

## Single N-Channel, 20V, 0.75A, MOSFET

### Features

- ✧ Trench Technology
- ✧ Supper high density cell design
- ✧ Excellent ON resistance
- ✧ Extremely Low Threshold Voltage
- ✧ Small package SOT-23

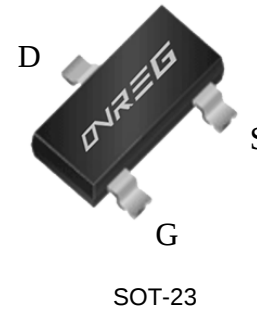
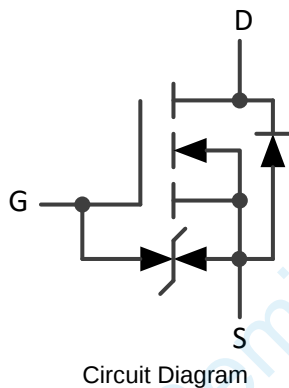
| V <sub>DS</sub> (V) | Typical R <sub>DS(on)</sub> (mΩ) |
|---------------------|----------------------------------|
| 20                  | 250 @ V <sub>GS</sub> =4.5V      |
|                     | 310 @ V <sub>GS</sub> =2.5V      |
|                     | 386 @ V <sub>GS</sub> =1.8V      |

### Applications

- ✧ Interfacing Switching
- ✧ Load/Power Switching for portable device

### Mechanical Data

- ✧ UL Flame Rating : UL94V-0
- ✧ Reel Size : 7 inch
- ✧ RoHS/WEEE Complain



**Absolute Maximum Rating at T<sub>A</sub> = 25°C, unless otherwise specified**

| Parameter                      | Symbol           | Rating     | Unit |
|--------------------------------|------------------|------------|------|
| Drain-Source Voltage           | V <sub>DS</sub>  | 20         | V    |
| Gate-Source Voltage            | V <sub>GS</sub>  | ±12        |      |
| Continuous Drain Current       | I <sub>D</sub>   | 0.75       | A    |
| Maximum Power Dissipation      | P <sub>D</sub>   | 0.35       | W    |
| Pulsed Drain Current           | I <sub>DM</sub>  | 1.8        | A    |
| Operating Junction Temperature | T <sub>J</sub>   | -55 to 150 | °C   |
| Lead Temperature               | T <sub>L</sub>   | 260        | °C   |
| Storage Temperature Range      | T <sub>stg</sub> | -55 to 150 | °C   |

**Electronics Characteristics (Ta=25°C, unless otherwise noted)**

| Parameter                                 | Symbol       | Test Conditions                                                                  | Min  | Typ  | Max      | Unit          |
|-------------------------------------------|--------------|----------------------------------------------------------------------------------|------|------|----------|---------------|
| OFF CHARACTERISTICS                       |              |                                                                                  |      |      |          |               |
| Drain-to-Source Breakdown Voltage         | $BV_{DSS}$   | $V_{GS} = 0\text{ V}, I_D = 250\mu\text{A}$                                      | 20   |      |          | V             |
| Zero Gate Voltage Drain Current           | $I_{DSS}$    | $V_{DS} = 20\text{V}, V_{GS} = 0\text{V}$                                        |      |      | 1        | $\mu\text{A}$ |
| Gate-to-source Leakage Current            | $I_{GSS}$    | $V_{DS} = 0\text{ V}, V_{GS} = \pm 10\text{V}$                                   |      |      | $\pm 20$ | $\mu\text{A}$ |
| ON CHARACTERISTICS                        |              |                                                                                  |      |      |          |               |
| Gate Threshold Voltage                    | $V_{GS(TH)}$ | $V_{GS} = V_{DS}, I_D = 250\mu\text{A}$                                          | 0.35 | 0.55 | 1.1      | V             |
| Drain-to-source On-resistance             | $R_{DS(on)}$ | $V_{GS} = 4.5\text{V}, I_D = 0.65\text{A}$                                       |      | 250  | 366      | m $\Omega$    |
|                                           |              | $V_{GS} = 2.5\text{V}, I_D = 0.55\text{A}$                                       |      | 310  | 438      |               |
|                                           |              | $V_{GS} = 1.8\text{V}, I_D = 0.45\text{A}$                                       |      | 386  | 790      |               |
| CHARGES, CAPACITANCES AND GATE RESISTANCE |              |                                                                                  |      |      |          |               |
| Input Capacitance                         | $C_{ISS}$    | $V_{GS} = 0\text{ V}, f = 1.0\text{MHz}, V_{DS} = 16\text{V}$                    |      | 55   | 100      | pF            |
| Output Capacitance                        | $C_{OSS}$    |                                                                                  |      | 16   | 20       |               |
| Reverse Transfer Capacitance              | $C_{RSS}$    |                                                                                  |      | 2.5  | 5        |               |
| SWITCHING CHARACTERISTICS                 |              |                                                                                  |      |      |          |               |
| Turn-On Delay Time                        | $t_{d(ON)}$  | $V_{DS} = 10\text{ V}, V_{GS} = 4.5\text{V}, I_D = 0.5\text{A}, R_G = 10\Omega,$ |      | 6.3  |          | ns            |
| Rise Time                                 | $t_r$        |                                                                                  |      | 4.0  |          |               |
| Turn-Off Delay Time                       | $t_{d(OFF)}$ |                                                                                  |      | 15.0 |          |               |
| Fall Time                                 | $t_f$        |                                                                                  |      | 2.5  |          |               |
| BODY DIODE CHARACTERISTICS                |              |                                                                                  |      |      |          |               |
| Forward Voltage                           | $V_{SD}$     | $V_{GS} = 0\text{ V}, I_S = 0.15\text{A}$                                        |      |      | 1.2      | V             |

