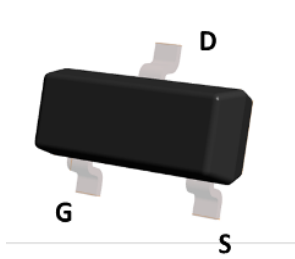
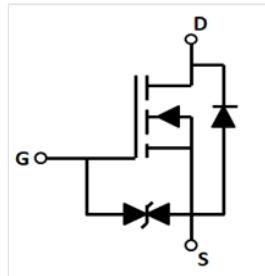
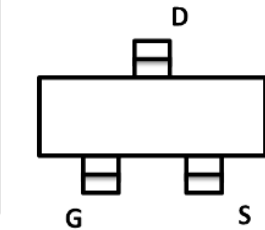


N-Channel Enhancement Mode Field Effect Transistor



Top View

SOT-23



Product Summary

- V_{DS} 20V
- I_D 0.9A
- $R_{DS(ON)}$ (at $V_{GS}=4.5V$) <260 mohm
- $R_{DS(ON)}$ (at $V_{GS}=2.5V$) <360 mohm
- ESD Protected Up to 4.0KV (HBM)

General Description

- Trench Power LV MOSFET technology
- High Power and current handling capability

Applications

- Interfacing switching
- Load/Power switching
- Logic Level shift

■ 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} | ± 12 | V |
| Drain Current | I_D | $T_A=25^\circ C$ @ Steady State | 0.9 |
| | | $T_A=70^\circ C$ @ Steady State | 0.7 |
| Pulsed Drain Current ^A | I_{DM} | 3.5 | A |
| Total Power Dissipation @ $T_A=25^\circ C$ | P_D | 0.35 | W |
| Thermal Resistance Junction-to-Ambient @ Steady State | $R_{\theta JA}$ | 357 | $^\circ C/W$ |
| Junction and Storage Temperature Range | T_J, T_{STG} | -55~+150 | $^\circ C$ |

■ Ordering Information (Example)

| PREFERRED P/N | PACKING CODE | Marking | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---------------|--------------|---------|----------------------|-------------------------|----------------------------|---------------|
| YJL3134K | F2 | 34K. | 3000 | 30000 | 120000 | 7" reel |



YJL3134K

■ 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 | | 2.5 | ±10 | μA |
| | | V _{GS} = ±8V, V _{DS} =0V | | 500 | ±2000 | nA |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} = V _{GS} , I _D =250μA | 0.35 | 0.75 | 1.1 | V |
| Static Drain-Source On-Resistance | R _{DS(on)} | V _{GS} = 4.5V, I _D =0.5A | | 135 | 260 | mΩ |
| | | V _{GS} = 2.5V, I _D =0.3A | | 185 | 360 | |
| | | V _{GS} = 1.8V, I _D =0.2A | | 265 | 570 | |
| Diode Forward Voltage ^C | V _{SD} | I _S =0.9A, V _{GS} =0V | | | 1.2 | V |
| Maximum Body-Diode Continuous Current | I _S | | | | 0.9 | A |
| Dynamic Parameters^B | | | | | | |
| Input Capacitance | C _{iss} | V _{DS} =10V, V _{GS} =0V, f=1MHZ | | 56 | | pF |
| Output Capacitance | C _{oss} | | | 20 | | |
| Reverse Transfer Capacitance | C _{rss} | | | 2.5 | | |
| Switching Parameters^B | | | | | | |
| Total Gate Charge | Q _g | V _{GS} =4.5V, V _{DS} =10V, I _D =0.9A | | 1 | | nC |
| Gate Source Charge | Q _{gs} | | | 0.28 | | |
| Gate Drain Charge | Q _{gd} | | | 0.22 | | |
| Reverse Recovery Charge | Q _{rr} | I _F =0.5A, di/dt=-20A/us | | 0.4 | | ns |
| Reverse Recovery Time | t _{rr} | | | 14.4 | | |
| Turn-on Delay Time | t _{D(on)} | V _{GS} =4.5V, V _{DD} =10V, R _G =10Ω, I _D =500mA | | 2 | | ns |
| Turn-on Rise Time | t _r | | | 18.8 | | |
| Turn-off Delay Time | t _{D(off)} | | | 10 | | |
| Turn-off Fall Time | t _f | | | 23 | | |

