

SOT-323 Plastic-Encapsulate MOSFETS

Features

- $V_{DS}=30V$
- $I_D=0.1A$
- $R_{DS(on)}@V_{GS}=4V < 8\Omega$
- $R_{DS(on)}@V_{GS}=2.5V < 13\Omega$
- Trench Power LV MOSFET technology
- High density cell design for low  $R_{DS(ON)}$
- High Speed switching

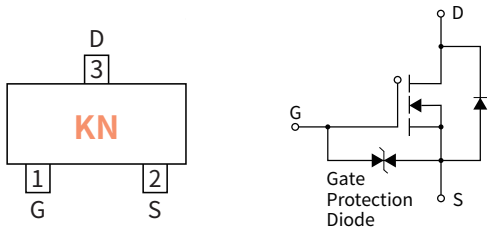
Applications

- Interfacing
- Load switch

Mechanical Data

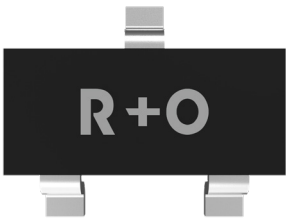
- Case: SOT-323  
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant,halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

Function Diagram



Drain-source Voltage  
30 V  
Drain Current  
0.1 Ampere

SOT-323



Maximum Ratings (Ta=25°C Unless otherwise specified)

| PARAMETER                  | SYMBOL           | UNIT  | VALUE     |
|----------------------------|------------------|-------|-----------|
| Drain-source Voltage       | $V_{DS}$         | V     | 30        |
| Gate-source Voltage        | $V_{GS}$         | V     | $\pm 20$  |
| Drain Current              | $I_d$            | A     | 0.1       |
| Pulsed Drain Current       | $I_{DM}$         | A     | 0.4       |
| Total Power Dissipation    | $P_d$            | mW    | 200       |
| Storage temperature        | $T_{stg}$        | °C    | -55 ~+150 |
| Junction temperature       | $T_j$            | °C    | -55 ~+150 |
| Typical Thermal Resistance | $R_{\theta J-A}$ | °C /W | 625       |

Ordering Information

| PACKAGE | PACKAGE CODE | UNIT WEIGHT(g) | REEL(pcs) | BOX(pcs) | CARTON(pcs) | DELIVERY MODE |
|---------|--------------|----------------|-----------|----------|-------------|---------------|
| SOT-323 | R1           | 0.005          | 3000      | 45000    | 180000      | 7"            |

### ● Static Parameter Characteristics (Ta=25°C Unless otherwise specified)

| PARAMETER                         | SYMBOL       | Condition                   | UNIT     | Min | Typ | Max       |
|-----------------------------------|--------------|-----------------------------|----------|-----|-----|-----------|
| Drain-Source Breakdown Voltage    | $BV_{DSS}$   | $V_{GS}=0V, I_D=250\mu A$   | V        | 30  | —   | —         |
| Zero Gate Voltage Drain Current   | $I_{DSS}$    | $V_{DS}=30V, V_{GS}=0V$     | $\mu A$  | —   | —   | 1.0       |
| Gate-Body Leakage Current         | $I_{GSS}$    | $V_{GS}=\pm 20V, V_{DS}=0V$ | $\mu A$  | —   | —   | $\pm 2.0$ |
| Gate Threshold Voltage            | $V_{GS(th)}$ | $V_{DS}=3.0V, I_D=0.1mA$    | V        | 0.8 | —   | 1.5       |
| Static Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}=4.0V, I_D=10mA$     | $\Omega$ | —   | —   | 8.0       |
|                                   |              | $V_{GS}=2.5V, I_D=1.0mA$    |          | —   | —   | 13        |
| Forward Transconductance          | $g_{fs}$     | $V_{DS}=3.0V, I_D=10mA$     | mS       | 20  | —   | —         |

