

Schottky rectifiers in CFP

Small on size – big on power

Ideal for automotive, industrial, consumer and computing applications, our Schottky rectifier portfolio in CFP (Clip Flat Power) packages 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 / SMB / SMC, with better thermal performance, on smaller footprint.



High-performance, broad range

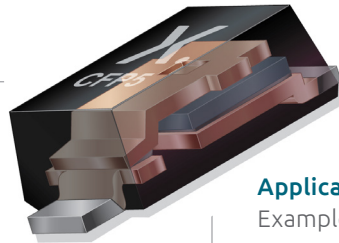
- › Three product groups and package types ensure the best fit for your power circuitry
- › V_R max: 20-100 V; I_F max: 1-20A
- › Very low forward voltage drop and low leakage for highest efficiency
- › Junction temperature up to 175 °C
- › AEC-Q101 qualified

Advanced CFP packaging

- › Solid copper clip and high peak current capability
- › 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
- › Continuous package and portfolio innovation
- › Replacements for previous-generation SMx-packaged devices



Applications

Examples include:

High-efficiency (Low V_F)

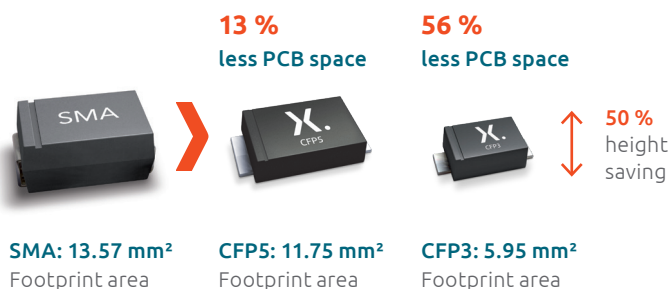
- › Chargers and battery-powered equipment
- › Electric vehicles

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 Q_{rr}) (Trench)

- › LED backlighting in displays
- › Powertrain systems in hybrid vehicles
- › Switched mode power supplies



nexperia

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 lowest conduction losses, 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 buck and boost conversion at high ambient temperatures
Low Q_{rr} Schottky rectifiers (Trench)	40-100	1-20	Combine low reverse current and low forward voltage to enable best efficiency at high switching speeds	Polarity and back drive protection Blocking and or-ing High-frequency DC/DC conversion Switched mode power supplies

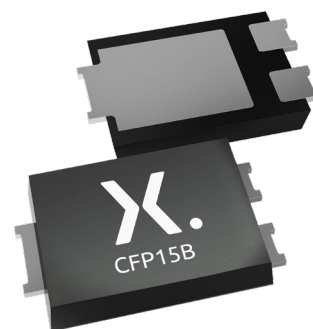
Three packages for the right space / performance ratio



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



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



CFP15B (SOT1289B)
5.8 x 4.3 x 0.78 mm*
 $R_{th(j-sp)} = 7 \text{ K/W}$

*Body size (l x w x h)

Performance comparison Schottky rectifier in SMA vs. CFP

Specs	SS14 (SMA)	PMEG4010ER/P (CFP3/5)
I_F	1 A	1 A
V_R	40 V	40 V
$V_F @ I_F \text{ max.}$	500 mV	490 mV
$I_R @ V_R \text{ max.}$	200 μA	50 μA
IFSM	40 A	50 A
$R_{th(j-sp)}$	28 K/W	18 K/W (CFP3) 12 K/W (CFP5)







Weight and space savings

Improved power density

Future-proof design

Power Schottky rectifiers - clip-bond packages





Types in **bold** represent new products

I_F max (A)	V_R max (V)	V_F max (mV) @ I_F max	I_R max (mA) @ V_R max	Package	Automotive-qualified				
					CFP15 (SOT1289)	CFP15B (SOT1289B)	CFP5 (SOD128)	CFP3 (SOD123W)	
									
