

# LPB8337DT0AG

P-Channel 30-V (D-S) MOSFET

## 1. FEATURES

- Low RDS(on) trench technology.
- Low thermal impedance.
- Fast switching speed.
- We declare that the material of product are Halogen Free and compliance with RoHS requirements.
- ESD protected



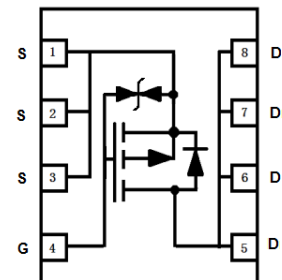
DFN3333-8A

## 2. APPLICATION

- Load Switches
- DC/DC Conversion
- Motor Drives

## 3. ORDERING INFORMATION

| Device       | Marking | Shipping       |
|--------------|---------|----------------|
| LPB8337DT0AG | A37     | 2000/Tape&Reel |



## 4. MAXIMUM RATINGS(Ta = 25°C unless otherwise stated)

| Parameter                        |          | Symbol | Limits    | Unit |
|----------------------------------|----------|--------|-----------|------|
| Drain-to-Source Voltage          |          | VDSS   | -30       | V    |
| Gate-to-Source Voltage           |          | VGS    | ±25       | V    |
| Avalanche Current                |          | IAS    | 35        | A    |
| Avalanche energy L=0.1mH         |          | EAS    | 61.25     | mJ   |
| Continuous Drain Current(Note 1) | TA =25°C | ID     | -9        | A    |
|                                  | TA =70°C |        | -7        |      |
| Pulsed Drain Current (Note 2)    |          | IDM    | -40       |      |
| Power Dissipation(Note 5)        | TA =25°C | PD     | 0.78      | W    |
|                                  | TA =70°C |        | 0.5       |      |
| Operating Junction Temperature   |          | TJ     | -55 ~+150 | °C   |
| Storage Temperature Range        |          | Tstg   | -55 ~+150 |      |

1.Surface-mounted on FR4 board using the minimum recommended pad size.

2.Pulse width limited by maximum junction temperature.

## 5. THERMAL CHARACTERISTICS

| Parameter                                   | Symbol | Value | Unit |
|---------------------------------------------|--------|-------|------|
| Junction-to-Case (Note 1)                   | RθJC   | 21    | °C/W |
| Junction-to-Ambient – Steady State (Note 1) | RθJA   | 160   |      |
| Junction-to-Ambient – Steady State (Note 5) | RθJA   | 80    |      |
| Junction-to-Ambient – (t ≤10 s) (Note 5)    | RθJA   | 33    |      |