A. Repetitive Rating: Pulse width limited by maximum junction temperature.

B. These parameters have no way to verify.

C. Pulse Test: Pulse Width ≤ 300us, Duty Cycle ≤ 0.5%.



■ Typical Performance Characteristics

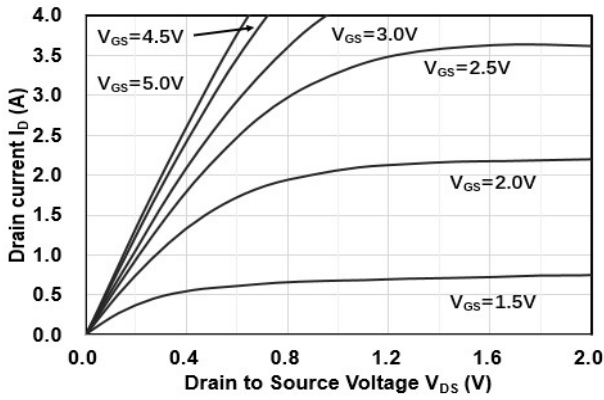


Figure1. Output Characteristics

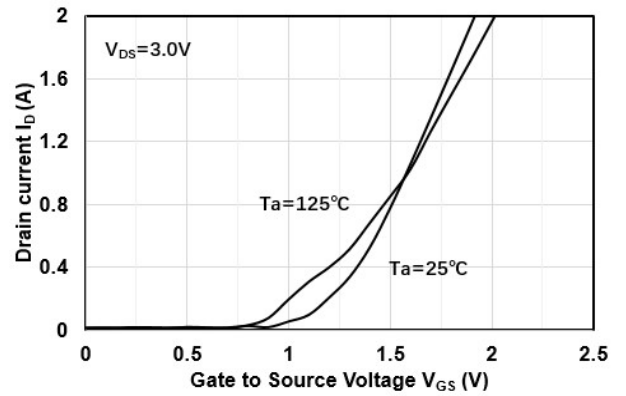


Figure2. Transfer Characteristics

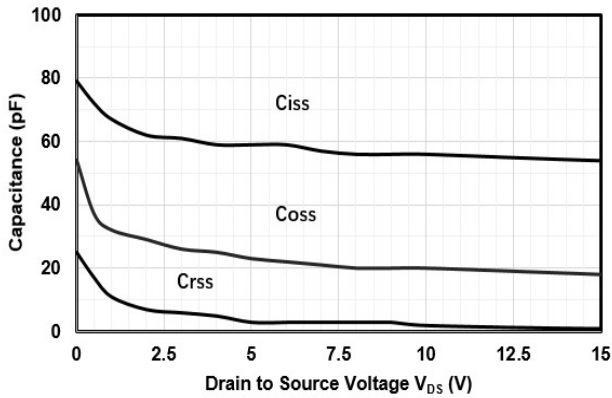


Figure3. Capacitance Characteristics

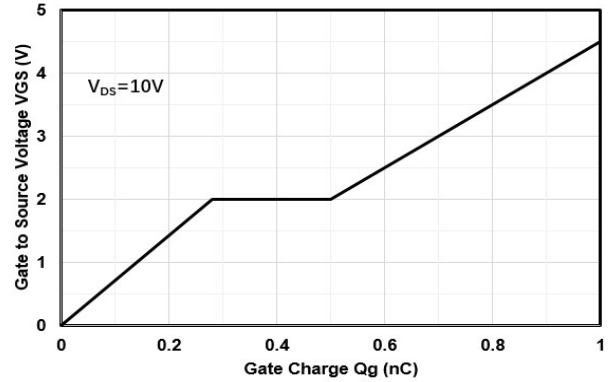


Figure4. Gate Charge

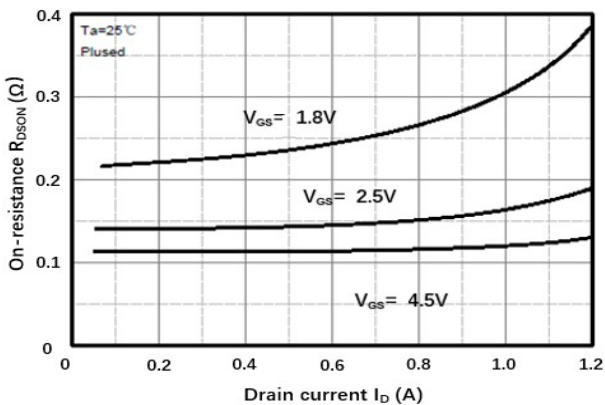


Figure5. Drain-Source on Resistance

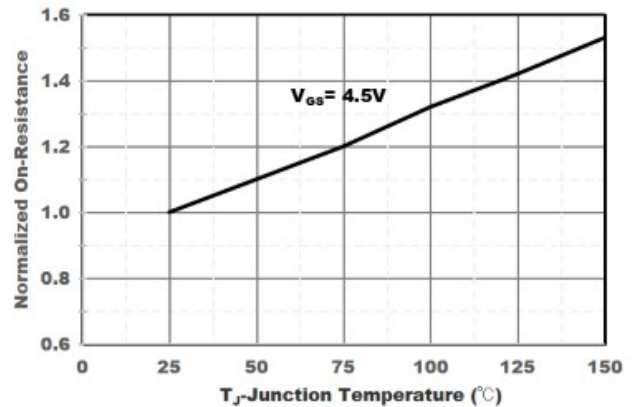


Figure6. Drain-Source on Resistance



YJL3134K

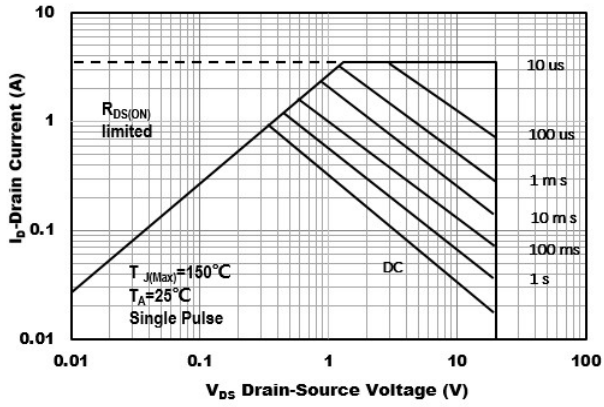


Figure7. Safe Operation Area

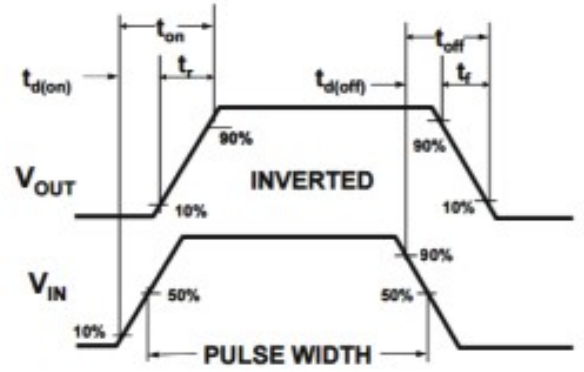
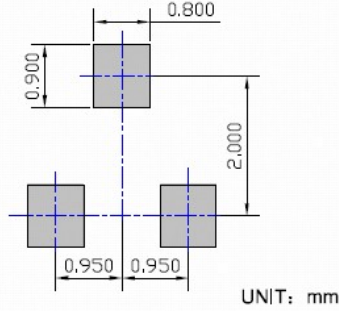
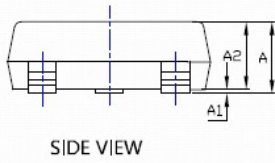
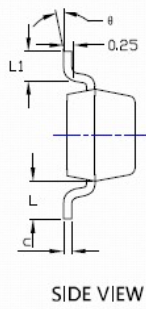
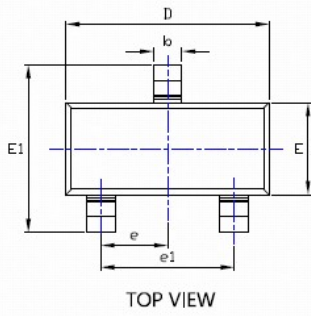


