

GCMS040B120S1-E1



1200V SiC COPACK Power Module

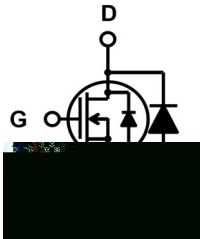
V_{DS}	1200 V
$R_{DS,on}$	37 mΩ
I_D (TC=25°C)	57 A
$T_{J,max}$	175°C

Features

Package

Benefits

Applications



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

Part #	Package	Marking
GCMS040B120S1-E1	SOT-227	GCMS040B120S1-E1



Absolute Maximum Ratings

Characteristics	Symbol	Conditions	Values	Unit

q

Q

Q

Q

1200V SiC COPACK Power Module

GCMS040B120S1-E1

Static Electrical Characteristics

Characteristics	Symbol	Conditions	Values			Unit
		o				

AC Electrical Characteristics

Characteristics	Symbol	Conditions	Values			Unit

$$\begin{array}{ccccc} \alpha & & Q & & \alpha \\ & & & & \\ \alpha & & \alpha & & \end{array}$$

Freewheeling Diode Characteristics

Characteristics	Symbol	Conditions	Values			Unit

Thermal and Package Characteristics

Characteristics	Symbol	Conditions	Values			Unit

Typical Performance

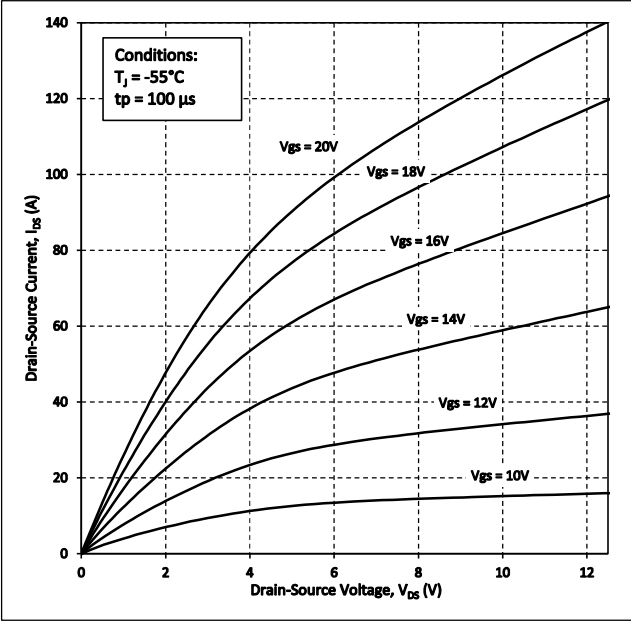


Figure 1. Output Characteristics $T_j = -55^\circ\text{C}$

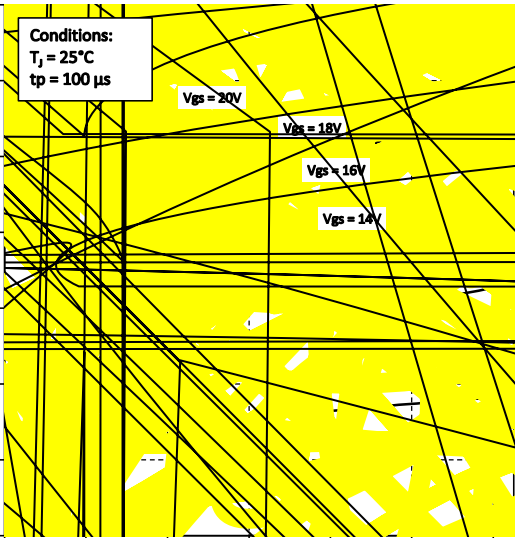
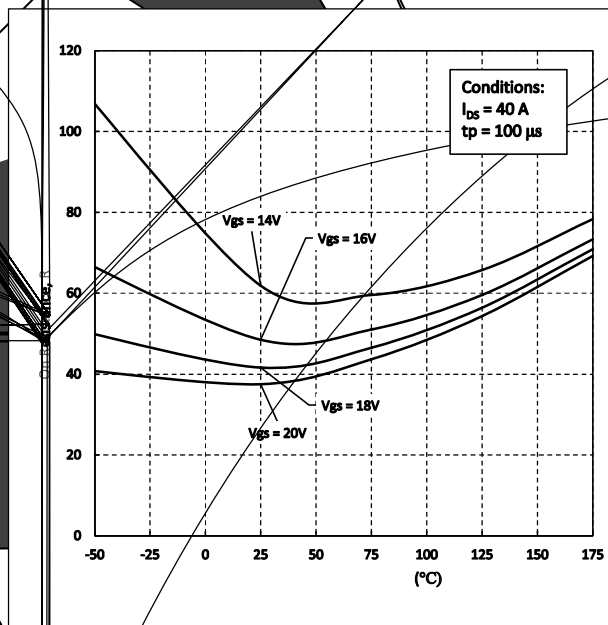
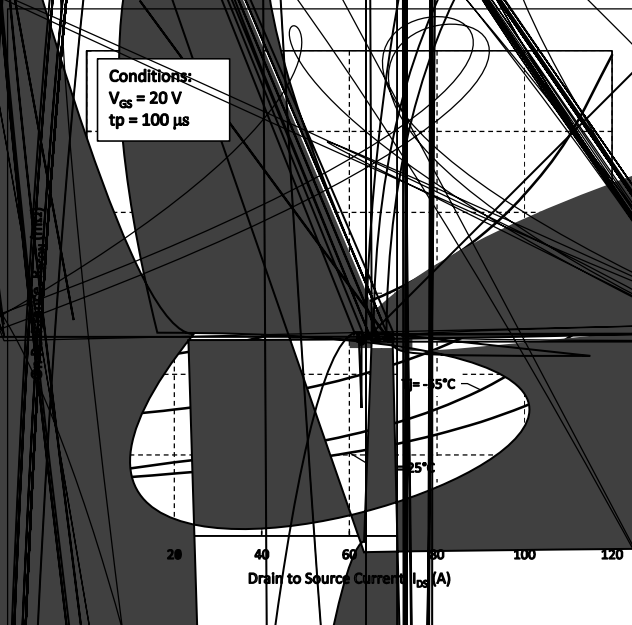
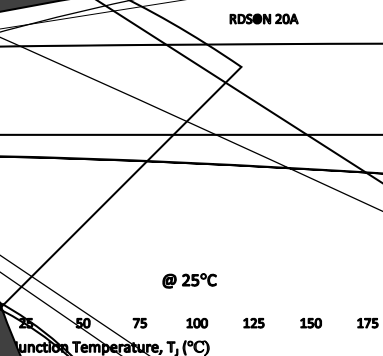
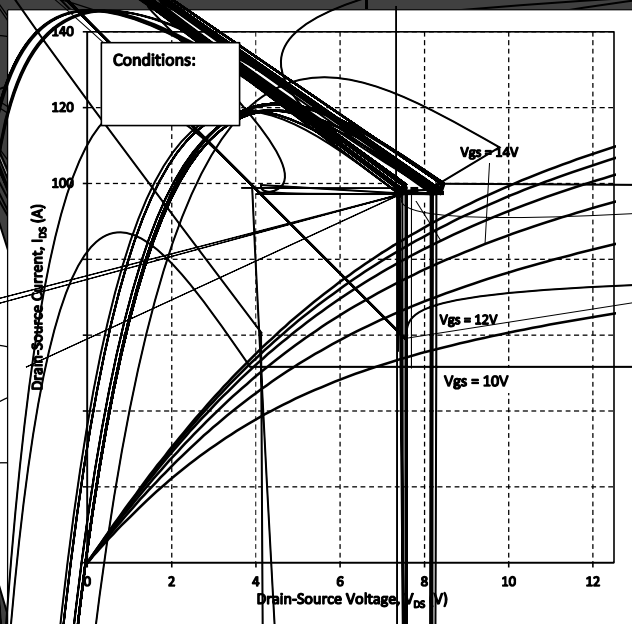
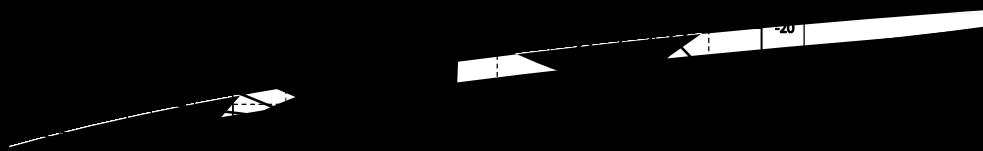


Figure 2. Output Characteristics $T_j = 25^\circ\text{C}$





Conditions:
 $T_J = 175\text{ }^{\circ}\text{C}$
 $t_p = 100\text{ }\mu\text{s}$

Figure 11. I_{DSS} vs.

