Powering the SiC evolution™

GCMS080B120S1-E1

V_{DS}	1200 V
$R_{DS,on}$	77 mΩ
$I_{D\ (TC=25C)}$	30 A
T_J,max	175°C

1200V SiC COPACK Power Module

Features

Package

(1) S_G (Driver Source)
(2) G (Gate)
(3) D (Drain)
(4) S (Source)

Benefits

Part #	Package	Marking
GCMS080B120S1-E1	SOT-227	GCMS080B120S1-E1

Applications

RoHS

Absolute Maximum Ratings

Characteristics	Symbol	Conditions	Values	Unit

Q Q Q Q

Q

Static Electrical Characteristics

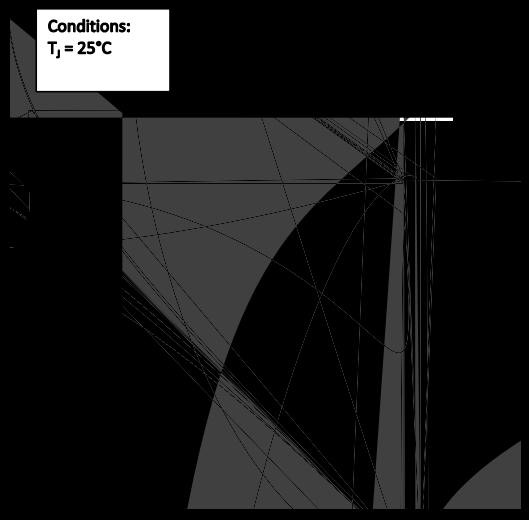
Characteristics	Symbol	Conditions	Values			Unit

