



Diodes & Bipolar Transistors

Trench Schottkys in CFP packages

Well balanced Schottky rectifier with respect to forward voltage (V_F) versus reverse current (I_R)



Design benefit

- Smallest form factor, PCB space saving
- Highest efficiency by electrical performance
- Improved thermal robustness - reduced risk of thermal runaway
- Best balance between forward voltage and reverse current

Key technical features & portfolio

- New portfolio with 60V & 100V Trench Schottkys
- AEC-Q101 qualified ($175^\circ\text{C } T_j$)
- Existing portfolio offers up to 15 A forward current
- SOD123W (CFP3), SOD128 (CFP5) and SOT1289B (CFP15B)

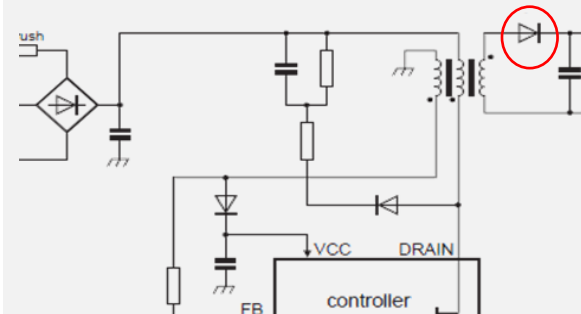
Portfolio	Voltage	Current	Package
PMEG40Txx	40 V	Up to 5 A	CFP3, CFP5
PMEG045T0xx	45 V	Up to 15 A	CFP15
PMEG60Txx PMEG060Txx	60 V	Up to 5 A	CFP3, CFP5, CFP15B

Functions & applications




- Rectification in power supply (e.g. USB/PD)
- DCDC conversion
- Reverse battery protection
- Or-ing (several supply sources)
- Free wheeling diode

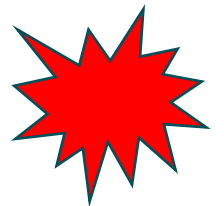
Application diagram

e.g. Power Supply - AC/DC conversion - rectification



Available packages (W x L x H in mm)

CFP3 (SOD123W)	CFP5 (SOD128)	CFP15B (SOT1289B)
		
2.6 x 1.7 x 1.0	3.8 x 2.5 x 1.8	6.5 x 4.3 x 0.95



Recovery Rectifier in CFP packages

Standard, ultrafast and hyperfast Recovery Rectifier in state-of-the-art CFP packages



Design benefit

- High speed switching capability
- Low voltage drop ($V_F @ I_F \text{ max} \sim 1V$)
- Low leakage current, also at high temperature
- High power density/high efficiency planar technology
- Flat package design (package height typ 1mm)
- Minimized occupation area for shrinked design
- High current pulse capability due to clip-bond technology
- Low magnetic inductance for optimum switching behavior

Key technical features & portfolio

- Hyperfast recovery rectifiers available
- CFP packages offering optimized performance
- Further portfolio under development
- AEC-Q101 qualified

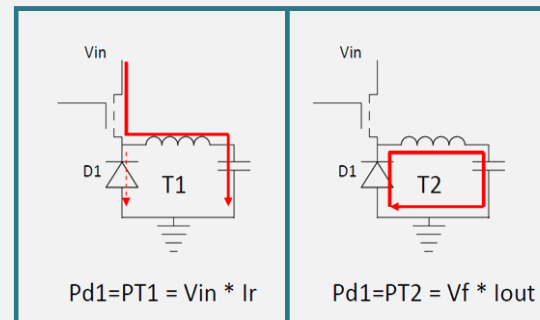
Portfolio	Voltage	Current	Package
PNE200x0ER	200 V	Up to 2 A	CFP3
PNE200x0EP	200 V	Up to 3 A	CFP5

Functions & applications

- Polarity protection
- DC/DC conversion
- AC/DC conversion
- Freewheeling of inductive load
- Standard switching application
- High-speed switching application

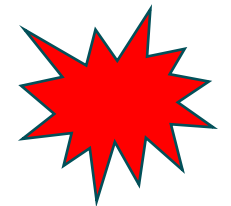
Application diagram

e.g. Power Supply - AC/DC conversion - rectification



Available packages (W x L x H in mm)

CFP3 (SOD123W)	CFP5 (SOD128)
2.6 x 1.7 x 1.0	3.8 x 2.5 x 1.8



SiGe Rectifier in CFP packages

Silicon Germanium Schottky rectifier with superior thermal stability and well balanced efficiency



Design benefit

- Thermal stability up to 175°C junction temperature
- No thermal runaway up to 175°C with full load
- Extended safe operating area
- Forward voltage <math><0.8\text{V}</math> (@ 25°C) and reverse current <math><1\text{nA}</math>
- Fast and soft recovery behavior
- CFP packages with optimized performance
- Reduced I_R compared to silicon based Schottky diodes
- Reduced V_F compared to Recovery Rectifiers

Key technical features & portfolio

- New SiGe technology with benchmark performance
- Further portfolio roll out planned
- Reverse voltages up to 200V
- AEC-Q101 qualified

