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

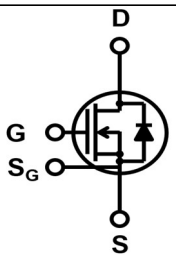
1200V SiC MOSFET Power Module

Features

Benefits

Applications

Package



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

Part #	Package	Marking
GCMX080B120S1-E1	SOT-227	GCMX080B120S1-E1

RoHS

Absolute Maximum Ratings

Characteristics	Symbol	Conditions	Values	Unit

1200V SiC MOSFET Power Module

Static Electrical Characteristics

Characteristics	Symbol	Conditions	Values			Unit
						Ω

AC Electrical Characteristics

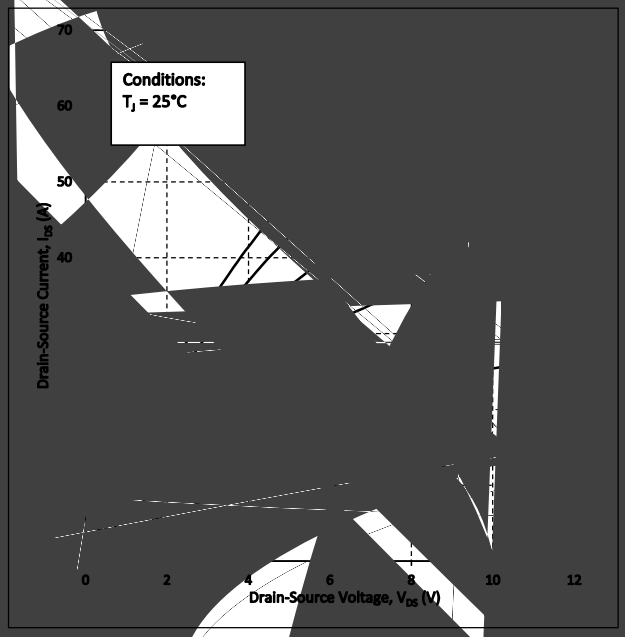
Characteristics	Symbol	Conditions	Values			Unit

*E_{OSS} is calculated from C_{OSS} curve

Freewheeling Diode Characteristics

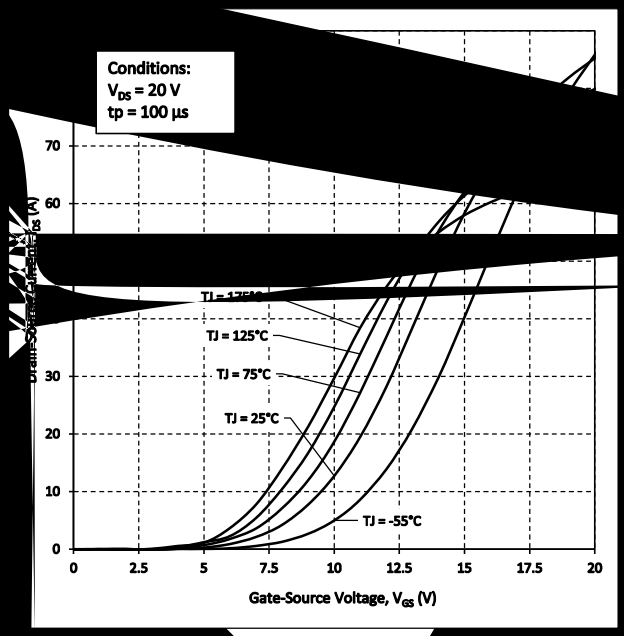
Characteristics	Symbol	Conditions	Values			Unit

Values


Conditions:
T_j = 25°C
Drain-Source Current, I_{DS} (A)
Drain-Source Voltage, V_{DS} (V)
70
60
50
40
0
2
4
6
8
10
12

Conditions:
T_j = 125°C
tp = 100 µs
Vgs = 20V
Vgs = 18V
Vgs = 16V
Vgs = 14V
Vgs = 12V
Vgs = 10V
Vgs = 14V

