

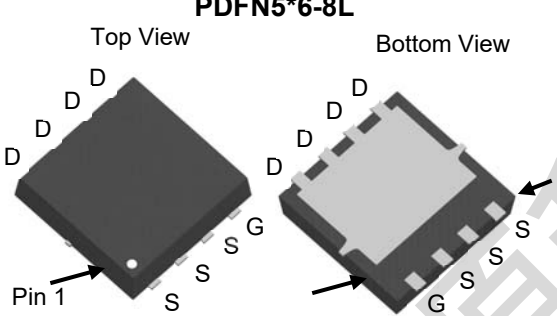
SGT N-Channel Enhancement-Mode MOSFET (60V,80A)

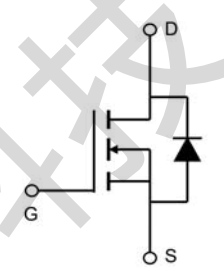
PRODUCT SUMMARY

| V_{DS} | I_D | $R_{DS(on)}$ (m Ω) Typ. |
|----------|-------|---------------------------------|
| 60V | 80A | 2.9@ $V_{GS} = 10V, I_D=20A$ |
| | | 3.8@ $V_{GS} = 4.5V, I_D=20A$ |


| Features | Applications |
|---|--|
| <ul style="list-style-type: none"> ✧ SGT Technology ✧ Exceptional on-resistance and maximum DC current capability ✧ Excellent $Q_g \times R_{DS(ON)}$ product (FOM) ✧ Lead (Pb) -free and halogen-free | <ul style="list-style-type: none"> ✧ Isolated DC/DC Converters in Telecom and Industrial ✧ Power Tool Application ✧ DC/DC Converters in Computing, Servers, and POL |

PDFN5*6-8L





TOP Marking


 ET6680T
 XXXXXX
 XXXXXX:D/C

注：关于产品丝印2022年5月后，丝印增加品牌商标。

Absolute Maximum Ratings (T_A=25°C, unless otherwise noted)

| Symbol | Parameter | Ratings | Units |
|-----------------------------------|---|-------------|-------|
| V_{DS} | Drain-Source Voltage | 60 | V |
| V_{GS} | Gate-Source Voltage | ±20 | V |
| I_D | Drain Current (Continuous)@T _A =25°C | 80 | A |
| | Drain Current (Continuous)@T _A =75°C | 70 | A |
| I_{DM} | Drain Current (Pulsed) ^a | 210 | A |
| P_D | Total Power Dissipation @T _c =25°C | 78 | W |
| | Total Power Dissipation @T _c =75°C | 31 | W |
| EAS | Avalanche energy, single pulsed | 140 | mJ |
| I_S | Maximum Diode Forward Current | 70 | A |
| T _j , T _{stg} | Operating Junction and Storage Temperature Range | -55 to +150 | °C |
| R _{QJA} | Thermal Resistance Junction to Ambient (PCB mounted) ^b | 40 | °C/W |

a: Repetitive Rating: Pulse width limited by the maximum junction temperature.

