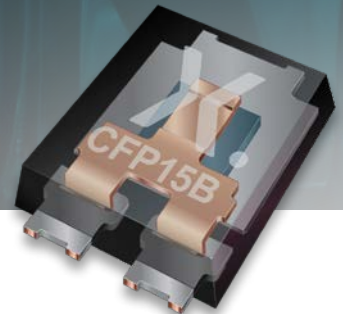


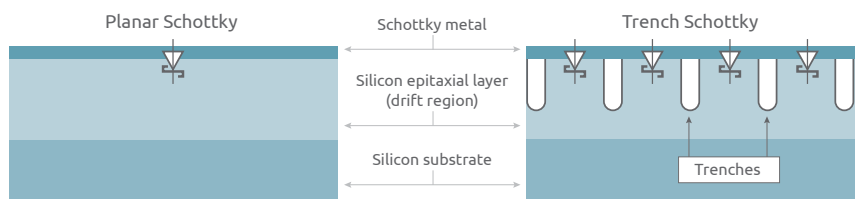
Trench Schottky rectifiers in Clip Flat Power packages For high system efficiency



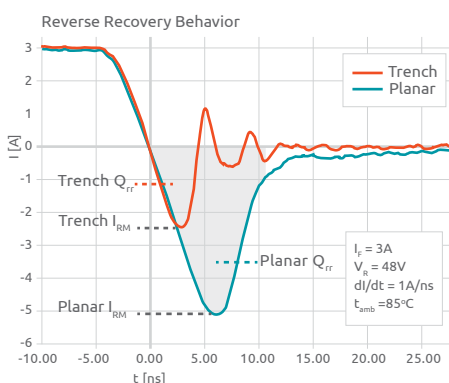
Nexperia AEC-Q101 rated Trench Schottky rectifiers meet the challenging demands of efficient and space-saving designs. They combine low forward voltage, reverse current and Q_{rr} to enable best efficiency at high switching speeds and high ambient temperatures. Available in clip-bond packages with excellent power capabilities.

The Trench advantage

Adding trenches to the Schottky design **increases the thermal stability** by reducing the leakage currents (I_R) and **improves switching performance** compared to planar counterparts

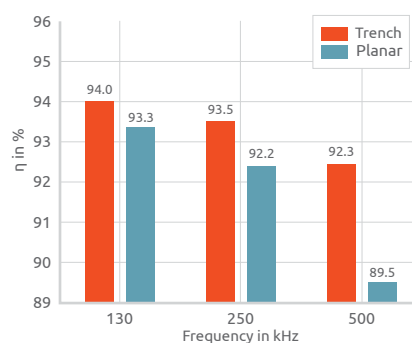


Excellent switching behaviour



- Low Q_{rr}
 - › lower switching losses in the diode
- Low I_{RM} peak current
 - › lower induced losses in the MOSFET
 - No compromise on EMI despite higher ringing

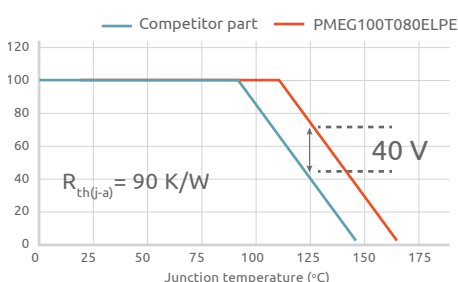
High system efficiency



Measured in a 48V-12V buck converter - 3A output current

The Trench advantage increases at higher switching frequency

Designed for a wide safe operating area








At 125°C junction temperature the maximum allowable reverse voltage of PMEG100T080ELPE is almost 40 V higher than alternative Trench products

Applications

- › High efficiency DC-to-DC conversion
- › Automotive LED lighting
- › Switch mode power supply
- › Freewheeling application
- › Reverse polarity protection
- › OR-ing

Trench Schottky rectifiers – clip-bond packages

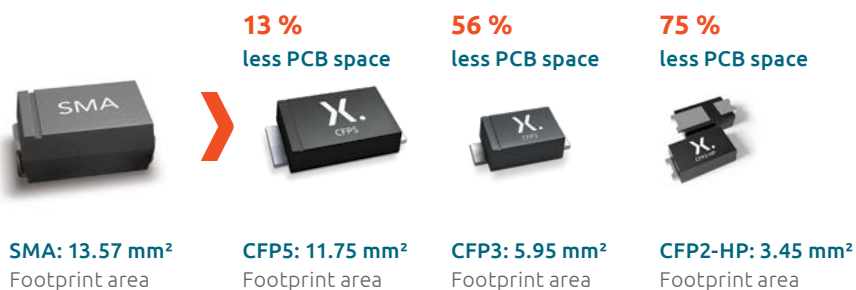
I_F max (A)	V_R max (V)	Package	Automotive-qualified				
			CFP15 (SOT1289)	CFP15B (SOT1289B)	CFP5 (SOD128)	CFP3 (SOD123W)	CFP2-HP (SOD323HP)
							
