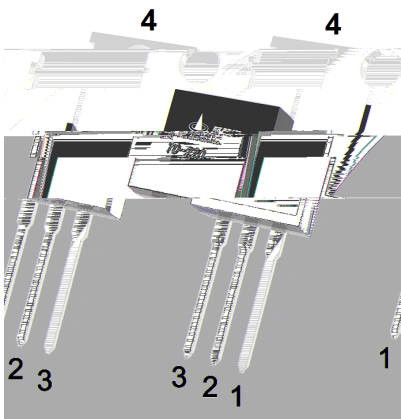
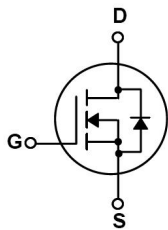


Rev.A Feb.-2023

TO-220 N  
 N-CHANNEL MOSFET in a TO-220 Plastic Package.

Ultra Low On-Resistance, fast switching.

BMS  
 High frequency switching and synchronous rectification, BMS, Motor.



PIN1 G      PIN 2 4 D      PIN 3 S\

See Marking Instructions.

| Parameter                               |              | Symbol                      | Rating     | Unit |
|-----------------------------------------|--------------|-----------------------------|------------|------|
| Drain-Source Voltage                    |              | $V_{DSS}$                   | 100        | V    |
| Drain Current                           |              | $I_D(T_C=25^\circ\text{C})$ | 150        | A    |
| Pulsed Drain Current                    |              | $I_{DM}$                    | 319        | A    |
| Gate-Source Voltage                     |              | $V_{GS}$                    | $\pm 20$   | V    |
| Single Pulsed Avalanche Energy(L=0.5mH) |              | $E_{AS}$                    | 381        | mJ   |
| Avalanche Current                       |              | $I_{AS}$                    | 33         | A    |
| Total Power Dissipation                 |              | $P_D(T_C=25^\circ\text{C})$ | 180        | W    |
| Junction and Storage Temperature Range  |              | $T_J, T_{STG}$              | -55 to 150 |      |
| Thermal Resistance-Junction to Ambient  | $t \leq 10s$ | $R_{JA}$                    | 17         | /W   |
|                                         | Steady-State |                             | 62.5       |      |
| Thermal Resistance-Junction to Case     | Steady-State | $R_{JC}$                    | 0.69       |      |

| Parameter                         | Symbol        | Test Conditions                    | Min | Typ | Max       | Unit |
|-----------------------------------|---------------|------------------------------------|-----|-----|-----------|------|
| Drain-Source Breakdown Voltage    | $BV_{DSS}$    | $V_{GS}=0V$ $I_D=250\text{ A}$     | 100 | 109 |           | V    |
| Zero Gate Voltage Drain Current   | $I_{DSS}$     | $V_{DS}=100V$ $V_{GS}=0V$          |     |     | 1         | A    |
| Gate-Body Leakage Current Forward | $I_{GSS}$     | $V_{GS}=\pm 20V$ $V_{DS}=0V$       |     |     | $\pm 100$ | nA   |
| Gate Threshold Voltage            | $V_{GS(th)}$  | $V_{DS}=V_{GS}$ $I_D=250\text{ A}$ | 2   | 2.6 | 4         | V    |
| Static Drain-Source On-Resistance | $R_{DS(on)1}$ | $V_{GS}=10V$ $I_D=20A$             |     | 3.2 | 4.5       | m    |
|                                   | $R_{DS(on)2}$ | $V_{GS}=6V$ $I_D=10A$              |     | 4.2 | 6.5       | m    |
| Forward On Voltage                | $V_{SD}$      | $V_{GS}=0V$ $I_S=1A$               |     |     | 1.2       | V    |

Gate resistance  $R_g$   $f=1\text{MHz}$  1.3



| Parameter           | Symbol       | Test Conditions                                          | Min | Typ | Max | Unit |
|---------------------|--------------|----------------------------------------------------------|-----|-----|-----|------|
| Turn-On Delay Time  | $t_{d(on)}$  | $V_{GS}=10V$<br>$R_L=2.5$<br>$V_{DS}=50V$<br>$R_{GEN}=3$ |     | 27  |     | ns   |
| Turn-On Rise Time   | $t_r$        |                                                          |     | 20  |     |      |
| Turn-Off Delay Time | $t_{d(off)}$ |                                                          |     | 50  |     |      |
| Turn-Off Fall Time  | $t_f$        |                                                          |     | 25  |     |      |

