## / Descriptions

TO-252 SiC N MOS

SiC N-CHANNEL MOSFET in a TO-252 Plastic Package.

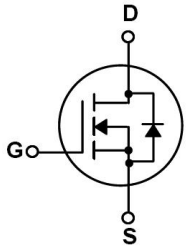
$V_{DS}$=800V $I_D$=8.8A

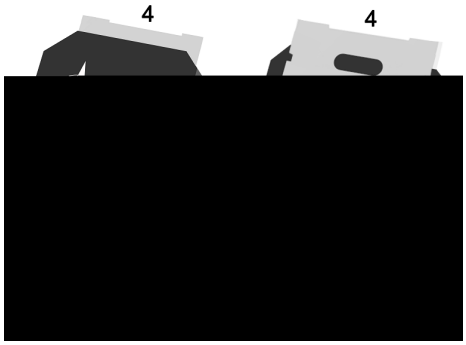
$R_{DS(on)}$@15V≤568mΩ(Type.437mΩ)

$R_{DS(on)}$@18V≤480mΩ(Type. 316mΩ)

LED PD PC

LED driver, PD charger, PC adapter, Air-conditioning, E-bike charger.




PIN1 G PIN 2 D PIN 3 S PIN 4 D

## / Marking

See Marking Instructions.

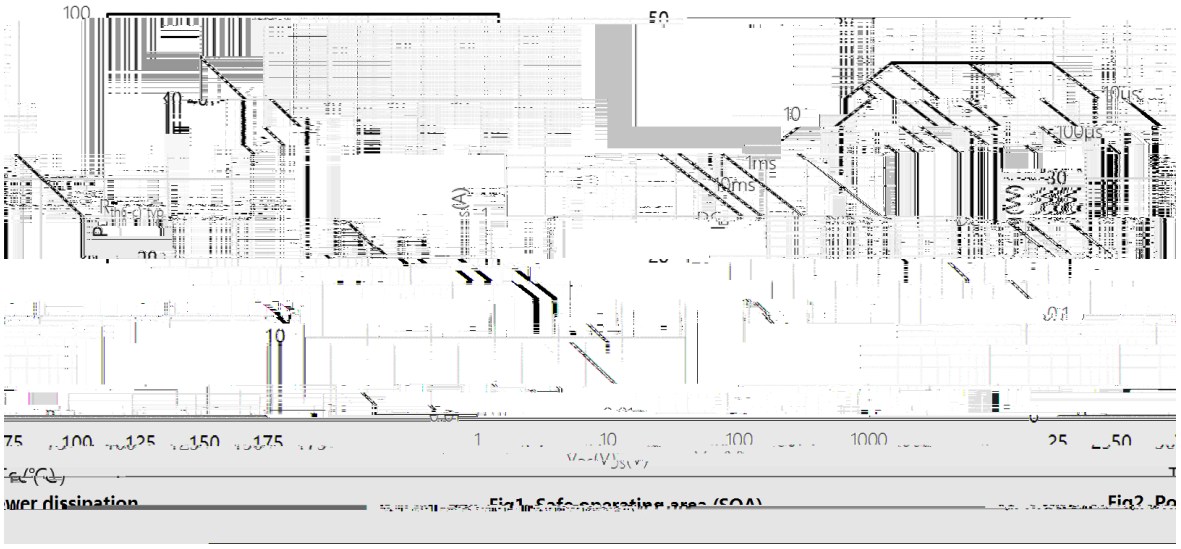
| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Drain-Source Voltage | $V_{DSS}$ | 800 | V |
| Continuous DC Drain Current for $R_{th(j-c,typ.)}$, Limited by $T_{VJ(max)}$ | $I_D$(Tc=25 ) | 8.8 | A |
| | $I_D$(Tc=100 ) | 6.8 | A |
| Peak Drain Current, tp Limited by $T_{VJ(max)}$ | $I_{DM}$ | 14 | A |
| Gate-Source Max Voltage | $V_{GS,max}$ | -10/+22 | V |
| Gate-Source Operate Voltage | $V_{GS,op}$ | 0/+15 | V |
| Single Pulse Avalanche Energy | $E_{AS}$ | 13.3 | mJ |
| Power Dissipation or $R_{th(j-c,typ.)}$ | $P_D$(Tc=25 ) | 45 | W |
| Operating and Storage Temperature Range | $T_{VJ}$,$T_{STG}$ | -55 to 175 | |
| MOSFET/Body Diode Junction-Case Thermal Resistance | $R_{th(j-c)}$ | 3.33 | /W |