AC Electrical Characteristics

Characteristics	Symbol	Conditions	Values			Unit

Freewheeling Diode Characteristics

Characteristics	Symbol	Conditions	Values			Unit


Conditions:
T_j = 25°C

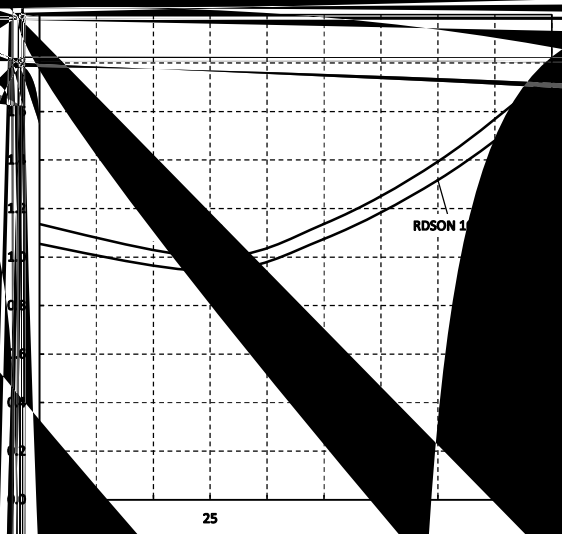
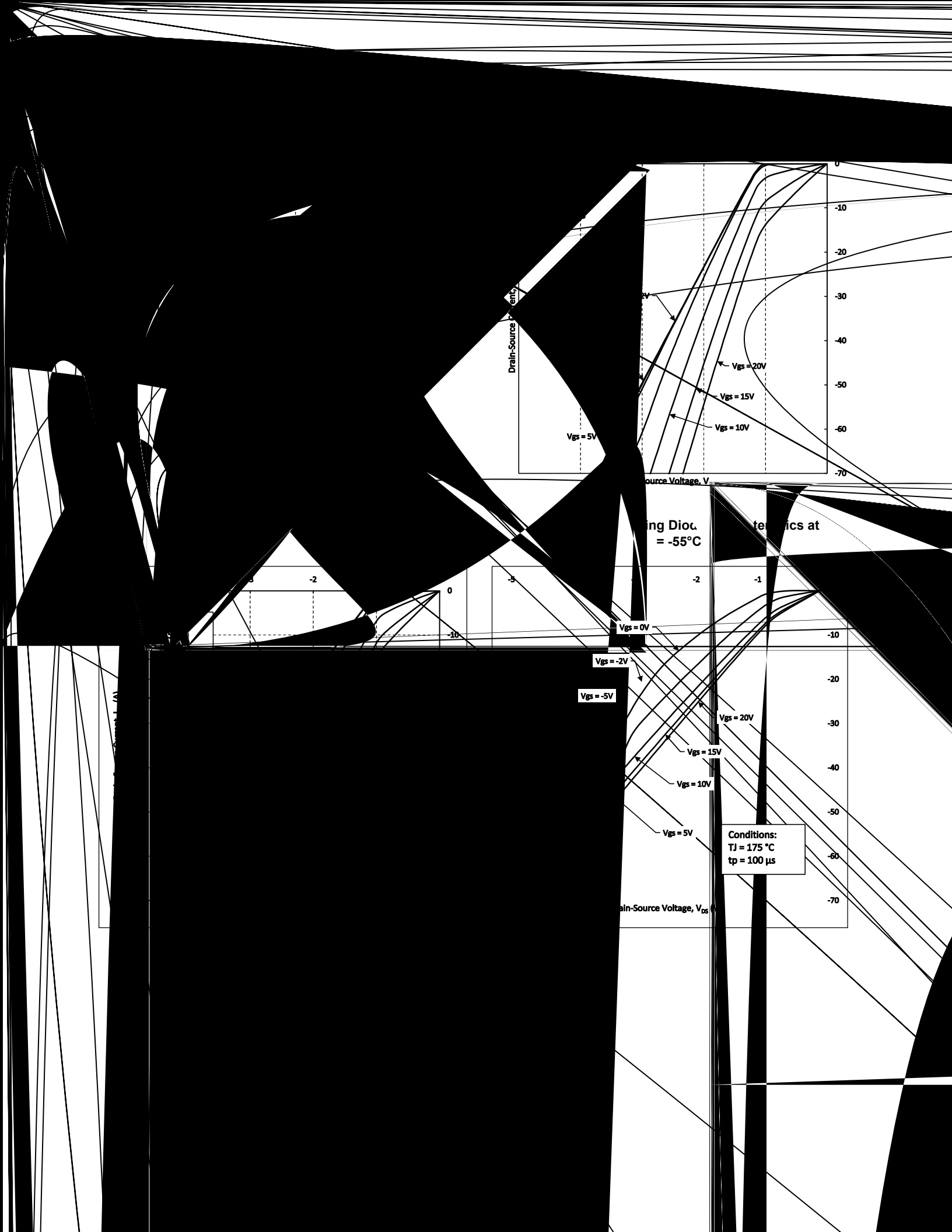
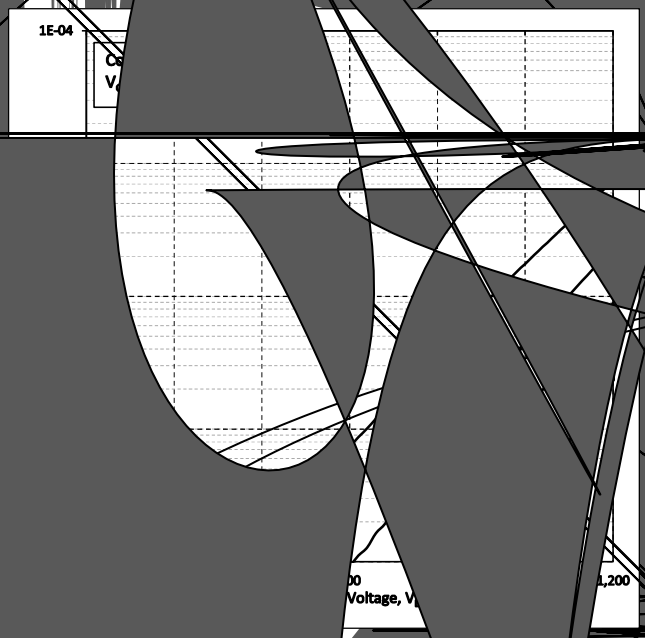


