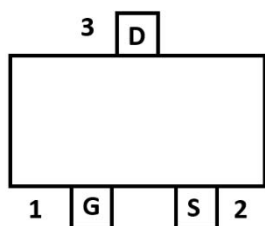
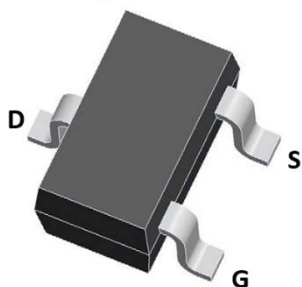
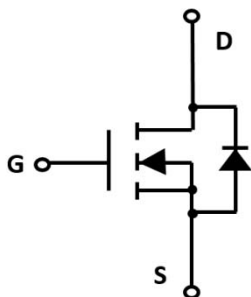


YJL2102WQ

N-Channel Enhancement Mode Field Effect Transistor



SOT-323



Product Summary

- V_{DS} 20V
- I_D 2.0A
- $R_{DS(ON)}$ (at $V_{GS}=4.5V$) <80 mohm
- $R_{DS(ON)}$ (at $V_{GS}=2.5V$) <98 mohm

General Description

- Trench Power LV MOSFET technology
- High Power and current handing capability
- Part no. with suffix "Q" means AEC-Q101 qualified

Applications

- PWM application
- Load switch

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

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	20	V
Gate-source Voltage		V_{GS}	± 10	V
Drain Current	$T_A=25^\circ C$ @ Steady State	I_D	2	A
	$T_A=70^\circ C$ @ Steady State		1.7	
Pulsed Drain Current ^A		I_{DM}	16	A
Total Power Dissipation @ $T_A=25^\circ C$		P_D	350	mW
Thermal Resistance Junction-to-Ambient @ Steady State ^B		$R_{\theta JA}$	350	$^\circ C/W$
Junction and Storage Temperature Range		T_J, T_{STG}	-55~+150	$^\circ C$

■ Ordering Information

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJL2102WQ	F2	TS2.	3000	30000	120000	7" reel

YJL2102WQ

■ 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			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	0.5	0.8	1.1	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 4.5V, I _D =2.5A		60	80	mΩ
		V _{GS} = 2.5V, I _D =2.0A		75	98	
Diode Forward Voltage	V _{SD}	I _S =2.5A, V _{GS} =0V			1.2	V
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f=1MHZ		210		pF
Output Capacitance	C _{oss}			37		
Reverse Transfer Capacitance	C _{rss}			30		
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =4.5V, V _{DS} =10V, I _D =2A		3.2		nC
Gate Source Charge	Q _{gs}			0.8		
Gate Drain Charge	Q _{gd}			0.8		
Reverse Recovery Charge	Q _{rr}	I _{SD} =2A, di/dt=80A/us		0.95		nC
Reverse Recovery Time	t _{rr}			4.9		ns
Turn-on Delay Time	t _{D(on)}	V _{GS} =4.5V, V _{DS} =10V, I _D =2A, R _g =3Ω		4.8		ns
Turn-on Rise Time	t _r			28		
Turn-off Delay Time	t _{D(off)}			15		
Turn-off Fall Time	t _f			28		