## 6. ELECTRICAL CHARACTERISTICS

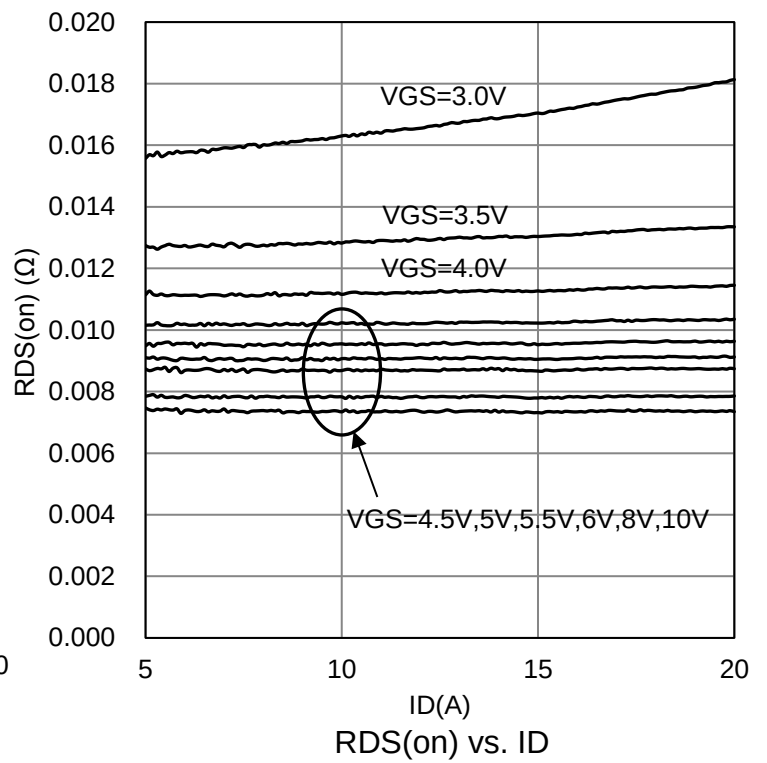
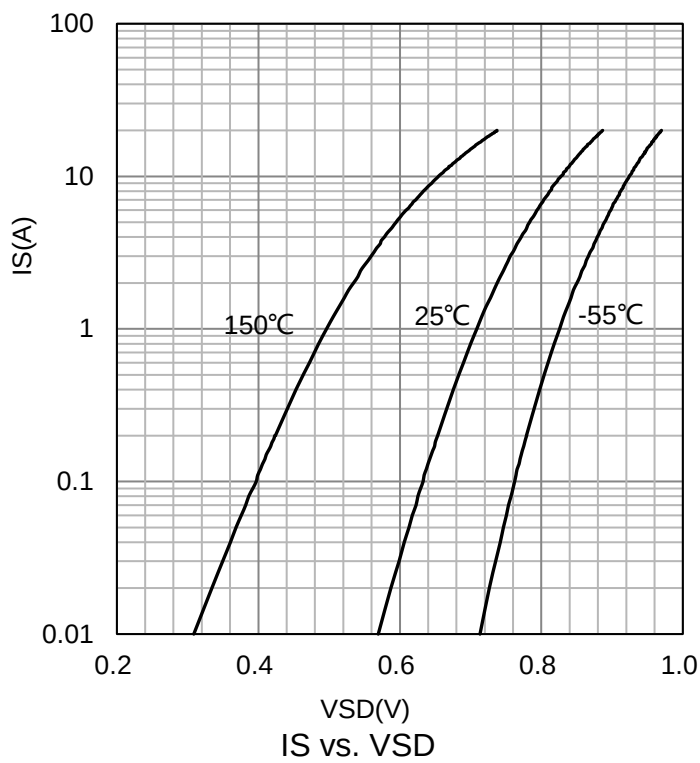
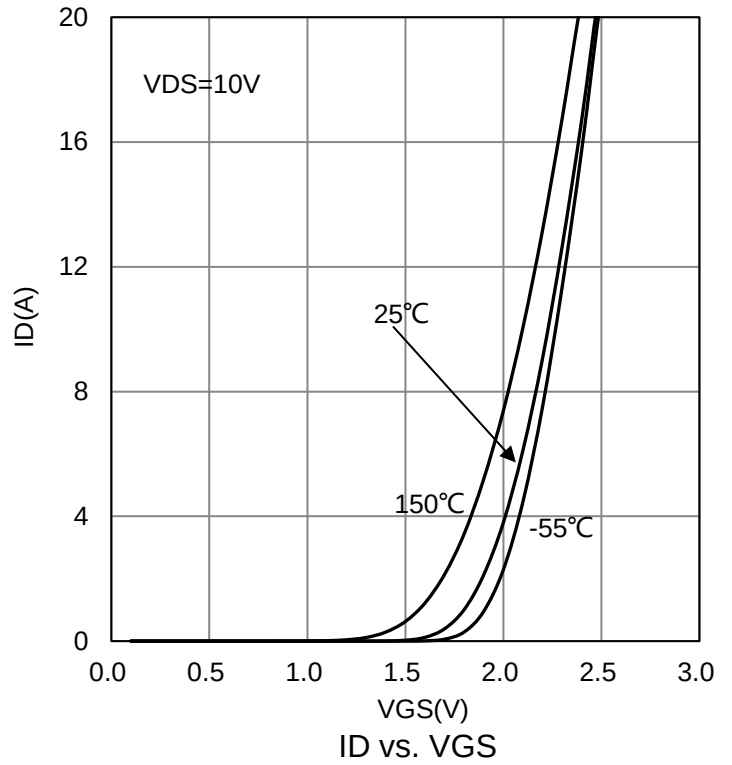
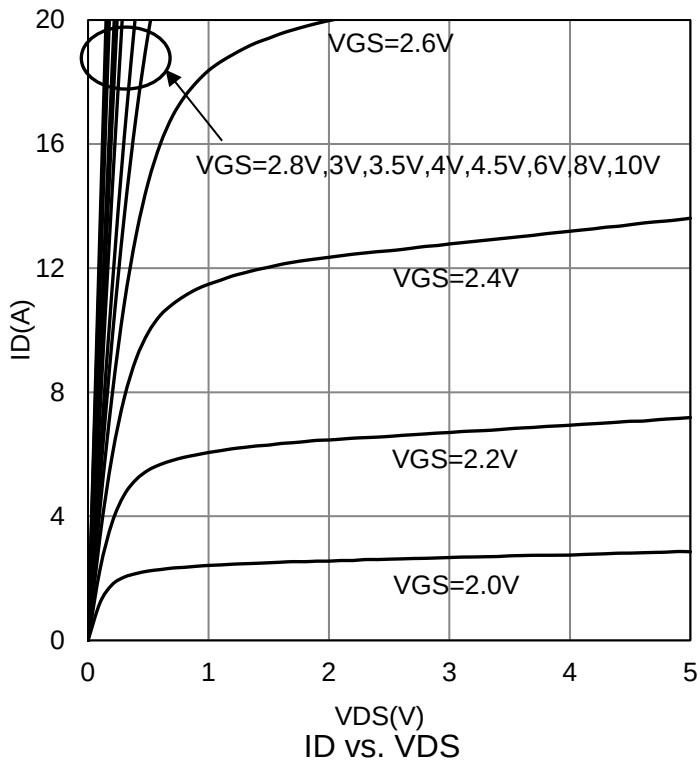
| Characteristic                                                                                      |                                                                | Symbol   | Min.   | Typ.        | Max.      | Unit |
|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------|----------|--------|-------------|-----------|------|
| Static                                                                                              |                                                                |          |        |             |           |      |
| Drain-Source Breakdown Voltage<br>(VGS=0 , ID = -250 uA)                                            |                                                                | V(BR)DSS | -30    | -           | -         | V    |
| Gate-Source Threshold Voltage<br>(VDS = VGS , ID = -250 uA)                                         |                                                                | VGS(th)  | -1     | -1.3        | -3        | V    |
| Gate-Body Leakage<br>(VDS = 0 V, VGS = ± 25 V)                                                      |                                                                | IGSS     | -      | -           | ± 10      | μA   |
| Zero Gate Voltage Drain Current<br>(VDS = -24 V, VGS = 0 V)<br>(VDS = -24 V, VGS = 0 V, TJ = 55° C) |                                                                | IDSS     | -<br>- | -<br>-      | -1<br>-25 | μA   |
| Drain-Source On-Resistance(Note 3)<br>(VGS = -10 V, ID = -13.6 A)<br>(VGS = -4.5 V, ID = -10.9 A)   |                                                                | RDS(on)  | -<br>- | 7.5<br>10.5 | 9<br>13   | mΩ   |
| Diode Forward Voltage(Note 3)<br>(IS = -2.3 A, VGS = 0 V)                                           |                                                                | VSD      | -      | -0.76       | -1.2      | V    |
| Dynamic(Note 4)                                                                                     |                                                                |          |        |             |           |      |
| Total Gate Charge                                                                                   | (VDS = -15 V,<br>VGS = -4.5 V,ID =<br>-13.6 A)                 | Qg       | -      | 26.22       | -         | nC   |
| Gate-Source Charge                                                                                  |                                                                | Qgs      | -      | 3.48        | -         |      |
| Gate-Drain Charge                                                                                   |                                                                | Qgd      | -      | 13.26       | -         |      |