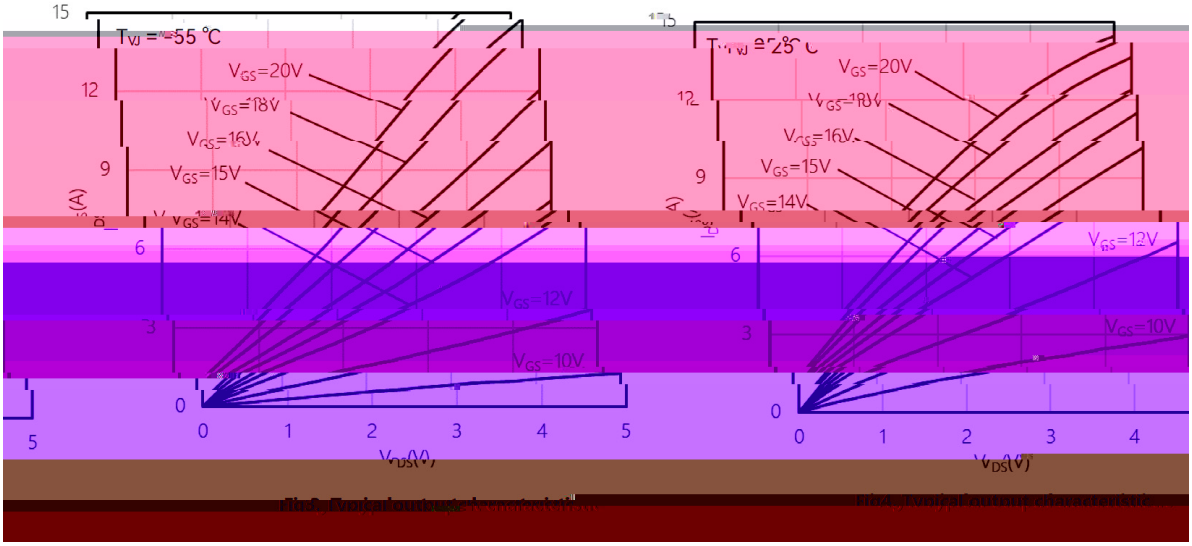
| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Drain-Source Breakdown Voltage | BV | | | | | |

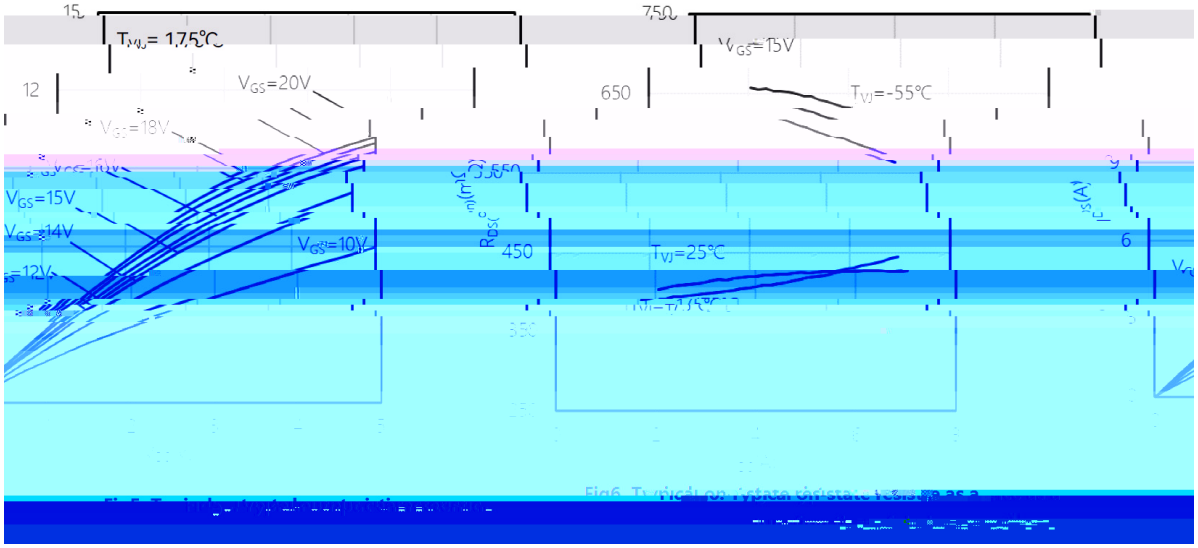
## / Electrical Characteristics(Tc=25 )

