

Recovery rectifiers

Hyperfast recovery, space-saving devices

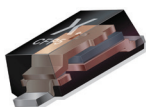
Nexperia's recovery rectifiers deliver high power density while minimizing reverse recovery time and loss. For efficient switching and power conversion applications in automotive, industrial and consumer markets.

Portfolio

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

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*

$R_{th(j-sp)} = 6\text{ K/W}$



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 0.95 mm*






$R_{th(j-sp)} = 3\text{ K/W}$

- › 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

							Automotive-qualified			
V_R max (V)	V_F max (V)	$(@) I_F$ (A)	I_R max (μA)	$(@) V_R$ (V)	t_{rr} max (ns)	Package	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 ²	1200	1150	1200	2150
200	1.05	1	1	200	25		PNE20010EXD (-Q)			
	0.93	1	0.2	200	25				PNE20010ER(-Q)	
	0.98	2	0.2	200	25				PNE20020ER(-Q)	
	0.95	2	1	200	25					PNE20020EP(-Q)
	0.98	3	1	200	30					PNE20030EP(-Q)
	0.9	4	1	200	30					PNE20040EP (-Q)
	1	5	1	200	30					PNE20050EP (-Q)
	0.93	4	1	200	30					
	0.94	6	1	200	30					PNE20060EPE (-Q)
	0.96	8	1	200	30					PNE20080EPE (-Q)
	0.97	10	1	200	30					PNE200100EPE (-Q)
	0.98	2x2	1	200	25					PNE20040CPE (-Q)
	0.94	2x3	1	200	30					PNE20060CPE (-Q)
	0.95	2x4	1	200	30					PNE20080CPE (-Q)
	0.95	2x5	1	200	30					
	400	1.1	1	1	400	1800			PNS40010ER	
650	1.25	1	1	650	50			PNU65010ER (-Q)		
	1.25	1	1	650	50				PNU65010EP (-Q) PNU65020EP (-Q) PNU65030EP (-Q)	

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