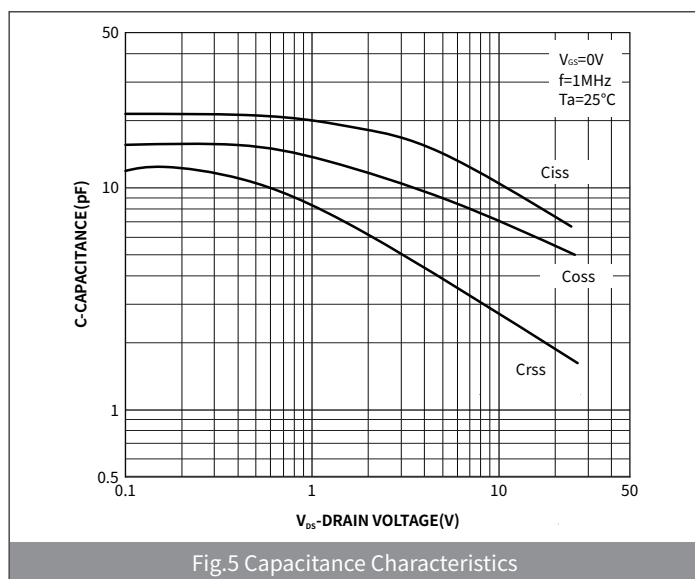
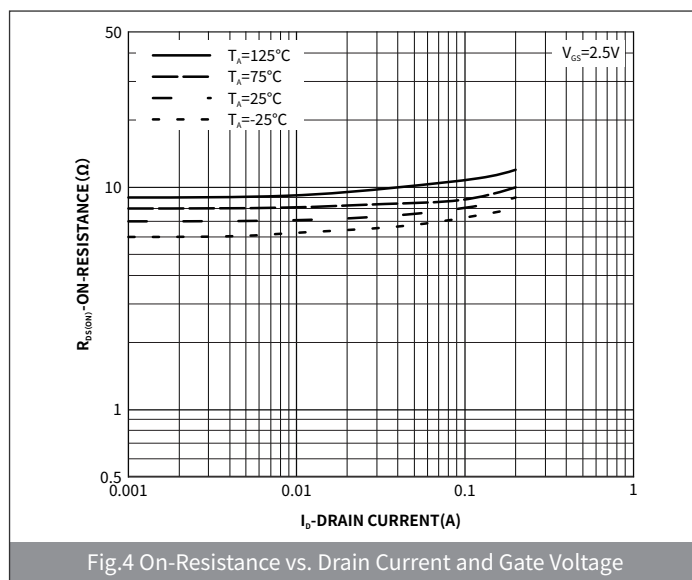
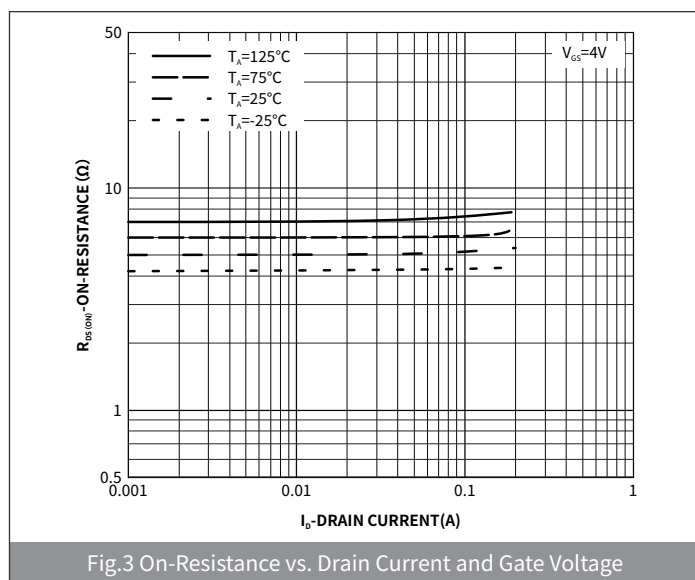
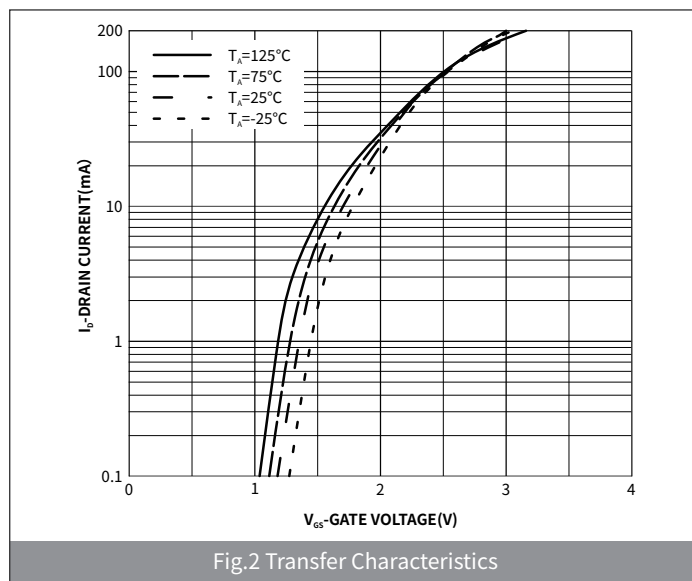
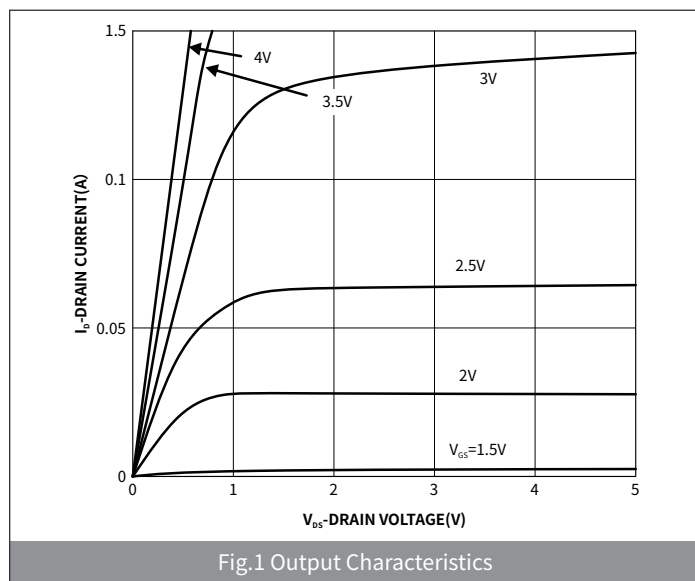
### ● Dynamic Parameters (Ta=25°C Unless otherwise specified)