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Turn-On Delay Time | $t_{d(on)}$ | $V_{GS}$=0/15V L=600μH<br>$V_{DD}$=400V $I_D$=4.5A<br>$R_g$=9.1Ω | | 17.0 | | ns |
| Turn-On Rise Time | $t_r$ | | | 12.2 | | |
| Turn-Off Delay Time | $t_{d(off)}$ | | | 14.5 | | |
| Turn-Off Fall Time | $t_f$ | | | 13.1 | | |
| Turn−On Switching Loss | $E_{on}$ | | | 45.4 | | μJ |
| Turn−Off Switching Loss | $E_{off}$ | | | 3.86 | | |
| Total Switching Energy | $E_{tot}$ | | | 49.2 | | |
| Gate resistance | $R_g$ | $V_{AC}$=25mV f=1MHz | | 25 | | Ω |
| Input Capacitance | $C_{iss}$ | $V_{DS}$=400V $V_{GS}$=0V<br>f=1MHz | | 170 | | pF |
| Output Capacitance | $C_{oss}$ | | | 13 | | |
| Reverse Transfer Capacitance | $C_{rss}$ | | | 1.3 | | |
| Total Gate Charge | $Q_g$ | $V_{GS}$=0/15V, $V_{DS}$=400V,<br>$I_D$=4.5A | | 9.0 | | nC |
| Gate Source Charge | $Q_{gs}$ | | | 3.2 | | |
| Gate Drain Charge | $Q_{gd}$ | | | 1.3 | | |

