SG2M025

TriQSiC™ 750V Sili de el Enhan

Features

- High speed switching
- Very low switching losses
- Fully controllable dv/dt
- High blocking voltage with low on-resistance
- Fast intrinsic diode with low reverse recovery (Qrr)
- Temperature independent turn-off switching losses
- Halogen free, RoHS compliant

Benefits

- Cooling effort reduction
- Efficiency improvement
- Reduced cooling requirements
- Increased power density
- Increased system switching frequency

TO-247-4L



Applications

- On-board charger/PFC
- EV battery chargers
- Booster/DC-DC converter
- Switch mode power supplies

Table 1 Key performance and package parameters

Type

Table of contents

Features 1

Benefits 1

Applications 1

Table of contents 2

1 Maximum ratings 3

2 Thermal characteristics 3

3 Electrical characteristics 4

3.1 Static characteristics 4

3.2 Dynamic characteristics 4

3.3 Switching characteristics 5

4 Electrical characteristic diagrams 6

5 Package drawing (TO-247-4L-C) 11

6 Test conditions 12

Revision history 13

Attention 13

SG2M025075LJ

SG2M025075LJ

Datasheet

Q_{gs}	Gate source charge	-	20	-	nC	V_{DS}

SG2M025075LJ

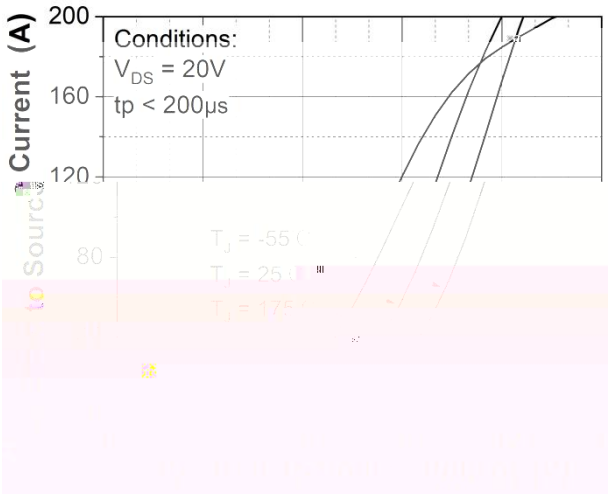


Figure 7. Transfer characteristic for various junction temperatures

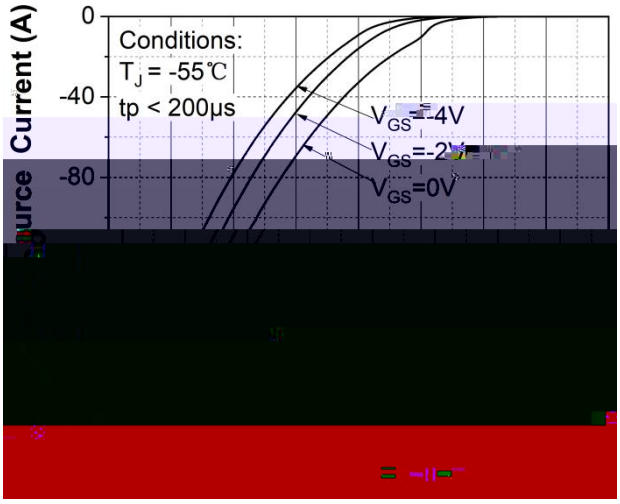


Figure 8. Body diode characteristic at T_J = -55 ºC

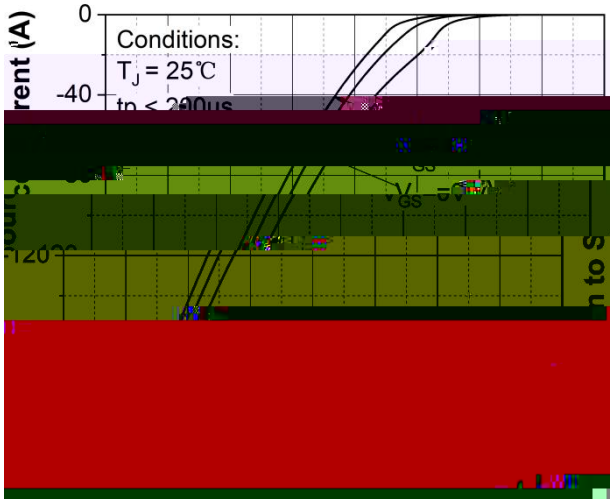


Figure 9. Body diode characteristic at T_J = 25 ºC

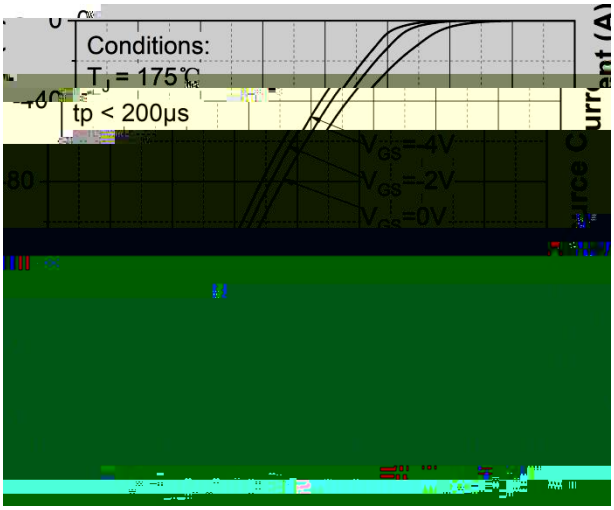


Figure 10. Body diode characteristic at T_J = 175ºC

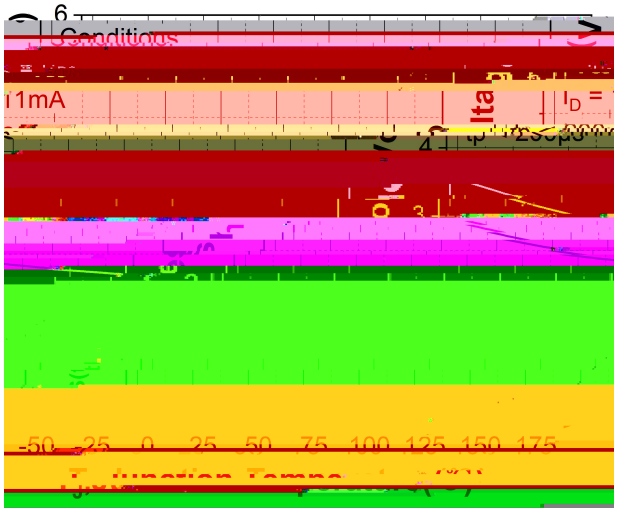


Figure 11. Threshold voltage vs. temperature

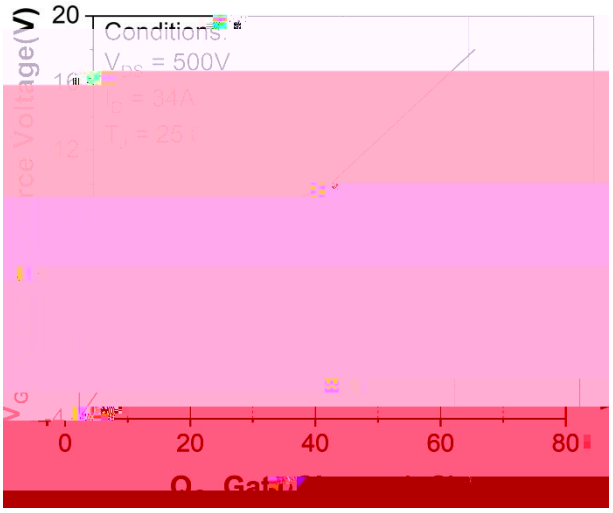


Figure 12. Gate charge characteristic