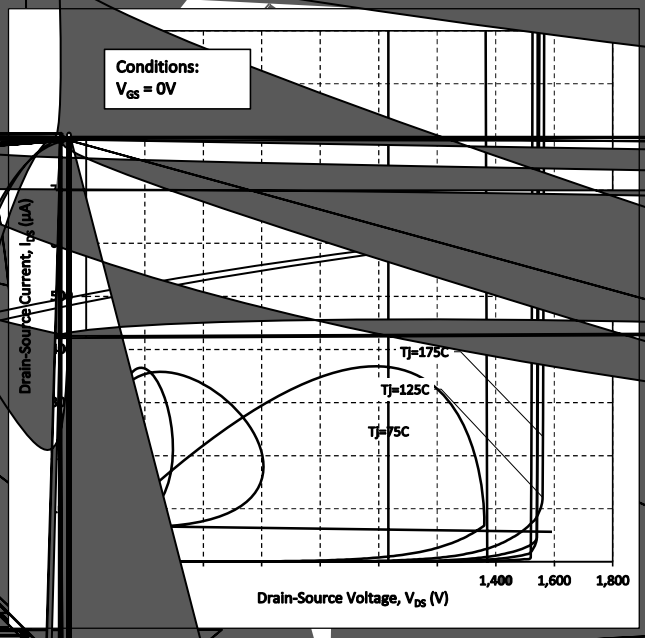
Figure 4. Normalized O Temper

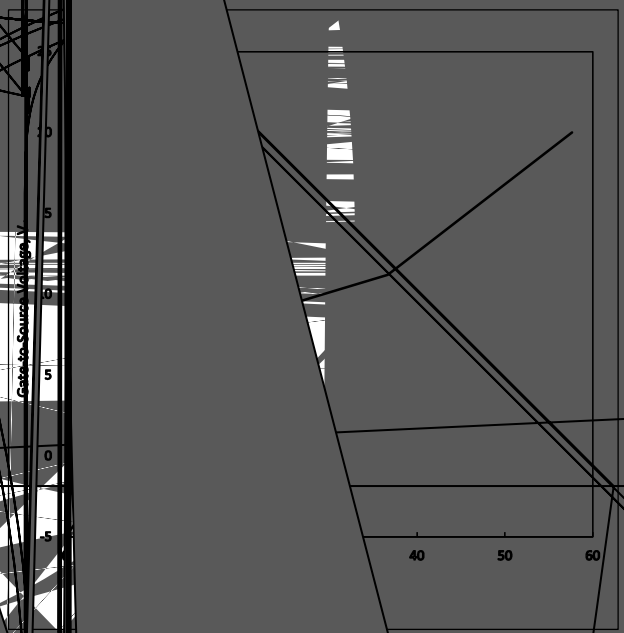
ure 6. e For V


Vgs = 20V
Vgs = 15V
Vgs = 10V
Vgs = 5V
Vgs = 0V
Vgs = -2V
Vgs = -5V
Conditions:
TJ = 175 °C
tp = 100 µs