| Input Capacitance                                                                                   | (VDS = -15 V,<br>VGS = 0 V, f = 1<br>MHz)                      | Ciss     | -      | 4555        | -         | pF   |
| Output Capacitance                                                                                  |                                                                | Coss     | -      | 442         | -         |      |
| Reverse Transfer Capacitance                                                                        |                                                                | Crss     | -      | 441         | -         |      |
| Turn-On Delay Time                                                                                  | (VDS=-15 V,<br>RL=1.2 Ω,ID=-<br>13.6 A,VGEN=-10<br>V,RGEN=6 Ω) | td(on)   | -      | 15          | -         | ns   |
| Rise Time                                                                                           |                                                                | tr       | -      | 46          | -         |      |
| Turn-Off Delay Time                                                                                 |                                                                | td(off)  | -      | 113.8       | -         |      |
| Fall Time                                                                                           |                                                                | tf       | -      | 120.9       | -         |      |
| Gate Resistance<br>(VDS=0V ,VGS=0V, f=1.0MHz)                                                       |                                                                | Rg       | -      | 2.5         | 5.2       | Ω    |
| Source-Drain DIODE Ratings and Characteristics(Tc= 25° C)                                           |                                                                |          |        |             |           |      |
| Continuous Current(Note 5)                                                                          |                                                                | IS       | -      | -           | -25       | A    |
| Plused Current(Note 5)                                                                              |                                                                | ISM      | -      | -           | -100      | A    |
| Reverse Recovery Time<br>(IF=IS,dIf/dt=100A/us)                                                     |                                                                | trr      | -      | 62          | -         | ns   |
| Reverse Recovery Charge<br>(IF=IS,dIf/dt=100A/us)                                                   |                                                                | Qrr      | -      | 68          | -         | nC   |

