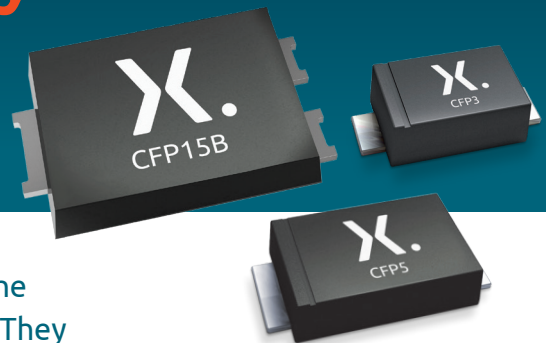


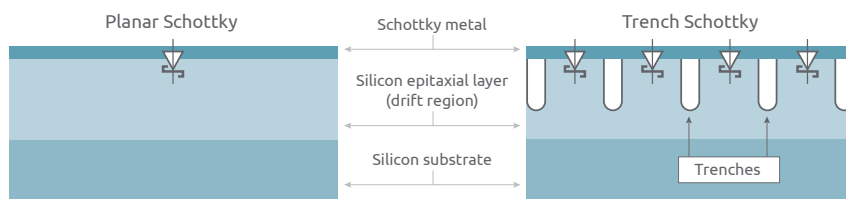
# Trench Schottky rectifiers in Clip Flat Power packages For high system efficiency



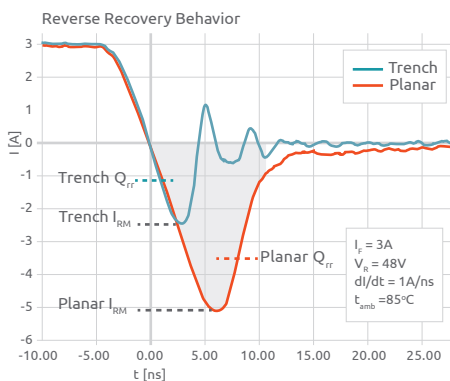
Nexperia AEC-Q101 rated Trench Schottky rectifiers meet the challenging demands of efficient and space-saving designs. They combine low forward voltage, reverse current and  $Q_{rr}$  to enable best efficiency at high switching speeds and high ambient temperatures. Available in clip-bond packages with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

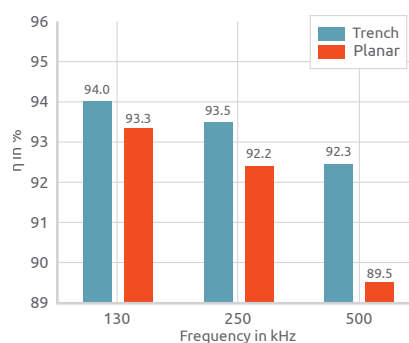


## Excellent switching behaviour



- 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

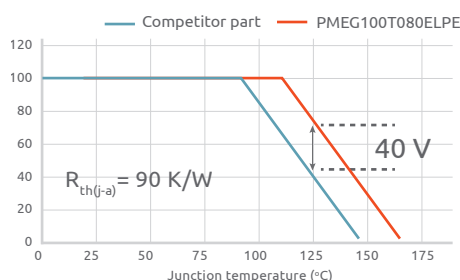
## High system efficiency



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

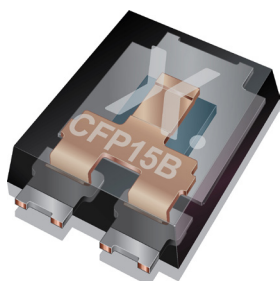
# Trench Schottky rectifiers – clip-bond packages

