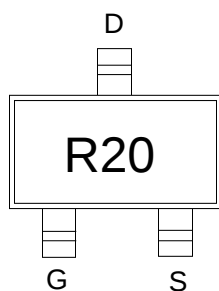


## Features

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

## Application

- PWM application
- Load switch

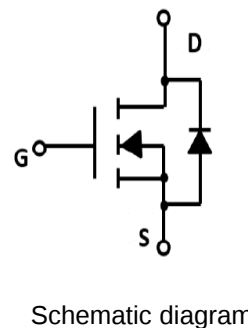
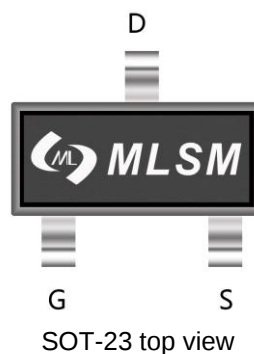


R20: Device code

Marking and pin assignment

## Product Summary

| $V_{DS}$ | $R_{DS(ON)}$ TYP | $I_D$ MAX |
|----------|------------------|-----------|
| 20V      | 19mΩ@10V         | 6A        |
|          | 22mΩ@4.5V        |           |



Halogen-Free

## Absolute Maximum Ratings (TA=25°C unless otherwise noted)

| Symbol                                                 | Parameter                        | Rating                      | Unit |
|--------------------------------------------------------|----------------------------------|-----------------------------|------|
| <b>Common Ratings (TC=25°C Unless Otherwise Noted)</b> |                                  |                             |      |
| $V_{DS}$                                               | Drain-Source Breakdown Voltage   | 20                          | V    |
| $V_{GS}$                                               | Gate-Source Voltage              | ±12                         | V    |
| $T_J$                                                  | Maximum Junction Temperature     | 150                         | °C   |
| $T_{STG}$                                              | Storage Temperature Range        | -50 to 150                  | °C   |
| $I_S$                                                  | Diode Continuous Forward Current | $T_c=25^\circ\text{C}$<br>6 | A    |