00V [illegible] Power Module







Temperature, T_j (°

Voltage vs. Tem

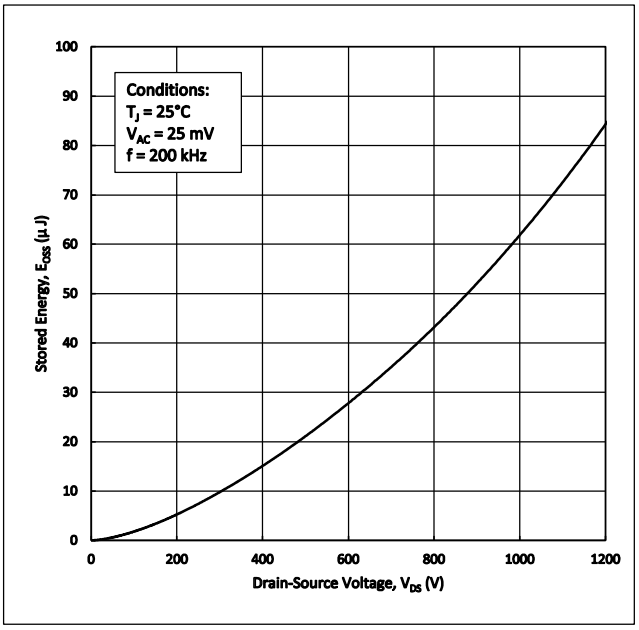


Figure 15. Output Capacitor Stored Energy

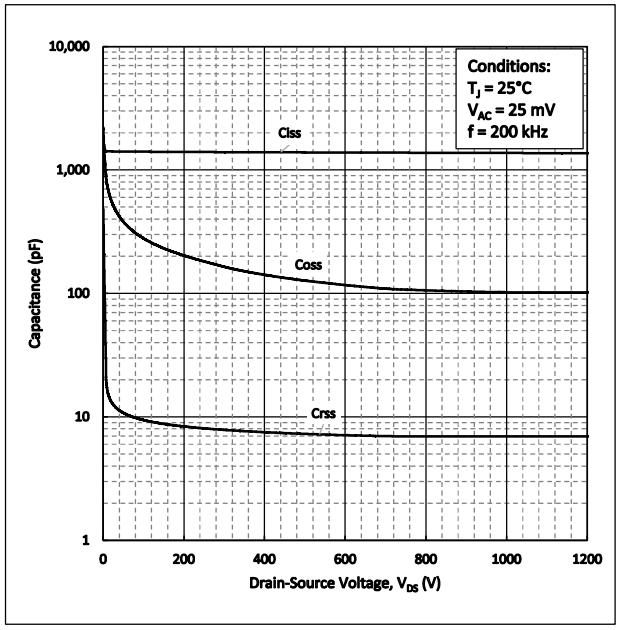


Figure 16. Capacitance vs Drain-Source Voltage

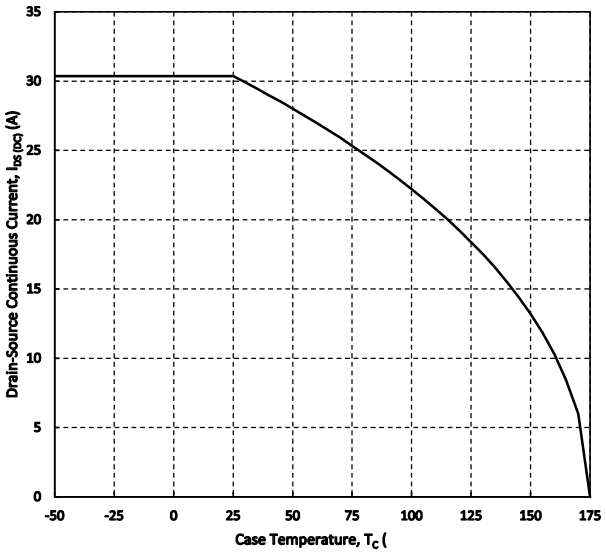


Figure 17. Continuous Drain Current Derating vs. Case Temperature