					Size (mm)	5.8 x 4.3 x 0.78	5.8 x 4.3 x 0.95	3.8 x 2.5 x 1.0	2.6 x 1.7 x 1.0
					P_{tot} (mW) @ 1 cm ²	2150	2150	1050	950
Optimization									
1	20	340	1	Low V_F				PMEG2010ER	
		450	0.05	Low I_R				PMEG2010BER	
	30	360	1.5	Low V_F			PMEG3010EP	PMEG3010ER	
		450	0.05	Low I_R			PMEG3010BEP	PMEG3010BER	
	40	490	0.05	Low V_F			PMEG4010EP	PMEG4010ER	
				Low V_F			PMEG4010ETP	PMEG4010ETR	
	60	460	0.022	Low $V_{F,r}$ Low Q_{rr}			PMEG6010EP	PMEG6010ER	
				Low V_F				PMEG6010ETR	
		530	0.06	Low V_F				PMEG6010ETR	
		590	0.0008	Low $I_{R,r}$ Low Q_{rr}			PMEG60T10ELP ¹⁾		
100	600	0.00065	Low $I_{R,r}$ Low Q_{rr}				PMEG60T10ELR ¹⁾		
	660	0.0003	Low I_R				PMEG6010ELR		
	750	0.0009	Low $I_{R,r}$ Low Q_{rr}				PMEG100T10ELR¹⁾		
	770	0.00015	Low I_R				PMEG10010ELR		
2	30	360	3	Low V_F			PMEG3020EP		
		420	1.5	Low V_F			PMEG3020CEP	PMEG3020ER	
		450	0.1	Low I_R			PMEG3020BEP		
	40	520	0.05	Low I_R			PMEG3020DEP	PMEG3020BER	
				Low V_F			PMEG4020EP	PMEG4020ER	
				Low V_F			PMEG4020ETP	PMEG4020ETR	
	60	515	0.022	Low $V_{F,r}$ Low Q_{rr}			PMEG40T20EP ¹⁾	PMEG40T20ER ¹⁾	
				Low V_F			PMEG6020EP	PMEG6020ER	
				Low V_F			PMEG6020ETP	PMEG6020ETR	
		620	0.0012	Low $I_{R,r}$ Low Q_{rr}			PMEG60T20ELP ¹⁾	PMEG60T20ELR ¹⁾	
	70	670	0.0007	Low I_R			PMEG6020AELP	PMEG6020AELR	
		760	0.0003	Low I_R				PMEG6020ELR	
800		0.00125	Low $I_{R,r}$ Low Q_{rr}				PMEG100T20ELR¹⁾		
100	770	0.0003	Low I_R			PMEG10020AELP	PMEG10020AELR		
	830	0.00015	Low I_R				PMEG10020ELR		
3	30	360	5	Low V_F			PMEG3030EP		
		450	0.15	Low I_R	PMEG030V030EPD		PMEG3030BEP		
	40			0.12	Low V_F	PMEG040V030EPD			
		490	0.2	Low V_F			PMEG4030EP		
				Low V_F			PMEG4030ETP		
	45	525	0.028	Low $V_{F,r}$ Low Q_{rr}			PMEG40T30EP ¹⁾	PMEG40T30ER ¹⁾	
		540	0.1	Low I_R				PMEG4030ER	
	45	480	0.044	Low $V_{F,r}$ Low Q_{rr}	PMEG045T030EPD ¹⁾				
	50	530	0.1	Low V_F	PMEG050V030EPD				
	60	475	0.4	Low V_F			PMEG6030EVP		
		530	0.2	Low V_F	PMEG060V030EPD		PMEG6030EP		
				Low V_F			PMEG6030ETP		
620		0.0018	Low $I_{R,r}$ Low Q_{rr}		PMEG060T030ELPE ¹⁾	PMEG60T30ELP ¹⁾	PMEG60T30ELR ¹⁾		
100	670	0.001	Low I_R			PMEG6030ELP			
	800	0.00175	Low $I_{R,r}$ Low Q_{rr}				PMEG100T30ELR¹⁾		
	770	0.00045	Low I_R			PMEG10030ELP			
	710	0.0025	Low $I_{R,r}$ Low Q_{rr}			PMEG100T030ELPE¹⁾			
2x2	60	620	0.0012	Low $I_{R,r}$ Low Q_{rr}			PMEG060T040CLPE¹⁾		
4.5	60	530	0.4	Low V_F			PMEG6045ETP		
5	30	360	8	Low V_F			PMEG3050EP		
		450	0.25	Low I_R			PMEG3050BEP		
		500	0.15	Low V_F	PMEG030V050EPD				
	40	490	0.3	Low V_F			PMEG4050EP		
				Low V_F			PMEG4050ETP		
		520	0.12	Low V_F	PMEG040V050EPD				
	45	525	0.041	Low $V_{F,r}$ Low Q_{rr}				PMEG40T50EP ¹⁾	
		490	0.3	Low V_F	PMEG045V050EPD				
		525	0.044	Low $V_{F,r}$ Low Q_{rr}	PMEG045T050EPD ¹⁾				
	60	560	0.4	Low V_F	PMEG060V050EPD				
		690	0.0018	Low $I_{R,r}$ Low Q_{rr}		PMEG060T050ELPE ¹⁾	PMEG60T50ELP ¹⁾		
	100	810	0.0025	Low $I_{R,r}$ Low Q_{rr}			PMEG100T050ELPE¹⁾		

