

CDMS24783-120

**SILICON CARBIDE  
N-CHANNEL MOSFET**



**TO-247 CASE**



[www.centrasemi.com](http://www.centrasemi.com)

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CDMS24783-120 is an N-channel silicon carbide MOSFET designed for high speed switching and fast reverse recovery applications.

**MARKING: CDMS247  
83-120**

**MAXIMUM RATINGS:** ( $T_J=25^\circ\text{C}$ )

Drain-Source Voltage  
Gate-Source Voltage  
Continuous Drain Current  
Pulsed Drain Current  
Operating and Storage Junction Temperature  
Power Dissipation

SYMBOL		UNITS
$V_{DS}$	1200	V
$V_{GS}$	20	V
$I_D$	18	A
$I_{DM}$	20	A
$T_J, T_{stg}$	-55 to +175	$^\circ\text{C}$
$P_D$	28	W

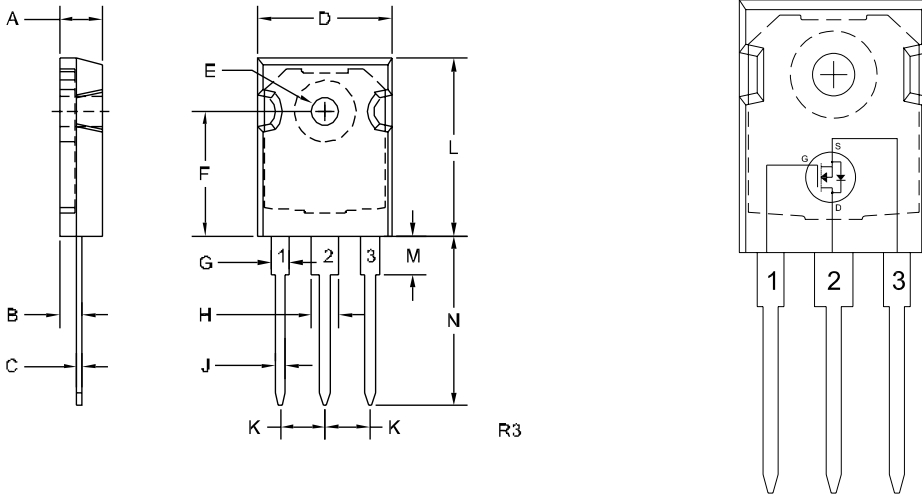
**ELECTRICAL CHARACTERISTICS:** ( $T_J=25^\circ\text{C}$ )

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu\text{A}$	1200			V
$I_{DSS}$	$V_{DS}=1200V, V_{GS}=0V$		4.5	100	nA
$I_{GSS}$	$V_{GS}=18V, V_{DS}=0V$		45	500	pA
$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=2.5\text{mA}$	1.0	2.4	4.0	V
$r_{DS(ON)}$	$V_{GS}=18V, I_D=18A$		83	150	m $\Omega$
$C_{iss}$	$V_{DS}=200V, V_{GS}=0, f=1.0\text{MHz}$		1365		pF
$C_{oss}$	$V_{DS}=800V, V_{GS}=0, f=1.0\text{MHz}$		78		pF
$C_{rss}$	$V_{DS}=800V, V_{GS}=0, f=1.0\text{MHz}$		11		pF
$t_{d(on)}$	$V_{DS}=1000V, V_{GS}=-5.0$ to 15V, $I_D=10A$		10		ns
$t_r$	$V_{DS}=1000V, V_{GS}=-5.0$ to 15V, $I_D=10A$		35		ns
$t_{d(off)}$	$V_{DS}=1000V, V_{GS}=-5.0$ to 15V, $I_D=10A$		31		ns
$t_f$	$V_{DS}=1000V, V_{GS}=-5.0$ to 15V, $I_D=10A$		52		ns
$Q_g(\text{tot})$	$V_{DS}=800V, V_{GS}=-5.0$ to 15V, $I_D=10A$		55		nC
$V_{SD}$	$V_{GS}=0V, I_S=5.0A$			5.0	V

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**TO-247 CASE - MECHANICAL OUTLINE**



R3

**LEAD CODE:**

- 1) Gate
- 2) Drain
- 3) Source

**MARKING:**

**CDMS247**

**83-120**

SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.184	0.211	4.68	5.36
B	0.087	0.110	2.20	2.80
C	0.019	0.028	0.48	0.70
D	0.606	0.638	15.38	16.20
E (DIA)	0.128	0.144	3.25	3.65
F	0.583	0.607	14.81	15.42
G	0.072	0.097	1.82	2.46
H	0.115	0.127	2.92	3.23
J	0.035	0.060	0.89	1.53
K	0.207	0.223	5.26	5.66
L	0.812	0.881	20.63	22.38
M	0.145	0.177	3.68	4.50
N	0.728	0.846	18.50	21.50