## Mounted on Large Heat Sink

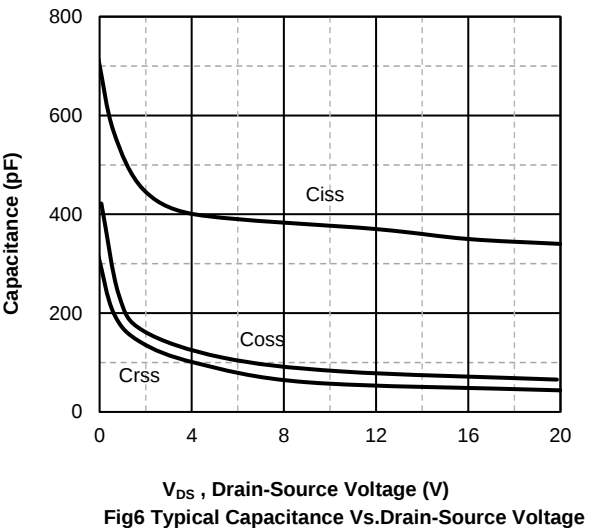
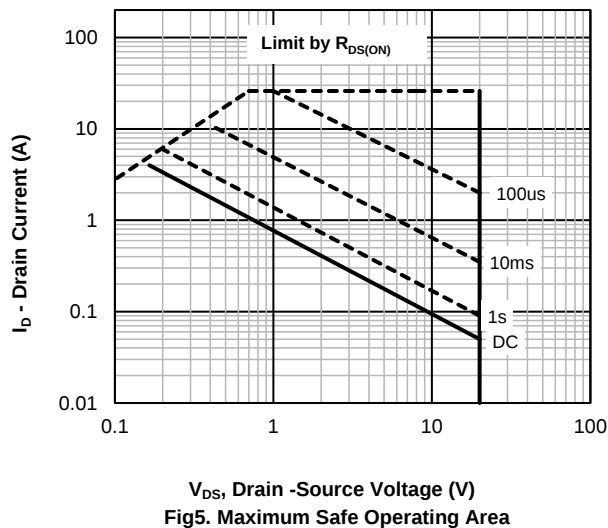
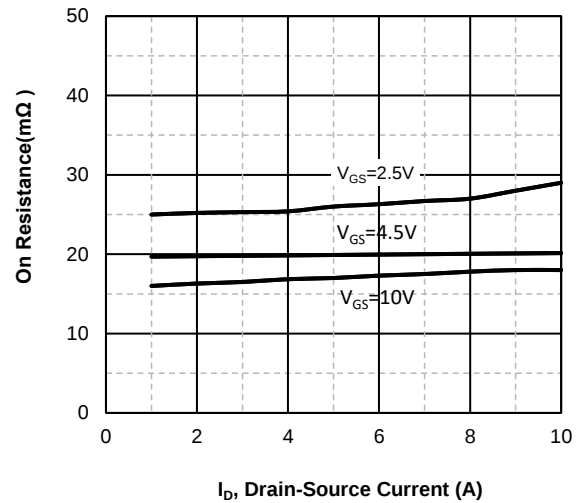
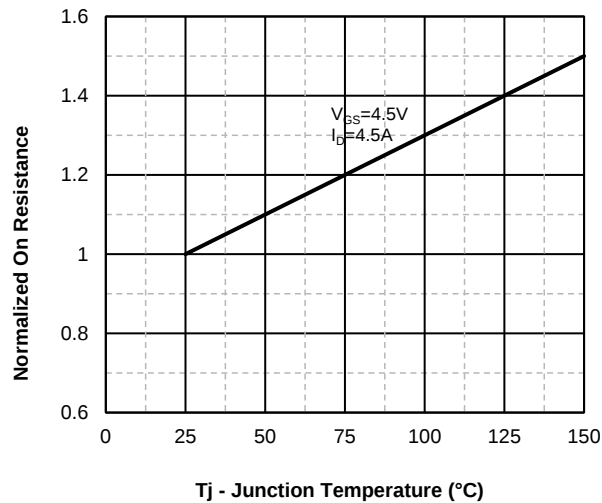
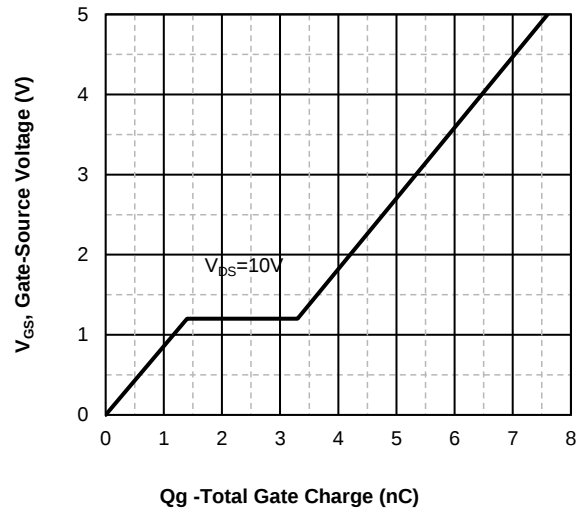
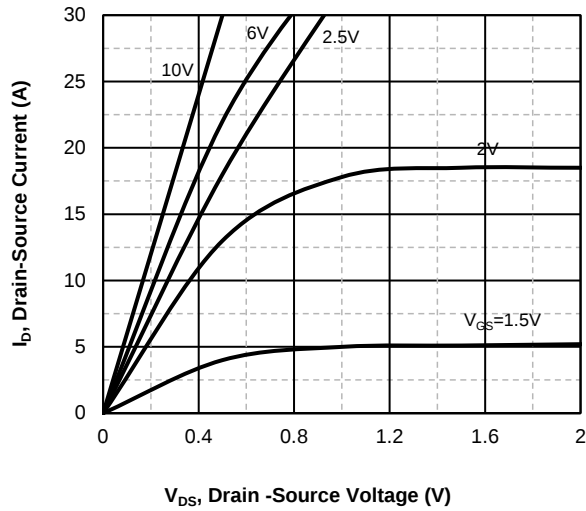
|                 |                                     |                              |      |
|-----------------|-------------------------------------|------------------------------|------|
| $I_{DM}$        | Pulse Drain Current Tested          | $T_c=25^\circ\text{C}$<br>26 | A    |
| $I_D$           | Continuous Drain Current            | $T_c=25^\circ\text{C}$<br>6  | A    |
| $P_D$           | Maximum Power Dissipation           | $T_c=25^\circ\text{C}$<br>1  | W    |
| $R_{\theta JA}$ | Thermal Resistance Junction-Ambient | 357                          | °C/W |