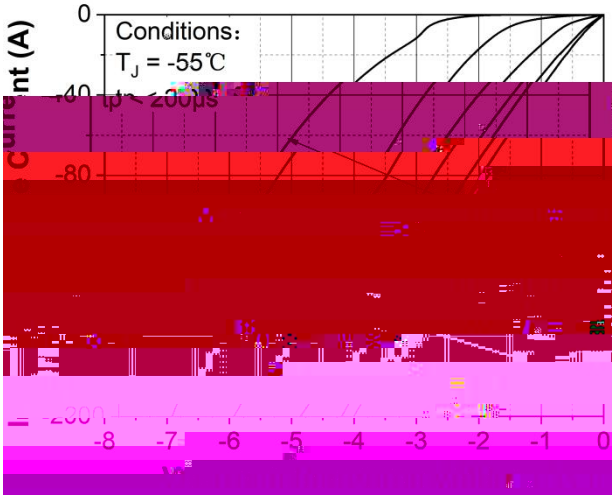


Figure 13. 3rd quadrant characteristic at T_J = -55 ºC

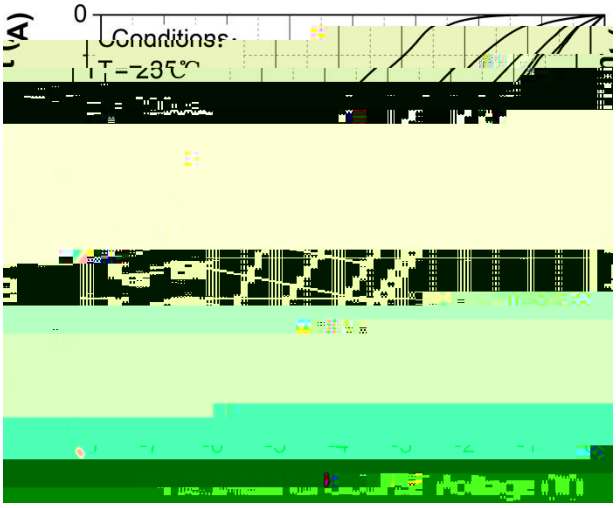


Figure 14. 3rd quadrant characteristic at T_J = 25 ºC

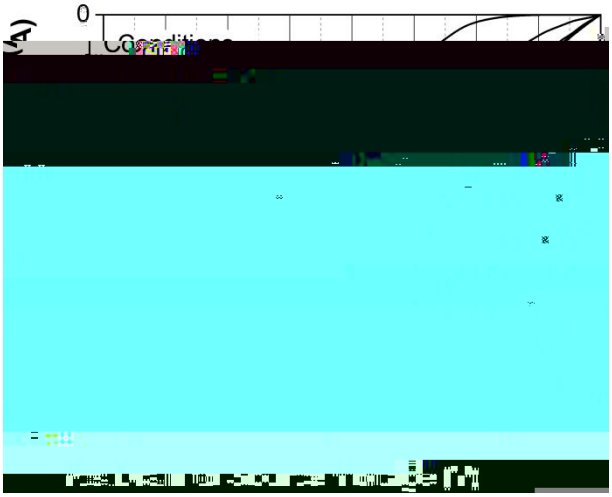


Figure 15. 3rd quadrant characteristic at T_J = 175 ºC

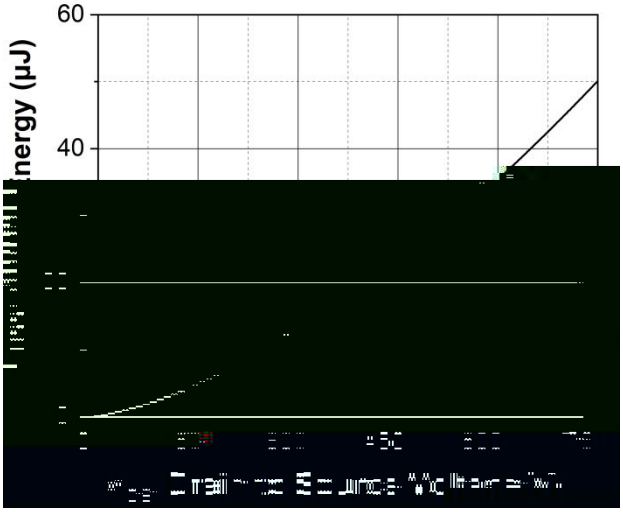


Figure 16. Output capacitor stored energy

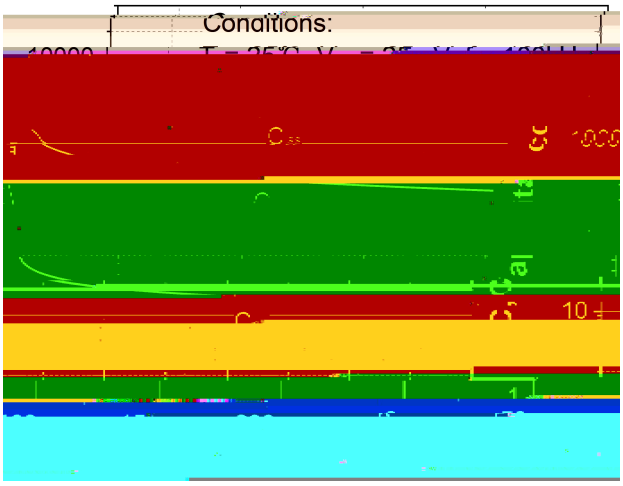


Figure 17. Capacitances vs. drain-source voltage (0 - 200V)

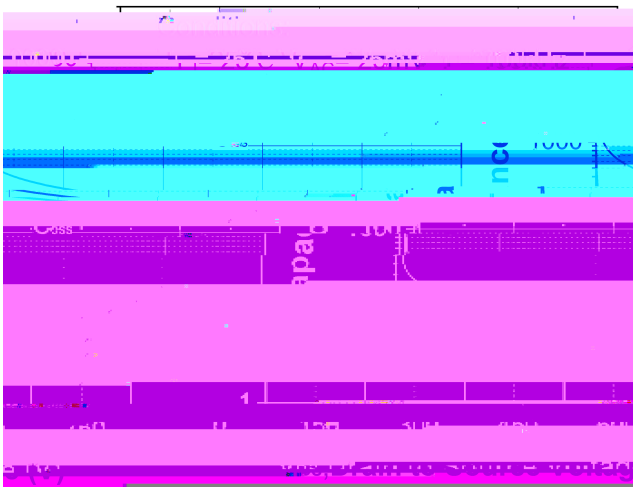


Figure 18. Capacitances vs. drain-source voltage (0 - 750V)