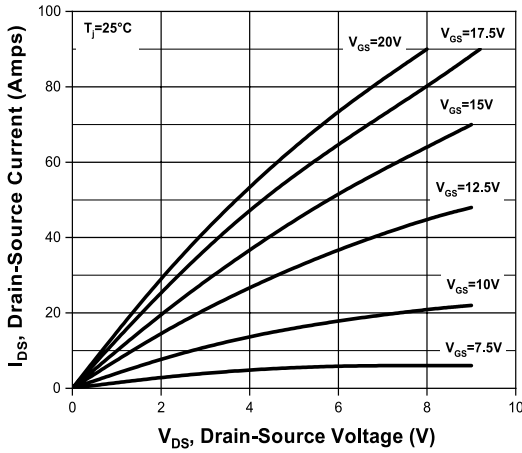
TO-247 (REV: R3)

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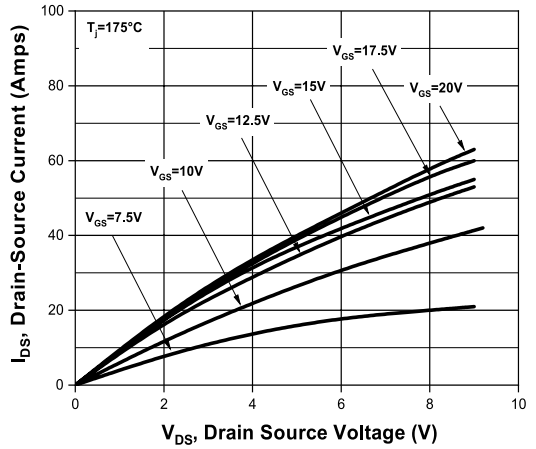


TYPICAL ELECTRICAL CHARACTERISTICS

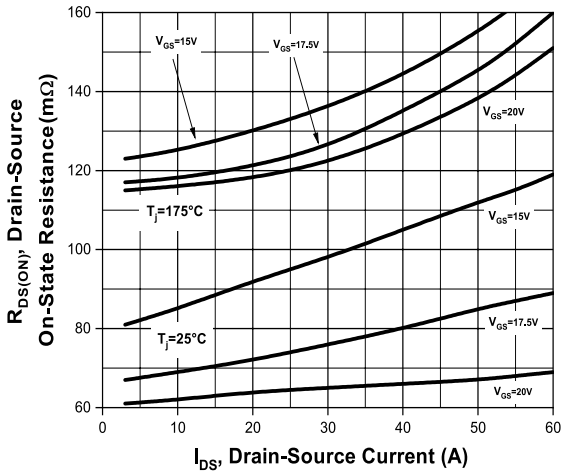
Typical Output Characteristics



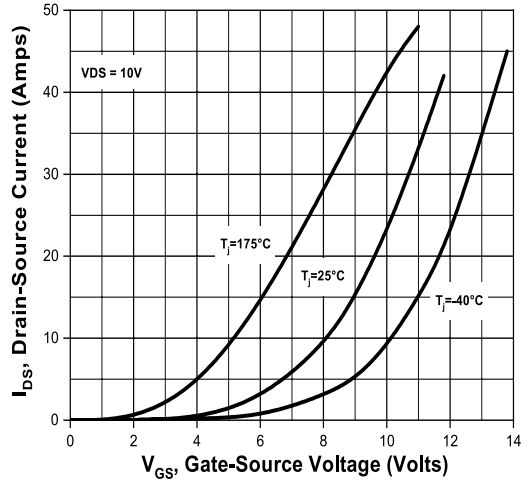
Typical Output Characteristics



Drain Source On Resistance



Transfer Characteristics



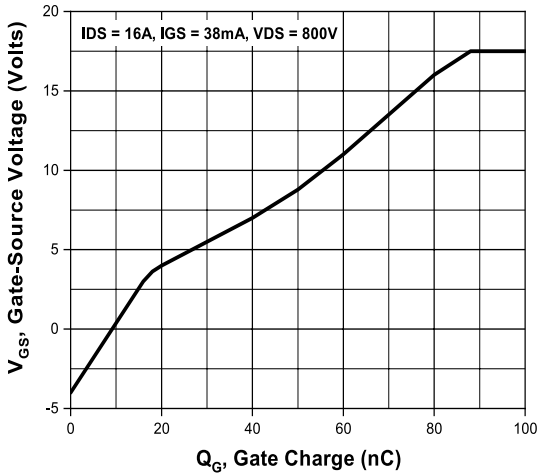
R4 (30-July 2024)

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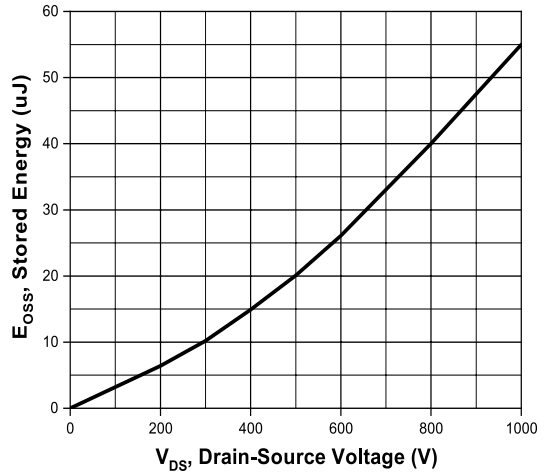