Conditions:
I_{DS} = 20 A
tp = 100 µs



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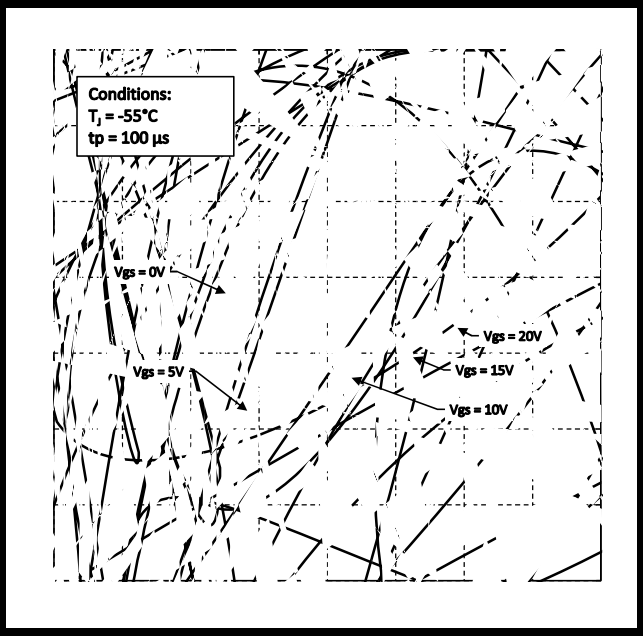
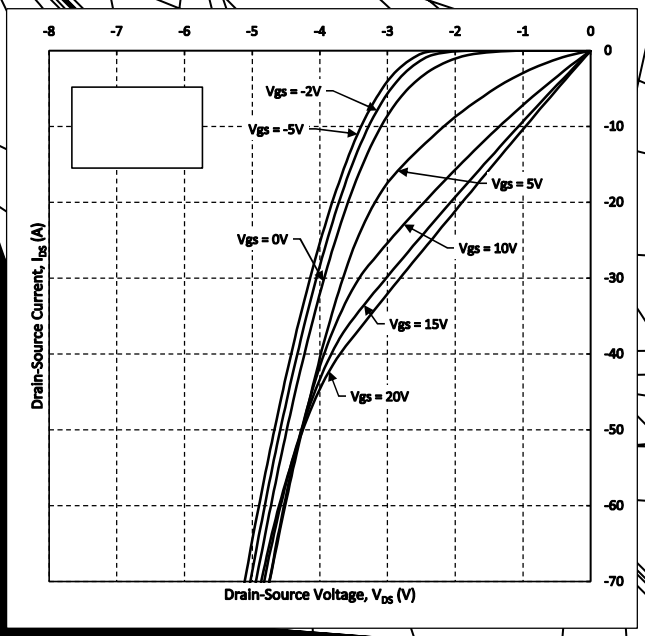
eratures



