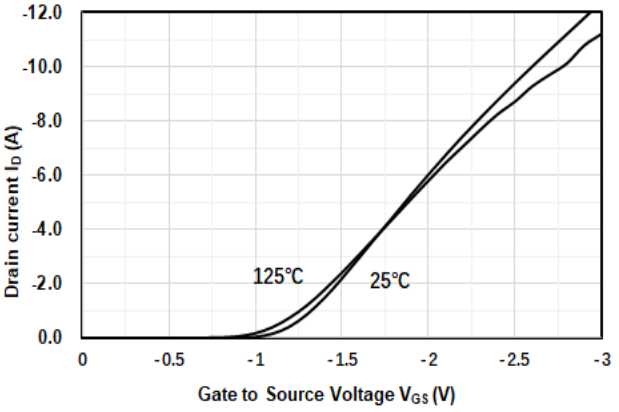


Figure2. Transfer Characteristics

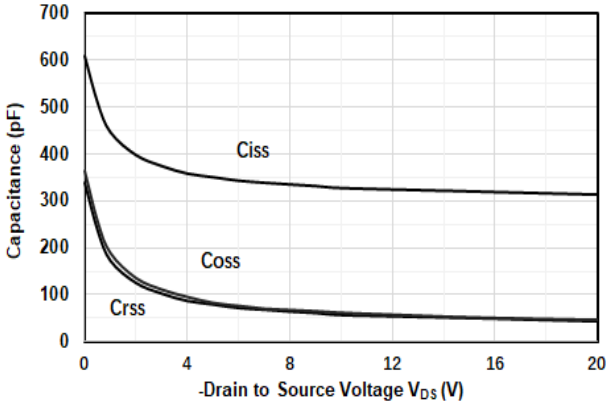


Figure3. Capacitance Characteristics

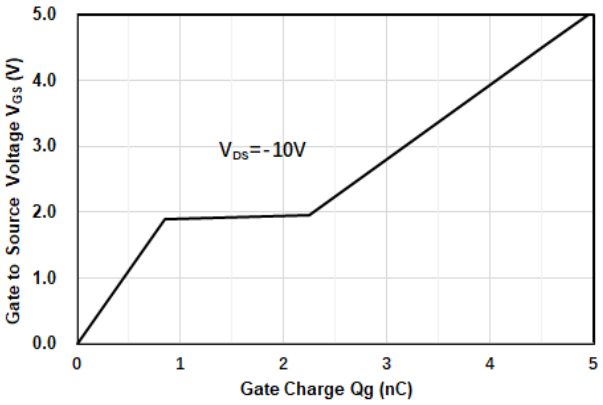


Figure4. Gate Charge

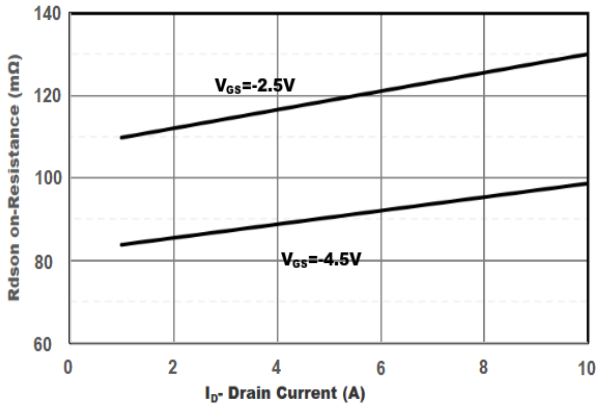


Figure5. Drain-Source on Resistance

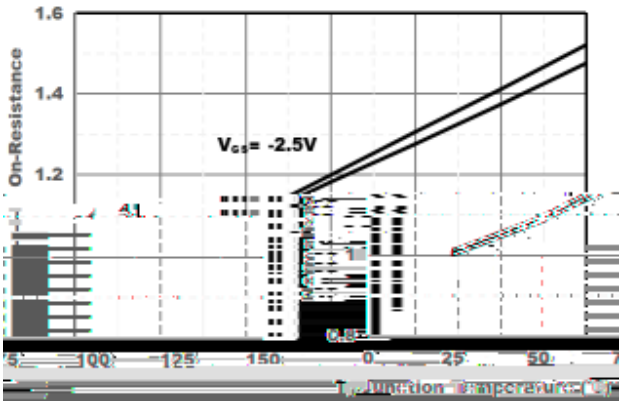


Figure6. Drain-Source on Resistance

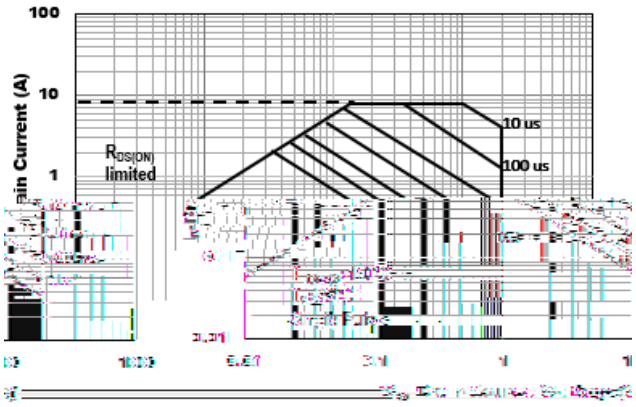