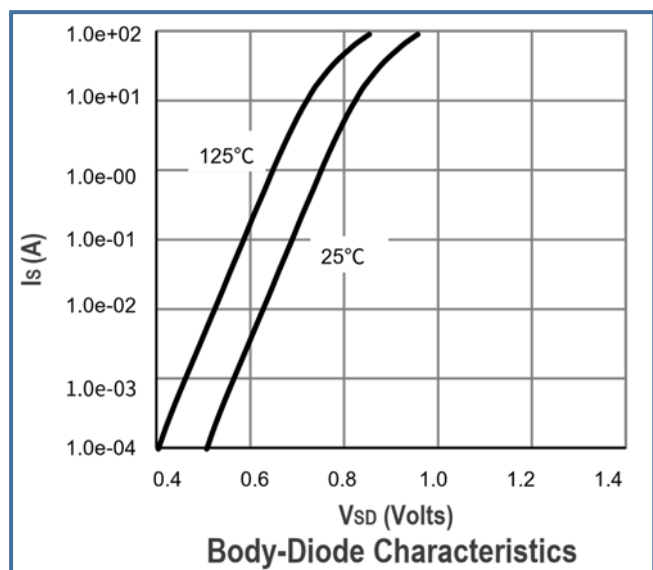
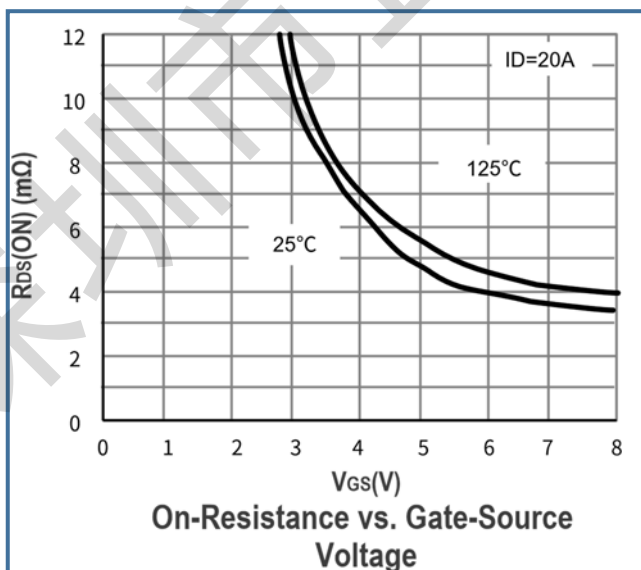
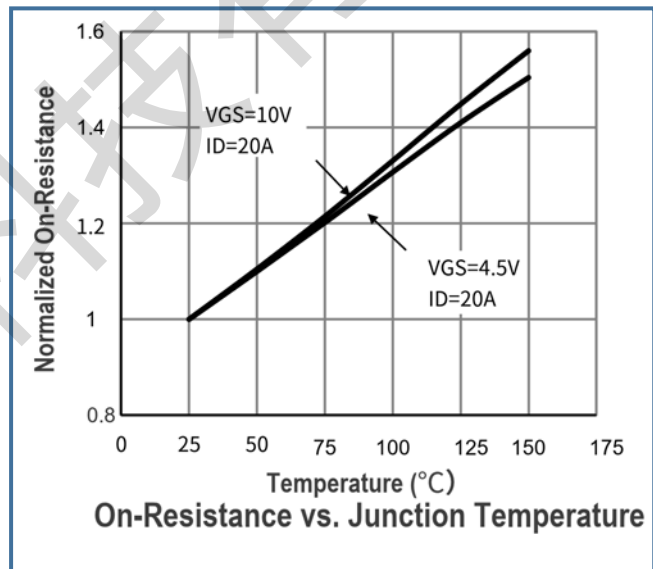
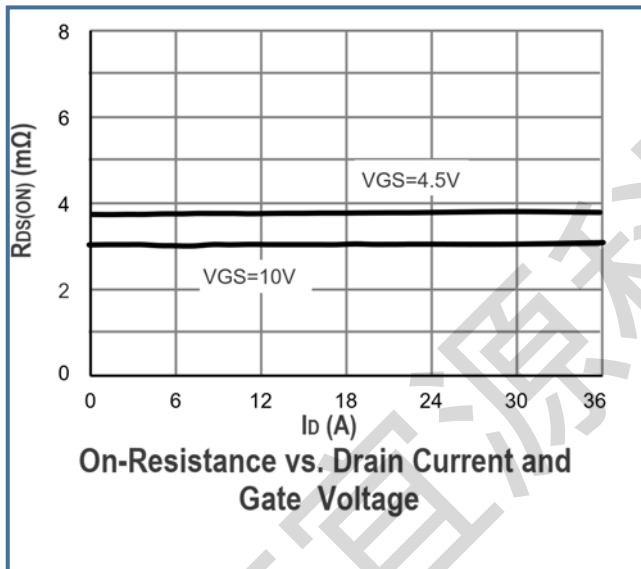
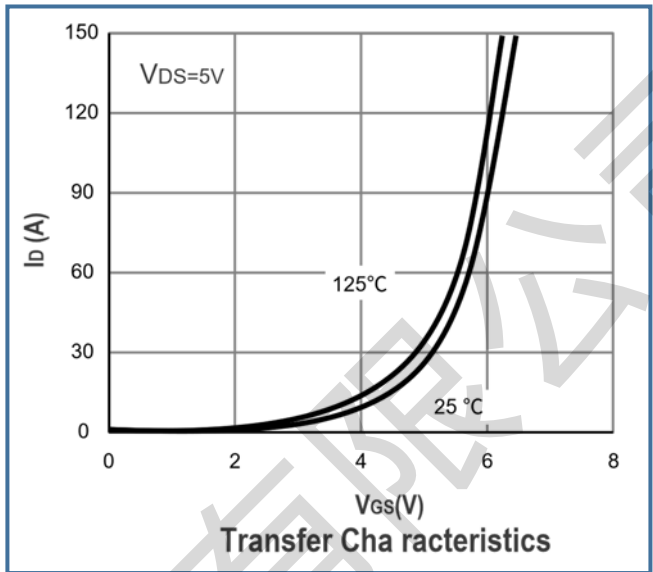
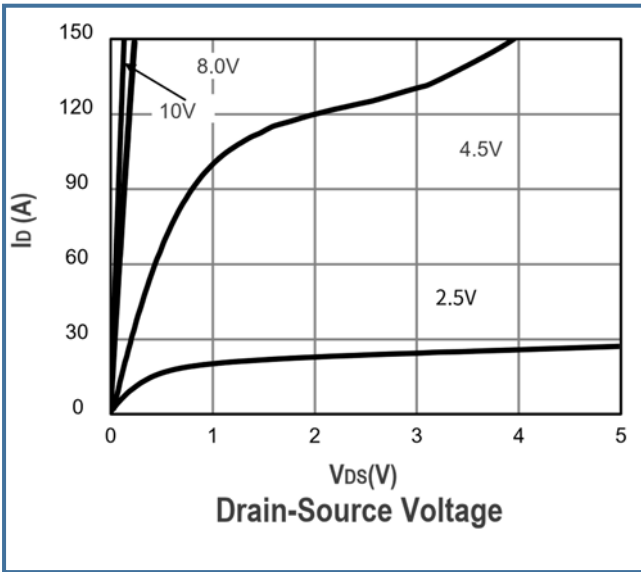
b: 1-in² 2oz Cu PCB board