## Ordering Information (Example)

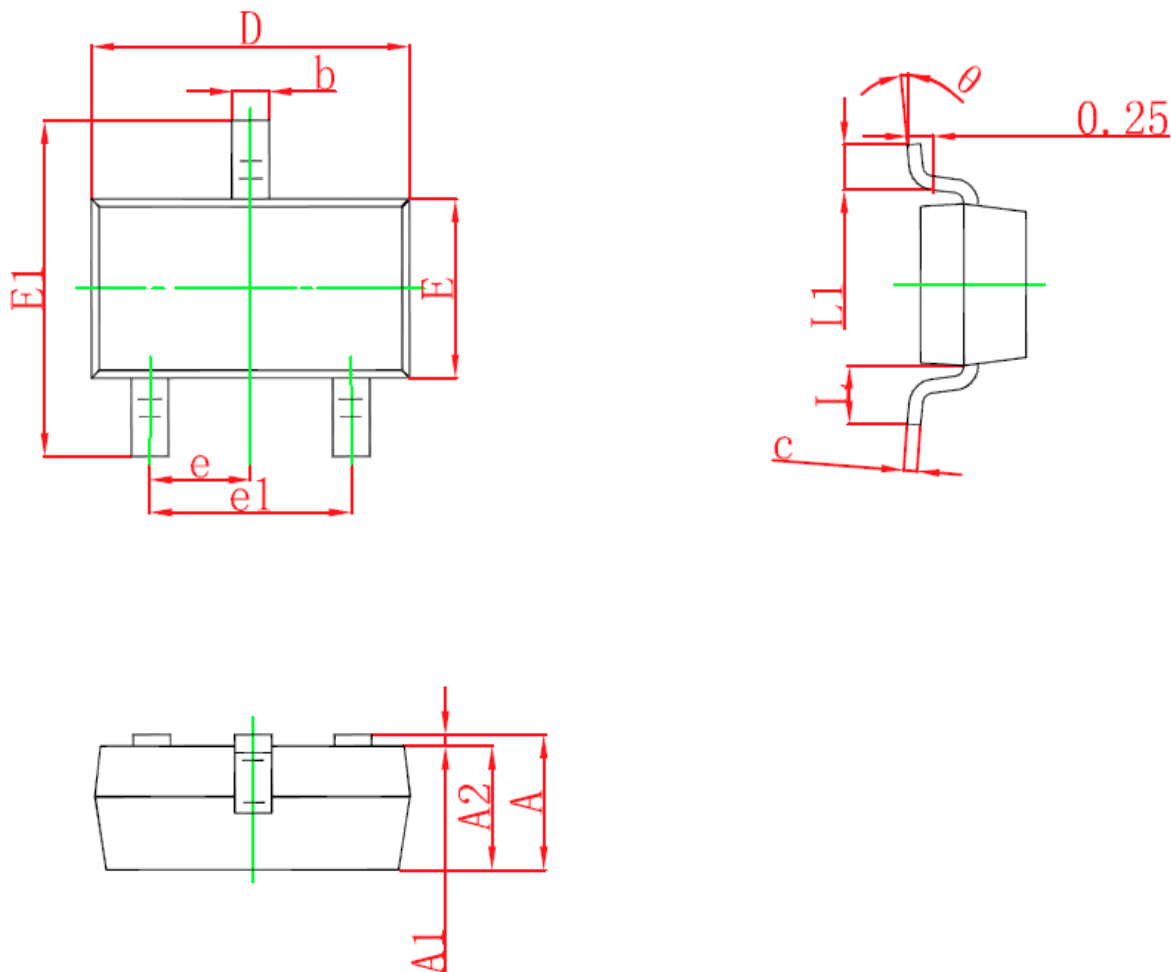
| Type   | Package | Marking | Minimum Package(pcs) | Inner Box Quantity(pcs) | Outer Carton Quantity(pcs) | Delivery Mode |
|--------|---------|---------|----------------------|-------------------------|----------------------------|---------------|
| CJ3420 | SOT-23  | R20     | 3,000                | 45,000                  | 180,000                    | 7" reel       |

