



## YJS9435B

### P-Channel Enhancement Mode Field Effect Transistor

#### Product Summary

|                                    |        |
|------------------------------------|--------|
| $V_{DS}$                           | -30 V  |
| $I_D$                              | -5.5 A |
| $R_{DS(ON)}$ ( at $V_{GS}=-10V$ )  | 41 m   |
| $R_{DS(ON)}$ ( at $V_{GS}=-4.5V$ ) | 59 m   |

#### General Description

Trench Power LV MOSFET technology  
High density cell design for Low  $R_{DS(ON)}$   
High Speed switching

Epoxy Meets UL 94 V-0 Flammability Rating  
Halogen Free

#### Applications

Battery protection  
Load switch  
Power management

#### Absolute Maximum Ratings ( $T_A=25$ unless otherwise noted)

| Parameter                              |           | Symbol         | Limit    | Unit |
|----------------------------------------|-----------|----------------|----------|------|
| Drain-source Voltage                   |           | $V_{DS}$       | -30      | V    |
| Gate-source Voltage                    |           | $V_{GS}$       | $\pm 20$ | V    |
| Drain Current                          | $T_A=25$  | $I_D$          | -5.5     | A    |
|                                        | $T_A=100$ |                | -3.5     |      |
| Pulsed Drain Current <sup>A</sup>      |           | $I_{DM}$       | -30      | A    |
|                                        | $T_A=25$  |                | 2.5      |      |
| Junction and Storage Temperature Range |           | $T_J, T_{STG}$ | -55 +150 |      |

#### Thermal resistance

| Parameter                                           |              | Symbol | Typ | Max | Units       |
|-----------------------------------------------------|--------------|--------|-----|-----|-------------|
| Thermal Resistance Junction-to-Ambient <sup>C</sup> | Steady-State | R      | 40  | 50  | $^{\circ}W$ |

#### Ordering Information (Example)

| PREFERRED P/N | PACKING CODE | Marking | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---------------|--------------|---------|----------------------|-------------------------|----------------------------|---------------|
| YJS9435B      | F2           | Q9435B  | 4000                 | 8000                    | 64000                      |               |



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### Electrical Characteristics ( $T_J=25$ unless otherwise noted)

| Parameter                         | Symbol       | Conditions                        | Min  | Typ  | Max       | Units |
|-----------------------------------|--------------|-----------------------------------|------|------|-----------|-------|
| Static Parameter                  |              |                                   |      |      |           |       |
| Drain-Source Breakdown Voltage    | $BV_{DSS}$   | $V_{GS}=0V, I_D=-$                | -30  | -    | -         | V     |
| Zero Gate Voltage Drain Current   | $I_{DSS}$    | $V_{DS}=-30V, V_{GS}=0V$          | -    | -    | -1        |       |
|                                   |              | $V_{DS}=-30V, V_{GS}=0V, T_J=150$ | -    | -    | -100      |       |
| Gate-Body Leakage Current         | $I_{GSS}$    | $V_{GS}=\pm 20V, V_{DS}=0V$       | -    | -    | $\pm 100$ | nA    |
| Gate Threshold Voltage            | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=-$            | -1.0 | -1.5 | -2.4      | V     |
| Static Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}=-10V, I_D=-5.5A$          | -    | 30   | 41        |       |
|                                   |              | $V_{GS}=-4.5V, I_D=-3.5A$         | -    | 46   | 59        |       |