3.Pulse test: PW ≤ 300μs duty cycle ≤ 2%.

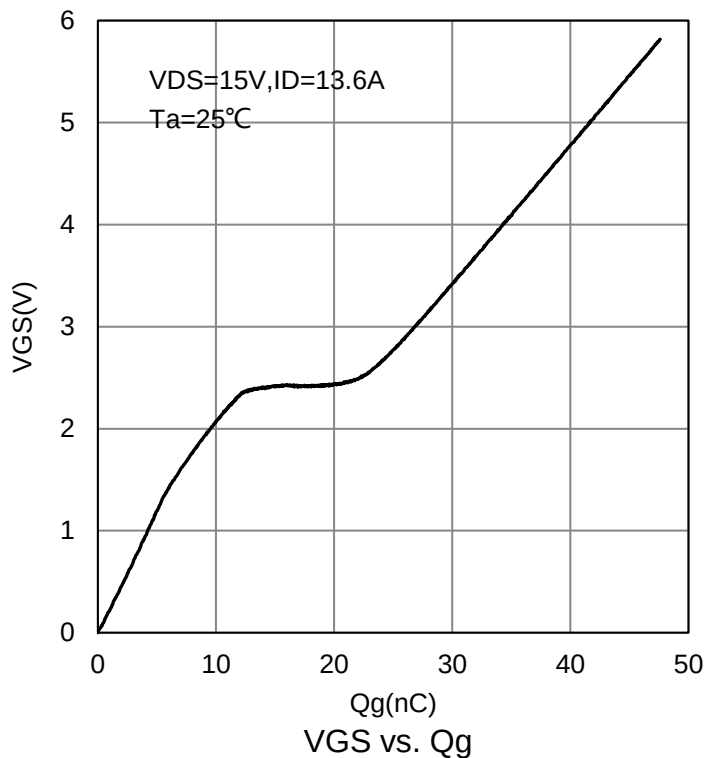
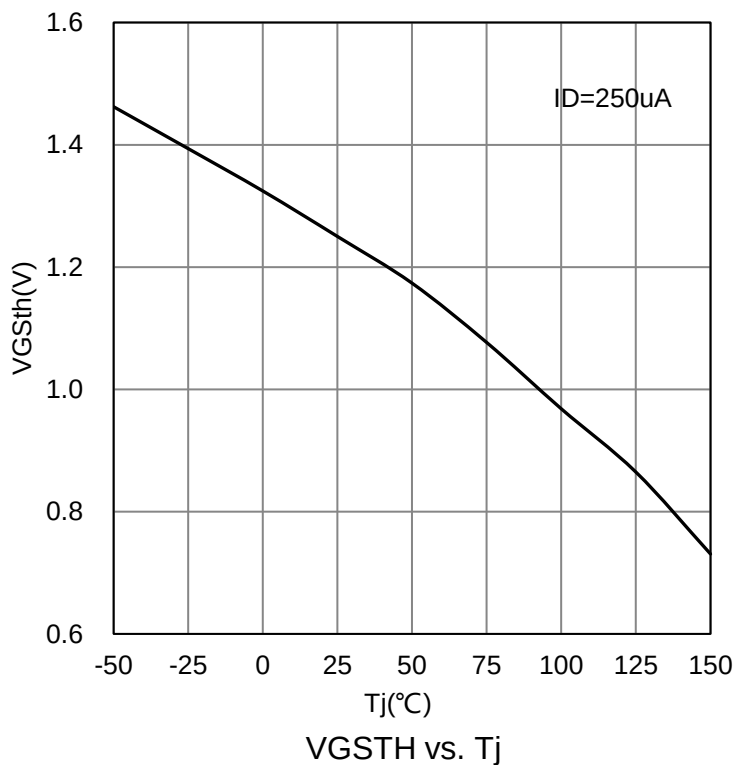