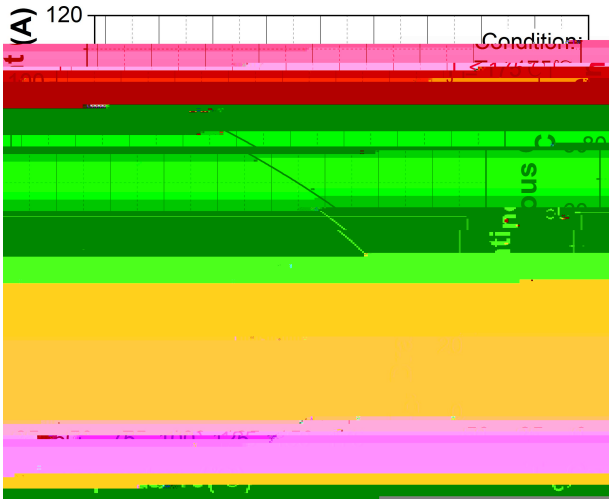


Figure 19. Continuous drain current derating vs. case temperature

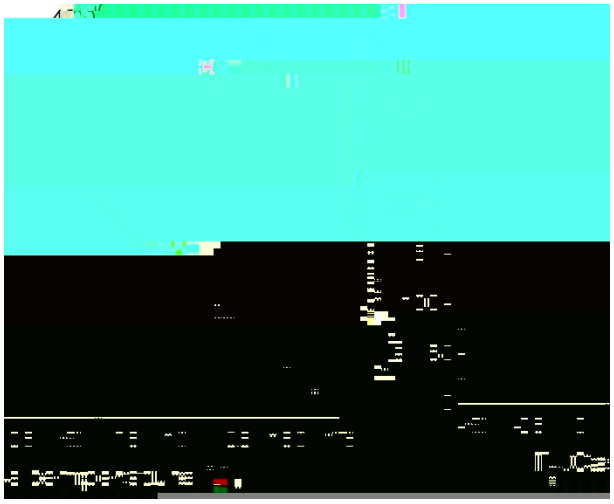


Figure 20. Maximum power dissipation derating vs. case temperature

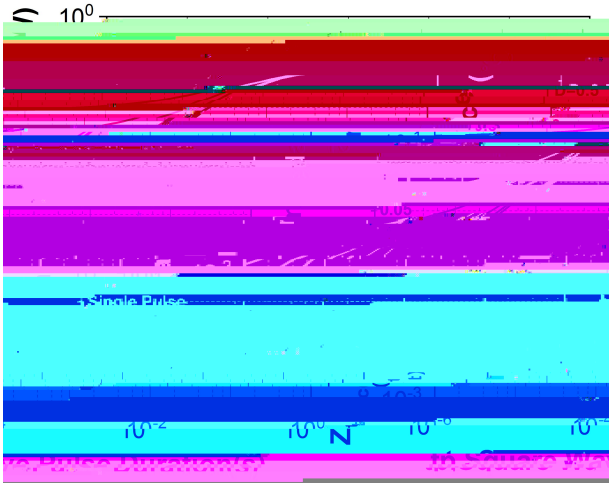


Figure 21. Transient thermal impedance (junction - case)

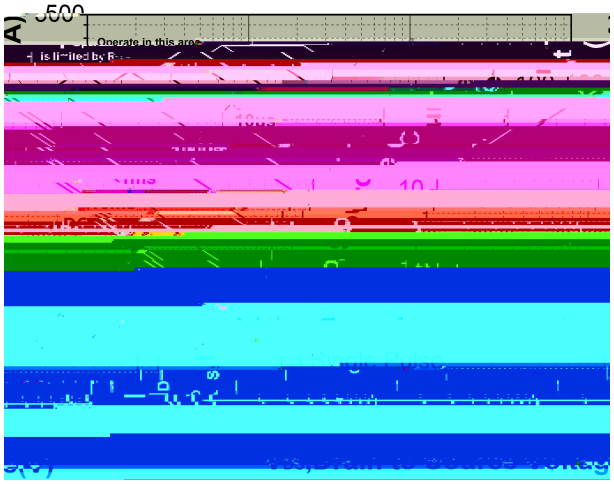


Figure 22. Safe operating area

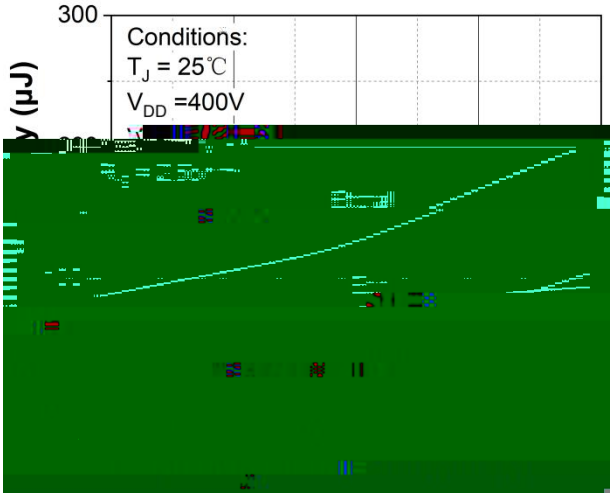


Figure 23. Clamped Inductive switching energy vs. drain current (V_{DD} = 400V)

