Schottky rectifiers in CFP

Small on size – big on power

Ideal for automotive, industrial, consumer and computing applications, our Schottky rectifier portfolio in CFP meets the challenging demands of efficient and space-saving designs. Clip-bonded FlatPower (CFP) packages with high power capabilities offer a true alternative to SMA, with better thermal performance.

High-performance, broad range

- Three product groups and package types ensure the best fit for your power circuitry
- V_R max: 20-100 V; I_F max: 1-15 A
- Very low forward voltage drop and low leakage for highest efficiency
- Junction temperature up to 175 °C
- AEC-Q101 qualified

Advanced CFP packaging

- Solid copper clip for high thermal performance and power dissipation
- Reduced package inductance for improved switching behavior
- Innovative silicon and reduced package resistance for better electrical performance

Space-saving and future-proof

- Small, thin and light design
- Secure supply in high volumes
- Package and portfolio extensions planned
- Replacements for previous-generation SMx-packaged devices

SMA: 13.57 mm²
Footprint area

CFP5: 11.75 mm²
Footprint area

CFP3: 5.95 mm²
Footprint area

Applications

Examples include:

High-efficiency (Low V_F)

- Chargers and battery-powered equipment
- Electric vehicles

High thermal stability (Ultra-low I_R)

- High-temperature automotive applications (e.g transmission, engine control units)
- LED vehicle lighting

Optimum efficiency-temperature balance (Low V_F/low I_R)

- LED backlighting in displays
- Powertrain systems in hybrid vehicles

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EFFICIENCY WINS.

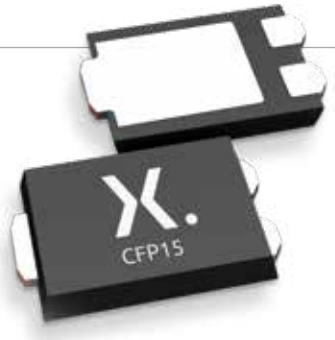
Select the right rectifier to meet your circuit design's requirements

Product group	V_R max (V)	I_F max (A)	Benefits	Examples of use
Low V_F Schottky rectifiers (Planar)	20-60	1-15	Optimized for low power loss, deliver the highest efficiency through lowest forward voltage	Reverse polarity protection Cost-efficient DCDC buck converters
Ultra-low I_R Schottky rectifiers (Low leakage Planar)	60-100	1-10	Ultra-low reverse current and best in class operating temperature ensure highest robustness against thermal run away	DC-DC boost in automotive applications
Low V_F & Low I_R Schottky rectifiers (Trench)	40-60 (100)* *Q1 2019	1-15	Combine low reverse current and low forward voltage to enable best efficiency at high ambient temperatures	Polarity and back drive protection Blocking and or-ing

Three packages for the right space / performance ratio

CFP3 (SOD123W)
2.6 x 1.7 x 1.0 mm*
$R_{th(j-sp)}$ = 18 K/W

CFP5 (SOD128)
3.8 x 2.5 x 1.0 mm*
$R_{th(j-sp)}$ = 12 K/W



CFP15 (SOT1289)
5.8 x 4.3 x 0.78 mm*
$R_{th(j-sp)}$ = 3 K/W

*Body size (l x w x h)

Perfomance comparison Schottky rectifier in SMA vs. CFP

Specs	SS14 (SMA)	PMEG4010ER/P (CFP3/5)
IF	1 A	1 A
VR	40 V	40 V
VF @ IF max.	500 mV	490 mV
IR @ VR max.	200 µA	50 µA
IFSM	40 A	50 A
Rth(j-sp)	28 K/W	18 K/W (CFP3)
		12 K/W (CFP5)

Weight and space savings

Improved power density

Future-proof design

Low V_F Schottky rectifiers (Planar)