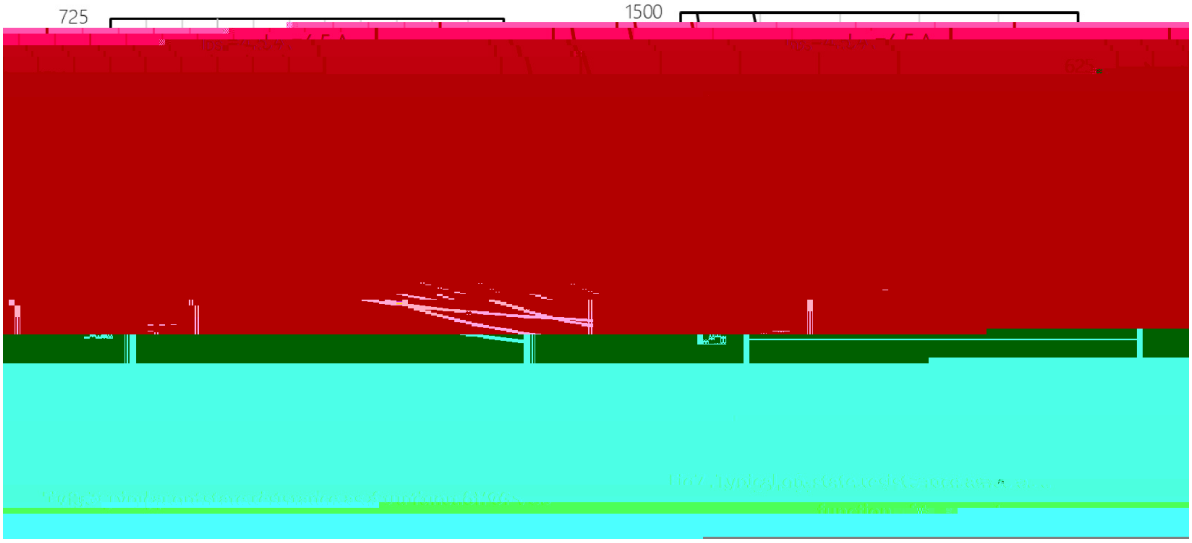
## / Electrical Characteristic Curve

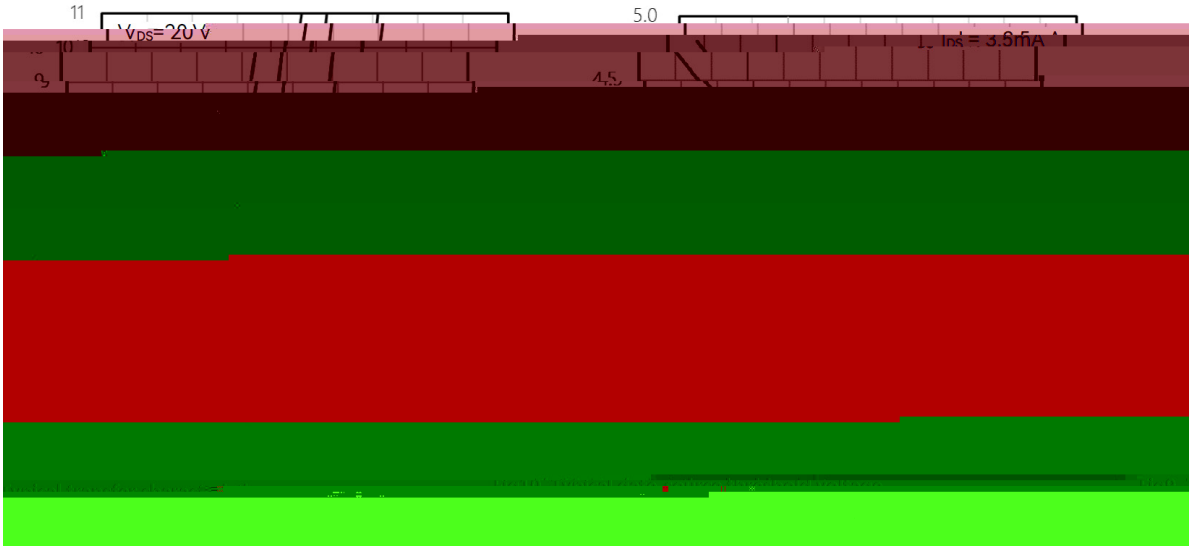


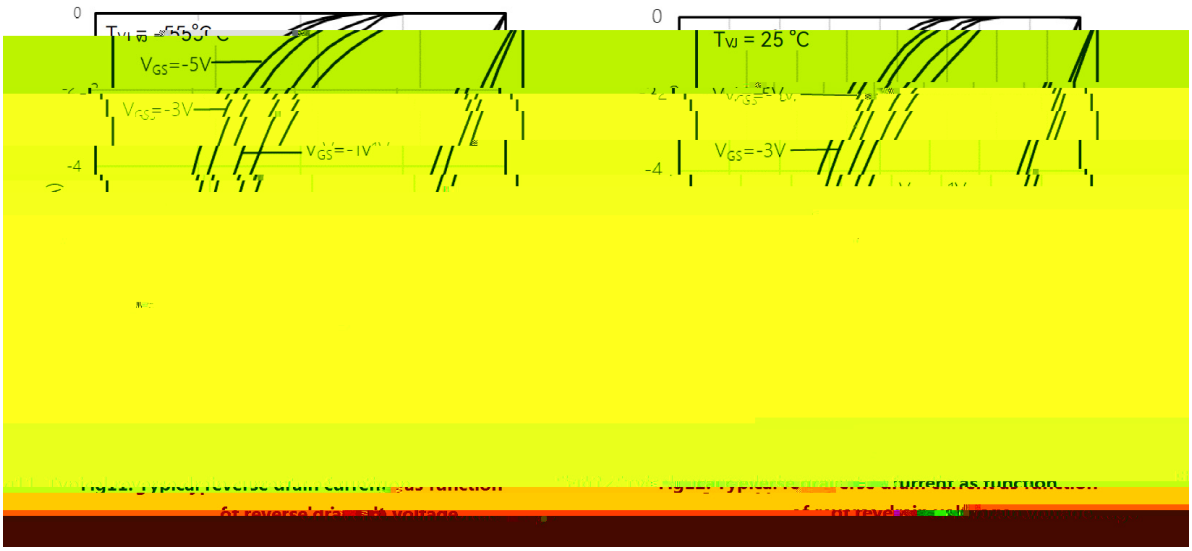


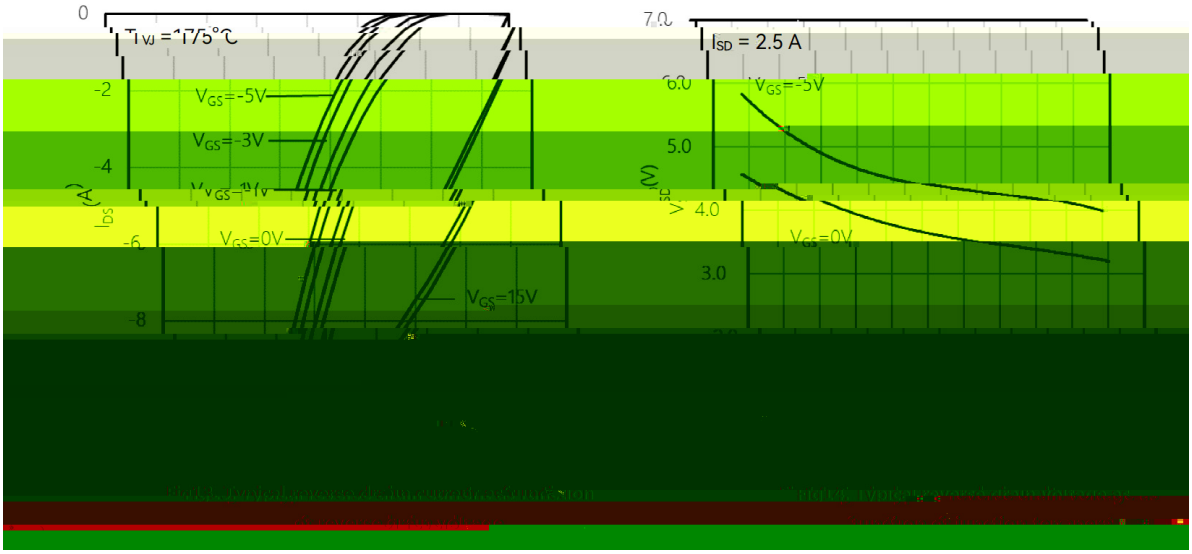
## / Electrical Characteristic Curve