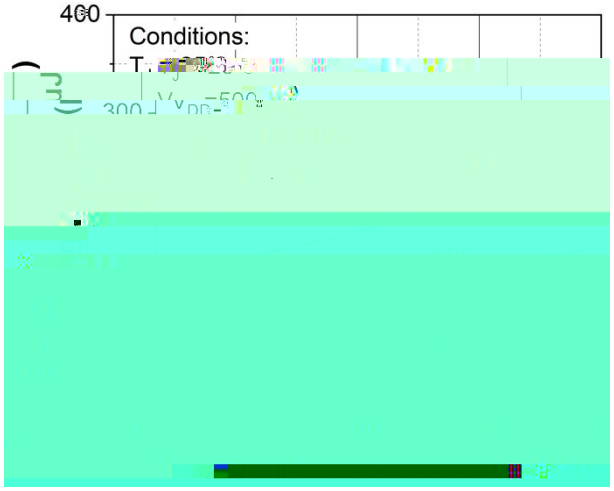
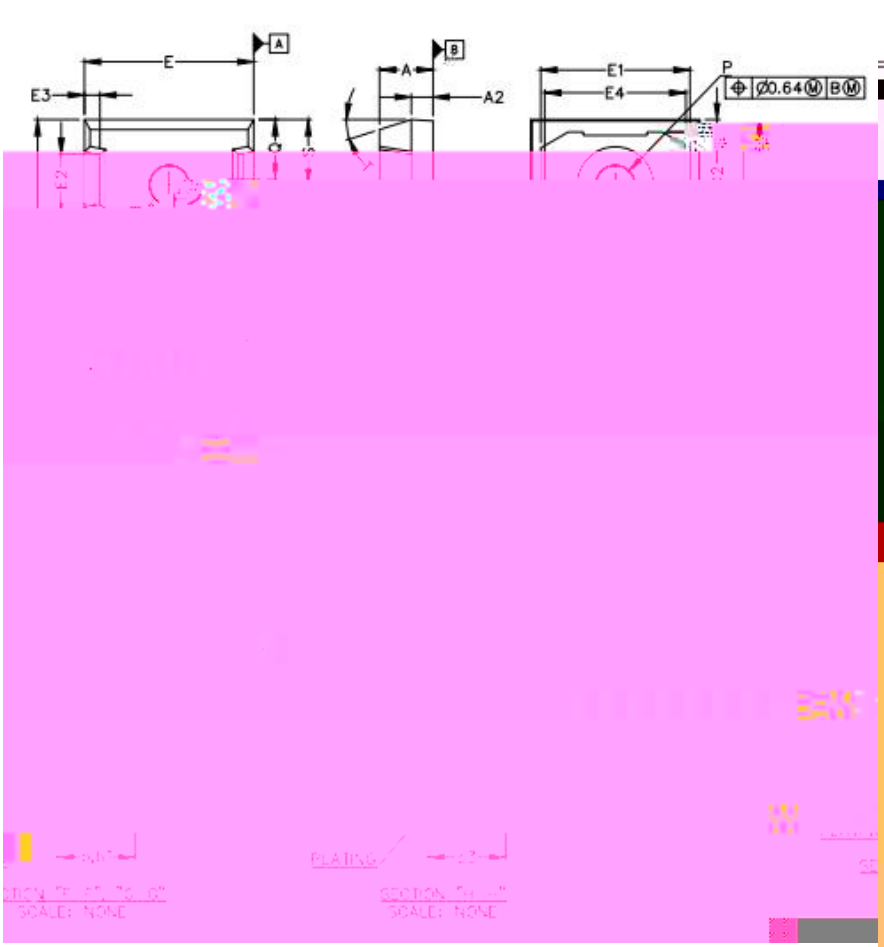
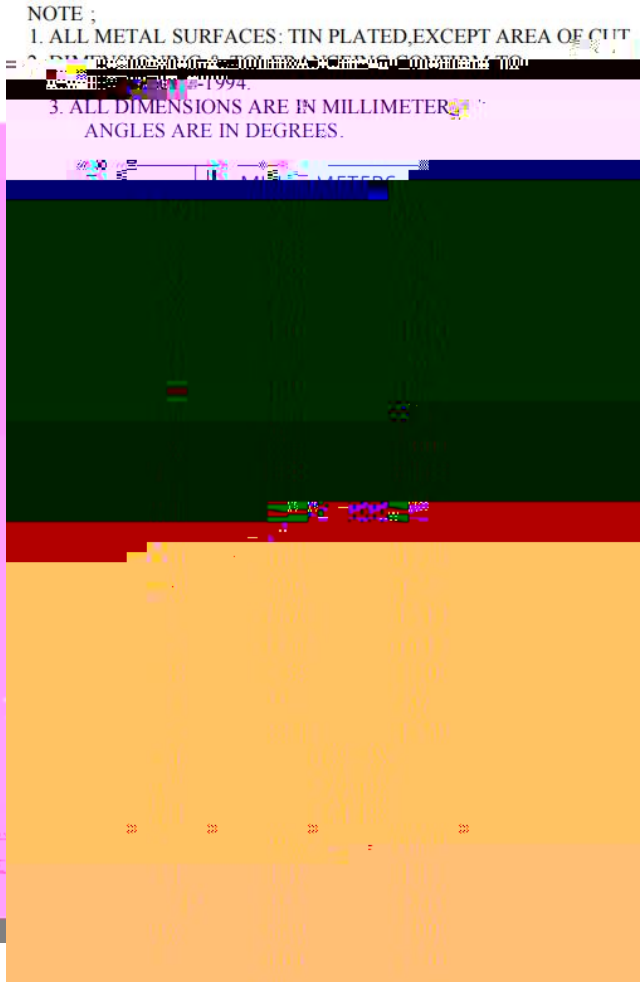