ing Diode Characteri
T_J = 25°C



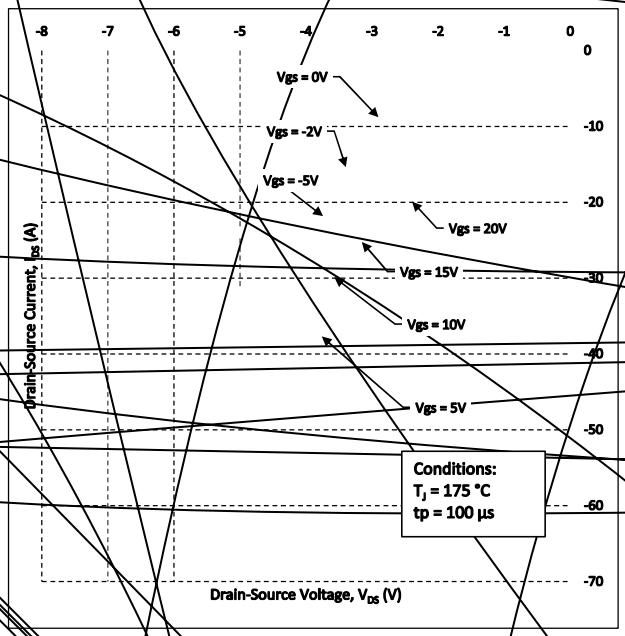
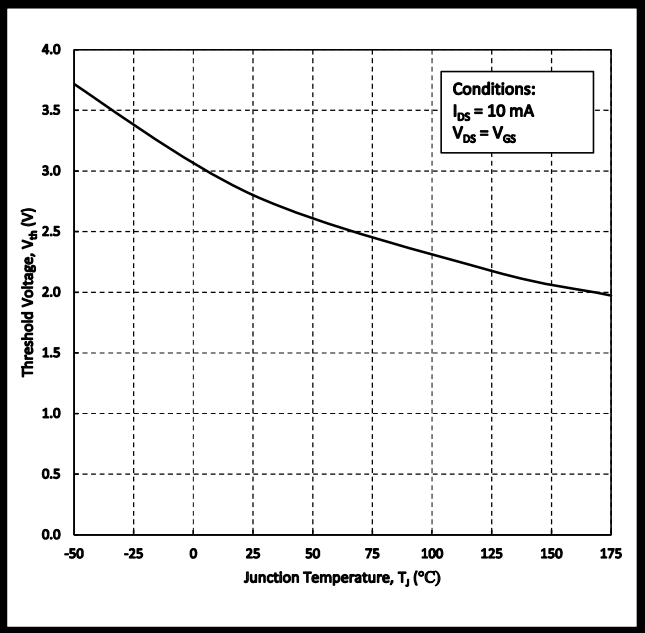
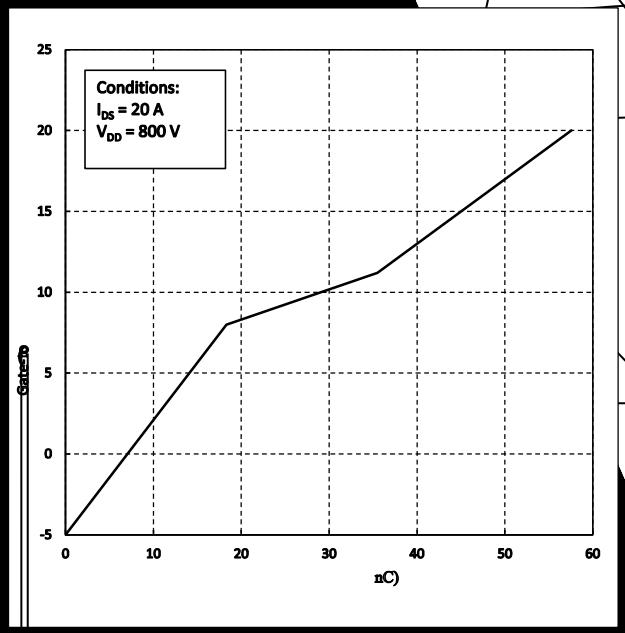