## / Electrical Characteristic Curve



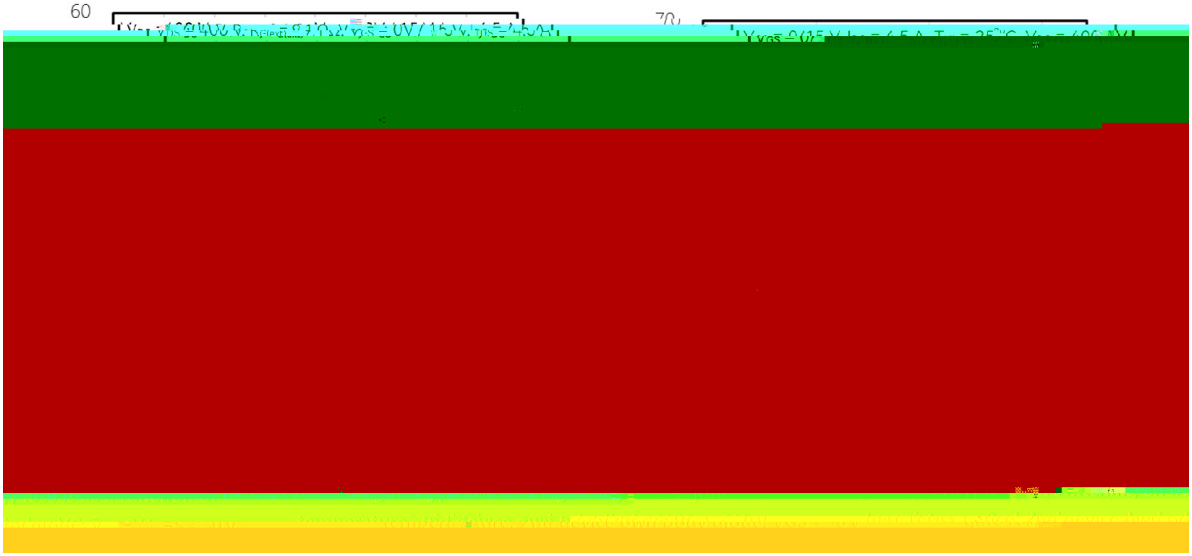



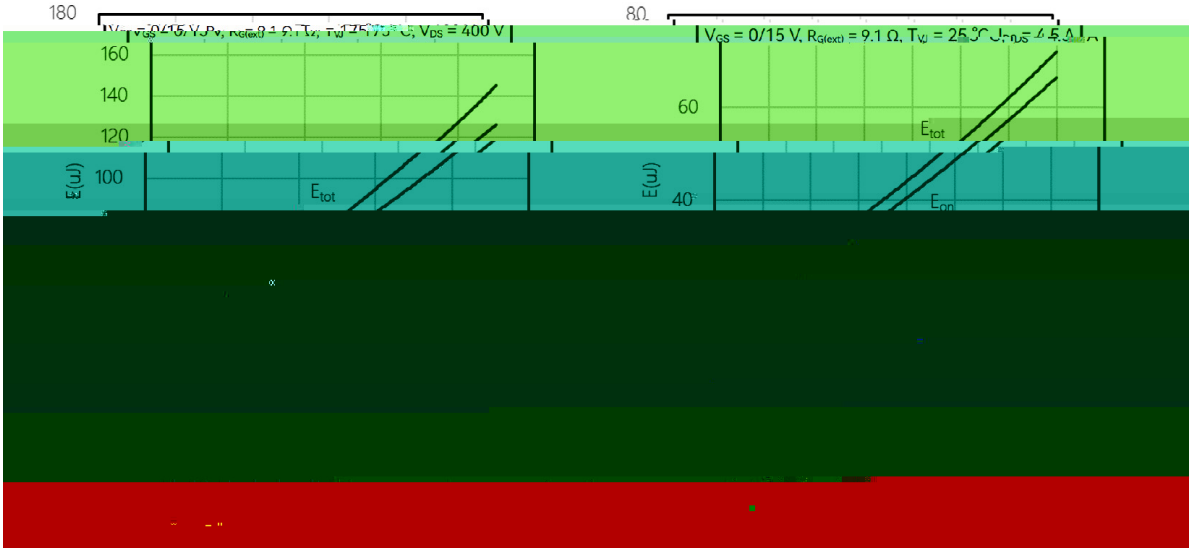




Fig17. Typical switching energy losses as a function of gate resistance, 2nd device own body diode; VGS = 0V.

