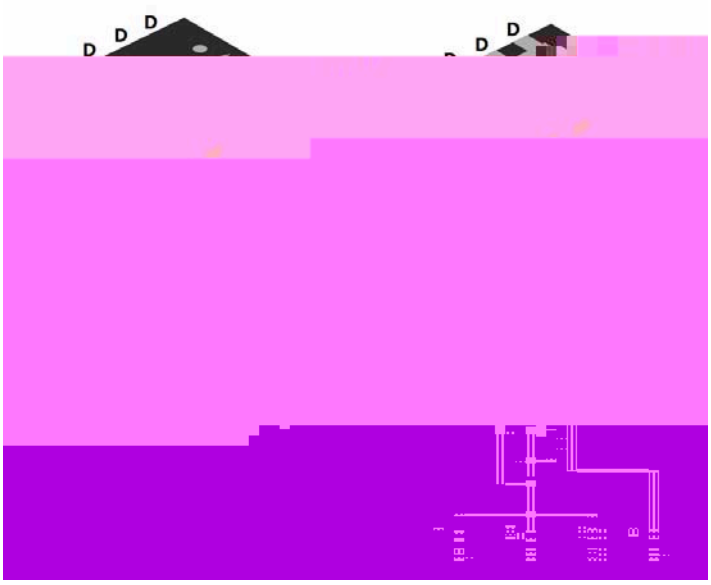
# P-Channel Enhancement Mode Field Effect Transistor



## Product Summary

| | |
|---|---|
| ● $V_{DS}$ | -100V |
| ● $I_D$ | -15A |
| ● $R_{DS(ON)}$( at $V_{GS}$=10V) | 110mΩ |
| ● $R_{DS(ON)}$( at $V_{GS}$=4.5V) | 120mΩ |
| ● 100% EAS Tested | |

## General Description

- Split gate trench MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$
- Part no. with suffix "Q" means AEC-Q101 qualified

## Applications

- Power switching application
- Uninterruptible power supply
- DC-DC convertor
- 12V, 24V and 48V Automotive systems

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

| Parameter | | Symbol | Limit | Unit |
|---|---|---|---|---|
| Drain-source Voltage | | $V_{DS}$ | -100 | V |
| Gate-source Voltage | | $V_{GS}$ | ±20 | V |
| Drain Current | $T_A$=25 | $I_D$ | -3.9 | A |
| | $T_A$=100 | | -2.5 | |
| | $T_C$=25 | | -15 | |
| | $T_C$ =100 | | -9.5 | |
| Pulsed Drain Current $^A$ | | $I_{DM}$ | -35 | A |
| Avalanche energy $^B$ | | EAS | 64 | mJ |
| Total Power Dissipation $^C$ | $T_A$=25 | $P_D$ | 2.5 | W |
| | $T_A$=100 | | 1 | |
| | $T_C$=25 | | 43 | |
| | $T_C$ =100 | | 17.2 | |
| Junction and Storage Temperature Range | | $T_J$ ,$T_{STG}$ | -55 +150 | |

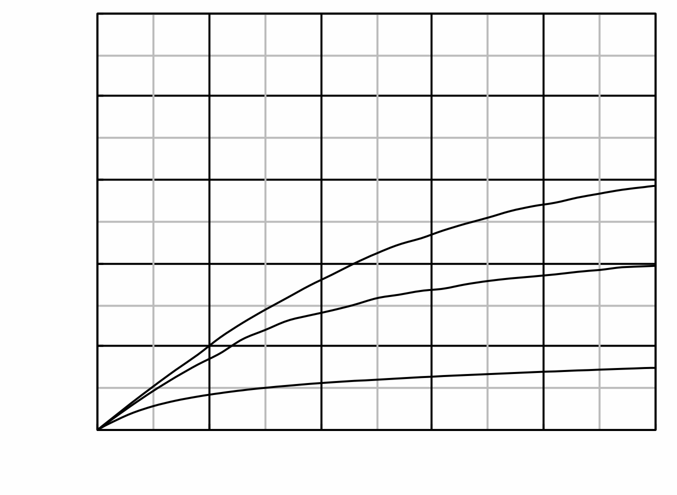
## ■Thermal resistance

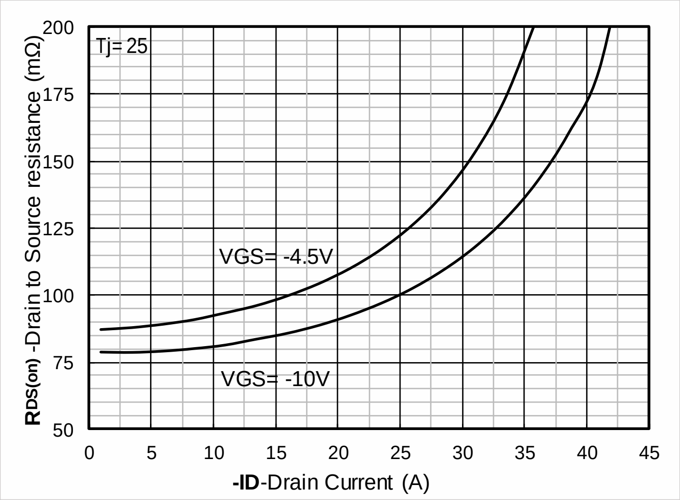
| Parameter | | Symbol | Typ | Max | Units |
|---|---|---|---|---|---|
| Thermal Resistance Junction-to-Ambient $^D$ | Steady-State | $R_{\theta JA}$ | 40 | 50 | /W |
| Thermal Resistance Junction-to-Case | Steady-State | $R_{\theta JC}$ | 2.4 | 2.9 | |