			Size (mm)	5.8 x 4.3 x 0.78	5.8 x 4.3 x 0.95	3.8 x 2.5 x 1.0	2.6 x 1.7 x 1.0
P_{tot} (W) @ 1 cm ²			2.15	2.15	1.2	1.15	1.2
Optimization							
1	40	Low V_{F_r} , Low Q_{rr}				PMEG40T10ER (-Q)	
	45	Low V_{F_r} , low Q_{rr}					PMEG45T10EXD (-Q)
	60	Low I_{R_r} , Low Q_{rr}			PMEG60T10ELP (-Q)	PMEG60T10ELR (-Q)	PMEG60T10ELXD (-Q)
	100	Low I_{R_r} , Low Q_{rr}				PMEG100T10ELR (-Q)	PMEG100T10ELXD (-Q)
2	40	Low V_{F_r} , Low Q_{rr}			PMEG40T20EP (-Q)	PMEG40T20ER (-Q)	
	45	Low V_{F_r} , low Q_{rr}					PMEG45T20EXD (-Q)
	60	Low I_{R_r} , Low Q_{rr}			PMEG60T20ELP (-Q)	PMEG60T20ELR (-Q)	PMEG60T20ELXD (-Q)
	100	Low I_{R_r} , Low Q_{rr}			PMEG100T20ELP (-Q)	PMEG100T20ELR (-Q)	PMEG100T20ELXD (-Q)
3	40	Low V_{F_r} , Low Q_{rr}			PMEG40T30EP (-Q)	PMEG40T30ER (-Q)	
	45	Low V_{F_r} , Low Q_{rr}	PMEG045T030EPD				
	60	Low I_{R_r} , Low Q_{rr}		PMEG060T030ELPE (-Q)	PMEG60T30ELP (-Q)	PMEG60T30ELR (-Q)	
2x2	60	Low I_{R_r} , Low Q_{rr}		PMEG060T030ELPE (-Q)	PMEG100T30ELP (-Q)	PMEG100T30ELR (-Q)	
	100	Low I_{R_r} , Low Q_{rr}		PMEG060T040CLPE (-Q)			
5	40	Low V_{F_r} , Low Q_{rr}			PMEG40T50EP (-Q)		
	45	Low V_{F_r} , Low Q_{rr}	PMEG045T050EPD				
	60	Low I_{R_r} , Low Q_{rr}		PMEG060T050ELPE (-Q)	PMEG60T50ELP (-Q)		
	100	Low I_{R_r} , Low Q_{rr}		PMEG100T050ELPE (-Q)	PMEG100T50ELP (-Q)		
2x3	60	Low I_{R_r} , Low Q_{rr}		PMEG060T060CLPE (-Q)			
2x4	60	Low I_{R_r} , Low Q_{rr}		PMEG060T080CLPE (-Q)			
8	100	Low I_{R_r} , Low Q_{rr}		PMEG100T080ELPE (-Q)			
2x5	60	Low I_{R_r} , Low Q_{rr}		PMEG060T100CLPE (-Q)			
10	45	Low V_{F_r} , Low Q_{rr}	PMEG045T100EPD		PMEG045T100EPE (-Q)		
	100	Low I_{R_r} , Low Q_{rr}		PMEG100T100ELPE (-Q)			
12	100	Low I_{R_r} , Low Q_{rr}		PMEG100T120ELPE			
15	45	Low V_{F_r} , Low Q_{rr}	PMEG045T150EPD				
		Low V_{F_r} , Low Q_{rr}	PMEG45T15EPD				
		Low V_{F_r} , Low Q_{rr}	PMEG045T150EIPD				
	50	Low V_{F_r} , Low Q_{rr}	PMEG050T150EPD				
		Low V_{F_r} , Low Q_{rr}	PMEG050T150EIPD				
100	Low I_{R_r} , Low Q_{rr}		PMEG100T150ELPE				
20	100	Low I_{R_r} , Low Q_{rr}		PMEG100T200ELPE			

Advanced Clip Flat Power (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



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