A. Repetitive rating; pulse width limited by max. junction temperature.

B. Device mounted on FR-4 PCB, 1 mm x 17mm x 15mm.

YJL2102WQ

■ Typical Performance Characteristics

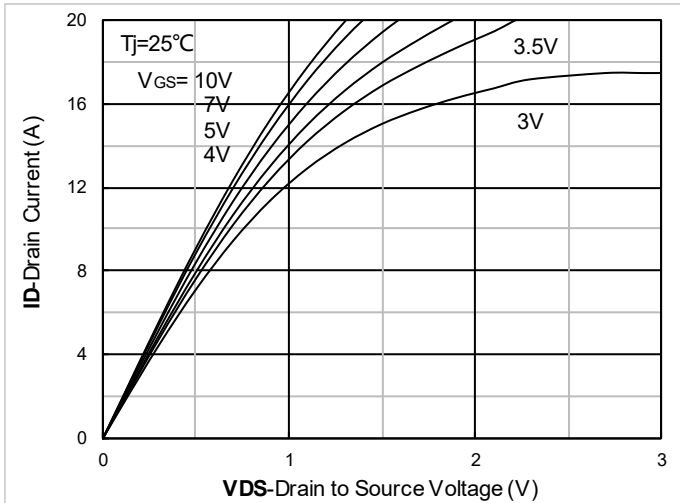


Figure1. Output Characteristics

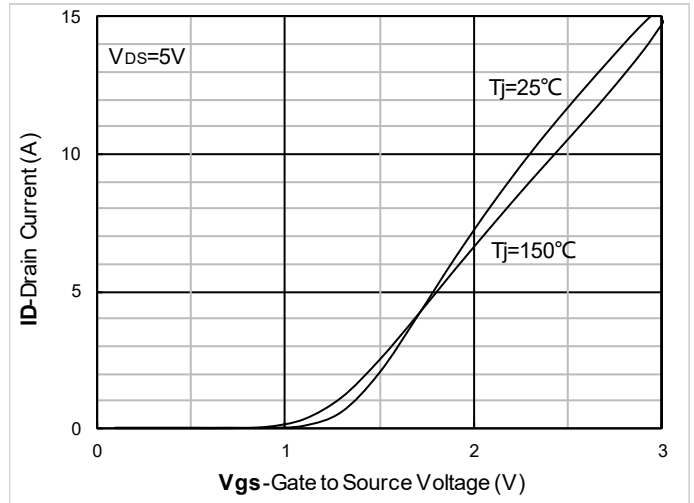


Figure2. Transfer Characteristics

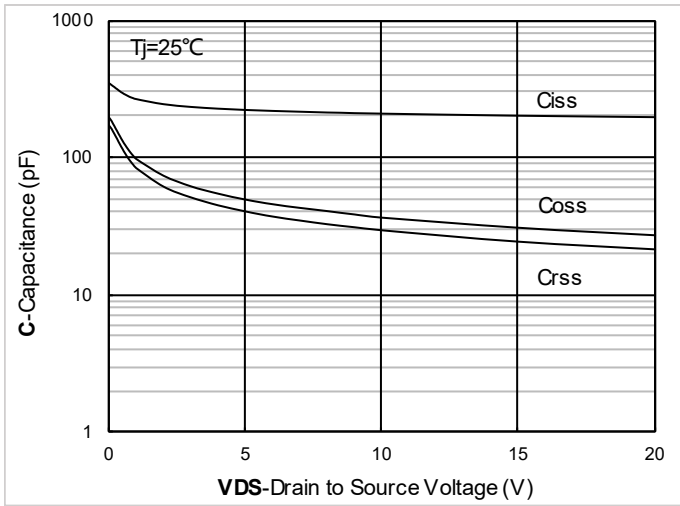


Figure3. Capacitance Characteristics

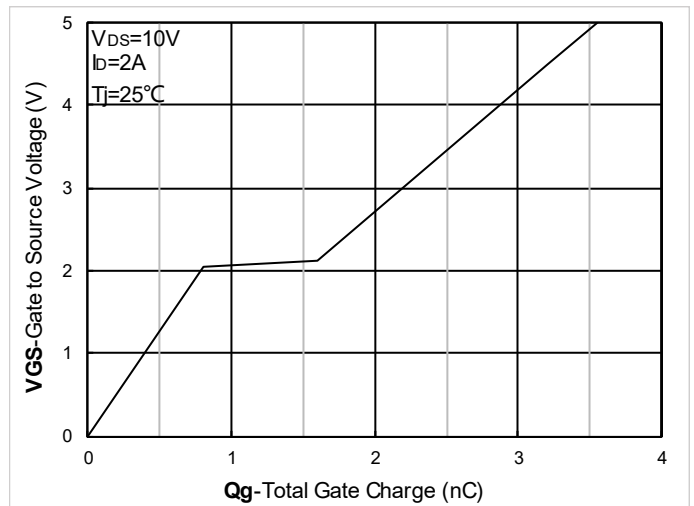


Figure4. Gate Charge

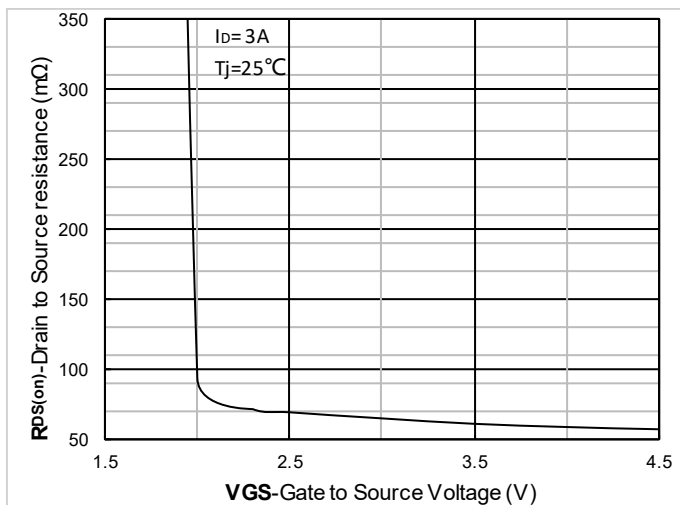