Figure 12. Freewheeling Diode Characteristics at





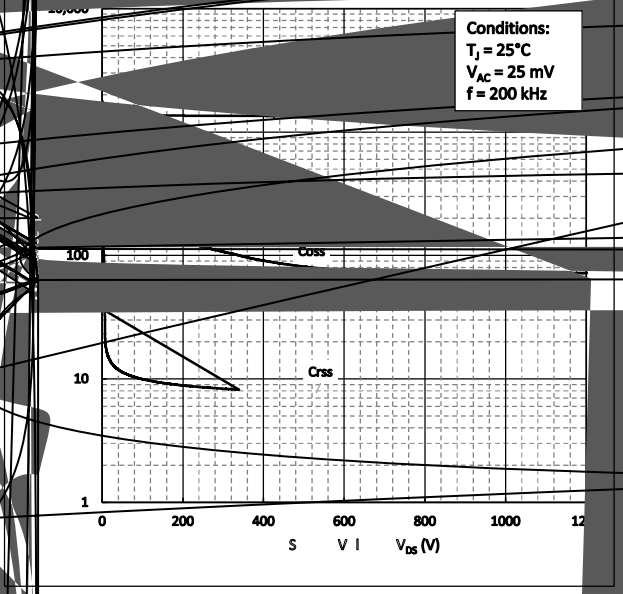
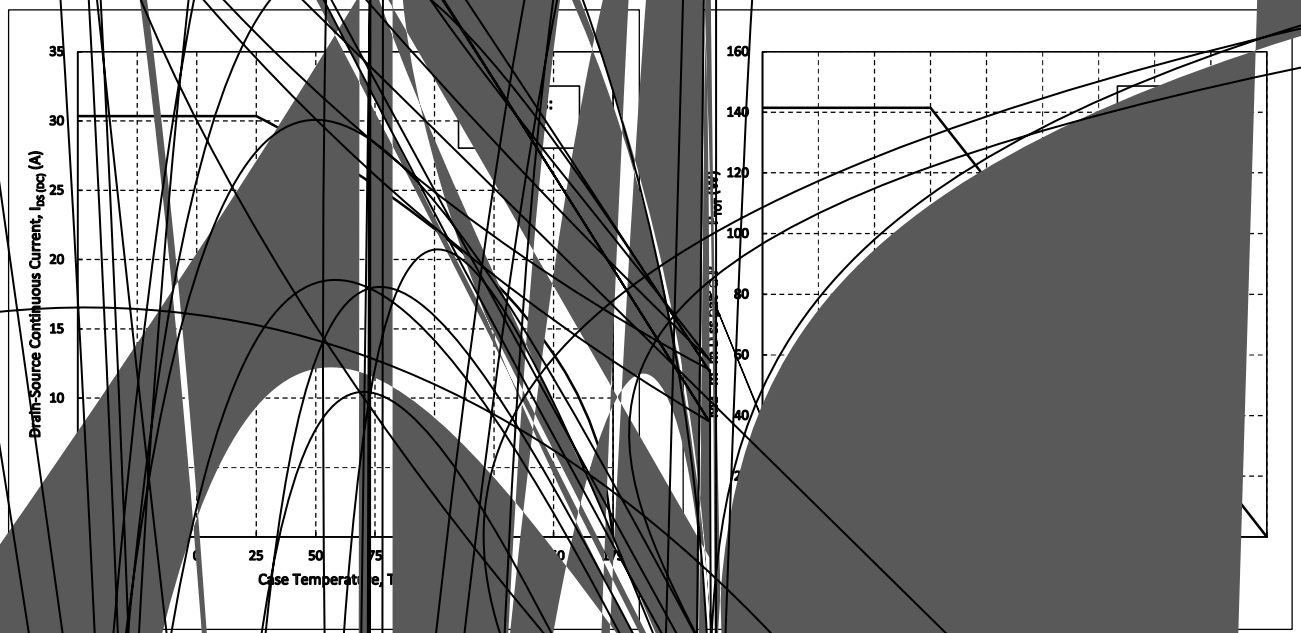
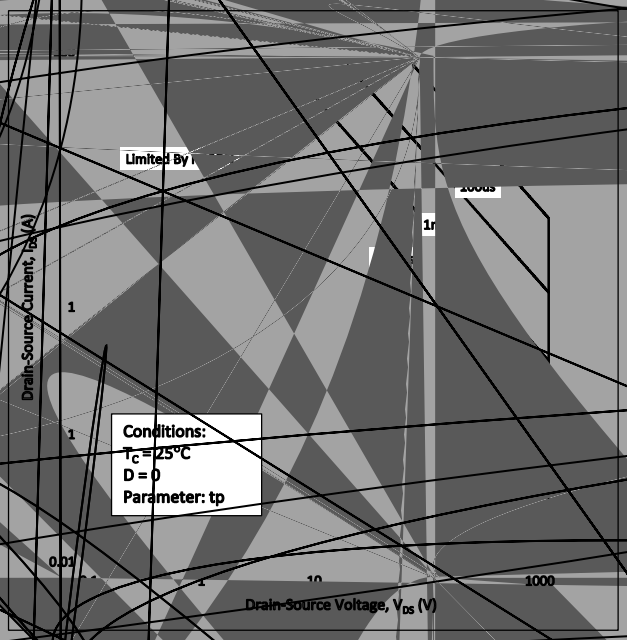