Figure7. Safe Operation Area

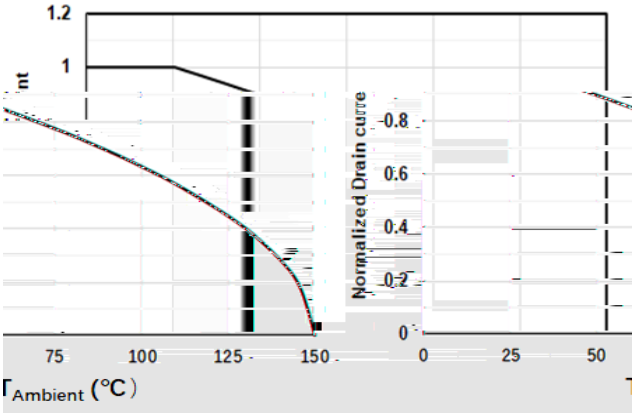


Figure8. Drain Current vs Ambient temperature

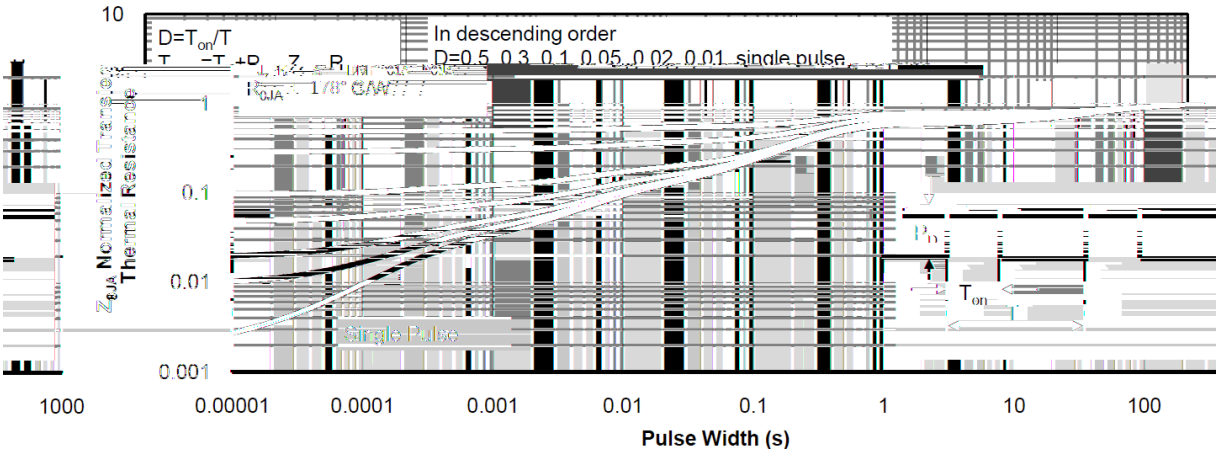
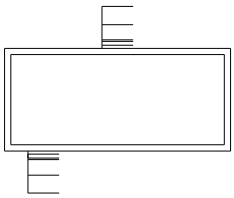


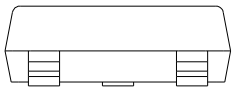
Figure9. Normalized Maximum Transient Thermal Impedance

■ SOT-23 Package information



TOP VIEW

SIDE VIEW



UNIT mm

SUGGESTED SOLDER PAD LAYOUT

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