Figure5. On-Resistance vs Gate to Source Voltage

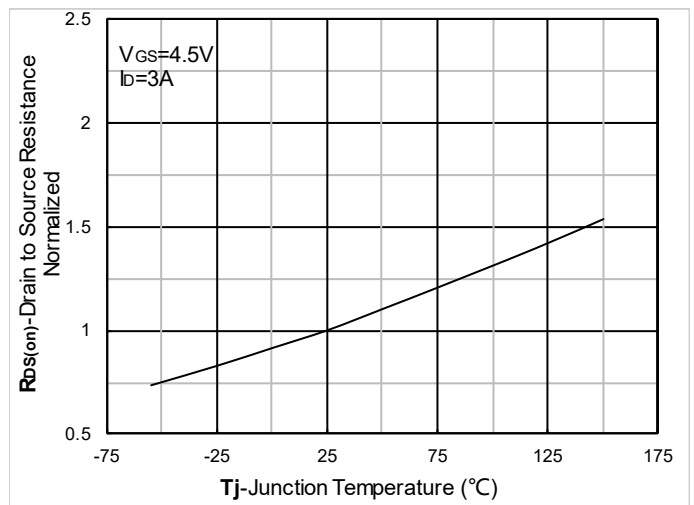


Figure6. Normalized On-Resistance

YJL2102WQ

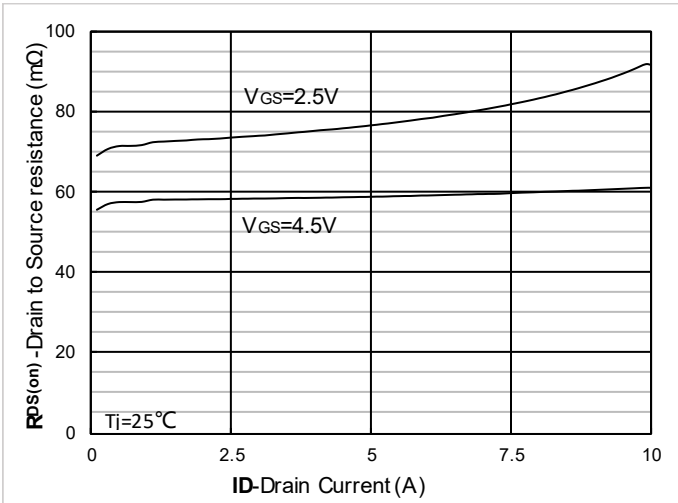


Figure 7. RDS(on) VS Drain Current

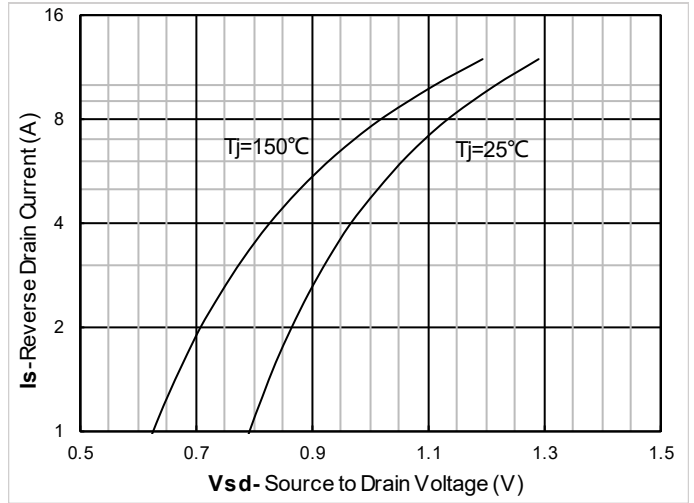


Figure 8. Forward characteristics of reverse diode

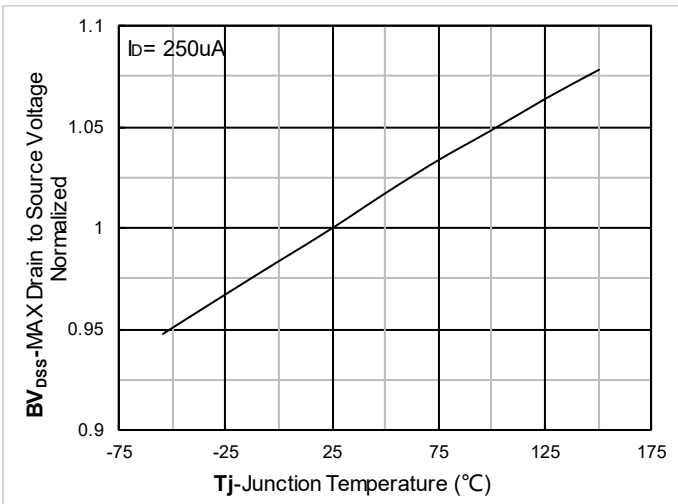


Figure 9. Normalized breakdown voltage

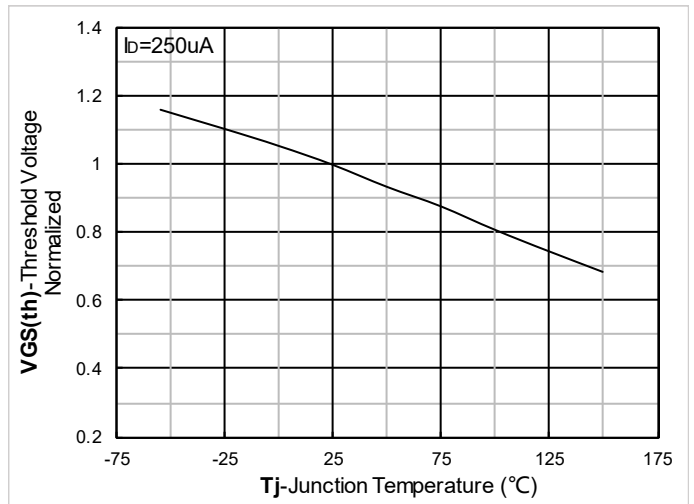


Figure 10. Normalized Threshold voltage

