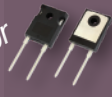



# FRED Pt<sup>®</sup> Gen 5 Hyperfast Rectifiers, 1200 V

1200 V, 30 A, X-Type, Optimized for  
Extreme Switching Speed and  
Low  $Q_{rr}$ , TO-247AD 2L Package



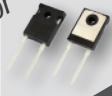
VS-E5PX3012L-N3

1200 V, 30 A, H-Type, Optimized for  
High Switching Speed, Low  $V_F$   
and Low  $Q_{rr}$ , TO-247AD 2L  
Package



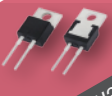
VS-E5PH3012L-N3

1200 V, 60 A, X-Type, Optimized for  
Extreme Switching Speed and  
Low  $Q_{rr}$ , TO-247AD 2L Package



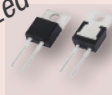
VS-E5PX6012L-N3

1200 V, 30 A, X-Type, Optimized  
for Extreme Switching  
Speed and Low  $Q_{rr}$ ,  
2L TO-220AC Package



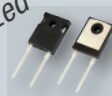
VS-E5TX3012-N3

1200 V, 30 A, H-Type, Optimized  
for High Switching Speed,  
Low  $V_F$  and Low  $Q_{rr}$ ,  
2L TO-220AC Package



VS-E5TH3012-N3

1200 V, 60 A, H-Type, Optimized  
for High Switching Speed,  
Low  $V_F$  and Low  $Q_{rr}$ ,  
TO-247AD 2L Package



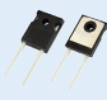

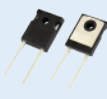

VS-E5PH6012L-N3



# FRED Pt® GEN 5 HYPERFAST RECTIFIERS, 1200 V

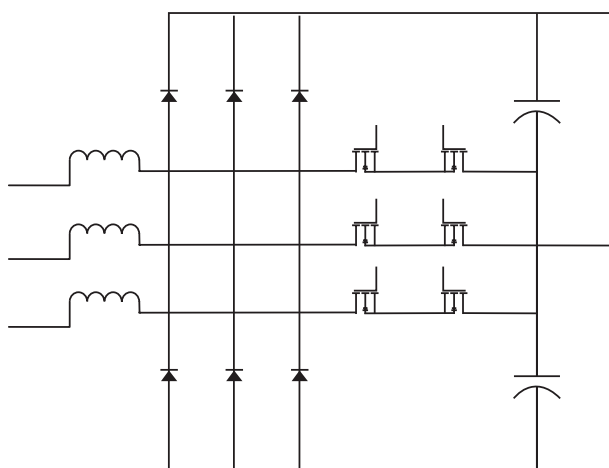
## Focus Products

### Single Diode, 1200 V, 30 A Current Rating in TO-247AD 2L and 2L TO-220AC Packages

Series	$V_{CES}$ (V)	$I_{F(AV)}$ D = 0.5 (A)	At $T_c$ (°C)	Speed Class	Typical $V_F$ (V) $T_J = 125^\circ\text{C}$ , $I_F = 30\text{ A}$	Typical $Q_{rr}$ (nC) $T_J = 125^\circ\text{C}$ , $I_F = 20\text{ A}$ , $V_R = 400\text{ V}$ , $di_F/dt = 600\text{ A}/\mu\text{s}$	$t_{rr}$ Class (ns) $T_J = 25^\circ\text{C}$ , $I_F = 1\text{ A}$ $di_F/dt = 100\text{ A}/\mu\text{s}$ , $V_R = 30\text{ V}$	Package
 <b>VS-E5PX3012L-N3</b>	1200	30	105	X	2.1	1550	26	TO-247AD 2L
New FRED Pt® Gen 5 hyperfast rectifier; 1200 V; 30 A; X-type; optimized for extreme switching speed and low $Q_{rr}$ ; TO-247AD 2L package for best thermal performance								
 <b>VS-E5TX3012-N3</b>	1200	30	90	X	2.1	1550	26	2L TO-220AC
New FRED Pt® Gen 5 hyperfast rectifier; 1200 V; 30 A; X-type; optimized for extreme switching speed and low $Q_{rr}$ ; TO-220 package for best value and small size								
 <b>VS-E5PH3012L-N3</b>	1200	30	115	H	1.7	2150	32	TO-247AD 2L
New FRED Pt® Gen 5 hyperfast rectifier; 1200 V; 30 A; H-type; optimized for high switching speed; low $V_F$ and low $Q_{rr}$ ; TO-247AD 2L package for best thermal performance								
 <b>VS-E5TH3012-N3</b>	1200	30	103	H	1.7	2150	32	2L TO-220AC
New FRED Pt® Gen 5 hyperfast rectifier; 1200 V; 30 A; H-type; optimized for high switching speed; low $V_F$ and low $Q_{rr}$ ; 2L TO-220AC package for best value and small size								