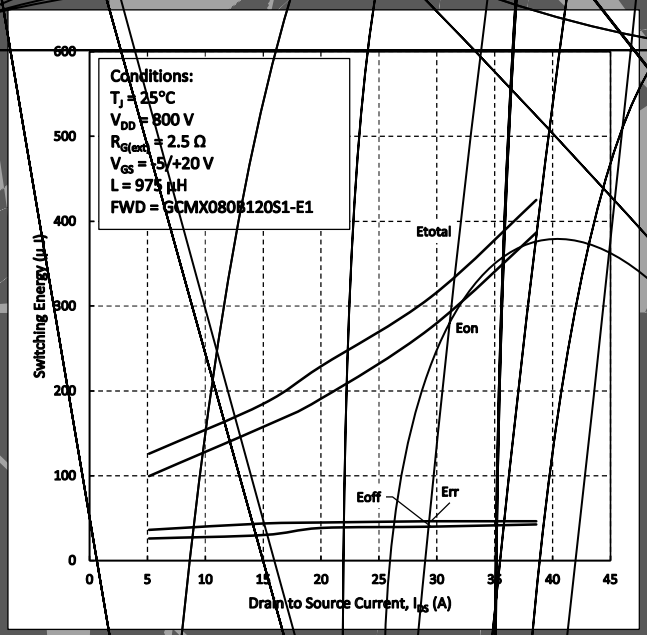
Figure 15. Output Capac...

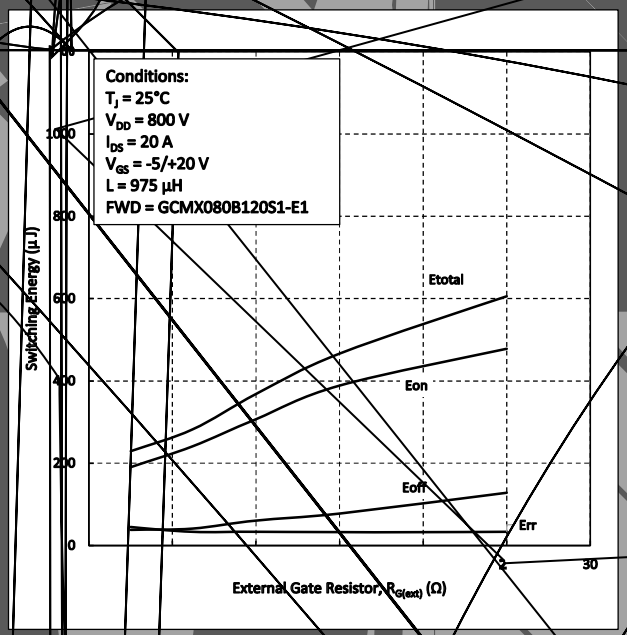
Figure 16. Capacitance vs Drain-Source Voltage