Fig18. Typical switching energy losses as a function of IDS, 2nd device own body diode; VGS = 0V.

## / Electrical Characteristic Curve



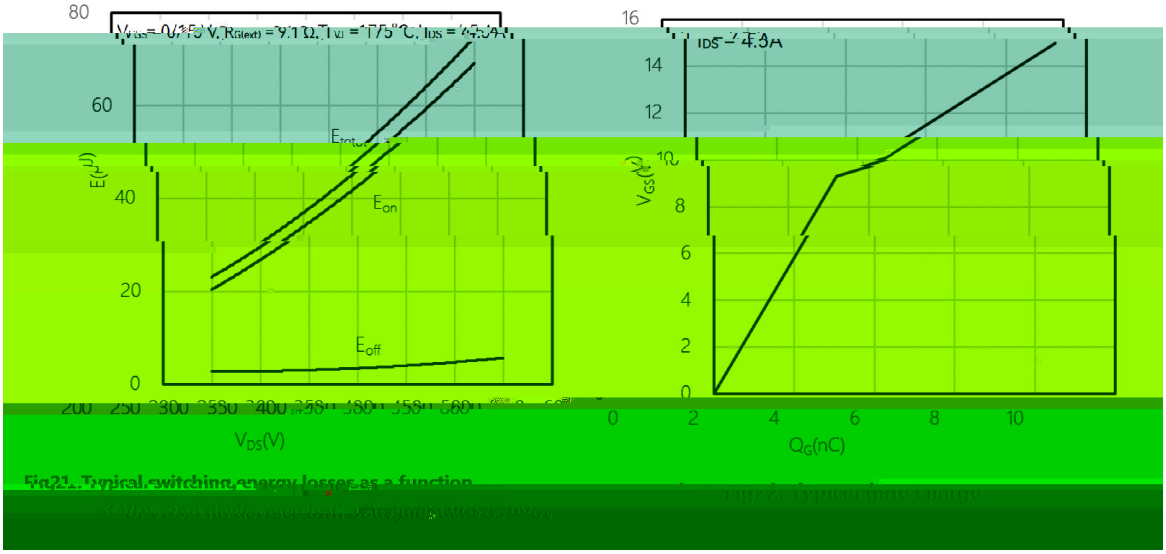