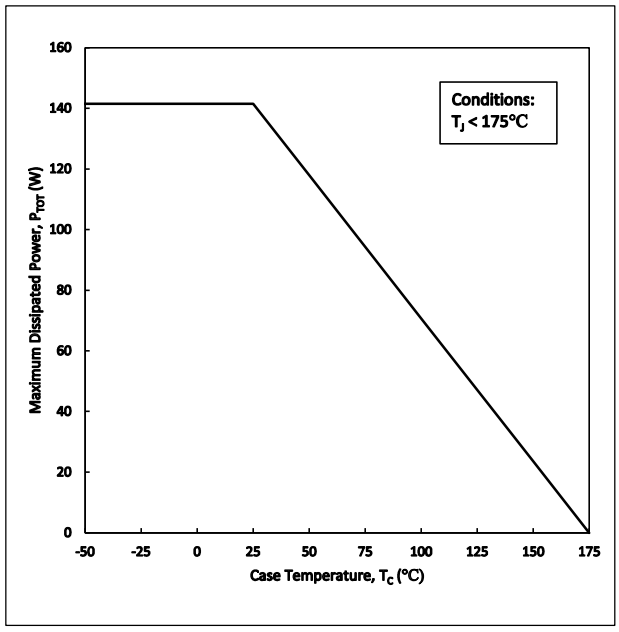
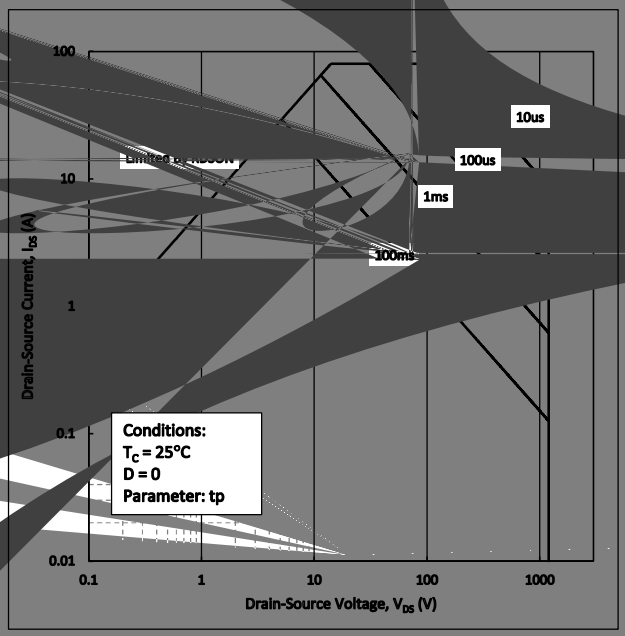
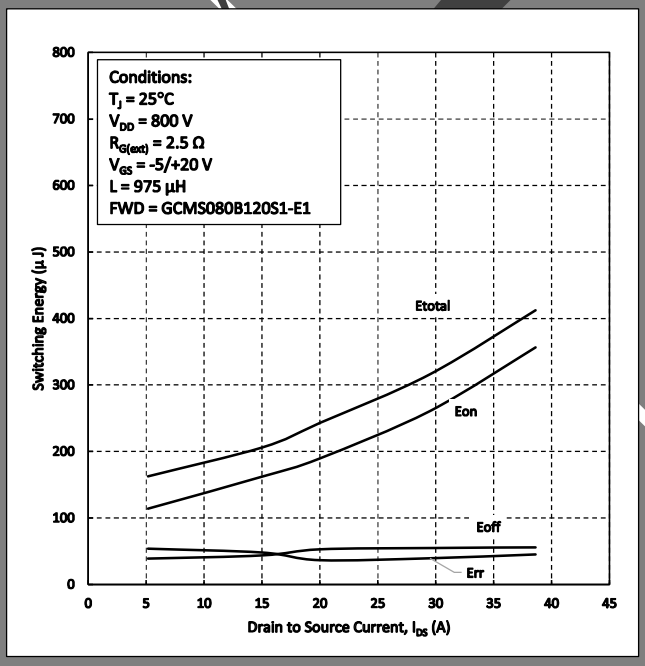
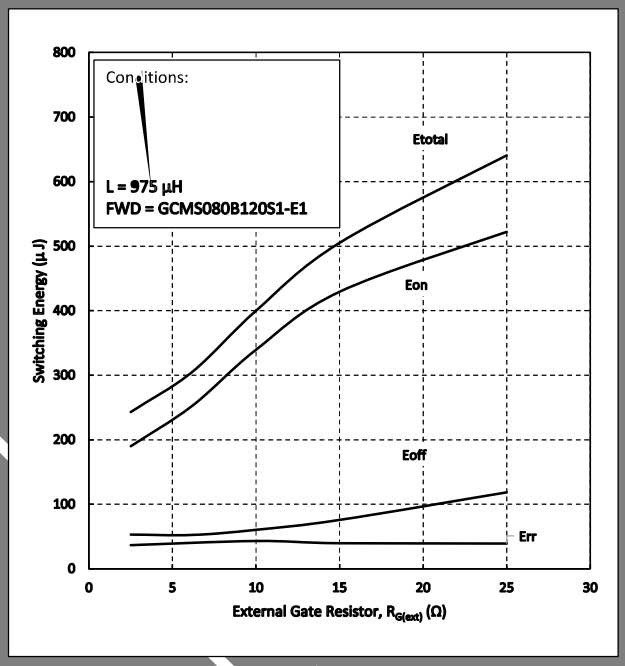


Figure 18. Maximum Power Dissipation Derating vs Case Temperature


100
10
1
0.1
0.01
0.1
1
10
100
1000
10us
100us
1ms
100ms
Drain-Source Current, I_{DS} (A)
Drain-Source Voltage, V_{DS} (V)
Conditions:
T_C = 25°C
D = 0
Parameter: tp