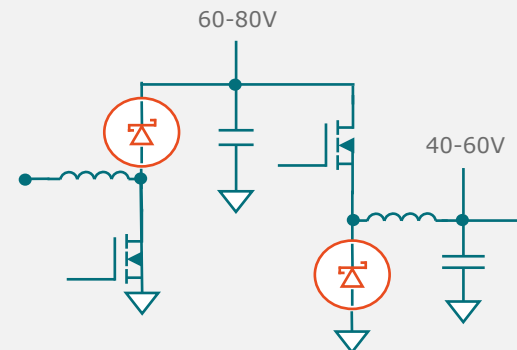
Portfolio	Voltage	Current	Package
PMEGxx0Gx0ELR	120 – 200 V	Up to 2 A	CFP3
PMEGxx0Gx0ELP	120 – 200 V	Up to 3 A	CFP5

Functions & applications



- High efficiency applications
- High temperature applications
- Freewheeling diode (buck/boost converter)
- Reverse polarity protection
- OR-ing

Application diagram

e.g. Freewheeling diode in buck/boost converter



Available packages (W x L x H in mm)

CFP3 (SOD123W)	CFP5 (SOD128)
	
2.6 x 1.7 x 1.0	3.8 x 2.5 x 1.8

BJTs in DPAK

Introducing DPAK to Nexperia's power BJT portfolio as complementary solution to the advanced LFPAK



Design benefit

- Complementary market standard DPAK portfolio
- Compatible to well known MJD series
- High power dissipation (P_{tot})
- Suitable for high temperature applications (175°C)
- High reliability & mechanical ruggedness through gull wing leads
- Advanced thermal behavior due to heatsink

Key technical features & portfolio

- Linear operation
- Robust bipolar technology
- 175°C junction temperature
- Addition to clip-bonded LFPAK BJT family
- LFPAK portfolio ranging up to 15 A and 100 V
- Standard qualified version and AEC-Q101 qualified

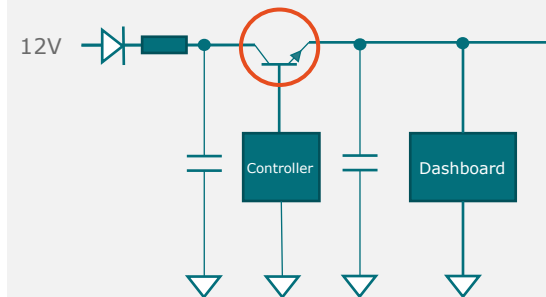
Portfolio	Voltage	Current	Polarity
MJD3xCx	100 V	3 A	NPN & PNP
MJD4xH11x	80 V	8 A	NPN & PNP
MJD3xCx-A	100 V	3 A	NPN & PNP
MJD4xH11x-A	80 V	8 A	NPN & PNP

Functions & applications

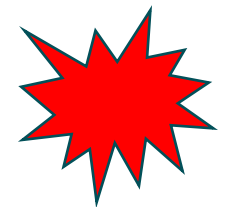
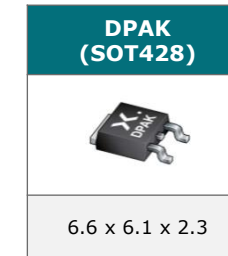
- LED automotive lighting
- Backlight dimming in LCD displays
- Linear voltage regulator
- Relay replacement
- Cost efficient motor drive
- Laser Printer
- MOSFET driver

Application diagram

e.g. Voltage stabilization for vehicle dashboard



Available packages (W x L x H in mm)



Zener in SOT323

Portfolio extension at the one-stop-shop for discretes



Design benefit

- Complete series of Zener diodes
- Industrial standard E24 voltage range
- Expanding widely used Zener series to an additional package
- Suitable for wave soldering and reflow soldering
- reduce footprint & height compared to SOT23 solution

Key technical features & portfolio

- Reverse voltage range V_Z : 2.4V – 75V
- Forward current I_F max 200 mA
- Reverse power dissipation P_{ZSM} max 40W
- 1 series with European spec with B- & C- selection
- AEC-Q101 qualified

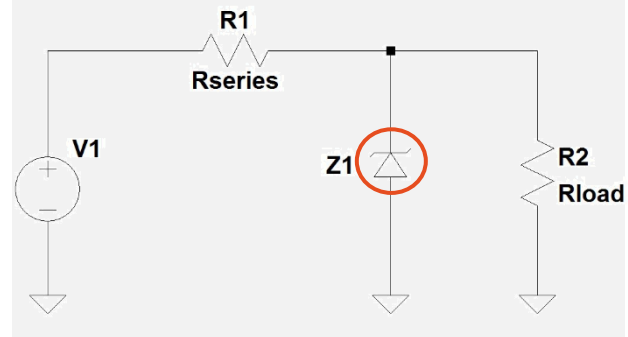
Series	# types	V_Z tolerance	V_Z nom. [V]	I_F max [mA]	P_{ZSM} [W]	P_{tot} [mW]
C-series (BZX84W-Cxx)	37	± 5 %	2.4 - 75	200	40	275
B-series (BZX84W-Bxx)	37	± 2 %	2.4 - 75	200	40	275

Functions & applications

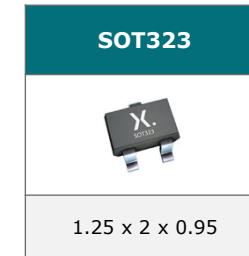
- General voltage regulation
- Voltage reference
- Voltage stabilization

Application diagram

- Voltage stabilization



Available packages (W x L x H in mm)





EFFICIENCY WINS.