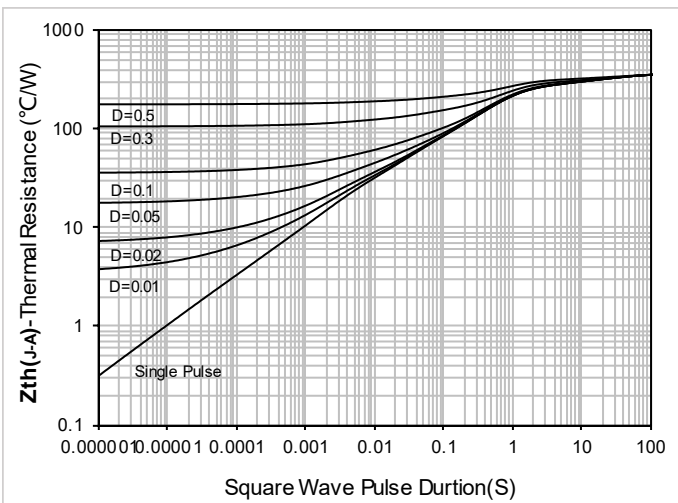


Figure 11. Maximum Transient Thermal Impedance

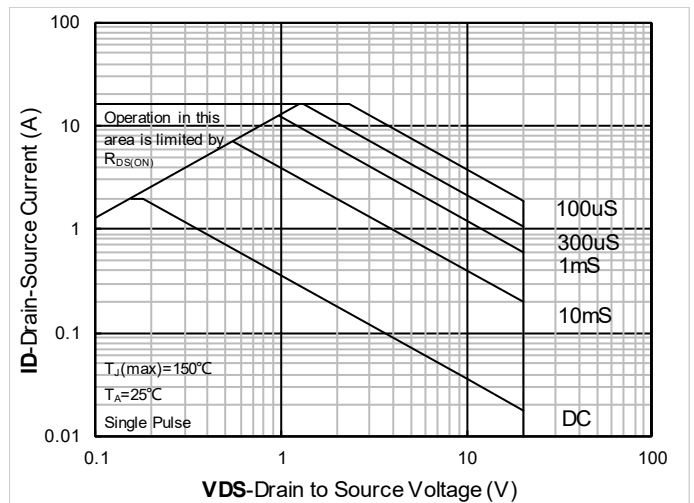
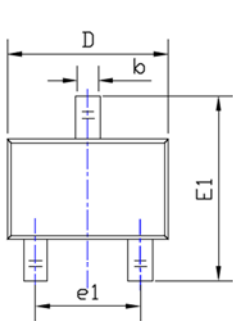


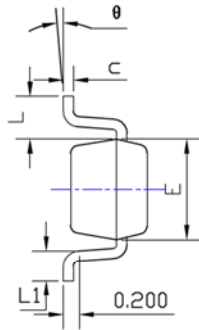
Figure 12. Safe Operation Area

YJL2102WQ

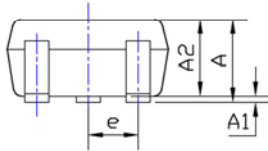
■ SOT-323 Package Information



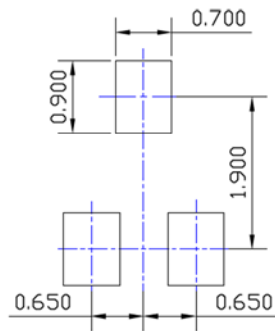
TOP VIEW



SIDE VIEW



SIDE VIEW



UNIT: mm

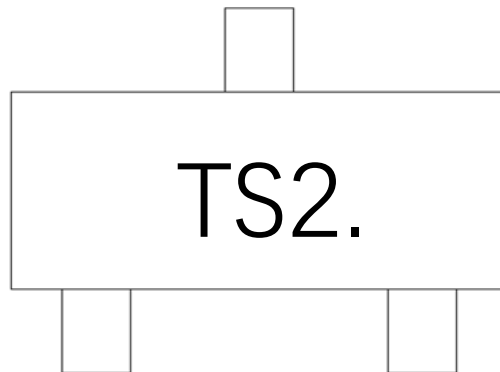
SUGGESTED SOLDER PAD LAYOUT

SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.043	0.900	1.100
A1	0.000	0.004	0.000	0.100
A2	0.035	0.039	0.900	1.000
b	0.006	0.016	0.150	0.400
c	0.004	0.010	0.100	0.250
D	0.071	0.087	1.800	2.200
E	0.045	0.053	1.150	1.350
E1	0.085	0.096	2.150	2.450
e	0.026TYP		0.650TYP	
e1	0.047	0.055	1.200	1.400
L	0.021REF		0.525REF	
L1	0.010	0.018	0.260	0.460
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 marking
3. TS2 is Marking Code
4. Body color: Black

YJL2102WQ

Disclaimer

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