800
700
600
500
400
300
200
100
0
0
5
10
15
20
25
30
35
40
45
Switching Energy (µJ)
Drain to Source Current, I_{DS} (A)
Conditions:
T_J = 25°C
V_{DD} = 800 V
$R_{G(ext)}$ = 2.5 Ω
V_{GS} = -5/+20 V
L = 975 µH
FWD = GCMS080B120S1-E1
Etotal
Eon
Eoff
Err


800
700
600
500
400
300
200
100
0
0
5
10
15
20
25
30
Switching Energy (µJ)
External Gate Resistor, $R_{G(ext)}$ (Ω)
Conditions:
L = 975 µH
FWD = GCMS080B120S1-E1
Etotal
Eon
Eoff
Err

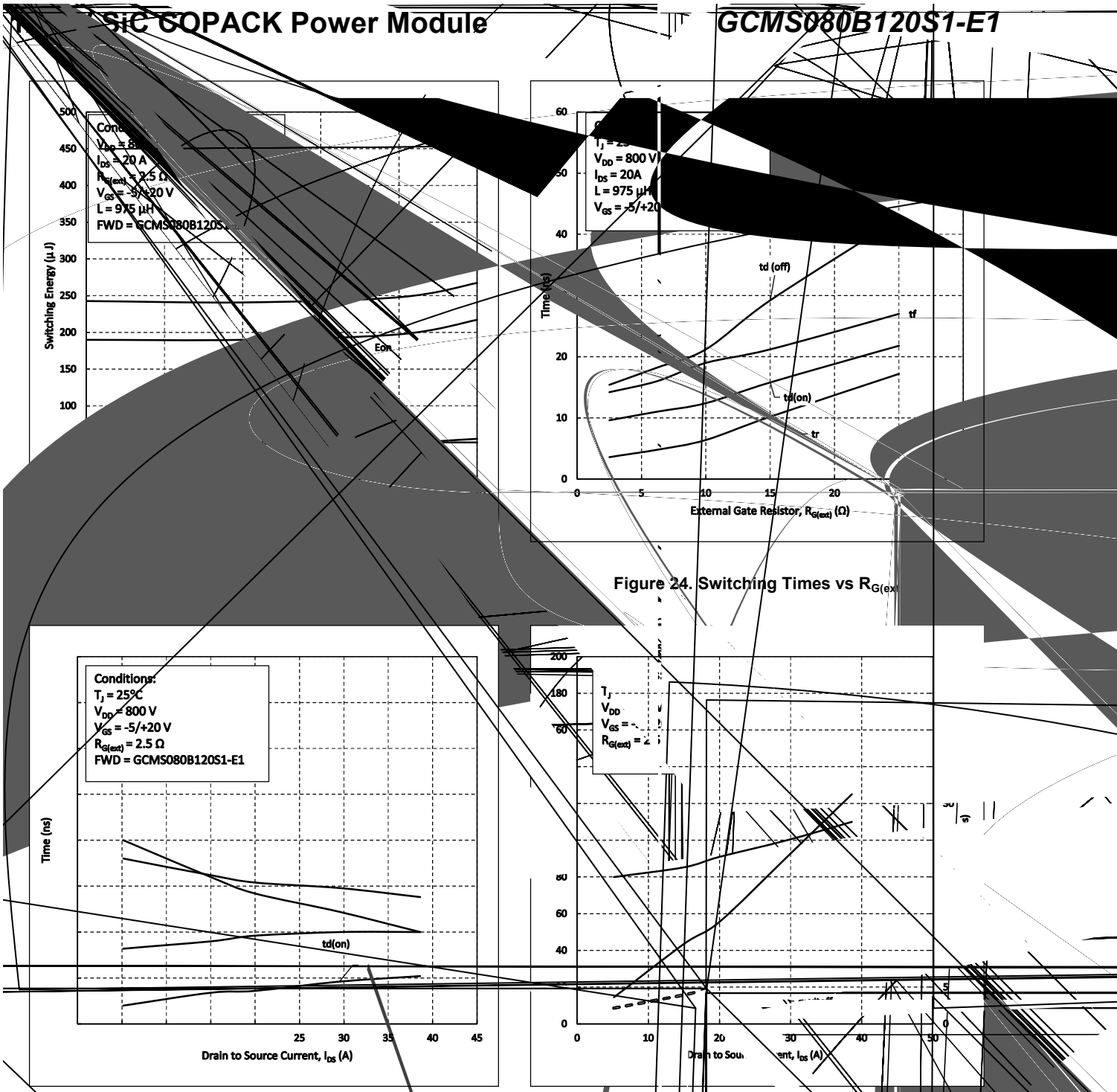


Figure 24. Switching Times vs $R_{G(ext)}$

Figure 25. Switching Times vs. Drain Current

Figure 26. dv/dt and di/dt vs. Drain C

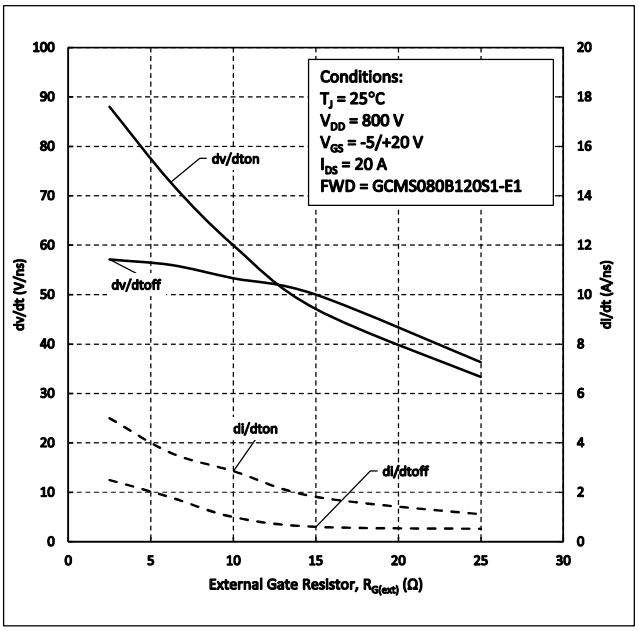


Figure 27. dv/dt and di/dt vs. $R_{G(ext)}$

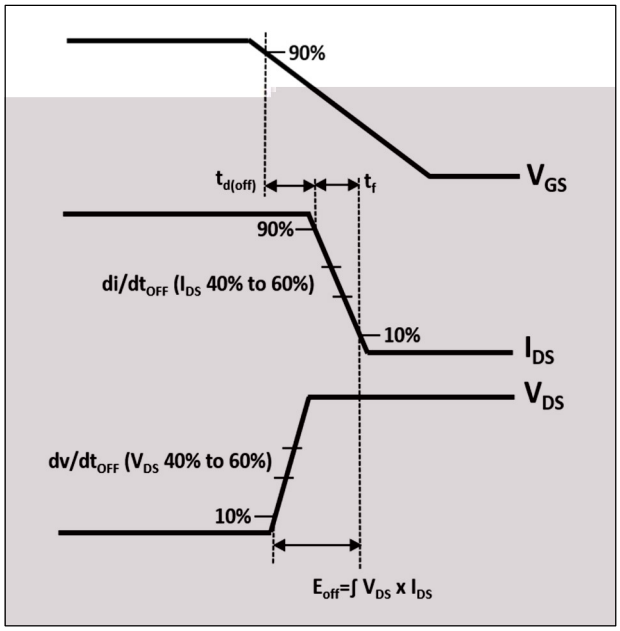


Figure 28. Turn-off Transient Definitions