¹⁾ Trench Schottky technology

Power Schottky rectifiers - clip-bond packages

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					CFP15 (SOT1289)	CFP15B (SOT1289B)	CFP5 (SOD128)	CFP3 (SOD123W)	
									
					Size (mm)	5.8 x 4.3 x 0.78	5.8 x 4.3 x 0.95	3.8 x 2.5 x 1.0	2.6 x 1.7 x 1.0
					P_{tot} (mW) @ 1 cm ²	2150	2150	1050	950
Optimization									
2x3	60	620	0.0018	Low I_{Rr} , Low Q_{rr}		PMEG060T060CLPE ¹⁾			
6	100	840	0.00045	Low I_R	PMEG100V060ELPD				
2x4	60	660	0.0018	Low I_{Rr} , Low Q_{rr}		PMEG060T080CLPE ¹⁾			
8	100	850	0.0005	Low I_R	PMEG100V080ELPD				
		810	0.004	Low I_{Rr} , Low Q_{rr}		PMEG100T080ELPE¹⁾			
2x5	60	690	0.0018	Low I_{Rr} , Low Q_{rr}		PMEG060T100CLPE ¹⁾			
		490	0.6	Low V_F	PMEG045V100EPD				
10	45	540	0.5	Low V_F	PMEG45A10EPD				
		545	0.08	Low V_{Fr} , Low Q_{rr}	PMEG045T100EPD ¹⁾	PMEG045T100EPE¹⁾			
		560	0.7	Low V_F	PMEG060V100EPD				
	100	850	0.0008	Low I_R	PMEG100V100ELPD				
810		0.005	Low I_{Rr} , Low Q_{rr}		PMEG100T100ELPE¹⁾				
12	100	810	0.006	Low I_{Rr} , Low Q_{rr}		PMEG100T120ELPE¹⁾			
15	45	490	1	Low V_F	PMEG045V150EPD				
		550	0.1	Low V_{Fr} , Low Q_{rr}	PMEG045T150EPD ¹⁾				
		580		Low V_{Fr} , Low Q_{rr}	PMEG45T15EPD ¹⁾				
		570	0.098	Low V_{Fr} , Low Q_{rr}	PMEG045T150EIPD ¹⁾				
	50	500	1	Low V_F	PMEG050V150EPD				
		550	0.1	Low V_{Fr} , Low Q_{rr}	PMEG050T150EPD ¹⁾				
		570	0.2	Low V_{Fr} , Low Q_{rr}	PMEG050T150EIPD ¹⁾				
100	820	0.008	Low I_{Rr} , Low Q_{rr}		PMEG100T150ELPE¹⁾				
20	100	830	0.01	Low I_{Rr} , Low Q_{rr}		PMEG100T200ELPE¹⁾			

¹⁾Trench Schottky technology

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Date of release:

March 2021

Printed:

In the Netherlands