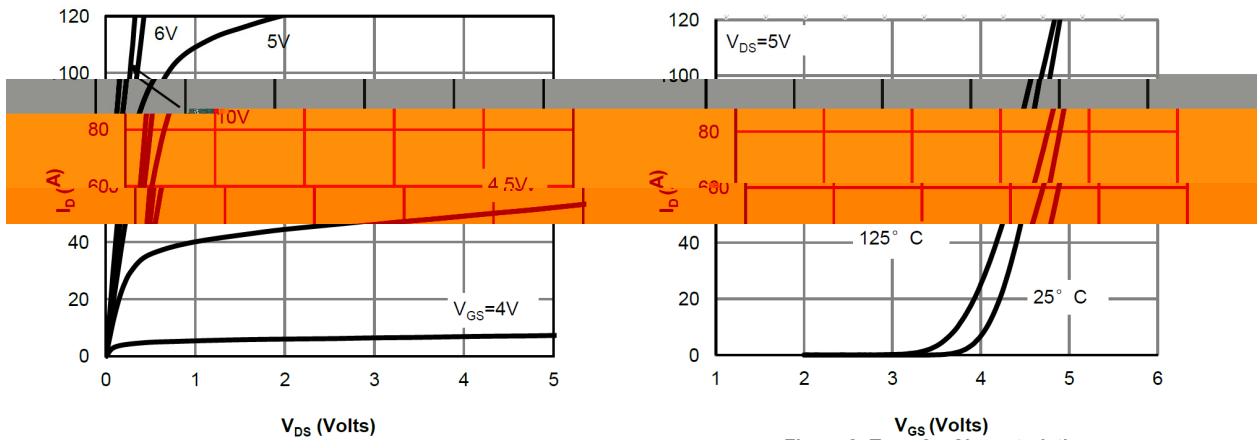


Figure 1: On-Region Characteristics

Figure 2: Transfer Characteristics

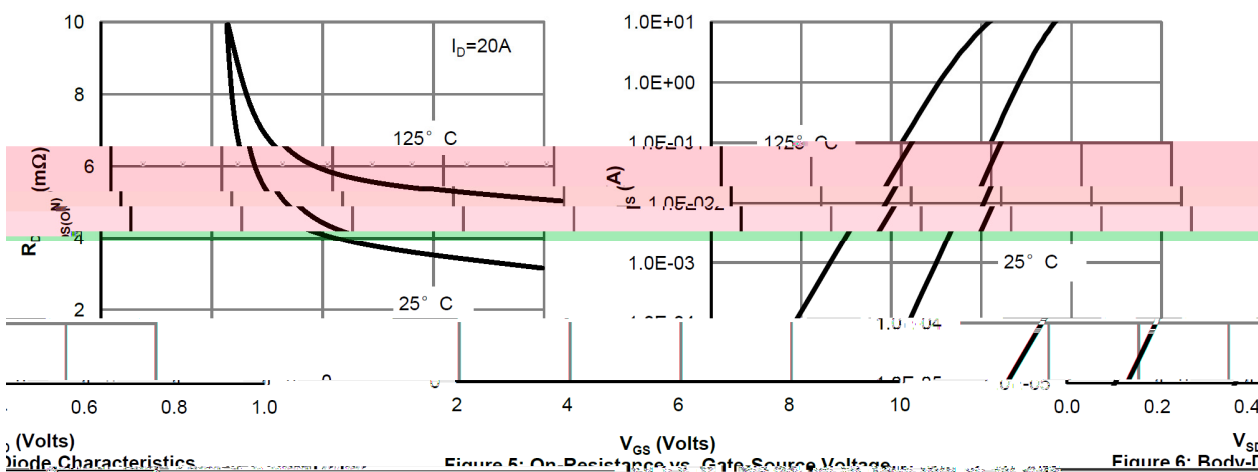
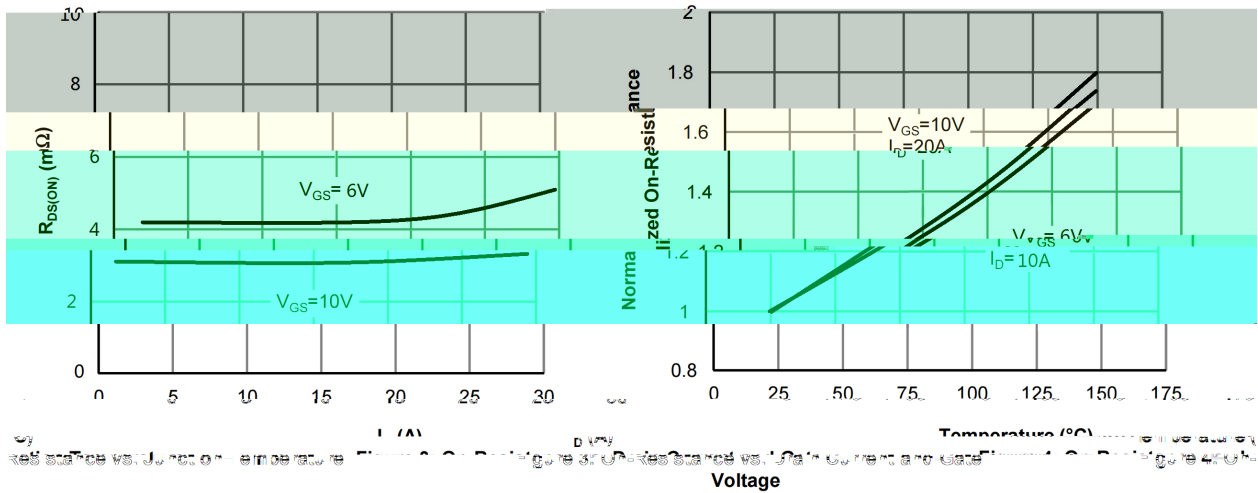


Figure 5: On-Resistance vs. Gate-Source Voltage

Figure 6: Body Diode Characteristics