| Electrical Characteristics (TJ=25°C unless otherwise noted)              |                                  |                                                                                     |     |      |      |      |
|--------------------------------------------------------------------------|----------------------------------|-------------------------------------------------------------------------------------|-----|------|------|------|
| Symbol                                                                   | Parameter                        | Condition                                                                           | Min | Typ  | Max  | Unit |
| Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)  |                                  |                                                                                     |     |      |      |      |
| BV <sub>(BR)DSS</sub>                                                    | Drain-Source Breakdown Voltage   | V <sub>GS</sub> =0V, I <sub>D</sub> =250μA                                          | 20  | --   | --   | V    |
| I <sub>DSS</sub>                                                         | Zero Gate Voltage Drain Current  | V <sub>DS</sub> =20V, V <sub>GS</sub> =0V                                           | --  | --   | 1.0  | μA   |
| I <sub>GSS</sub>                                                         | Gate-Body Leakage Current        | V <sub>GS</sub> =±12V, V <sub>DS</sub> =0V                                          | --  | --   | ±100 | nA   |
| V <sub>GS(th)</sub>                                                      | Gate Threshold Voltage           | V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA                            | 0.5 | 0.7  | 1.0  | V    |
| R <sub>DS(on)</sub>                                                      | Drain-Source On-State Resistance | V <sub>GS</sub> =10V, I <sub>D</sub> =6A                                            | --  | 19   | 24   | mΩ   |
|                                                                          |                                  | V <sub>GS</sub> =4.5V, I <sub>D</sub> =5A                                           | --  | 22   | 27   | mΩ   |
|                                                                          |                                  | V <sub>GS</sub> =2.5V, I <sub>D</sub> =4A                                           | --  | 27   | 42   | mΩ   |
|                                                                          |                                  | V <sub>GS</sub> =1.8V, I <sub>D</sub> =2A                                           | --  | 38   | 74   | mΩ   |
| Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated) |                                  |                                                                                     |     |      |      |      |
| C <sub>ISS</sub>                                                         | Input Capacitance                | V <sub>DS</sub> =10V, V <sub>GS</sub> =0V, f=1MHz                                   | --  | 378  | --   | pF   |
| C <sub>OSS</sub>                                                         | Output Capacitance               |                                                                                     | --  | 74   | --   | pF   |
| C <sub>RSS</sub>                                                         | Reverse Transfer Capacitance     |                                                                                     | --  | 58   | --   | pF   |
| Switching Characteristics                                                |                                  |                                                                                     |     |      |      |      |
| Q <sub>g</sub>                                                           | Total Gate Charge                | V <sub>DS</sub> =10V, I <sub>D</sub> =4.5A, V <sub>GS</sub> =4.5V                   | --  | 6.05 | --   | nC   |
| Q <sub>gs</sub>                                                          | Gate Source Charge               |                                                                                     | --  | 1.07 | --   | nC   |
| Q <sub>gd</sub>                                                          | Gate Drain Charge                |                                                                                     | --  | 1.95 | --   | nC   |
| t <sub>d(on)</sub>                                                       | Turn-on Delay Time               | V <sub>DD</sub> =10V, R <sub>L</sub> =1Ω, V <sub>GS</sub> =4.5V, R <sub>G</sub> =3Ω | --  | 4.2  | --   | nS   |
| t <sub>r</sub>                                                           | Turn-on Rise Time                |                                                                                     | --  | 19.8 | --   | nS   |
| t <sub>d(off)</sub>                                                      | Turn-Off Delay Time              |                                                                                     | --  | 22.6 | --   | nS   |
| t <sub>f</sub>                                                           | Turn-Off Fall Time               |                                                                                     | --  | 23.2 | --   | nS   |
| Source- Drain Diode Characteristics                                      |                                  |                                                                                     |     |      |      |      |
| V <sub>SD</sub>                                                          | Forward on voltage               | Tj=25°C, Is=6A                                                                      | --  | --   | 1.2  | V    |

## Typical Operating Characteristics



SOT-23 Package information



| Symbol | Dimensions in Millimeters(mm) |       | Dimensions In Inches |       |
|--------|-------------------------------|-------|----------------------|-------|
|        | Min                           | Max   | Min                  | Max   |
| A      | 0.900                         | 1.150 | 0.035                | 0.045 |
| A1     | 0.000                         | 0.100 | 0.000                | 0.004 |
| A2     | 0.900                         | 1.050 | 0.035                | 0.041 |
| b      | 0.300                         | 0.500 | 0.012                | 0.020 |
| c      | 0.080                         | 0.150 | 0.003                | 0.006 |
| D      | 2.800                         | 3.000 | 0.110                | 0.118 |
| E1     | 2.250                         | 2.550 | 0.088                | 0.100 |
| E      | 1.200                         | 1.400 | 0.047                | 0.055 |
| e      | 0.950TYP                      |       | 0.037TYP             |       |
| e1     | 1.800                         | 2.000 | 0.071                | 0.079 |
| L      | 0.550 REF                     |       | 0.022 REF            |       |
| L1     | 0.300                         | 0.500 | 0.012                | 0.020 |
| θ      | 0°                            | 8°    | 0°                   | 8°    |