Figure 12. I_{DSS} vs. Temperature

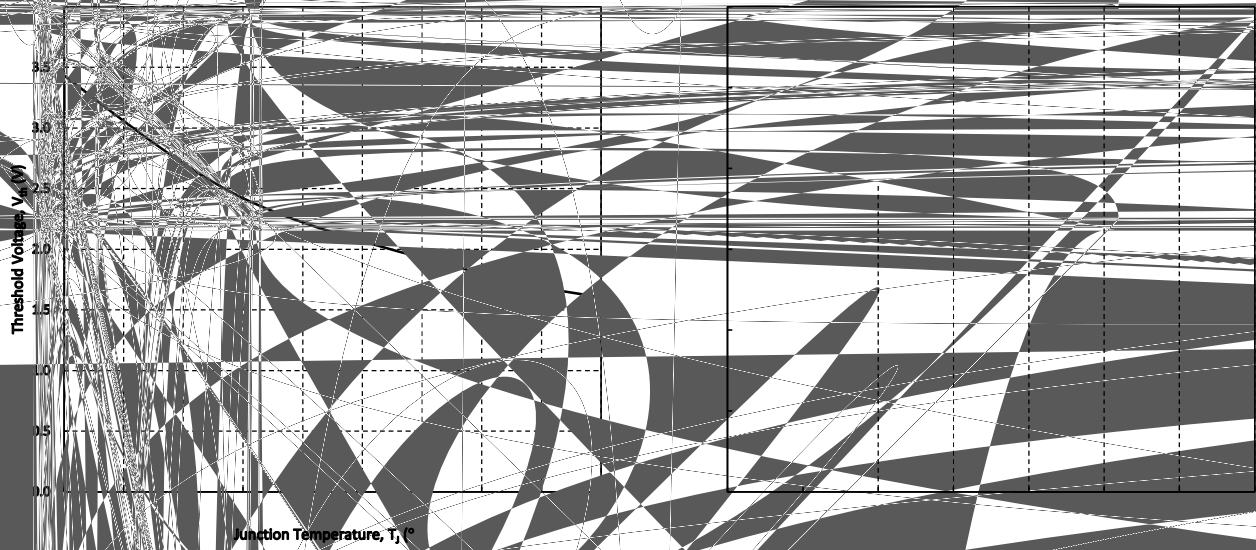


Figure 13. Threshold Voltage vs. Temperature

Figure 14. Gate C

1200V SiC COPACK Power Module

GCMS040B120S1-E1

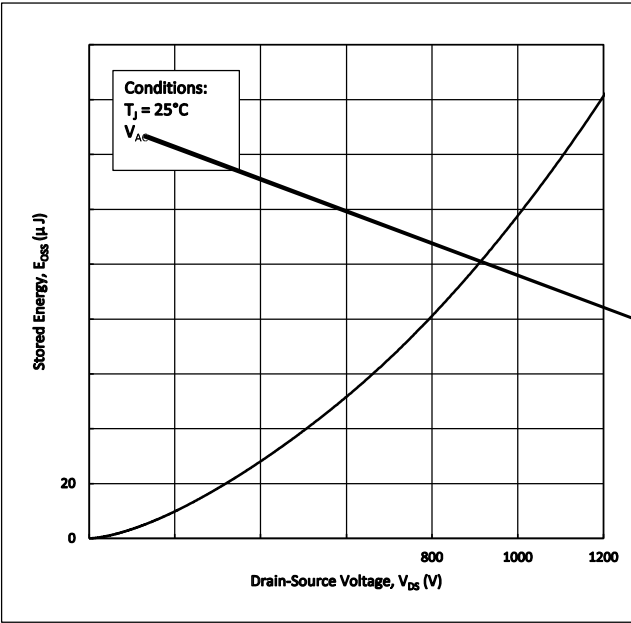


Figure 15. Output Capacitor Stored Energy

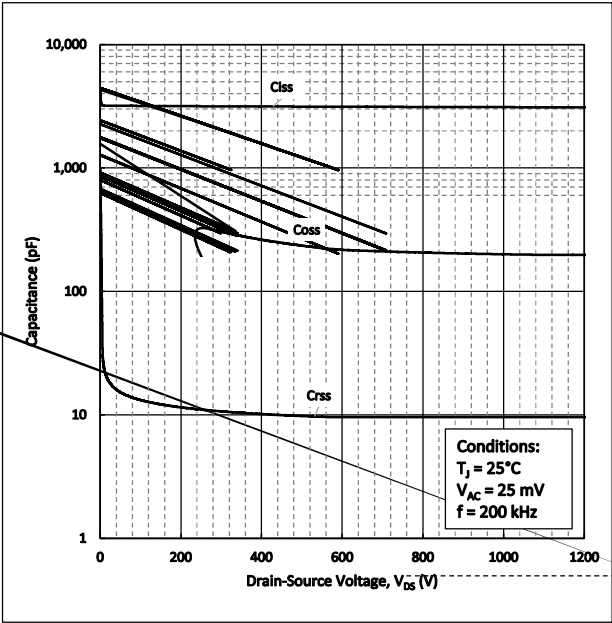


Figure 16. Capacitance vs Drain-Source Voltage