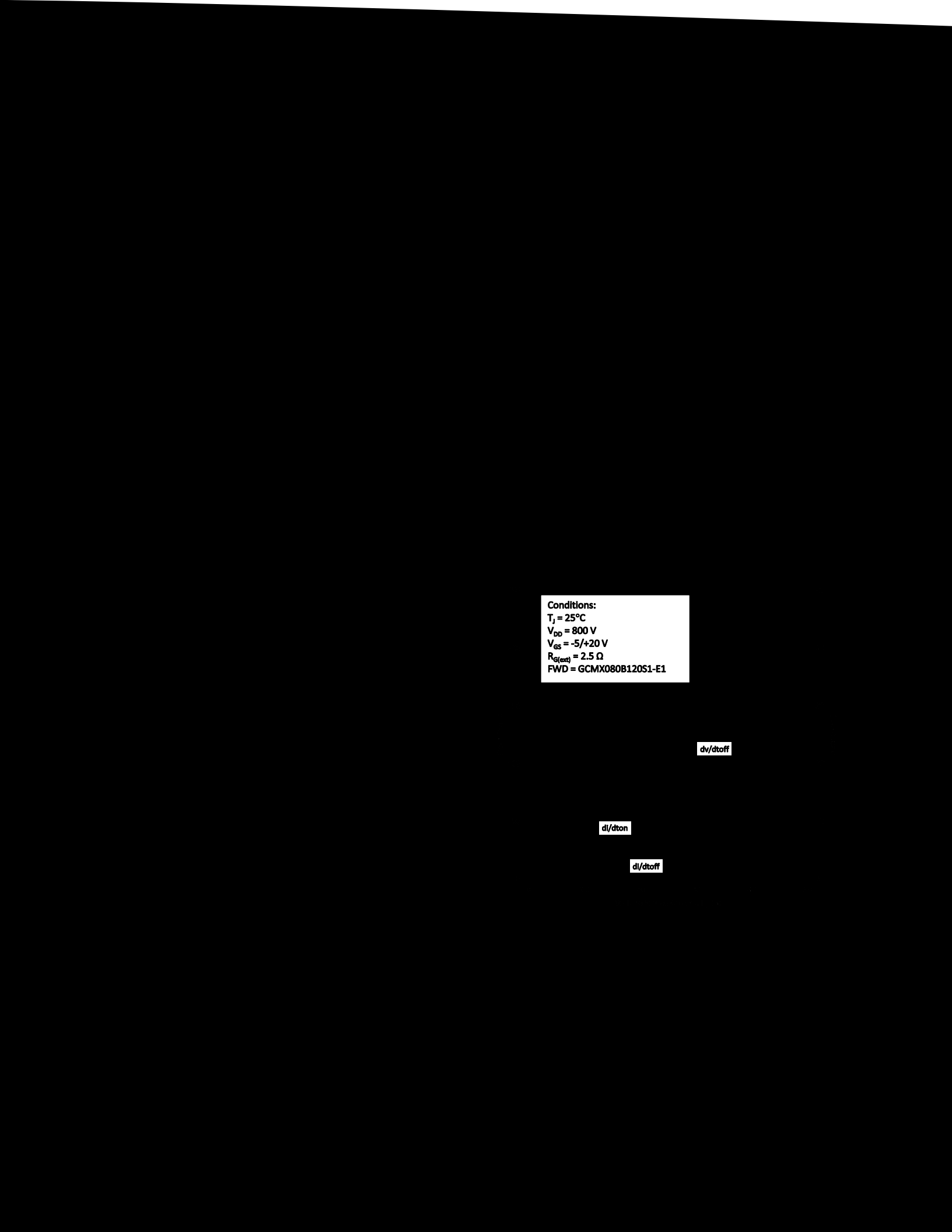


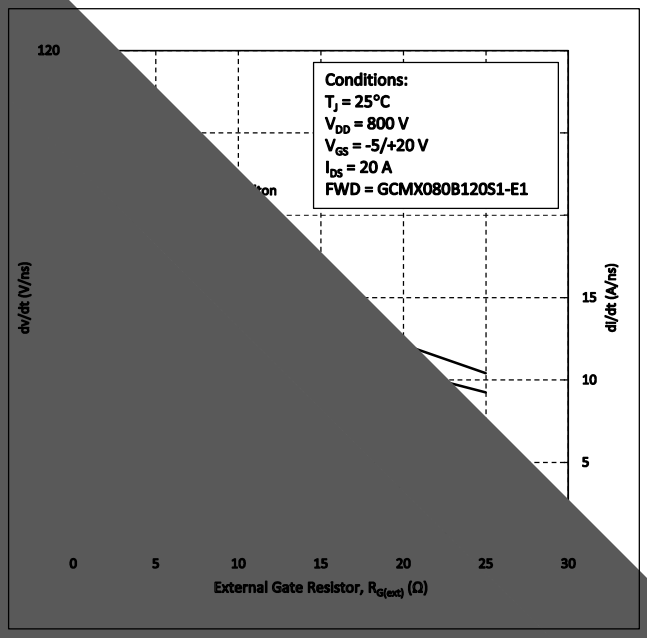
Continuous Drain C...rre... ...s. Case ... P... ...vs Temperat...re