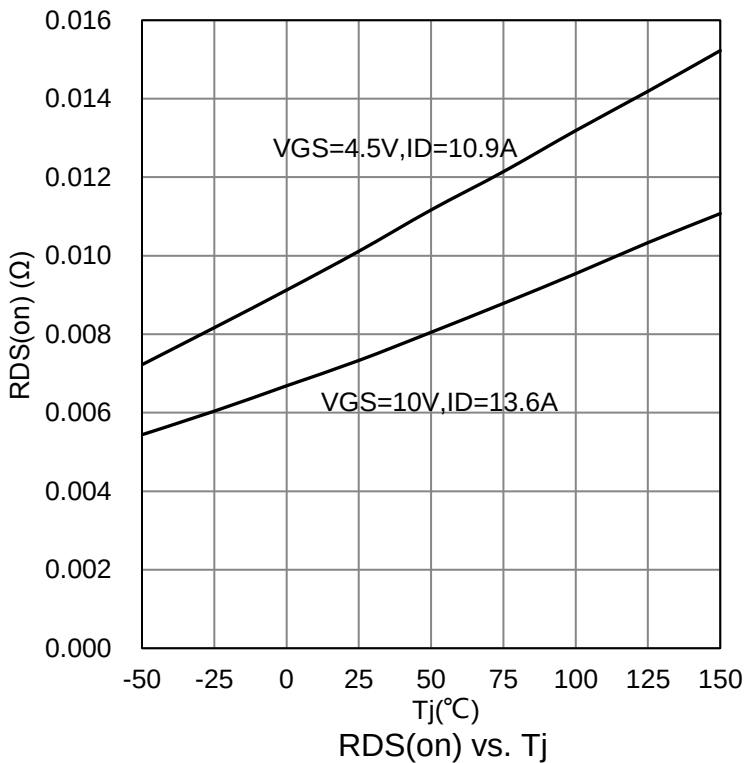
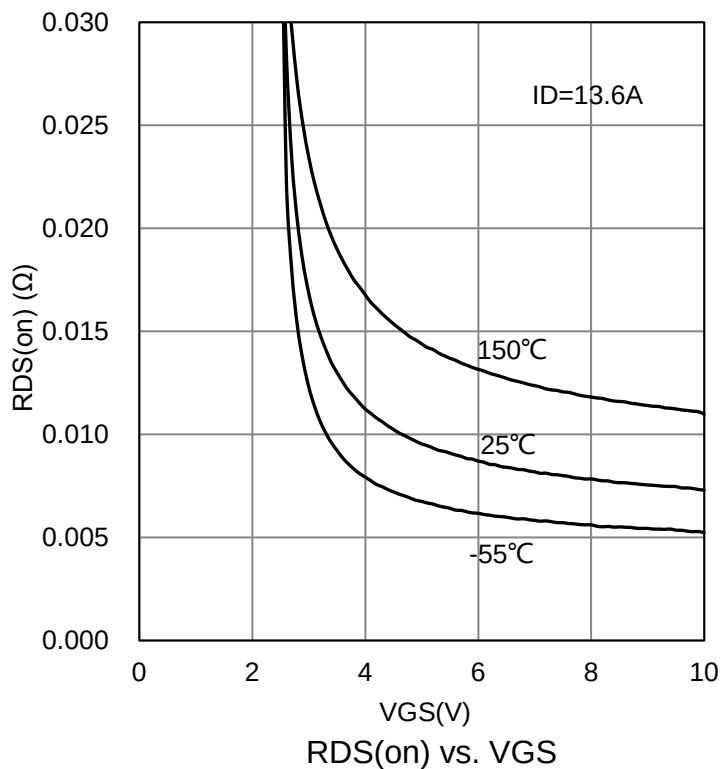
4.Guaranteed by design, not subject to production testing.