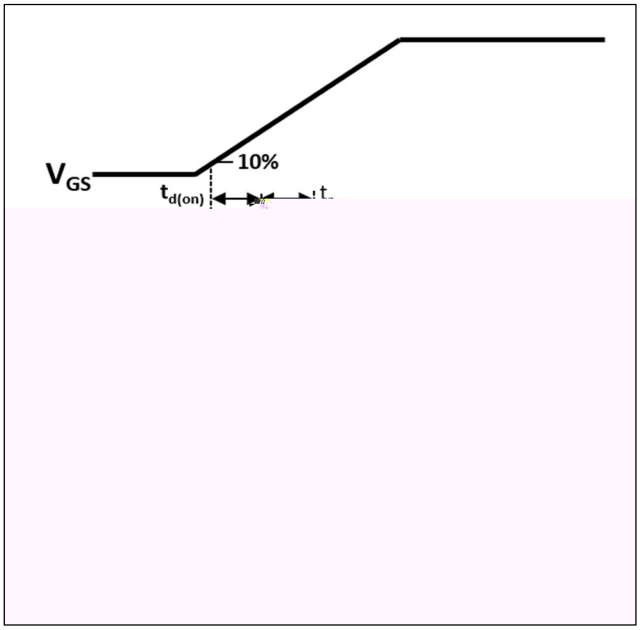


Figure 29. Turn-on Transient Definitions

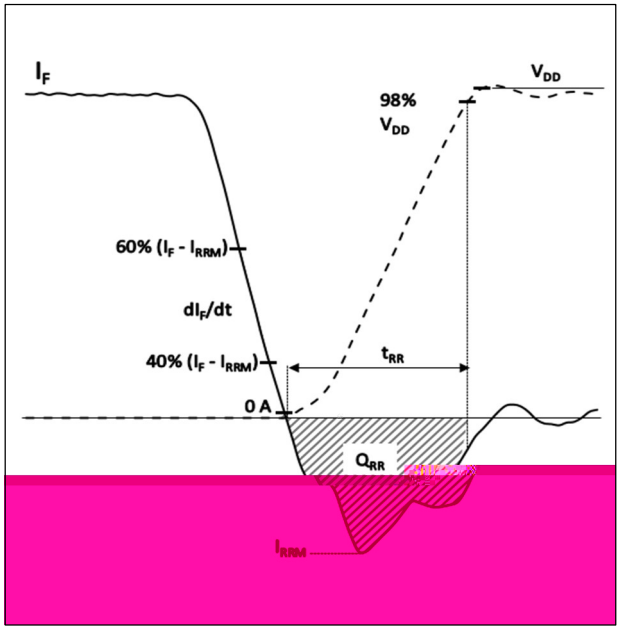
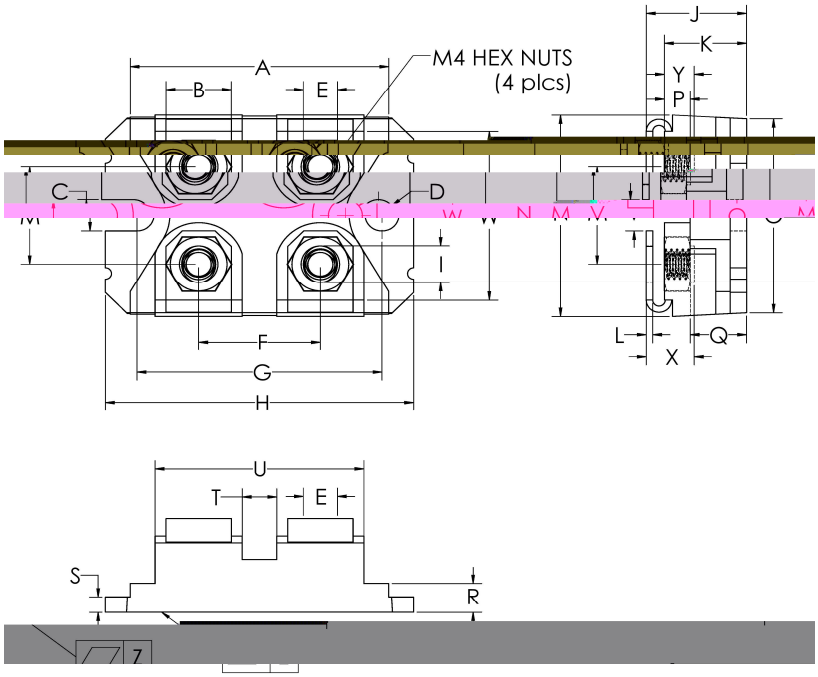


Figure 30. Reverse Recovery Definitions

Package Dimensions SOT-227



Sym	Millimeters		Inches	
	Min	Max	Min	Max

Revision History		

RoHS Compliance

Q

Q Q

Q

REACh Compliance

Q Q

Q Q

Q

Q Q

Q

Q Q

Q

Q