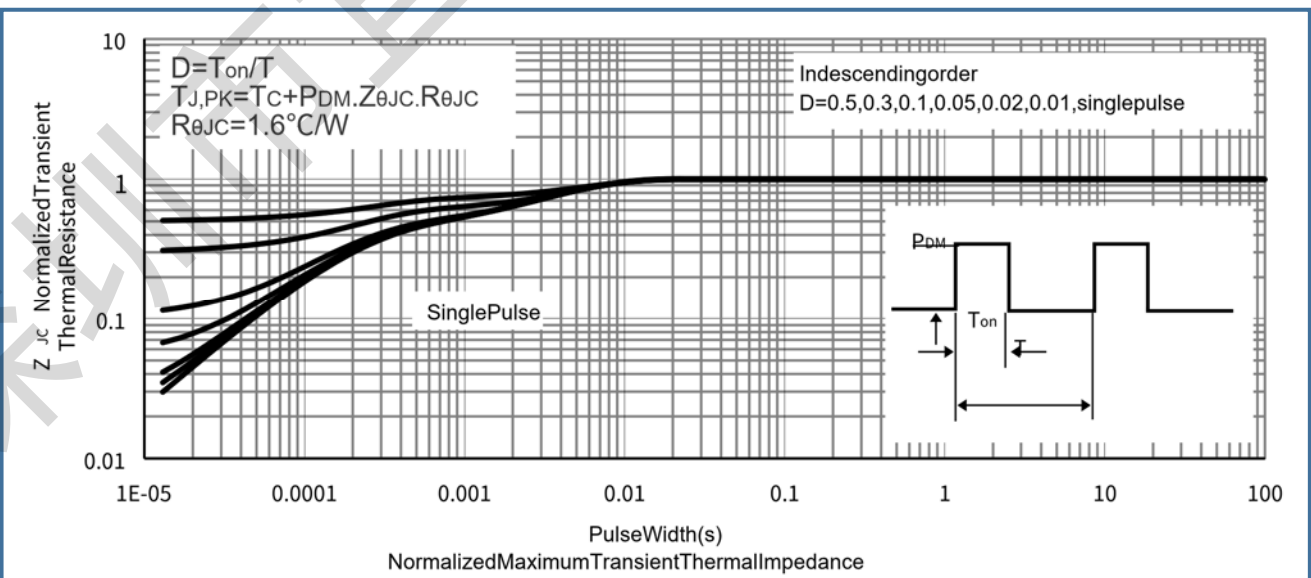
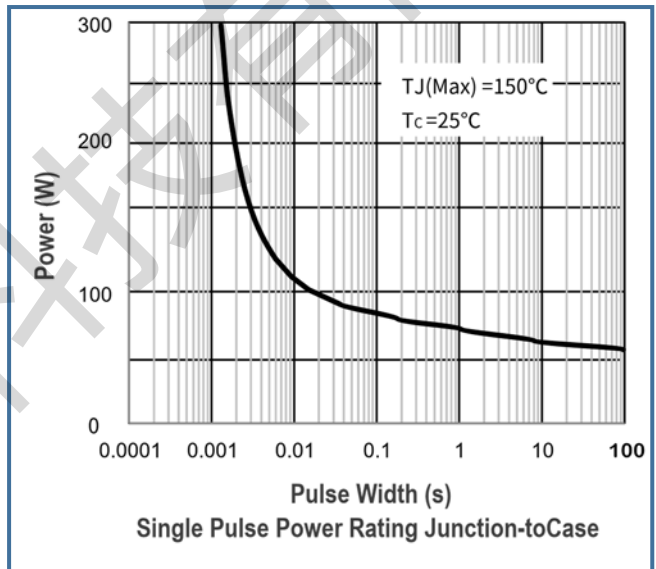
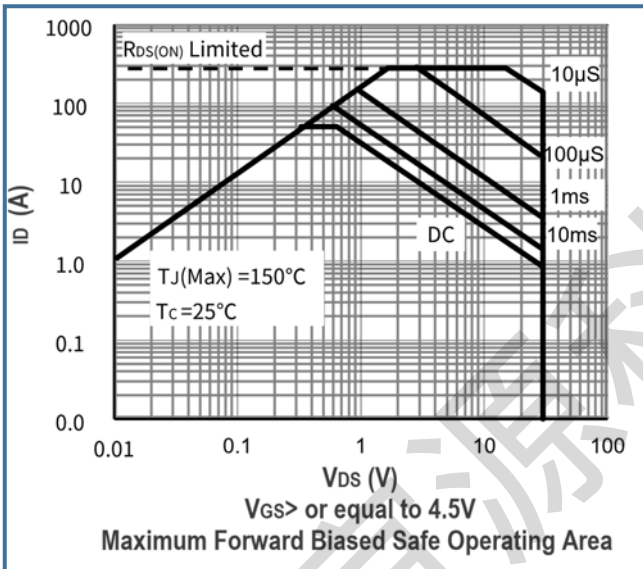
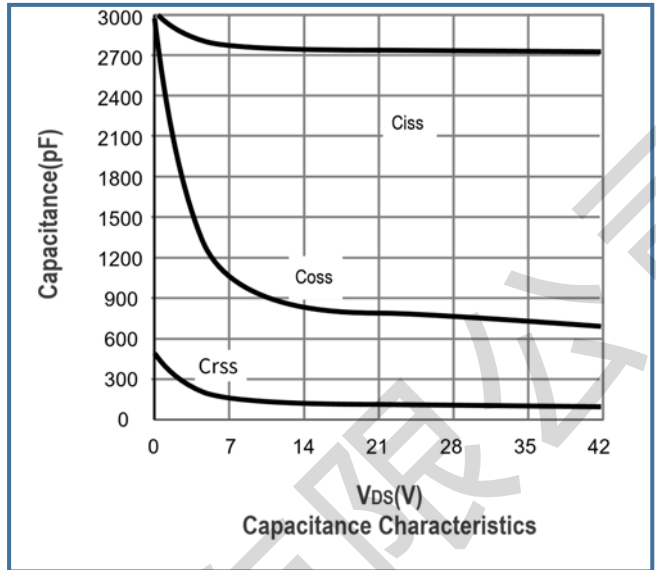
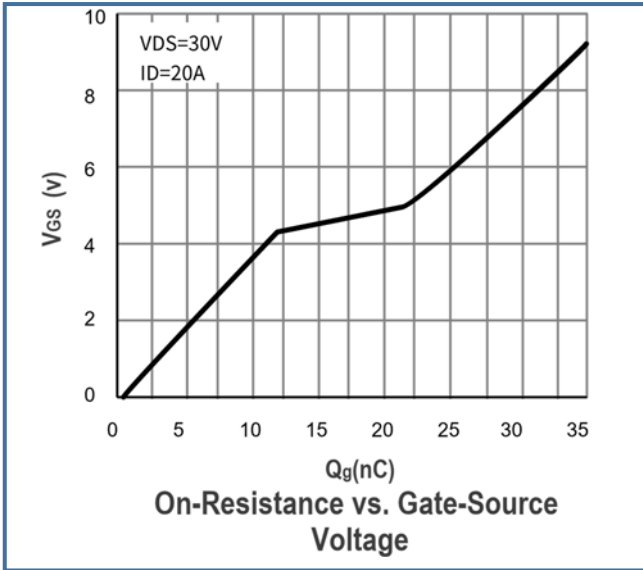
Electrical Characteristics (TA=25°C, unless otherwise noted)