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


Conditions:
T_J = 25°C
V_{DD} = 800 V
$R_{G(ext)}$ = 2.5 Ω
V_{GS} = -5/+20 V
L = 975 µH
FWD = GCMX080B120S1-E1
Etotal
Eon
Eoff
Err
Switching Energy (µJ)
0
100
200
300
400
500
600
0
5
10
15
20
25
30
35
40
45
Drain to Source Current, I_{DS} (A)


Conditions:
T_J = 25°C
V_{DD} = 800 V
I_{DS} = 20 A
V_{GS} = -5/+20 V
L = 975 µH
FWD = GCMX080B120S1-E1
Etotal
Eon
Eoff
Err
Switching Energy (µJ)
0
200
400
600
800
1000
30
External Gate Resistor, $R_{G(ext)}$ (Ω)


Conditions:
T_J = 25°C
V_{DD} = 800 V
V_{GS} = -5/+20 V
$R_{G(ext)}$ = 2.5 Ω
FWD = GCMX080B120S1-E1
dv/dtoff
dI/dton
dI/dtoff



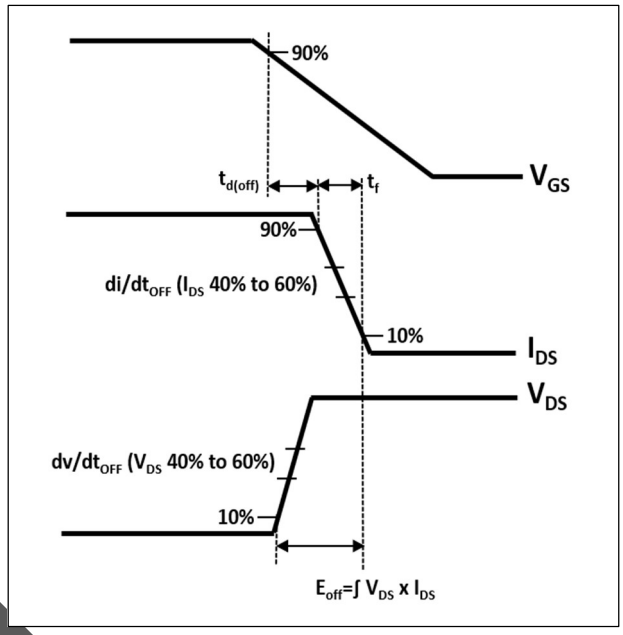
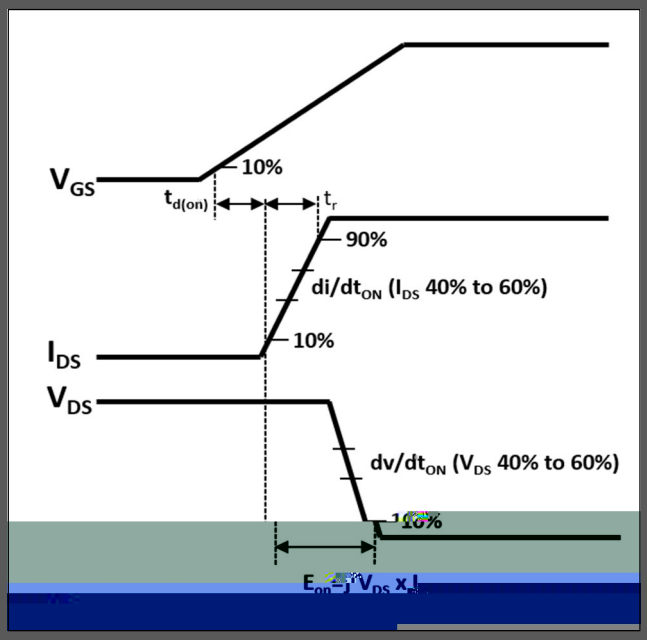
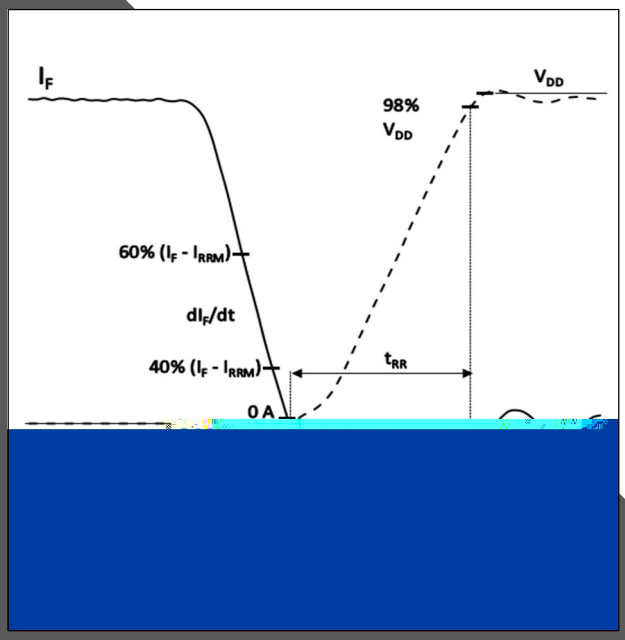