Figure 24. Clamped inductive switching energy vs. drain current (V_{DD} = 500V)

SG2M025075LJ

5 Package drawing (TO-247-4L-C)





6 Test conditions

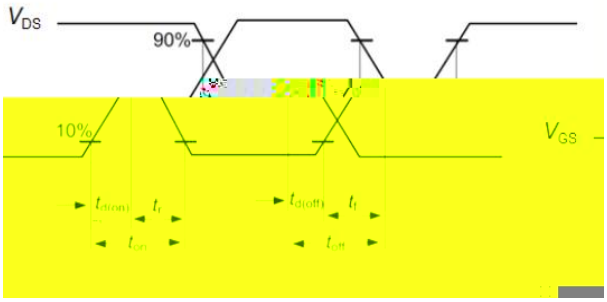


Figure A. Definition of switching times

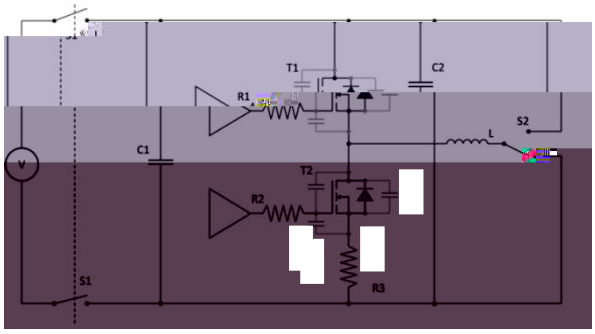


Figure B. Dynamic test circuit

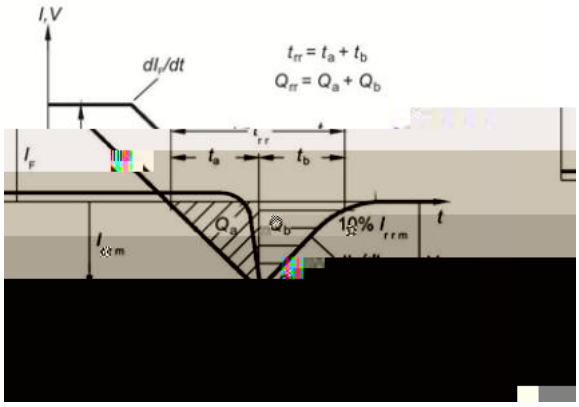


Figure C. Definition of body diode switching characteristics

Revision history

Document version	Date of release	Document stage	Description

SG2M025075LJ

Dat