| PARAMETER                    | SYMBOL    | Condition                                | UNIT | Min | Typ | Max |
|------------------------------|-----------|------------------------------------------|------|-----|-----|-----|
| Input Capacitance            | $C_{iss}$ | $V_{DS}=5.0V$<br>$V_{GS}=0V$<br>$f=1MHz$ | pF   | —   | 13  | —   |
| Output Capacitance           | $C_{oss}$ |                                          |      | —   | 9.0 | —   |
| Reverse Transfer Capacitance | $C_{rss}$ |                                          |      | —   | 4.0 | —   |

### ● Switching Parameters (Ta=25°C Unless otherwise specified)

| PARAMETER           | SYMBOL       | Condition                                                                             | UNIT | Min | Typ | Max |
|---------------------|--------------|---------------------------------------------------------------------------------------|------|-----|-----|-----|
| Turn-on Delay Time  | $t_{D(on)}$  | $V_{GS}=5.0V$<br>$V_{DS}=5.0V$<br>$I_D=10mA$<br>$R_{GEN}=10\Omega$<br>$R_L=500\Omega$ | ns   | —   | 15  | —   |
| Turn-on Rise Time   | $t_r$        |                                                                                       |      | —   | 35  | —   |
| Turn-off Delay Time | $t_{D(off)}$ |                                                                                       |      | —   | 80  | —   |
| Turn-off fall Time  | $t_f$        |                                                                                       |      | —   | 80  | —   |

### ● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)



● Package Outline Dimensions (SOT-323)

| Symbol | Dimensions  |      |          |       |
|--------|-------------|------|----------|-------|
|        | Millimeters |      | Inches   |       |
|        | Min.        | Max. | Min.     | Max.  |
| A      | 0.90        | 1.10 | 0.035    | 0.043 |
| A1     | -           | 0.10 | -        | 0.004 |
| A2     | 0.90        | 1.00 | 0.035    | 0.039 |
| b      | 0.15        | 0.40 | 0.012    | 0.020 |
| c      | 0.10        | 0.25 | 0.004    | 0.010 |
| D      | 1.80        | 2.20 | 0.071    | 0.087 |
| E      | 1.15        | 1.35 | 0.045    | 0.053 |
| E1     | 2.15        | 2.45 | 0.085    | 0.096 |
| e      | 0.650TYP    |      | 0.026TYP |       |
| e1     | 1.20        | 1.40 | 0.047    | 0.055 |
| L      | 0.525REF    |      | 0.021REF |       |
| L1     | 0.26        | 0.46 | 0.010    | 0.018 |
| θ      | -           | 8°   | -        | 8°    |

● Suggested Pad Layout

| Symbol | Dimensions  |      |        |       |
|--------|-------------|------|--------|-------|
|        | Millimeters |      | Inches |       |
|        | Min.        | Max. | Min.   | Max.  |
| J      | 0.65        | 0.75 | 0.026  | 0.030 |
| K      | 0.85        | 0.95 | 0.033  | 0.037 |
| M      | 1.85        | 1.95 | 0.073  | 0.077 |
| N      | 1.25        | 1.35 | 0.049  | 0.053 |