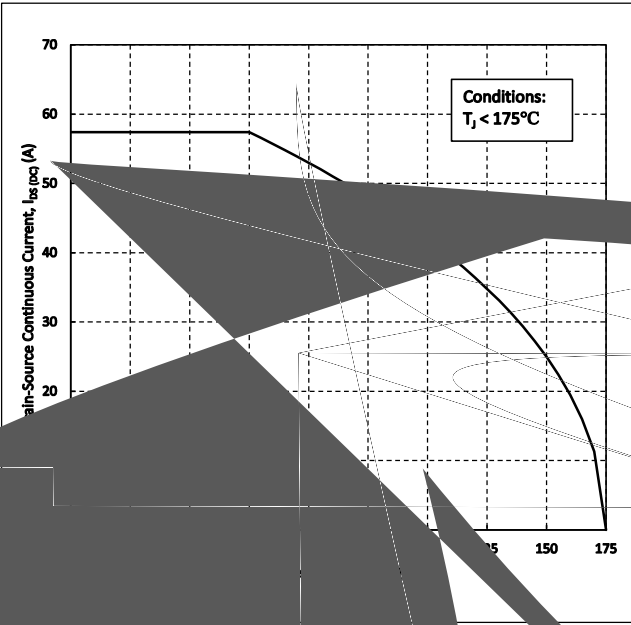


Figure 17. Drain-Source Continuous Current vs. Case Temperature

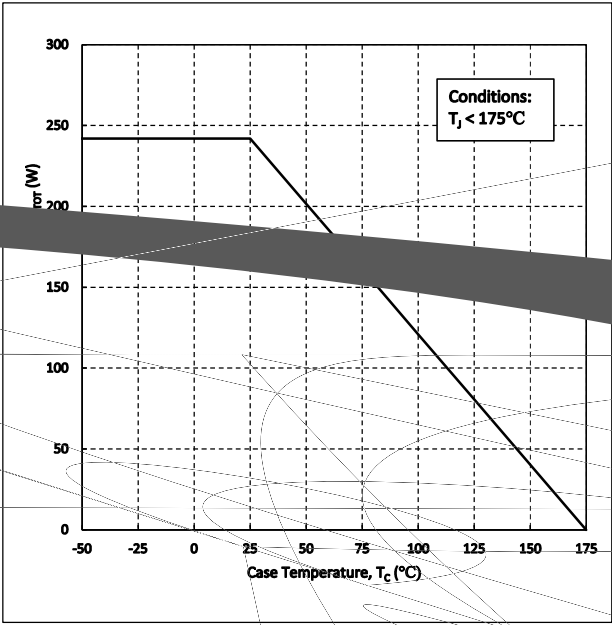


Figure 18. Maximum Power Dissipation Derating vs Case Temperature

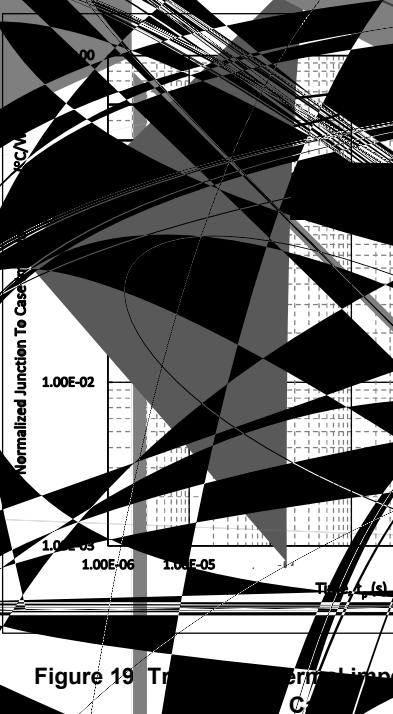


Figure 19. Transient Thermal Impedance, $Z_{th(jc)}$ to $Z_{th(ja)}$