**Electronics Characteristics (Ta=25°C, unless otherwise noted)**

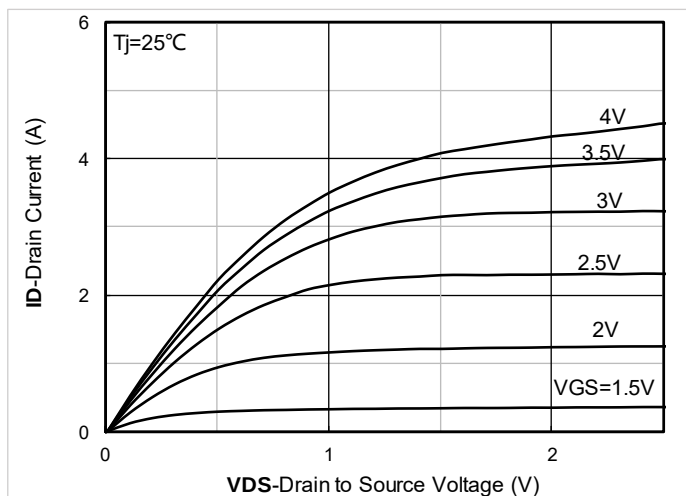


Figure1. Output Characteristics

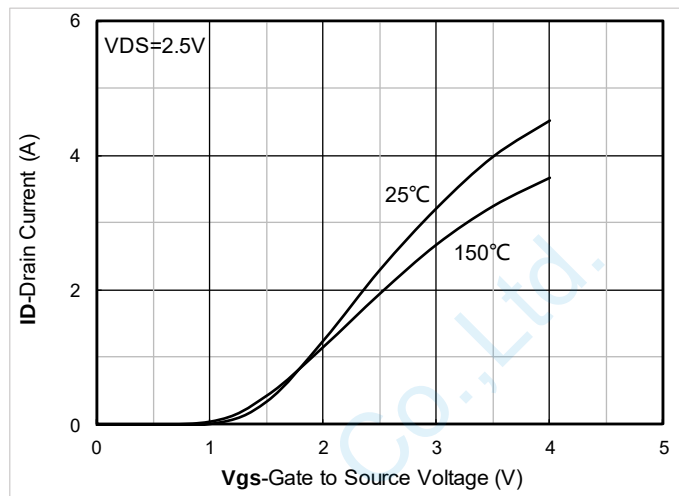


Figure2. Transfer Characteristics

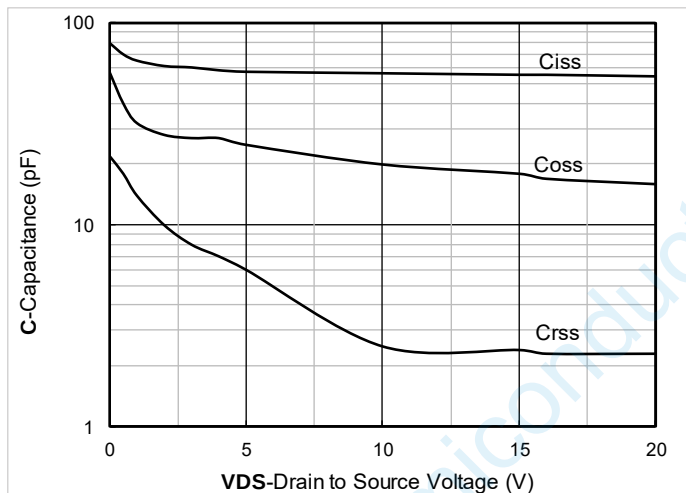


Figure3. Capacitance Characteristics

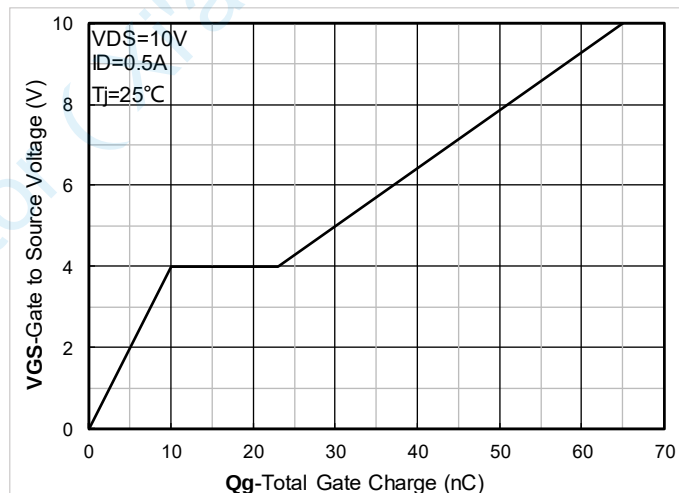


Figure4. Gate Charge