| Symbol | Characteristic | Test Conditions | Min. | Typ. | Max. | Unit |
|---|------------------------------------|---|------|------|------|------|
| • Off Characteristics | | | | | | |
| B _{VDS} | Drain-Source Breakdown Voltage | V _{GS} =0V, I _D =250uA | 60 | 65 | - | V |
| I _{DSS} | Zero Gate Voltage Drain Current | V _{DS} =60V, V _{GS} =0V | - | - | 1 | μA |
| I _{GSS} | Gate-Body Leakage Current | V _{GS} =±20V, V _{DS} =0V | - | - | ±100 | nA |
| • On Characteristics | | | | | | |
| V _{GS(th)} | Gate Threshold Voltage | V _{DS} =V _{GS} , I _D =250uA | 1.4 | 1.8 | 2.2 | V |
| R _{DS(on)} | Drain-Source On-State Resistance | V _{GS} =10V, I _D =20A | - | 2.9 | 3.9 | mΩ |
| | | V _{GS} =4.5V, I _D =10A | - | 3.8 | 4.8 | |
| g _{fs} | Forward Transconductance | V _{DS} =10V, I _D =40A | - | 80 | - | S |
| • Dynamic Characteristics | | | | | | |
| C _{iss} | Input Capacitance | V _{DS} =30V, V _{GS} =0V, f=1MHz | - | 2710 | - | PF |
| C _{oss} | Output Capacitance | | - | 781 | - | |
| C _{rss} | Reverse Transfer Capacitance | | - | 27 | - | |
| • Switching Characteristics | | | | | | |
| Q _g | Total Gate Charge | V _{DS} =30V, I _D =20A, V _{GS} =10V | - | 39 | - | nC |
| Q _{gs} | Gate-Source Charge | | - | 12 | - | |
| Q _{gd} | Gate-Drain Charge | | - | 10 | - | |
| t _{d(on)} | Turn-on Delay Time | V _{DD} =30V, R _L =15Ω, I _D =20A, V _{GEN} =10V, R _G =3Ω | - | 13 | - | nS |
| t _r | Turn-on Rise Time | | - | 7 | - | |
| t _{d(off)} | Turn-off Delay Time | | - | 31 | - | |
| t _f | Turn-off Fall Time | | - | 8.5 | - | |
| • Drain-Source Diode Characteristics | | | | | | |
| V _{SD} | Drain-Source Diode Forward Voltage | V _{GS} =0V, I _S =20A | - | - | 1.2 | V |
| R _g | Gate resistance | V _{GS} =0V, V _{DS} =0V, F=1MHz | - | 1.8 | - | Ω |