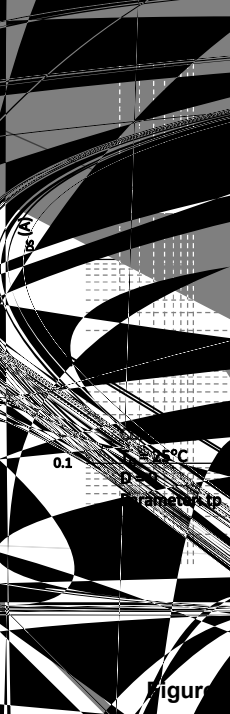


Figure 20. Transient Thermal Impedance, $Z_{th(jc)}$ to $Z_{th(ja)}$

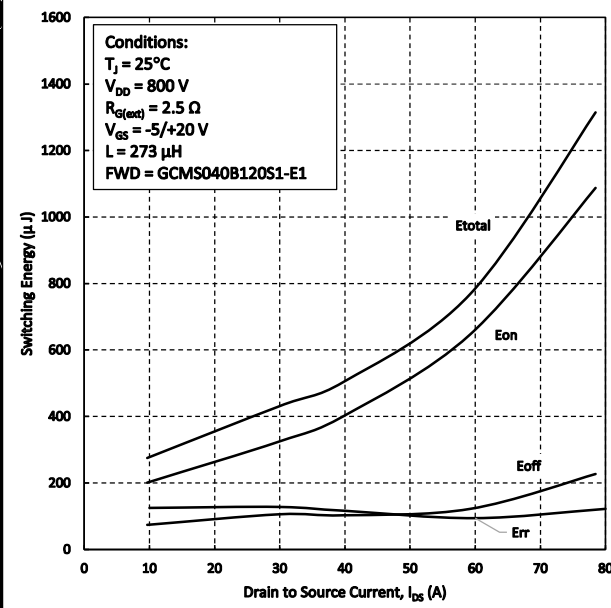


Figure 21. Clamped Inductive Switching Energy vs. Drain Current

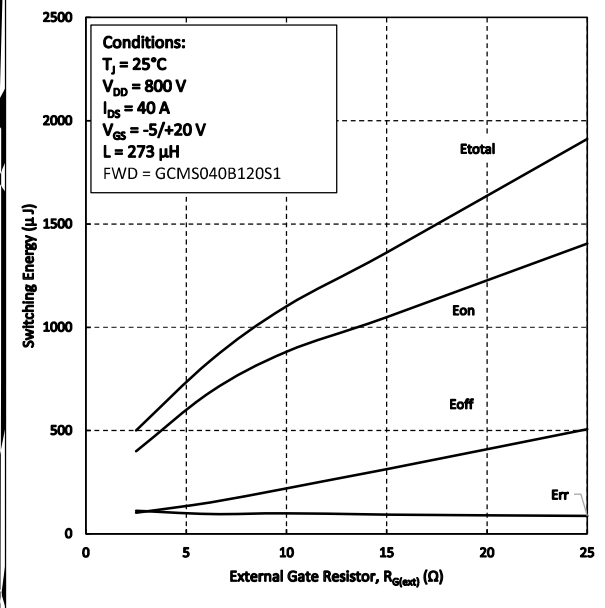


Figure 22. Clamped Inductive Switching Energy vs. External Gate Resistor

Conditions:

$T_j = 25^\circ\text{C}$

$V_{DD} = 800\text{ V}$

$V_{GS} = -5/\pm 20\text{ V}$

$R_{G(\text{ext})} = 2.5\ \Omega$

FWD = GCM5040B12051-E1

$dv/dton$

$di/dtoff$

Drain to Source Current, I_{DS} (A)

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GCMS040B120S1-E1

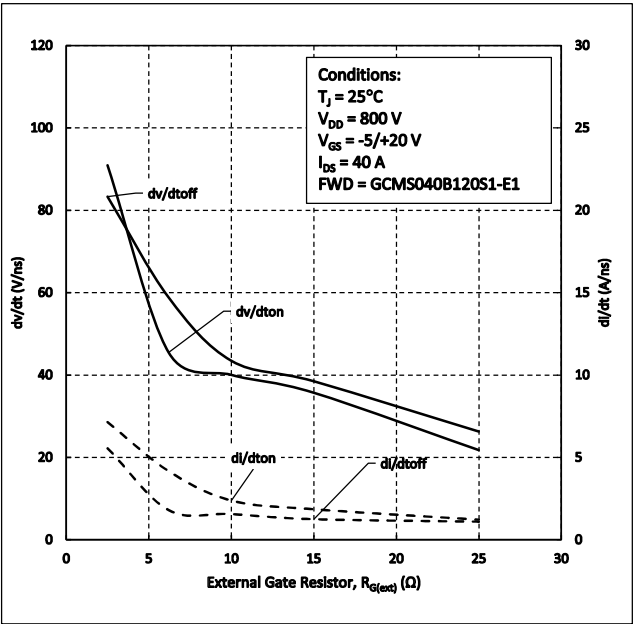


Figure 27. dv/dt and di/dt vs. $R_{G(ext)}$

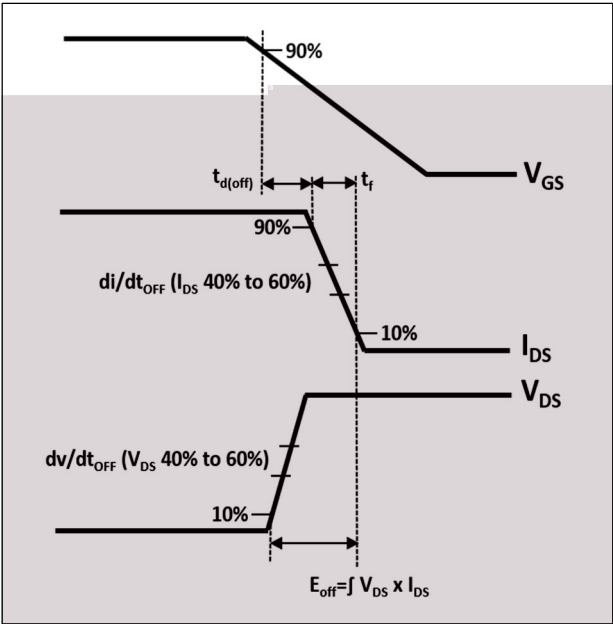


Figure 28. Turn-off Transient Definitions

