

# Recovery rectifiers

## Hyperfast recovery, space-saving devices

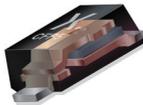
Nexperia's recovery rectifiers deliver high power density while minimizing reverse recovery time and loss. For efficient switching and power conversion applications in automotive, industrial and consumer markets.

### Portfolio

- › 200–650 V **Hyperfast** switching parts with optimized recovery time ( $t_{rr}$ ) of < 30 ns
- › High speed switching capability
- › Low voltage drop ( $V_F @ I_{F,max} \sim 1$  V)
- › Low leakage current, also at high temperature
- › AEC-Q101 qualified parts ( $175^\circ\text{C } T_J(\text{max})$ )

### Robust & thermally efficient

- › High current pulse capability due to solid copper clip-bond
- › High power density / high efficiency planar technology
- › Low magnetic inductance optimizes switching behavior



### Key applications

- › Polarity protection
- › DC/DC conversion
- › AC/DC conversion
- › Freewheeling of inductive load
- › Standard switching application
- › High-speed switching application
- › Onboard charging
- › Solenoid control
- › Piezo injection

### Economical use of space



#### CFP2-HP (SOD323HP)

2.2 x 1.3 x 0.68 mm\*  
 $R_{th(j-sp)} = 6$  K/W



#### 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



#### CFP15B (SOT1289B)

5.8 x 4.3 x 0.95 mm\*  
 $R_{th(j-sp)} = 3$  K/W

- › Just 1 mm package height for thin PCB designs
- › More than 50% footprint savings - CFP3 compared to SMA

\*Body size (l x w x h)

# Recovery rectifiers

Types in **bold** represent new products

$V_R$ max (V)	$V_F$ max (V)	$(@) I_F$ (A)	$I_R$ max ( $\mu$ A)	$(@) V_R$ (V)	$t_{rr}$ max (ns)	Package	Automotive-qualified					
							CFP2-HP (SOD323HP)	CFP3 (SOD123W)	CFP5 (SOD128)	CFP15B (SOT1289B)		
												
							Size (mm)	2.2 x 1.3 x 0.68	2.6 x 1.7 x 1.0	3.8 x 2.5 x 1.0	5.8 x 4.3 x 0.95	
$P_{tot}$ (mW) @ 1cm <sup>2</sup>							1200	1150	1200	2150		
200	1.05	1	1	200	25	 006aab040	<b>PNE20010EXD (-Q)</b>					
	0.93	1	0.2	200	25			PNE20010ER				
	0.98	2	0.2	200	25			PNE20020ER				
	0.95	2	1	200	25				PNE20020EP			
	0.98	3	1	200	30				PNE20030EP			
	0.9	4	1	200	30				<b>PNE20040EP (-Q)</b>			
	1	5	1	200	30				<b>PNE20050EP (-Q)</b>			
	0.93	4	1	200	30	 aaa-033668				<b>PNE20040EPE (-Q)</b>		
	0.94	6	1	200	30						<b>PNE20060EPE (-Q)</b>	
	0.96	8	1	200	30						<b>PNE20080EPE (-Q)</b>	
	0.97	10	1	200	30						<b>PNE200100EPE (-Q)</b>	
	0.98	2x2	1	200	25		 aaa-030081				PNE20040CPE (-Q)	
	0.94	2x3	1	200	30							PNE20060CPE (-Q)
	0.95	2x4	1	200	30							PNE20080CPE (-Q)
0.95	2x5	1	200	30						PNE200100CPE (-Q)		
400	1.1	1	1	400	1800	 006aab040		PNS40010ER				
650	1.25	1	1	650	50	 006aab040	<b>PNU65010ER (-Q)</b>					
	1.25	1	1	650	50				<b>PNU65010EP (-Q)</b>			
										<b>PNU65020EP (-Q)</b>	<b>PNU65030EP (-Q)</b>	

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