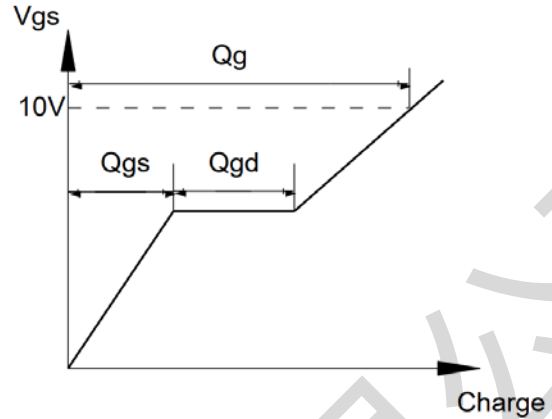
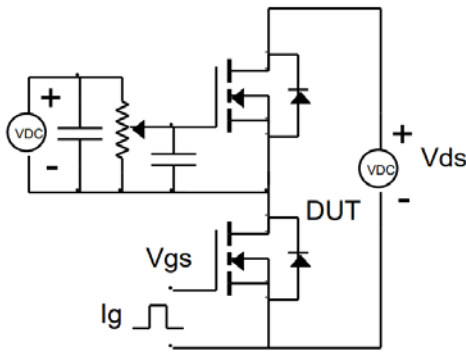
Note: Pulse Test: Pulse Width≤300us, Duty Cycle≤2%