Diode

**YJS9435B**



Figure 7.  $R_{DS(on)}$  VS Drain Current

Figure 8. Forward characteristics of reverse diode

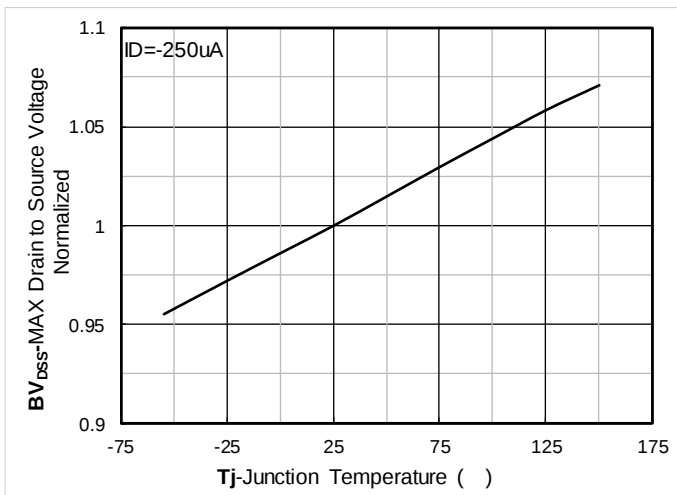


Figure 9. Normalized breakdown voltage

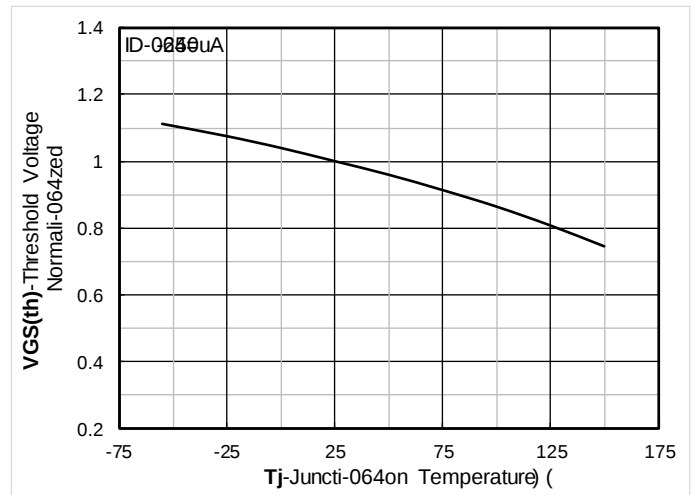


Figure 10. Normalized Threshold voltage

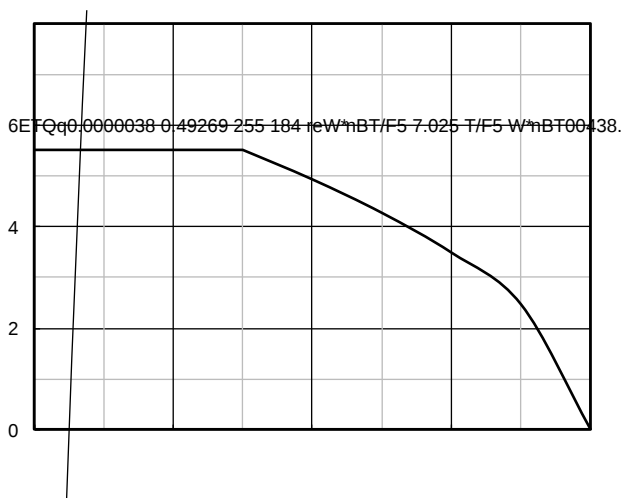
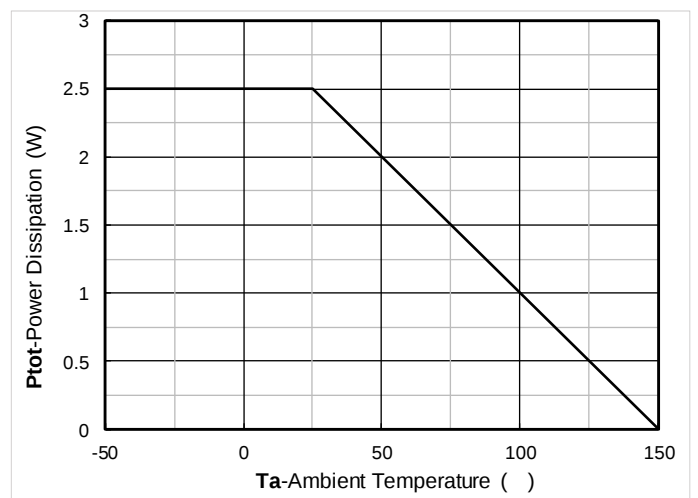


Figure 11. Current dissipation



Figure

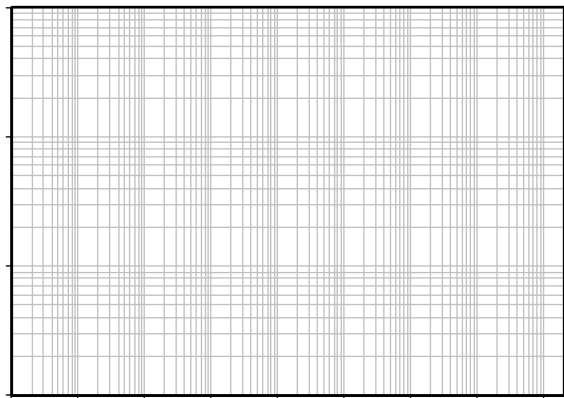


Figure 13. Maximum Transient Thermal Impedance

Figure 14. Safe Operation Area



## SOP-8 Package information

| SYMBOL | MIN.     |       |          |
|--------|----------|-------|----------|
|        | 0.053    | 0.069 |          |
| B      | 0.004    | 0.010 |          |
|        |          | 0.061 |          |
| D      |          | 0.020 |          |
| E      |          |       |          |
| F      |          |       |          |
| G      | 0.050BSC |       | 1.270BSC |
| H      |          |       |          |
| J      |          |       |          |
| K      |          |       |          |
|        |          |       |          |



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