Fig21. Typical switching energy losses as a function

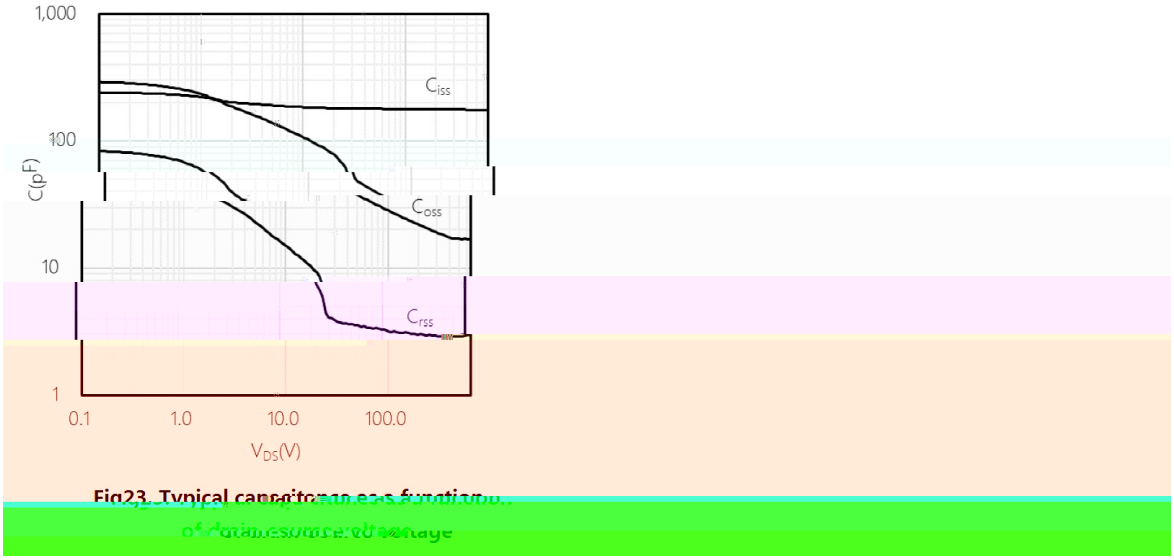
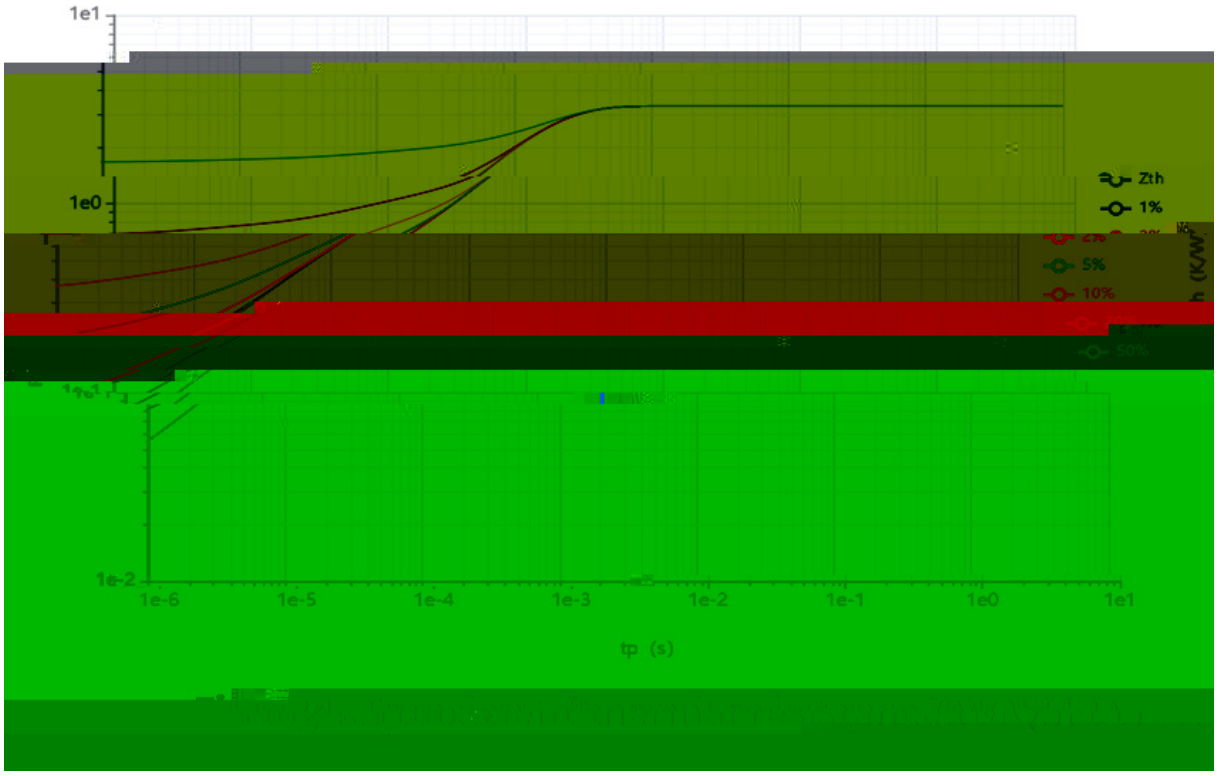
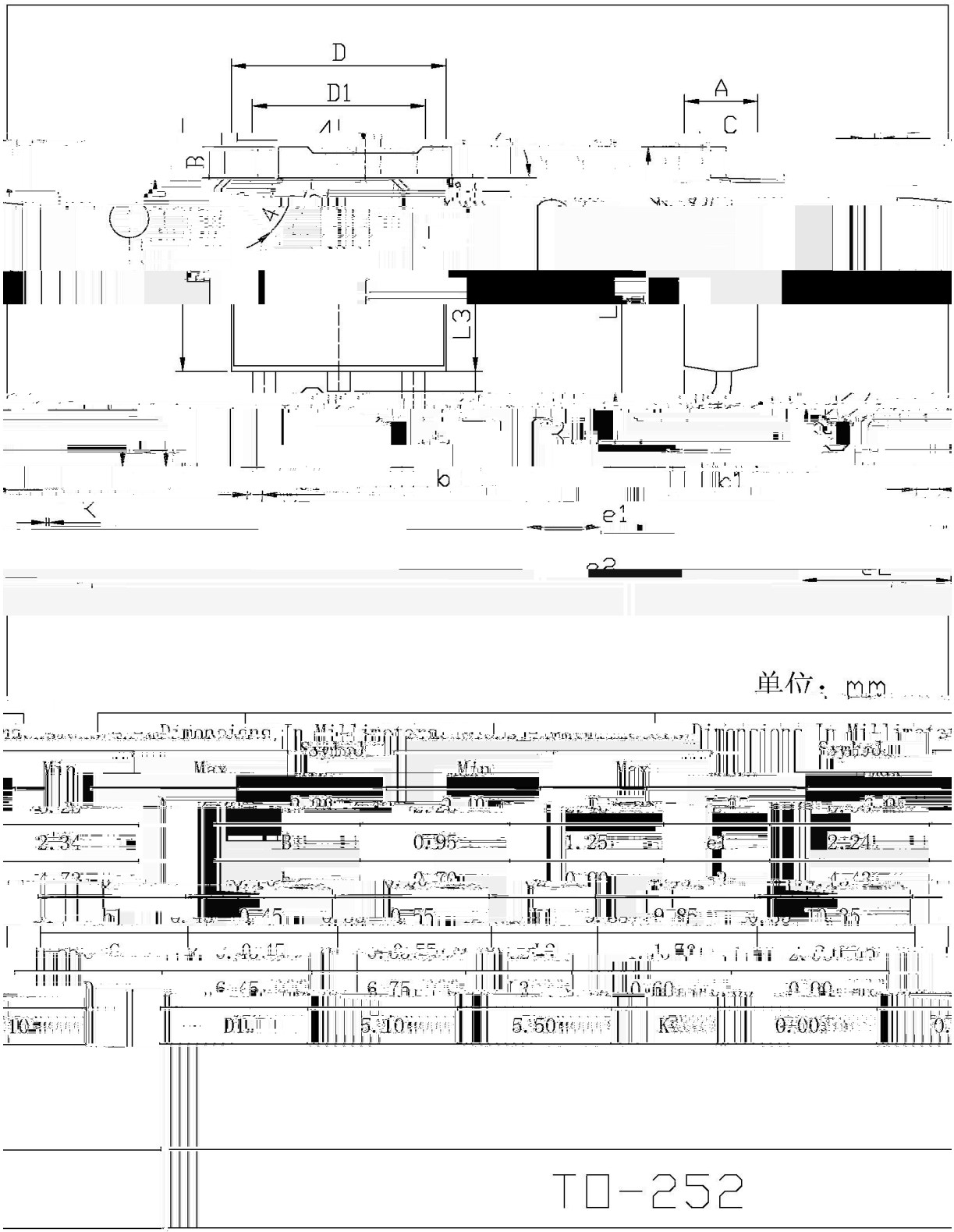