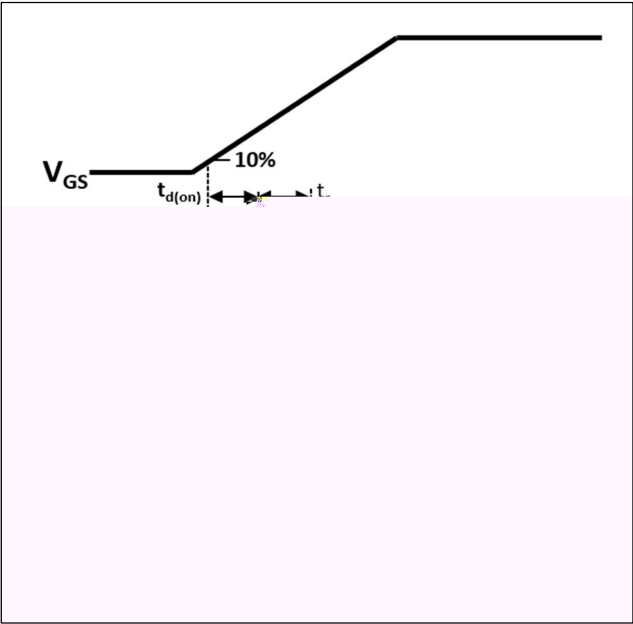


Figure 29. Turn-on Transient Definitions

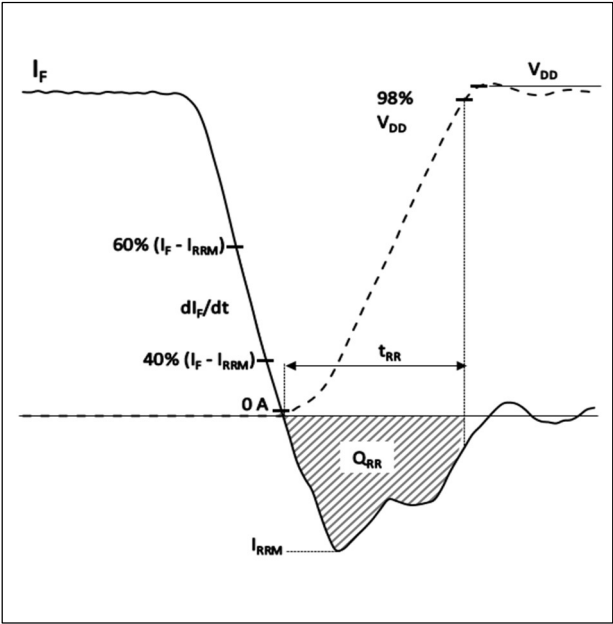
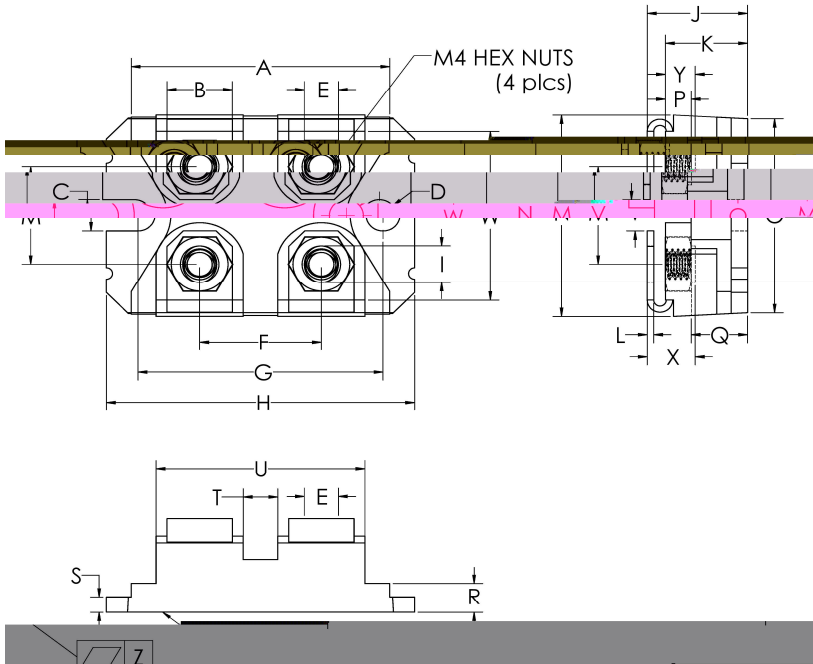


Figure 30. Reverse Recovery Definitions

1200V SiC COPACK Power Module

GCMS040B120S1-E1

Package Dimensions SOT-227

[illegible]

1200V SiC COPACK Power Module

GCMS040B120S1-E1

Revision History		

RoHS Compliance

Q

Q Q Q

REACH Compliance

Q Q

Q Q

Q Q Q

Q Q

Q Q