## ■ Ordering Information (Example)

| PREFERED P/N | PACKING CODE | Marking | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---|---|---|---|---|---|---|
| YJQ15GP10AQ | F1 | Q15GP10A | 5000 | 10000 | 100000 | 13" reel |

## ■Typical Electrical and Thermal Characteristics Diagrams





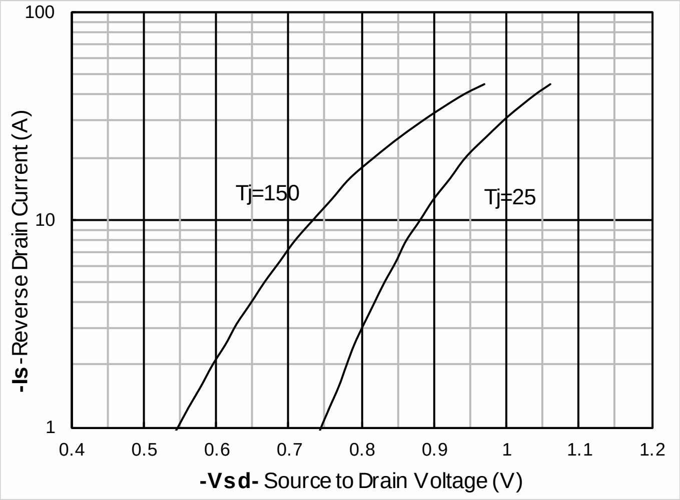
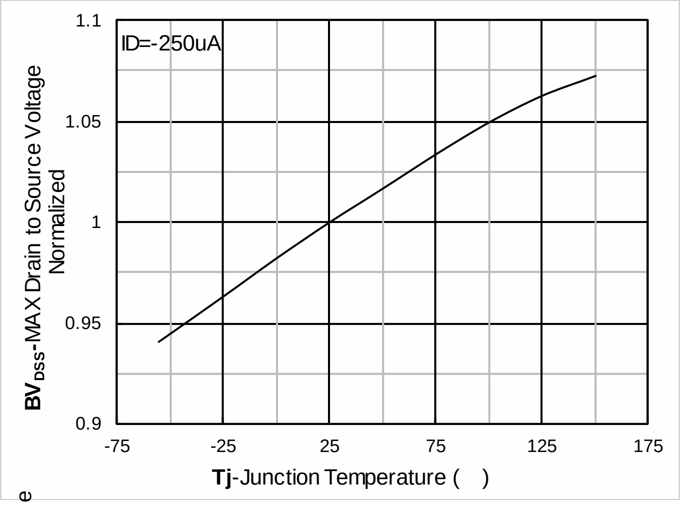