5.Surface-mounted on FR4 board using 1 sq-in pad, 1 oz Cu.

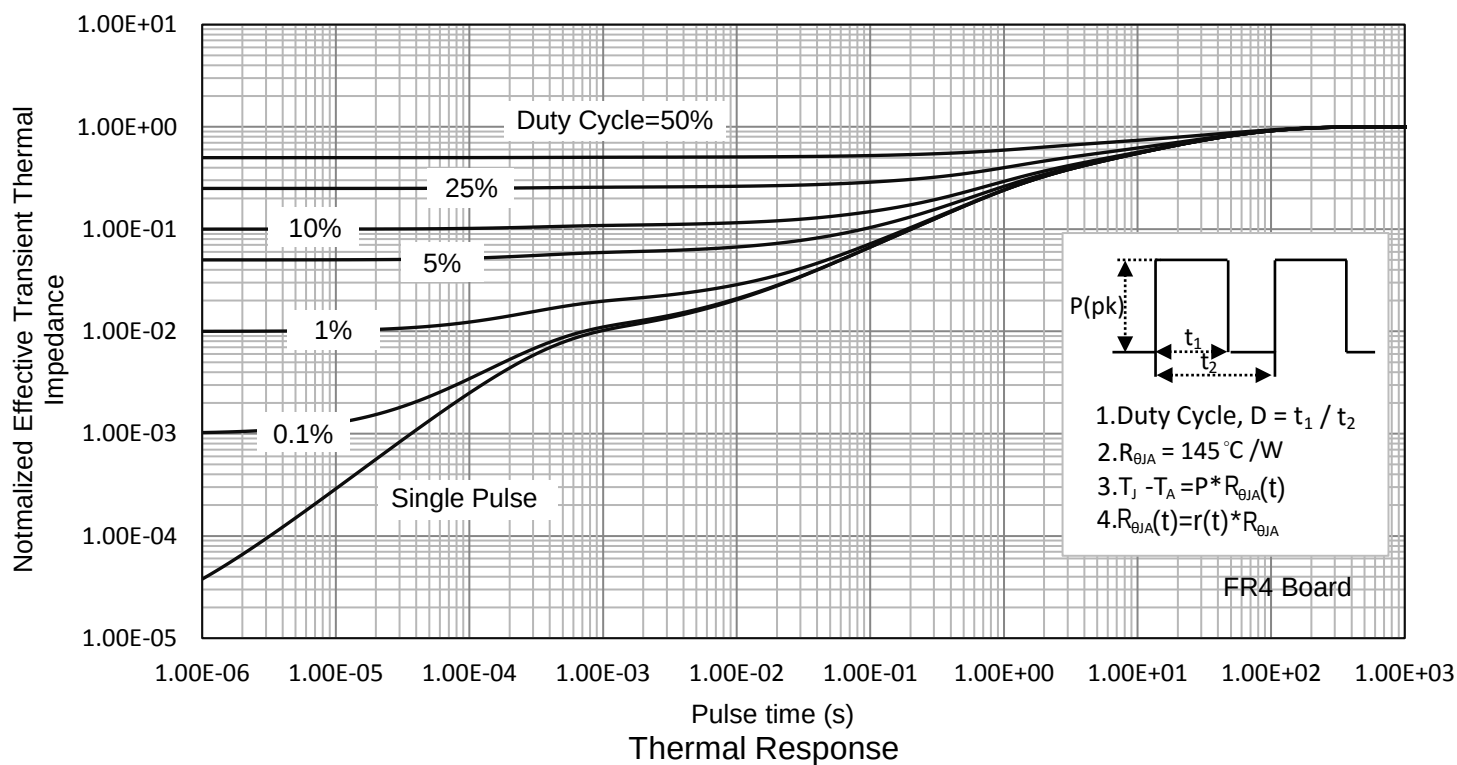
