CDMS24760-170

SILICON CARBIDE
N-CHANNEL MOSFET

TO-247 CASE

DESCRIPTION:
The CENTRAL SEMICONDUCTOR CDMS24760-170 is an N-channel silicon carbide MOSFET designed for high speed switching and fast reverse recovery applications.

MARKING: CDMS247
60-170

MAXIMUM RATINGS: (T_J=25°C)	**SYMBOL**		**UNITS**
Drain-Source Voltage	V_{DS}	1700	V
Gate-Source Voltage	V_{GS}	20	V
Continuous Drain Current	I_D	21	A
Pulsed Drain Current	I_{DM}	32	A
Operating and Storage Junction Temperature	T_J, T_{stg}	-55 to +175	°C
Power Dissipation	P_D	28	W

ELECTRICAL CHARACTERISTICS: (T_J=25°C)

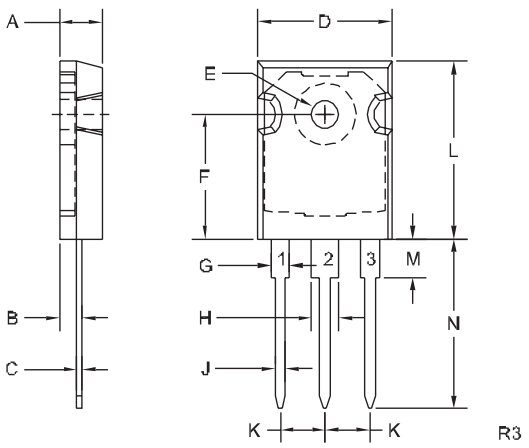
SYMBOL	**TEST CONDITIONS**	**MIN**	**TYP**	**MAX**	**UNITS**
I_{DSS}	V_{DS}=1200V, V_{GS}=0V		65		nA
I_{GSS}	V_{GS}=15V		45		pA
$r_{DS(ON)}$	V_{GS}=15V, I_D=10A		60		mΩ
Gm	V_{DS}=10V, I_D=10A		6.5		S
$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=16mA		2.6		V
R_G	f=1MHz		10		Ω
C_{iss}	V_{DS}=1000V, V_{GS}=0, f=1.0MHz		1.2		nF
C_{oss}	V_{DS}=1000V, V_{GS}=0, f=1.0MHz		50		pF
C_{rss}	V_{DS}=1000V, V_{GS}=0, f=1.0MHz		7		pF
E_{oss}	V_{DS}=800V, V_{GS}=15V, I_D=20A		10		µJ
E_{on}	V_{DS}=800V, V_{GS}=15V, I_D=20A		900		µJ
E_{off}	V_{DS}=800V, V_{GS}=15V, I_D=20A		200		µJ
t_r	V_{DS}=800V, V_{GS}=15V, I_D=20A		25		ns
t_f	V_{DS}=800V, V_{GS}=15V, I_D=20A		24		ns
$t_{d(on)}$	V_{DS}=800V, V_{GS}=15V, I_D=20A		70		ns
$t_{d(off)}$	V_{DS}=800V, V_{GS}=15V, I_D=20A		38		ns
V_{SD}	V_{GS}=0V, I_S=5.0A			5.0	V

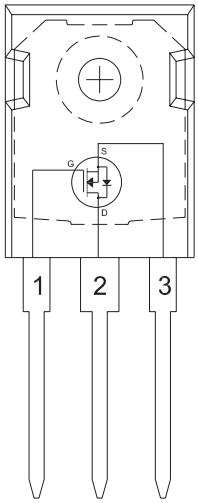
R2 (10-June 2025)

CDMS24760-170

SILICON CARBIDE
N-CHANNEL MOSFET

TO-247 CASE - MECHANICAL OUTLINE





LEAD CODE:
1) Gate
2) Drain
3) Source

MARKING:
CDMS247
60-170

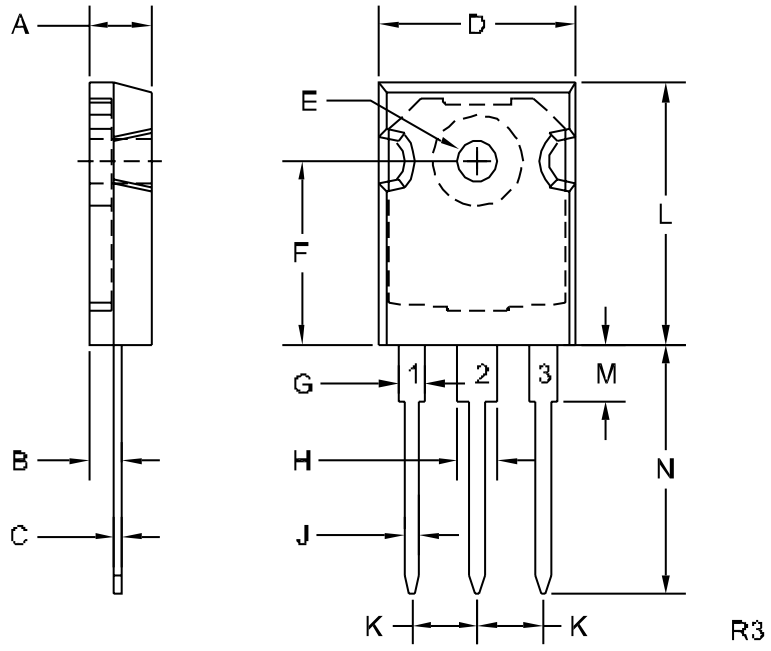
DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	MIN	MAX	MIN	MAX
A	0.184	0.211	4.68	5.36
B	0.087	0.110	2.20	2.80
C	0.019	0.028	0.48	0.70
D	0.606	0.638	15.38	16.20
E (DIA)	0.128	0.144	3.25	3.65
F	0.583	0.607	14.81	15.42
G	0.072	0.097	1.82	2.46
H	0.115	0.127	2.92	3.23
J	0.035	0.060	0.89	1.53
K	0.207	0.223	5.26	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)

R2 (10-June 2025)

Package Details
TO-247 Case

Mechanical Drawing



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M	0.145	0.177	3.68	4.50
N	0.728	0.846	18.50	21.50

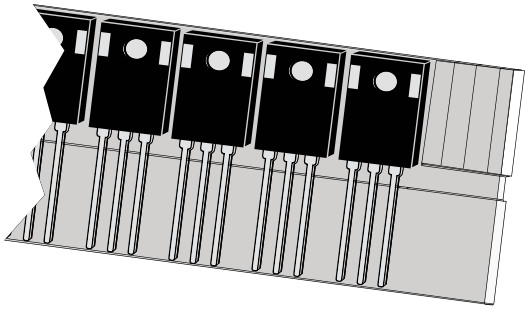
TO-247 (REV: R3)

Lead Code:
Reference individual device datasheet.

Packing Options

Bulk:
White corrugated box with static shielded bags
Bulk Packing Quantity: 100

Sleeve:
Antistatic coated plastic sleeve (surface resistivity of $>10^9$ and $<10^{13}$ ohms per square)
Sleeve Packing Quantity: 30



TO-247 Antistatic Sleeve

R1 (22-February 2023)

Material Composition Specification

TO-247 Case

Device average mass . . . . . **6.175 g**

Fluctuation margin . . . . . **+/-10%**

Component	Material	Material		Substance	CAS #	Substance		
		% wt	mg			% wt	mg	ppm
active device	doped Si	0.11%	7.100	Si	7440-21-3	0.11%	7.100	1,150
die attach	high temperature solder	0.23%	14.320	Pb	7439-92-1	0.21%	13.25	2,145
				Ag	7440-22-4	0.01%	0.36	58
				Sn	7440-31-5	0.01%	0.716	116
bond wire	Aluminum	0.23%	14.220	Al	7440-57-5	0.23%	14.220	2,303
leadframe	Cu alloy	64.79%	4000.65	Cu	7440-50-8	64.66%	3993.050	646,648
				Fe	7439-89-6	0.10%	6.000	972
				P	7723-14-0	0.03%	1.600	259
encapsulation	EMC	33.59%	2074.21	silica	7631-86-9	26.15%	1614.50	261,457
				epoxy resin	29690-82-2	3.38%	208.85	33,821
				phenol resin	9003-35-4	3.05%	188.385	30,508
				carbon black	1333-86-4	0.10%	5.887	953
				Sb2O3	1309-64-4	0.73%	45.359	7,346
				TBBA	79-94-7	0.18%	11.234	1,819
leadframe plating *	tin lead process	1.04%	64.50	Sn	7440-31-5	0.83%	51.500	8,340
				Pb	7439-92-1	0.21%	13.000	2,105
	matte tin	5.18%	64.50	Sn	7440-31-5	1.04%	64.50	10,445

*For Lead Free plating, add suffix “PB FREE” to part number.
For Tin/Lead plating, add suffix “TIN/LEAD” to part number.
No suffix designation allows for the supply of either lead-free or tin/lead plated product depending on availability.

Disclaimer
The information provided in this Material Composition data sheet is, to the best of our knowledge, correct. However, there is no guarantee to completeness or accuracy, as some information is derived from data sources outside the company.

Material Composition Specification

TO-247 Case

Device average mass . . . . . **6.240 g**

Fluctuation margin . . . . . **+/-10%**

Component	Material	Material		Substance	CAS #	Substance		
		% wt	mg			% wt	mg	ppm
active device	doped Si	0.31%	19.20	Si	7440-21-3	0.31%	19.20	3,077
die attach	high temperature solder	10.35%	646.02	Pb	7439-92-1	9.11%	568.50	91,106
				Ag	7440-22-4	1.04%	64.60	10,353
				Sn	7440-31-5	0.21%	12.92	2,071
bond wire	Aluminum	0.22%	13.85	Al	7440-57-5	0.22%	13.85	2,220
leadframe	Cu alloy	54.14%	3378.37	Cu	7440-50-8	54.06%	3373.30	540,593
				Fe	7439-89-6	0.08%	5.07	813
encapsulation*	EMC GREEN	34.56%	2156.76	silica	7631-86-9	22.81%	1423.46	228,119
				Si-oxide Quartz	14808-60-7	6.91%	431.34	69,125
				Phenol-formaldehyde polymer	9003-35-4	3.46%	215.68	34,564
				3-Trimethoxysilylpropane1-thiol	4420-74-0	0.35%	21.57	3,457
				Triphenylphosphine	39319-11-4	0.35%	21.57	3,457
				Ethene, homopolymer	9002-88-4	0.35%	21.57	3,457
				carbon black	1333-86-4	0.35%	21.57	3,457
leadframe plating	matte tin	0.41%	25.80	Sn	7440-31-5	0.41%	25.80	4,135

*EMC GREEN molding compound is Halogen-Free.

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OUTSTANDING SUPPORT AND SUPERIOR SERVICES

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

DESIGNER SUPPORT/SERVICES

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

- Free quick ship samples (2nd 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

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).

CONTACT US

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