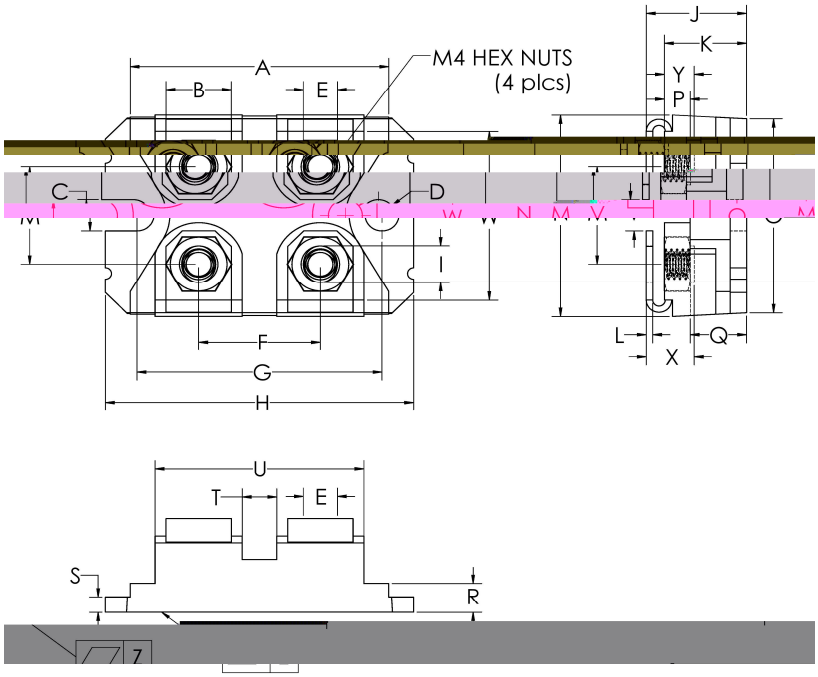
Figure 26. Turn-off Transient Definitions





1200V SiC MOSFET Power Module

Package Dimensions SOT-227



Sym	Millimeters		Inches	
	Min	Max	Min	Max

1200V SiC MOSFET Power Module

Revision History		

Notes

RoHS Compliance

The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU Directive 2011/65/EC (RoHS2), as implemented March, 2013. RoHS Declarations for this product can be obtained from the Product Documentation sections of www.SemiQ.com.

REACh Compliance

REACh substances of high concern (SVHC) information is available for this product. Since the European Chemicals Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future,please contact our office at SemiQ Headquarters in Lake Forest, California to insure you get the most up-to-date REACh SVHC Declaration. REACh banned substance information (REACh Article 67) is also available upon request.

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