Typical Characteristics Curves (Ta=25°C, unless otherwise note)

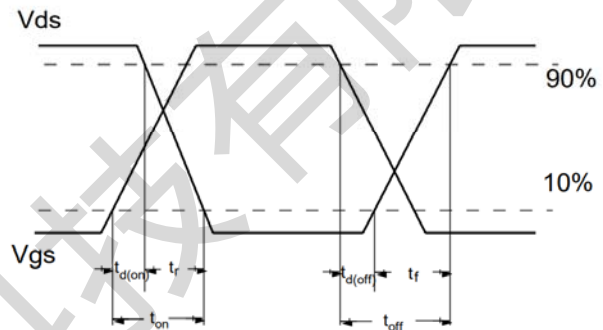
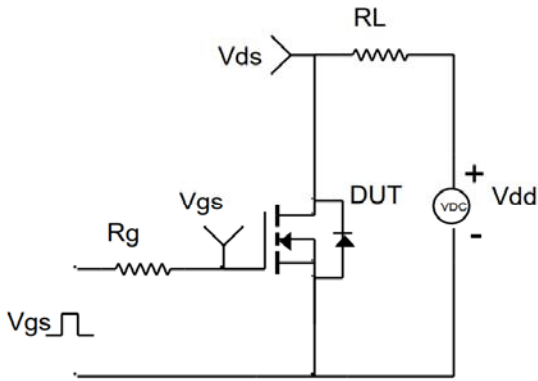




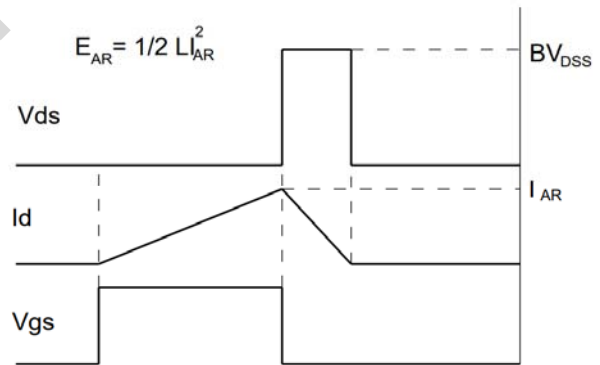
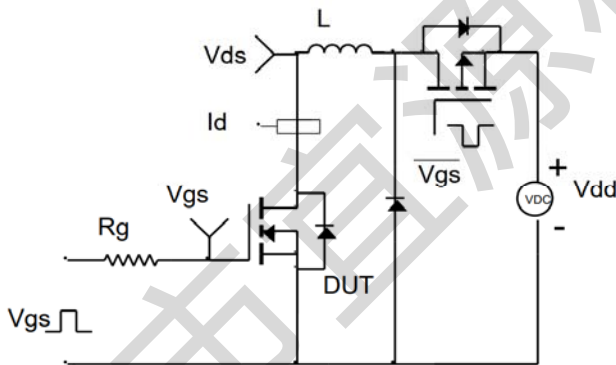
Gate Charge Test Circuit & Waveforms