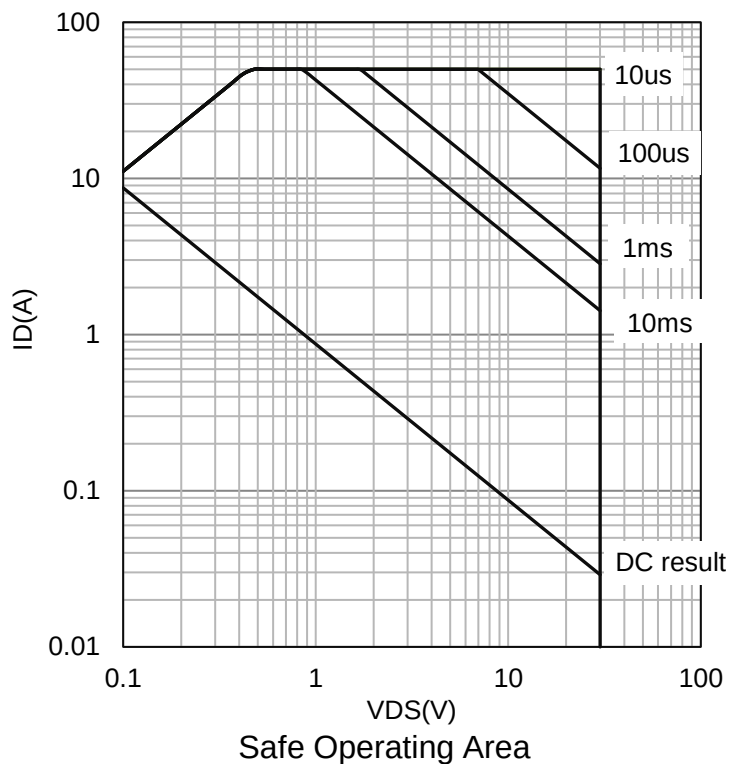
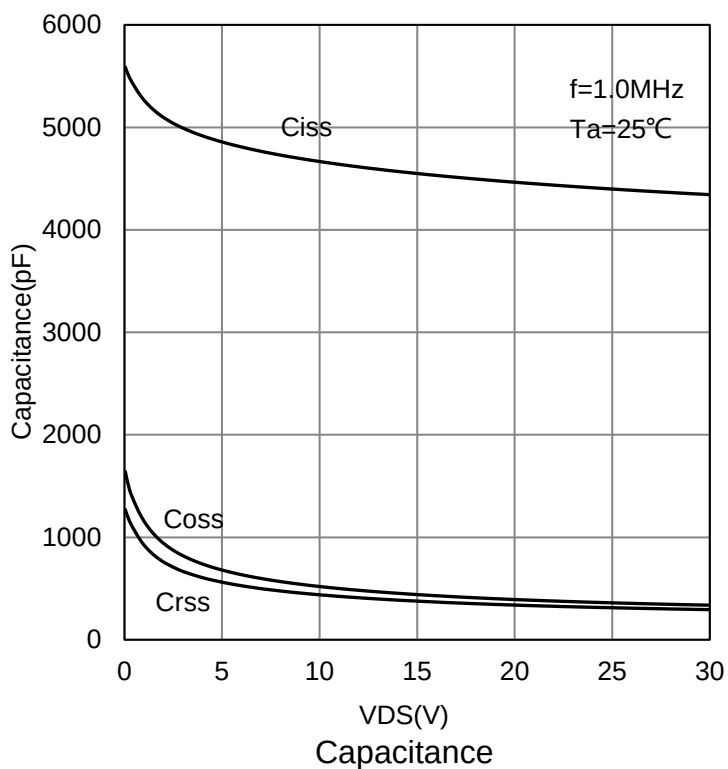
## 7. ELECTRICAL CHARACTERISTICS CURVES