Package	Type name	V_R, max (V)	I_R, max @ V_R, max (µA)	$I_{F(AV)}$, max (A)	V_F, max @ $I_{F(AV)}$ (mV)	T_J , max (°C)
 CFP3 (SOD123W)	PMEG2010ER	20	1000	1	340	150
	PMEG2010BER	20	50	1	450	150
	PMEG3010ER	30	1500	1	360	150
	PMEG3010BER	30	50	1	450	150
	PMEG3020BER	30	50	2	520	150
	PMEG3020ER	30	1500	2	420	150
	PMEG4010ER	40	50	1	490	150
	PMEG4010ETR	40	50	1	490	175
	PMEG4020ER	40	100	2	490	150
	PMEG4020ETR	40	100	2	490	175
	PMEG4030ER	40	100	3	540	150
	PMEG6010ER	60	60	1	530	150
	PMEG6010ETR	60	60	1	530	175
	PMEG6020ER	60	150	2	530	150
	PMEG6020ETR	60	150	2	530	175
 CFP5 (SOD128)	PMEG3010EP	30	1500	1	360	150
	PMEG3010BEP	30	50	1	450	150
	PMEG3020DEP	30	50	2	520	150
	PMEG3020BEP	30	100	2	450	150
	PMEG3020CEP	30	1500	2	420	150
	PMEG3020EP	30	3000	2	360	150
	PMEG3030BEP	30	150	3	450	150
	PMEG3030EP	30	5000	3	360	150
	PMEG3050EP	30	8000	5	360	150
	PMEG4010EP	40	50	1	490	150
	PMEG4010ETP	40	50	1	490	175
	PMEG4020EP	40	100	2	490	150
	PMEG4020ETP	40	100	2	490	175
	PMEG4030EP	40	200	3	490	150
	PMEG4030ETP	40	200	3	490	175
	PMEG4050EP	40	300	5	490	150
	PMEG4050ETP	40	300	5	490	175
	PMEG6020ETP	60	150	2	530	175
	PMEG6030EP	60	200	3	530	150
	PMEG6030ETP	60	200	3	530	175
	PMEG6045ETP	60	400	4.5	530	175
 CFP15 (SOT1289)	PMEG030V030EPD	30	150	3	450	175
	PMEG030V050EPD	30	150	5	500	175
	PMEG040V030EPD	40	120	3	490	175
	PMEG040V050EPD	40	120	5	520	175
	PMEG045V050EPD	45	300	5	490	175
	PMEG045V100EPD	45	600	10	490	175
	PMEG045V150EPD	45	900	15	490	175
	PMEG050V030EPD	50	100	3	530	175
	PMEG050V150EPD	50	1000	15	500	175
	PMEG060V030EPD	60	200	3	530	175
	PMEG060V050EPD	60	400	5	560	175
	PMEG060V100EPD	60	700	10	560	175

Ultra-low I_R Schottky rectifiers (Low leakage Planar)

Package	Type name	V_R, max (V)	I_R, max @ V_R, max (µA)	$I_{F(AV)}$, max (A)	V_F, max @ $I_{F(AV)}$ (mV)	T_J, max (°C)
 CFP3 (SOD123W)	PMEG6010ELR	60	0.3	1	660	175
	PMEG6020ELR	60	0.3	2	760	175
	PMEG6020AELR	60	0.7	2	670	175
	PMEG10010ELR	100	0.15	1	770	175
	PMEG10020ELR	100	0.15	2	830	175
	PMEG10020AELR	100	0.30	2	770	175
 CFP5 (SOD128)	PMEG6020AELP	60	0.7	2	670	175
	PMEG6030ELP	60	1.0	3	670	175
	PMEG10020AELP	100	0.3	2	770	175
	PMEG10030ELP	100	0.45	3	770	175
 CFP15 (SOT1289)	PMEG100V060ELPD	100	0.45	6	840	175
	PMEG100V080ELPD	100	0.50	8	850	175
	PMEG100V100ELPD	100	0.80	10	850	175

Low V_F & Low I_R Schottky rectifiers (Trench)

Package	Type name	V_R, max (V)	I_R, max @ V_R, max (µA)	$I_{F(AV)}$, max (A)	V_F, max @ $I_{F(AV)}$ (mV)	T_J, max (°C)
 CFP3 (SOD123W)	PMEG40T10ER	40	22	1	460	175
	PMEG40T20ER	40	22	2	515	175
	PMEG40T30ER	40	28	3	525	175
	PMEG60T10ELR	60	0.65	1	600	175
	PMEG60T20ELR	60	1.2	2	620	175
	PMEG60T30ELR	60	1.8	3	620	175
 CFP5 (SOD128)	PMEG40T20EP	40	22	2	515	175
	PMEG40T30EP	40	28	3	525	175
	PMEG40T50EP	40	41	5	525	175
	PMEG60T10ELP	60	0.8	1	580	175
	PMEG60T20ELP	60	1.2	2	620	175
	PMEG60T30ELP	60	1.8	3	620	175
	PMEG60T50ELP	60	1.8	5	690	175
 CFP15 (SOT1289)	PMEG045T030EPD	45	44	3	480	175
	PMEG045T050EPD	45	44	5	525	175
	PMEG045T100EPD	45	80	10	545	175
	PMEG045T150EPD	45	100	15	550	175
	PMEG045T150EIPD	45	98	15	570	175
	PMEG050T150EPD	50	100	15	550	175

To learn more about Schottky rectifiers in CFP please visit: www.nexperia.com/products/diodes

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