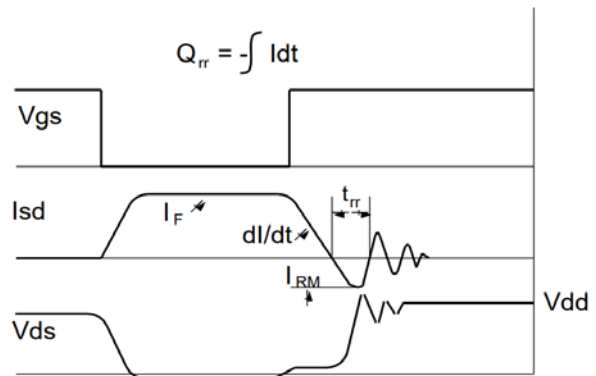
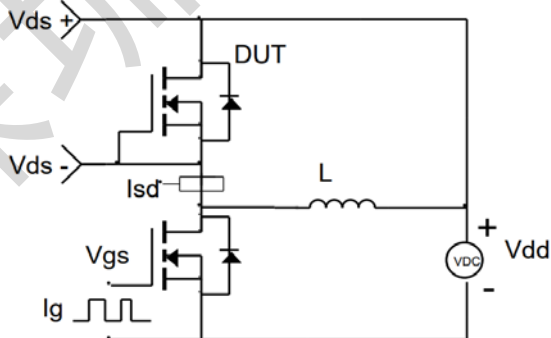
Resistive Switching Test Circuit & Waveforms



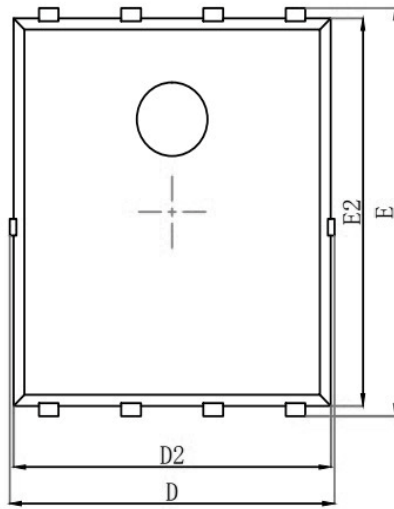
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



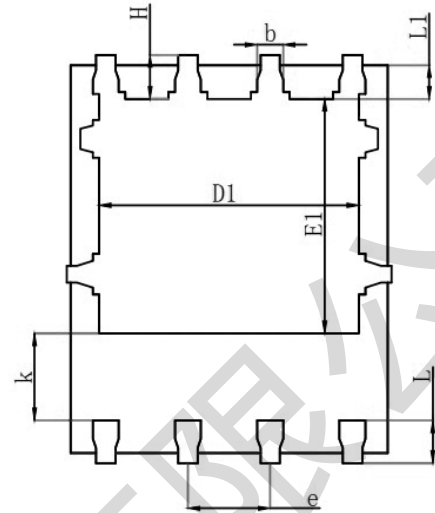
Diode Recovery Test Circuit & Waveforms



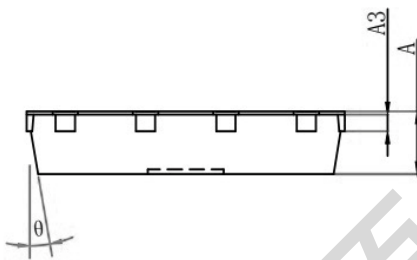
PDFN5*6-8L EP1 Package Outline Data



Top View



Bottom View



Side View

| Symbol | Dimensions (unit : mm) | | |
|----------|------------------------|------|------|
| | Min | TYP | Max |
| A | 0.90 | | 1.0 |
| A3 | 0.254REF | | |
| D | 4.94 | 5.00 | 5.1 |
| E | 5.97 | 6.00 | 6.1 |
| D1 | 3.91 | 4.00 | 4.1 |
| E1 | 3.37 | 3.50 | 3.6 |
| D2 | 4.82 | 4.90 | 5 |
| E2 | 5.67 | 5.70 | 5.8 |
| k | 1.19 | 1.30 | 1.4 |
| b | 0.35 | 0.35 | 0.45 |
| e | 1.27TYP | | |
| L | 0.56 | 0.65 | 0.71 |
| L1 | 0.52 | 0.55 | 0.58 |
| H | 0.57 | 0.60 | 0.73 |
| θ | 10° | 11° | 12° |