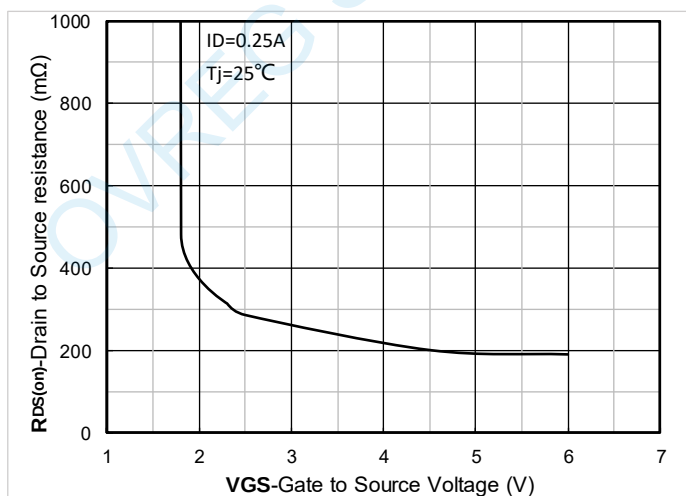


Figure5. On-Resistance vs Gate to Source Voltage

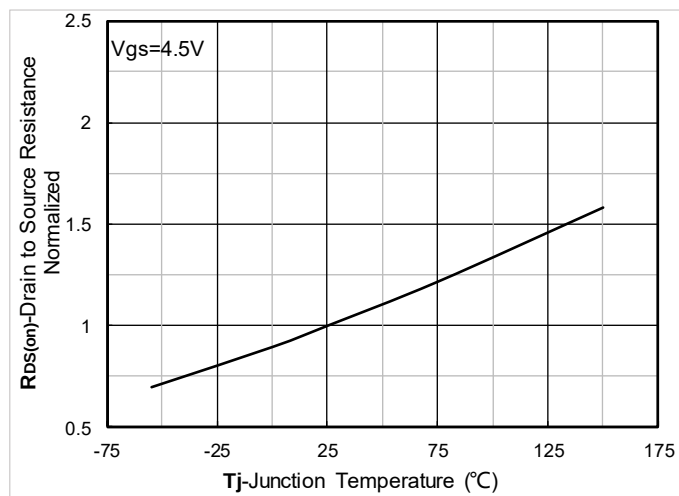
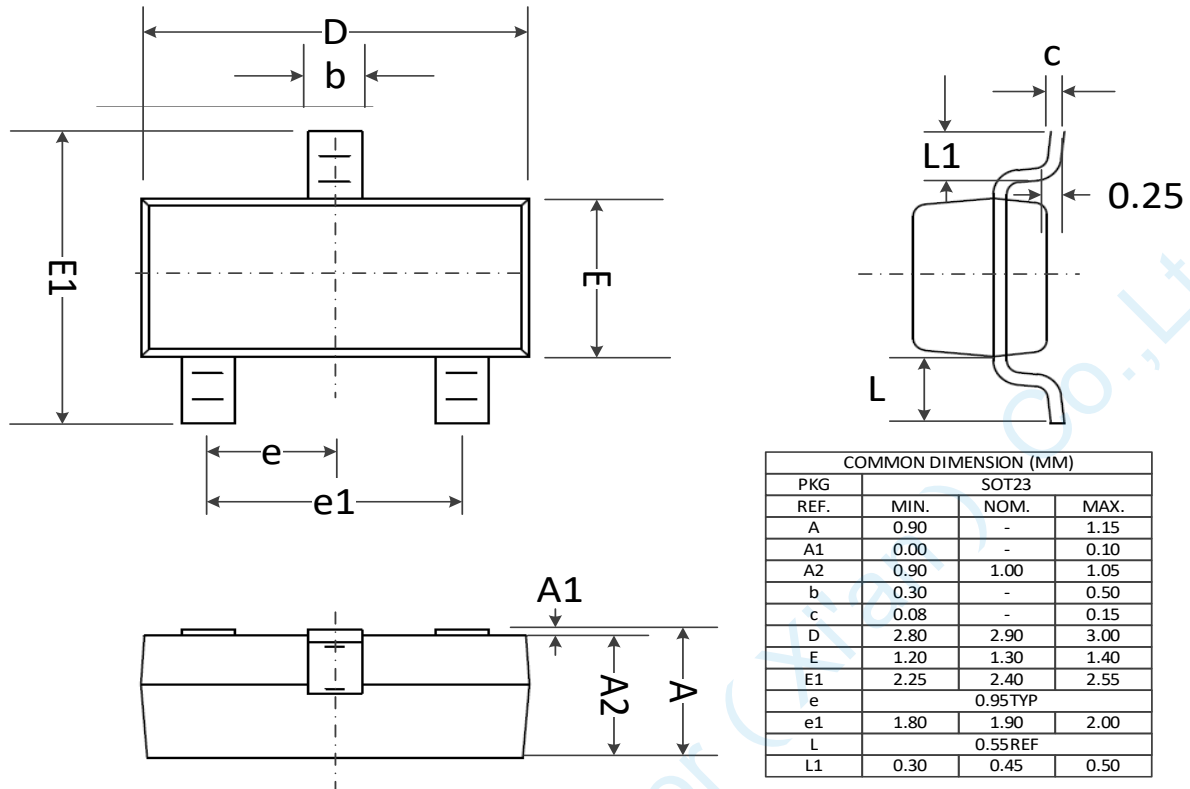
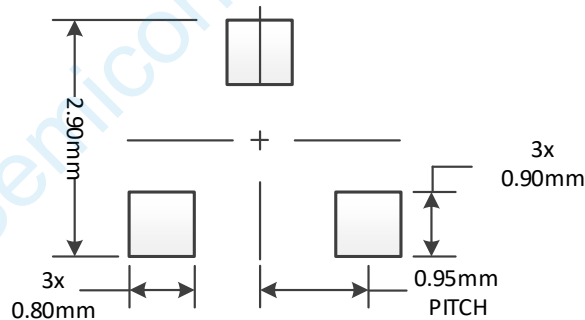


Figure6. Normalized On-Resistance

## Package information

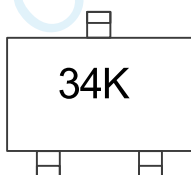


## Recommend PCB Layout



Notes: This PCB Layout Is For Reference Purposes Only

## Marking



## Ordering Information

| Part number | Material | Type | Reel size | MOQ     | MOQ/internal box | MOQ/carton         |
|-------------|----------|------|-----------|---------|------------------|--------------------|
| OVM20N270T  | GREEN    | T/R  | 7 inch    | 3k/reel | 10reel= 30k/box  | 4boxes=120k/carton |