Fig23. Typical capacitance as function

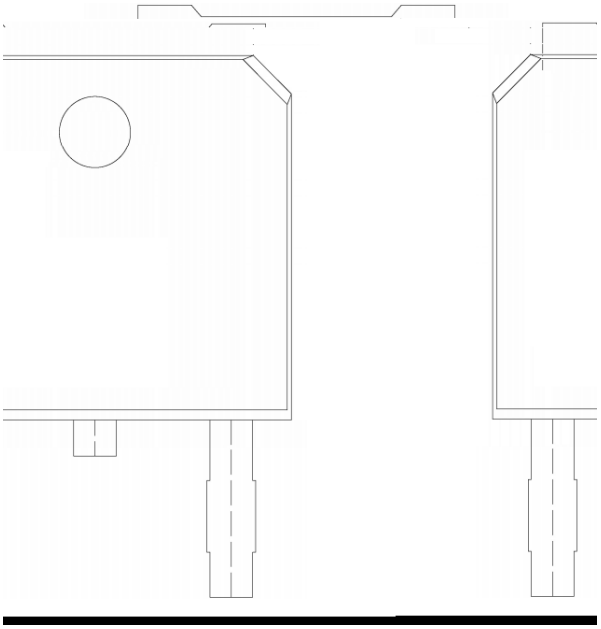
## / Electrical Characteristic Curve



## / Package Dimensions



## / Marking Instructions



## ( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)

| |
|---|
| |
| |
| |
| |
| |
| |

Note:

1 150 180 60 90sec;

2 245±5 5±0.5sec;

3 2 10 /sec.

1.Preheating:150~180 , Time:60~90sec.

2.Peak Temp.:245±5 , Duration:5±0.5sec.

3. Cooling Speed: 2~10 /sec.

## / Resistance to Soldering Heat Test Conditions

260±5 10±1 sec. Temp.:260±5 Time:10±1 sec

## / Packaging SPEC.

/ REEL 1