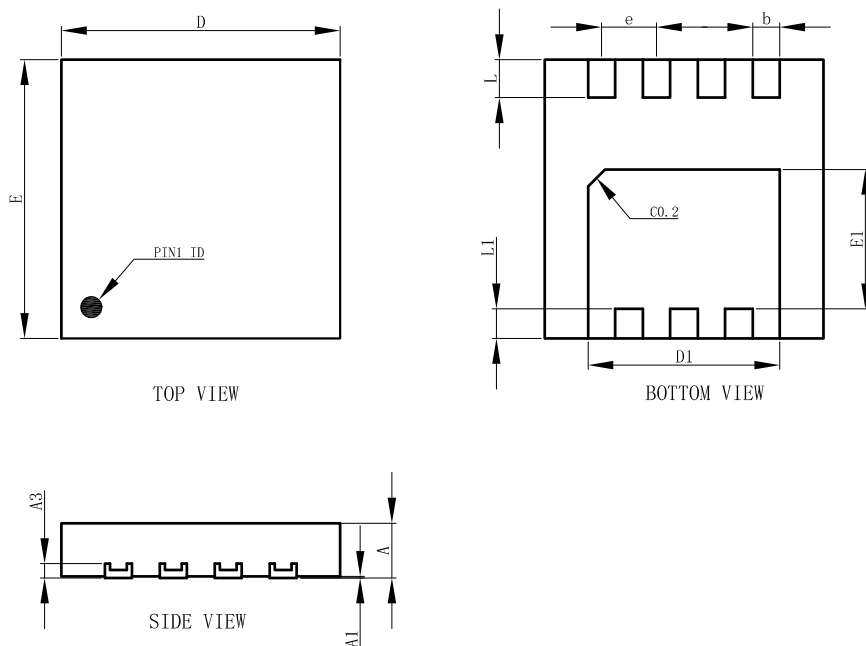
### 7.ELECTRICAL CHARACTERISTICS CURVES(Con.)



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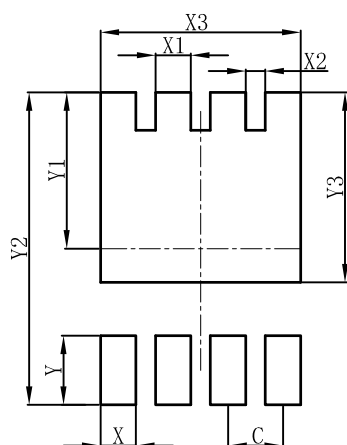


## 8.OUTLINE AND DIMENSIONS



| DFN3333-8A           |           |      |      |
|----------------------|-----------|------|------|
| DIM                  | MIN       | NOR  | MAX  |
| A                    | 0.60      | 0.65 | 0.70 |
| A1                   | 0.00      | 0.03 | 0.05 |
| b                    | 0.27      | 0.32 | 0.37 |
| D                    | 3.25      | 3.30 | 3.35 |
| E                    | 3.25      | 3.30 | 3.35 |
| D1                   | 2.22      | 2.27 | 2.32 |
| E1                   | 1.60      | 1.65 | 1.70 |
| e                    | 0.65BSC   |      |      |
| L                    | 0.40      | 0.45 | 0.50 |
| L1                   | 0.30      | 0.35 | 0.40 |
| A3                   | 0.152REF. |      |      |
| All Dimensions in mm |           |      |      |

## 9.SOLDERING FOOTPRINT



| DFN3333-8A |      |
|------------|------|
| DIM        | (mm) |
| C          | 0.65 |
| X          | 0.42 |
| X1         | 0.42 |
| X2         | 0.23 |
| X3         | 2.37 |
| Y          | 0.70 |
| Y1         | 1.85 |
| Y2         | 3.70 |
| Y3         | 2.25 |

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