Figure 7. RDS(on) VS Drain Current

Figure 8. Forward characteristics of reverse diode



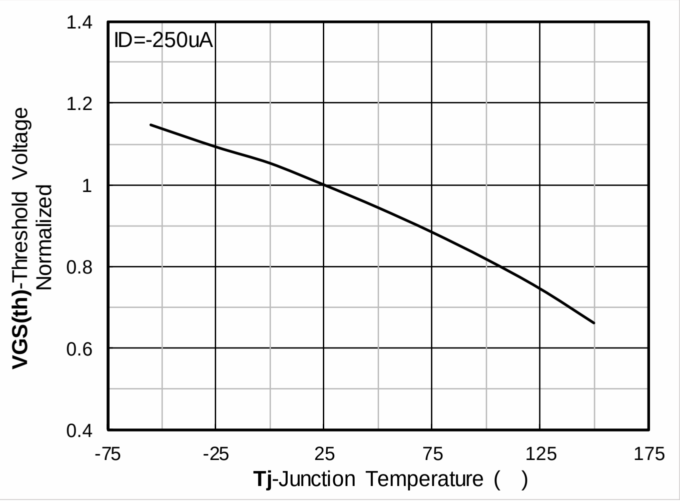
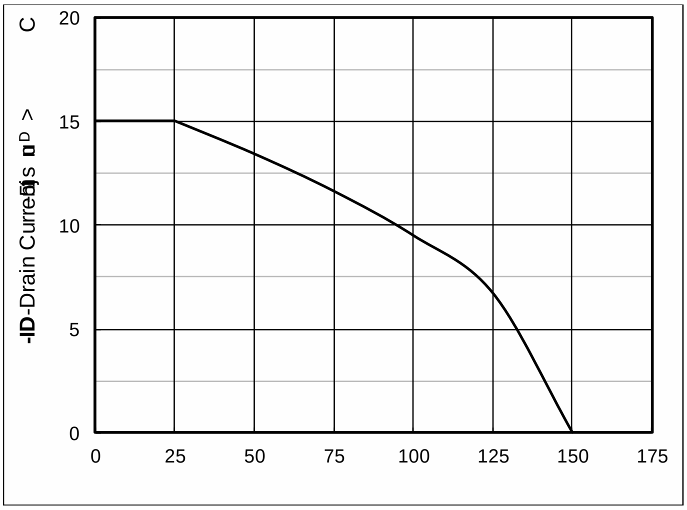
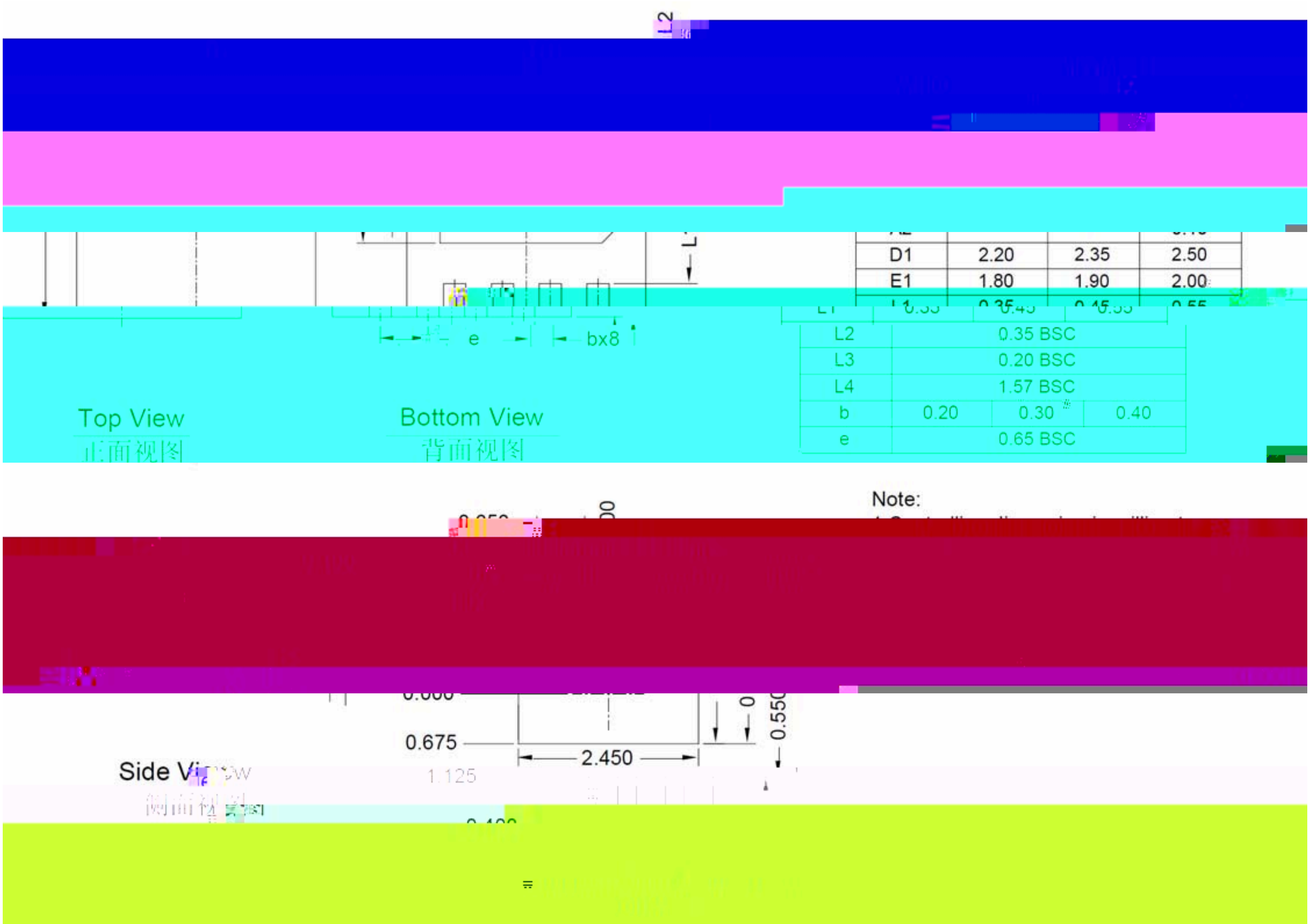


Figure 9. Normalized breakdown voltage

Figure 10. Normalized Threshold voltage



## ■DFN3333-8L Package information



| | | | |
|---|---|---|---|
| D1 | 2.20 | 2.35 | 2.50 |
| E1 | 1.80 | 1.90 | 2.00 |
| L2 | 0.35 BSC | | |
| L3 | 0.20 BSC | | |
| L4 | 1.57 BSC | | |
| b | 0.20 | 0.30 | 0.40 |
| e | 0.65 BSC | | |

Note: