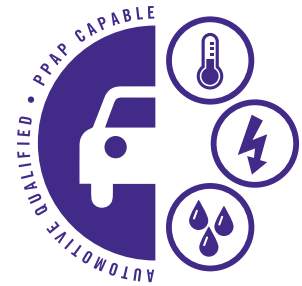




## Introducing Wolfspeed's new E-Series™ SiC MOSFETs and Diodes

Announcing the new E-Series™ from Wolfspeed®, a family of robust SiC semiconductor devices for the Electric Vehicle (EV) and renewable energy markets that delivers the highest available power density and durability for on-board automotive power conversion systems, off-board charging, solar inverters and other outdoor applications.

Wolfspeed's E-Series is the first commercially available family of SiC MOSFETs and diodes to be AEC-Q101 qualified and PPAP capable.



### E-Series MOSFETs

#### FEATURES

- AEC-Q101 Qualified and PPAP capable
- Third Generation SiC MOSFET technology
- Fast intrinsic diode with low reverse recovery ( $Q_{rr}$ )

#### APPLICATIONS

- EV battery chargers
- PV inverters
- High voltage DC/DC converters

Part Number	$V_{DSmax}$	$R_{ds(on)25^\circ}$	Package
E3M0065090D	900V	65mΩ	TO-247-3
E3M0120090D	900V	120mΩ	TO-247-3
E3M0280090D	900V	280mΩ	TO-247-3

### E-Series Diodes

#### FEATURES

- AEC-Q101 Qualified and PPAP capable
- HV-H3TRB tested (85°C, 85% RH, 80%  $V_{RRM}$ )
- Zero reverse recovery

#### APPLICATIONS

- Boost diode in on-board chargers or PV inverters
- Output rectifiers in on-board DC/DC converters
- Free-wheeling diodes in vehicle traction inverters
- Off-board chargers

Status	Part Number	$V_{RRM}$	$I_{F,Rated}$	Package
Available	E4D20120A	1200V	20A	TO-220-2
Coming Soon	E4D15120A	1200V	15A	TO-220-2
Coming Soon	E4D10120A	1200V	10A	TO-220-2
Coming Soon	E4D08120A	1200V	8A	TO-220-2
Coming Soon	E4D05120A	1200V	5A	TO-220-2
Available	EPW4-1200-S020A	1200V	20A	Bare die
Coming Soon	EPW4-1200-S015A	1200V	15A	Bare die
Coming Soon	EPW4-1200-S010A	1200V	10A	Bare die
Coming Soon	EPW4-1200-S008A	1200V	8A	Bare die
Coming Soon	EPW4-1200-S005A	1200V	5A	Bare die

# Commercially Available SiC Power Devices

## MOSFETs

Wolfspeed is the industry leader in SiC MOSFETs with the largest portfolio of commercially released products. The new C3M product family is the most advanced and reliable MOSFET available in the market today and is quickly becoming a key building block for new power conversion systems trying to achieve smaller size, weight and BoM.

### KEY FEATURES OF NEW C3M MOSFET TECHNOLOGY:

- Easier to drive (+15V gate drive)
- Flatter  $R_{ds(on)}$  over temperature
- Rugged body diode (no need for external diode)
- Avalanche ruggedness
- Available in new package options with separate driver source pin



Part Number	Blocking Voltage (V)	$R_{ds(on)}$ (m $\Omega$ )	Current Rating at 25°C (A)	Package
C3M0030090K	900	30	63	TO-247-4
C3M0065090J	900	65	35	TO-263-7
C3M0065090D	900	65	36	TO-247-3
C3M0120090J	900	120	22	TO-263-7
C3M0120090D	900	120	23	TO-247-3
C3M0280090J	900	280	11	TO-263-7
C3M0280090D	900	280	11.5	TO-247-3
C3M0065100K	1000	65	35	TO-247-4
C3M0065100J	1000	65	35	TO-263-7
C3M0120100K	1000	120	22	TO-247-4
C3M0120100J	1000	120	22	TO-263-7
C2M0025120D	1200	25	90	TO-247-3
C2M0040120D	1200	40	60	TO-247-3
C3M0075120K	1200	75	30	TO-247-4
C2M0080120D	1200	80	36	TO-247-3
C2M0160120D	1200	160	19	TO-247-3
C2M0280120D	1200	280	10	TO-247-3
C2M0045170D	1700	45	72	TO-247-3
C2M0045170P	1700	45	72	TO-247-4 Plus
C2M0080170P	1700	80	40	TO-247-4 Plus
C2M1000170D	1700	1000	5	TO-247-3
C2M1000170J	1700	1000	5.3	TO-263-7
CPM3-0900-0010A	900	10	196	Bare Die
CPM3-0900-0030A	900	30	66	Bare Die
CPM3-0900-0065B	900	65	36	Bare Die
CPM3-1000-0065B	1000	65	36	Bare Die
CPM2-1200-0025B	1200	25	98	Bare Die
CPM2-1200-0040B	1200	40	63	Bare Die
CPM2-1200-0080B	1200	80	36	Bare Die
CPM2-1200-0160B	1200	160	19	Bare Die
CPM2-1700-0045B	1700	45	72	Bare Die
CPM2-1700-0080B	1700	80	40	Bare Die

DISCRETE

BARE DIE

For more information, type the part number of interest after "wolfspeed.com/" in your web browser.

# Schottky Diodes

Wolfspeed has the broadest portfolio of SiC Schottky diodes, with more than four trillion field hours and 17 years of experience. Our diodes feature the MPS (Merged PiN Schottky) design, which is more robust and reliable than standard Schottky barrier diodes, and can be easily paralleled for increased design flexibility.

Part Number	Blocking Voltage (V)	Current Rating (A)	Package
CSD01060A	600	1	TO-220-2
CSD01060E	600	1	TO-252-2
C3D1P7060Q	600	1.7	QFN
C3D02060A	600	2	TO-220-2
C3D02060F	600	2	TO-220-F2
C3D02060E	600	2	TO-252-2
C3D03060A	600	3	TO-220-2
C3D03060F	600	3	TO-220-F2
C3D03060E	600	3	TO-252-2
C3D04060A	600	4	TO-220-2
C3D04060F	600	4	TO-220-F2
C3D04060E	600	4	TO-252-2
C3D06060A	600	6	TO-220-2
C3D06060F	600	6	TO-220-F2
C3D06060G	600	6	TO-263-2
C3D08060A	600	8	TO-220-2
C3D08060G	600	8	TO-263-2
C3D10060A	600	10	TO-220-2
C3D10060G	600	10	TO-263-2
C3D16060D	600	16	TO-247-3
C3D20060D	600	20	TO-247-3
C3D02065E	650	2	TO-252-2
C3D03065E	650	3	TO-252-2
C3D04065A	650	4	TO-220-2
C3D04065E	650	4	TO-252-2
C3D06065I	650	6	TO-220 Iso
C3D06065A	650	6	TO-220-2
C3D06065E	650	6	TO-252-2
C3D08065I	650	8	TO-220 Iso
C3D08065A	650	8	TO-220-2
C3D08065E	650	8	TO-252-2
C3D10065I	650	10	TO-220 Iso
C3D10065A	650	10	TO-220-2
C3D10065E	650	10	TO-252-2
C3D12065A	650	12	TO-220-2
C3D16065A	650	16	TO-220-2
C3D16065D	650	16	TO-247-3
CVFD20065A	650	20	TO-220-2
C3D20065D	650	20	TO-247-3
C3D30065D	650	30	TO-247-3
C5D50065D	650	50	TO-247-3

600V & 650V DISCRETE

Part Number	Blocking Voltage (V)	Current Rating (A)	Package
CPWR-0600-S001B	600	1	Bare Die
CPW3-0600-S002B	600	2	Bare Die
CPW3-0600-S003B	600	3	Bare Die
CPW3-0600-S004B	600	4	Bare Die
CPW2-0600-S006B	600	6	Bare Die
CPW2-0600-S008B	600	8	Bare Die
CPW2-0600-S010B	600	10	Bare Die
CPW3-0650-S004B	650	4	Bare Die
CPW2-0650-S006B	650	6	Bare Die
CPW2-0650-S008B	650	8	Bare Die
CPW2-0650-S010B	650	10	Bare Die
CPW2-0650-S012B	650	12	Bare Die
CPW2-0650-S016B	650	16	Bare Die
CPW5-0650-Z030B	650	30	Bare Die
CPW5-0650-Z050B	650	50	Bare Die
C4D02120A	1200	2	TO-220-2
C4D02120E	1200	2	TO-252-2
C2D05120A	1200	5	TO-220-2
C4D05120A	1200	5	TO-220-2
C4D05120E	1200	5	TO-252-2
C4D08120A	1200	8	TO-220-2
C4D08120E	1200	8	TO-252-2
C4D10120A	1200	10	TO-220-2
C4D10120D	1200	10	TO-247-3
C4D10120E	1200	10	TO-252-2
C4D10120H	1200	10	TO-247-2
C4D15120A	1200	15	TO-220-2
C4D15120D	1200	15	TO-247-3
C4D15120H	1200	15	TO-247-2
C4D20120A	1200	20	TO-220-2
C4D20120D	1200	20	TO-247-3
C4D20120H	1200	20	TO-247-2
C4D30120D	1200	30	TO-247-3
C4D40120D	1200	40	TO-247-3
CPW4-1200-S002B	1200	2	Bare Die
CPW4-1200-S005B	1200	5	Bare Die
CPW4-1200-S008B	1200	8	Bare Die
CPW4-1200-S010B	1200	10	Bare Die
CPW4-1200-S015B	1200	15	Bare Die
CPW4-1200-S020B	1200	20	Bare Die
CPW2-1200-S050B	1200	50	Bare Die
CPW5-1200-Z050B	1200	50	Bare Die
C3D10170H	1700	10	TO-247-2
C3D25170H	1700	25	TO-247-2
CPW3-1700-S010B	1700	10	Bare Die
CPW3-1700-S025B	1700	25	Bare Die
CPW5-1700-Z050B	1700	50	Bare Die

600V & 650V BARE DIE

1200V DISCRETE

1200V BARE DIE

1700V DISCRETE

1700V BARE DIE

## Modules

Wolfspeed standard power modules enhance performance with the latest SiC chip sets and minimized package parasitics. These modules come in well-known industrial housings with full design collateral and gate driver boards.

Part Number	Blocking Voltage (V)	R <sub>ds(on)</sub> (mΩ)	Current Rating (A)	Package
CAS325M12HM2	1200	3.7	325	High-Performance 62mm
CAS300M12BM2	1200	5	300	Industry-Standard 62mm
CAS120M12BM2	1200	13	120	Industry-Standard 62mm
CCS050M12CM2	1200	25	50	Industry-Standard 45mm
CCS020M12CM2	1200	80	20	Industry-Standard 45mm
CAS300M17BM2	1700	8	225	Industry-Standard 62mm

## Gate Driver Boards

Part Number	Output Channels	Isolation Voltage (V)	Output Peak Current (A)	Optimized for
CGD15HB62LP	2	1500	14	CAS325M12HM2
CGD15HB62P1	2	1200	9	CAS300M12BM2, CAS120M12BM2
CGD15FB45P1	6	1200	9	CCS050M12CM2, CCS020M12CM2
CRD-001	N/A	1700	9	C2M Discrete MOSFETs (V <sub>GS</sub> =20V)
CGD15SG00D2	N/A	1700	9	C3M Discrete MOSFETs (V <sub>GS</sub> =15V)

## Reference Designs

Wolfspeed also offers electrical LTspice models as well as a new online simulation tool to help you get started.

Learn more at [wolfspeed.com/power/tools-and-support](http://wolfspeed.com/power/tools-and-support)

Part Number	Description	Voltage Class	Optimized for	Avail for Purchase
CRD-5FF0912P	SiC MOSFET Evaluation Board, 7L-D2PAK	900V	C3M0120090J	Yes
CRD-20DD09P-2	20 kW Full Bridge Resonant LLC Converter 1000V, 65mΩ SiC MOSFETs in 4L TO-247	1000V	C3M0065100K	Yes
CRD-060DD17P-2	Auxiliary Power Supply Board for 7L-D2PAK	1700V	C2M1000170J	Yes
CRD-060DD12P	Auxiliary Power Supply Board for TO-247-3	1700V	C2M1000170D	Yes
CRD-8DD12P	8 kW DC/DC ZVS Converter for Battery Charger	1200V	C2M0080120D	On Request
KIT8020-CRD-8FF1217P-1	C2M SiC MOSFET and Diode Evaluation Kit	1200V	TO-247-3 MOSFETs & Diodes	Yes
CRD-50DD12N	50 kW, 4-Phase Interleaved Boost Converter for Solar Applications	1200V	C2M0080120D, C4D10120D	On Request
KIT8020-CRD-5FF0917P-2	C3M SiC MOSFET and Diode Evaluation Kit	1200V	TO-247-4 MOSFETs & Diodes	Yes
CRD-50DD12N-2	50 kW Boost Converter with C2M0080120D	1200V	TO-247-3 MOSFETs	On Request
CRD-02AD09N	2.2 kW Totem Pole PFC Converter with C3M0065090J	900V	TO-263-7 MOSFETs	On Request
CRD-20AD10N	20 kW Bi-directional Converter with C3M0065100K	1000V	TO-247-4 MOSFETs	On Request
CRD-06AD09N	6.6 kW Bi-directional Onboard Charger with C3M0065100K	1000V	TO-247-4 MOSFETs	On Request
CRD-200DA12E	250 kW EV Drive Stack - 1200V	1200V	Modules Only	On Request
CRD-200DA09E	250 kW EV Drive Stack - 900V	900V	Modules Only	On Request
10 kW Boost Converter	10 kW Interleaved Boost Converter for Solar Applications	1200V	C2M0080120D, C4D10120D	No
CRD15DD17P	Wide Input Voltage Range (300 VDC - 1200 VDC) 15 W Flyback Auxiliary Power Supply Board	1700V	C2M1000170J	Yes
60 kW Boost Converter	60 kW SiC DC/DC Boost Converter	1200V	C3M0075120K	On Request