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 <sup>2</sup>	2150	2150	1050	950
Optimization									
1	40	460	0.022	Low $V_{F_r}$ , Low $Q_{rr}$				PMEG40T10ER	
	60	590	0.0008	Low $I_{R1}$ , Low $Q_{rr}$			PMEG60T10ELP		
		600	0.00065	Low $I_{R1}$ , Low $Q_{rr}$				PMEG60T10ELR	
2	40	515	0.022	Low $V_{F_r}$ , Low $Q_{rr}$			PMEG40T20EP	PMEG40T20ER	
	60	620	0.0012	Low $I_{R1}$ , Low $Q_{rr}$			PMEG60T20ELP	PMEG60T20ELR	
	100	800	0.00125	Low $I_{R1}$ , Low $Q_{rr}$				<b>PMEG100T20ELR</b>	
3	40	525	0.028	Low $V_{F_r}$ , Low $Q_{rr}$			PMEG40T30EP	PMEG40T30ER	
	45	480	0.044	Low $V_{F_r}$ , Low $Q_{rr}$	PMEG045T030EPD				
	60	620	0.0018	Low $I_{R1}$ , Low $Q_{rr}$		PMEG060T030ELPE	PMEG60T30ELP	PMEG60T30ELR	
800		0.00175	Low $I_{R1}$ , Low $Q_{rr}$				<b>PMEG100T30ELR</b>		
2x2	60	620	0.0012	Low $I_{R1}$ , Low $Q_{rr}$					
		710	0.0025	Low $I_{R1}$ , Low $Q_{rr}$		<b>PMEG100T030ELPE</b>			
5	40	525	0.041	Low $V_{F_r}$ , Low $Q_{rr}$			PMEG40T50EP		
	45	525	0.044	Low $V_{F_r}$ , Low $Q_{rr}$	PMEG045T050EPD				
	60	690	0.0018	Low $I_{R1}$ , Low $Q_{rr}$		PMEG060T050ELPE	PMEG60T50ELP		
	100	810	0.0025	Low $I_{R1}$ , Low $Q_{rr}$		<b>PMEG100T050ELPE</b>			
2x3	60	620	0.0018	Low $I_{R1}$ , Low $Q_{rr}$		PMEG060T060CLPE			
2x4	60	660	0.0018	Low $I_{R1}$ , Low $Q_{rr}$		PMEG060T080CLPE			
8	100	810	0.004	Low $I_{R1}$ , Low $Q_{rr}$		<b>PMEG100T080ELPE</b>			
2x5	60	690	0.0018	Low $I_{R1}$ , Low $Q_{rr}$		PMEG060T100CLPE			
	45	545	0.08	Low $V_{F_r}$ , Low $Q_{rr}$	PMEG045T100EPD		<b>PMEG045T100EPE</b>		
10	100	810	0.005	Low $I_{R1}$ , Low $Q_{rr}$			<b>PMEG100T100ELPE</b>		
	12	100	810	0.006	Low $I_{R1}$ , Low $Q_{rr}$		<b>PMEG100T120ELPE</b>		
15	45	550	0.1	Low $V_{F_r}$ , Low $Q_{rr}$	PMEG045T150EPD				
		580		Low $V_{F_r}$ , Low $Q_{rr}$	PMEG45T15EPD				
		570	0.098	Low $V_{F_r}$ , Low $Q_{rr}$	PMEG045T150EIPD				
	50	550	0.1	Low $V_{F_r}$ , Low $Q_{rr}$	PMEG050T150EPD				
		570	0.2	Low $V_{F_r}$ , Low $Q_{rr}$	PMEG050T150EIPD				
		100	820	0.008	Low $I_{R1}$ , Low $Q_{rr}$		<b>PMEG100T150ELPE</b>		
20	100	830	0.01	Low $I_{R1}$ , Low $Q_{rr}$		<b>PMEG100T200ELPE</b>			

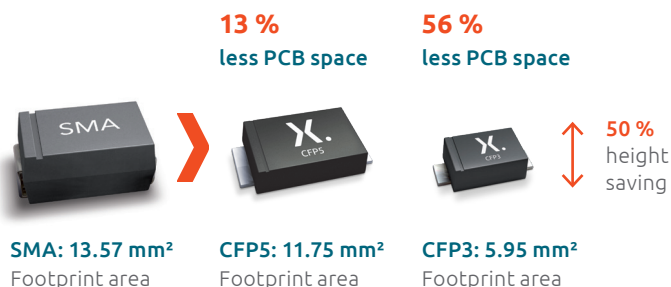
## Advanced Clip Flat Power (CFP) packaging

- › 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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