Figure8. Switching wave

■SOT-23 Package information



UNIT: mm

| SYMBOL | DIMENSIONS | | | | | |
|--------|------------|-------|-------|------------|-------|-------|
| | INCHES | | | Millimeter | | |
| | MIN. | NOM. | MAX. | MIN. | NOM. | MAX. |
| A | 0.035 | --- | 0.045 | 0.900 | --- | 1.150 |
| A1 | 0.000 | --- | 0.004 | 0.000 | --- | 0.100 |
| A2 | 0.035 | 0.038 | 0.041 | 0.900 | 0.975 | 1.050 |
| b | 0.012 | 0.016 | 0.020 | 0.300 | 0.400 | 0.500 |
| c | 0.004 | --- | 0.008 | 0.100 | --- | 0.200 |
| D | 0.110 | 0.114 | 0.118 | 2.800 | 2.900 | 3.000 |
| E | 0.047 | 0.051 | 0.055 | 1.200 | 1.300 | 1.400 |
| E1 | 0.089 | 0.094 | 0.100 | 2.250 | 2.400 | 2.550 |
| e | 0.037 TYP | | | 0.950 TYP | | |
| e1 | 0.071 | 0.075 | 0.079 | 1.800 | 1.900 | 2.000 |
| L | 0.022 REF | | | 0.550 REF | | |
| L1 | 0.012 | 0.016 | 0.200 | 0.300 | 0.400 | 0.500 |
| ø | 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.



YJL3134K

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