TYPICAL ELECTRICAL CHARACTERISTICS

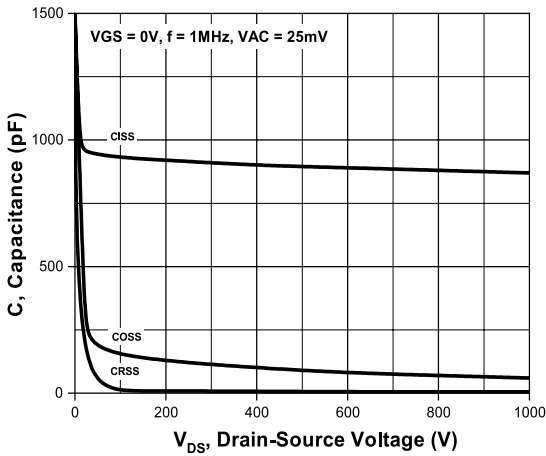
Gate Capacitance Charge



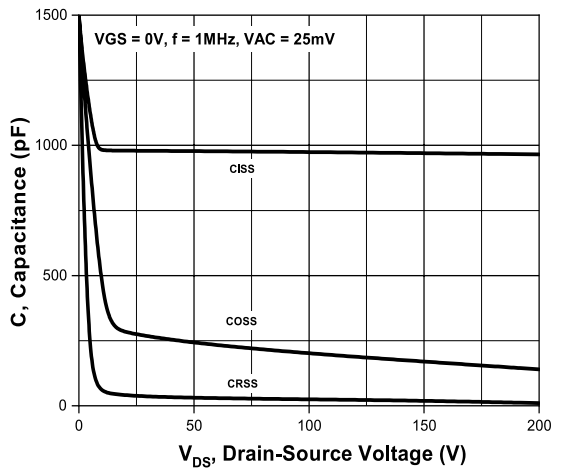
Output Capacitor Stored Energy



Capacitance



Capacitance



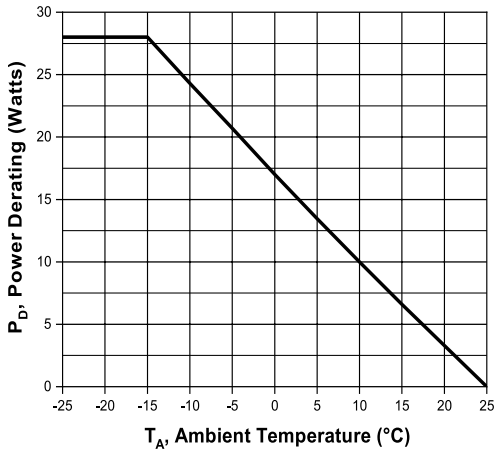
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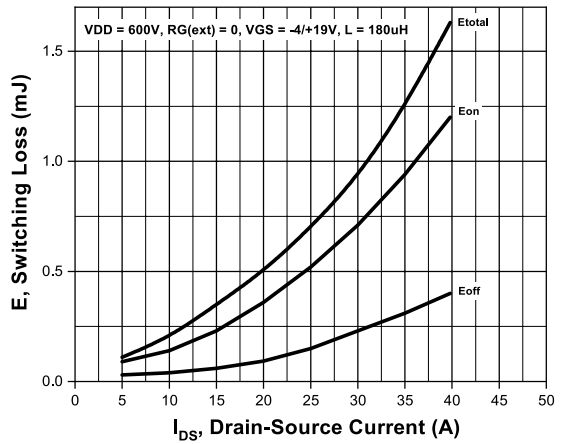


### TYPICAL ELECTRICAL CHARACTERISTICS

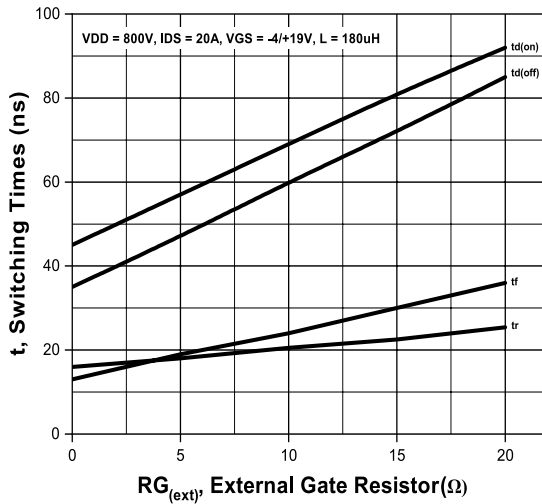
Power Derating



Clamped Inductive Switching Energy



Switching Times



## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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### REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix "TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix "PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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### CONTACT US

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