## 3-LEVEL T-TYPE PFC

Featuring a unique combination of low conduction and switching losses, these rectifiers are the right choice for high frequency converters, both hard switched and soft switched / resonant.





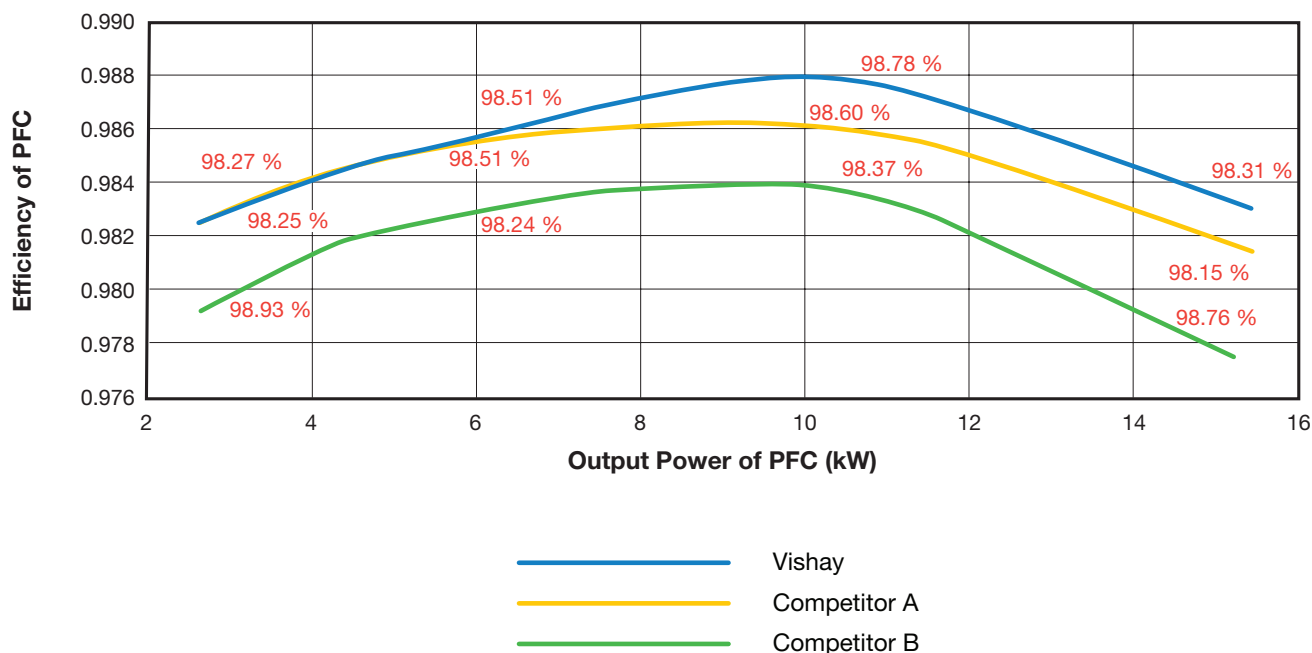
# FRED Pt® GEN 5 HYPERFAST RECTIFIERS, 1200 V

## Focus Products

Single Diode, 1200 V, 60 A Current Rating in TO-247AD 2L Package									
Series	$V_{CES}$ (V)	$I_{F(AV)}$ D = 0.5 (A)	At $T_c$ (°C)	Speed Class	Typical $V_F$ (V) $T_J = 125^\circ\text{C}$ , $I_F = 60$ A	Typical $Q_{rr}$ (nC) $T_J = 125^\circ\text{C}$ , $I_F = 40$ A, $V_R = 400$ V, $di_F/dt = 600$ A/ $\mu\text{s}$	$t_{rr}$ Class (ns) $T_J = 25^\circ\text{C}$ , $I_F = 1$ A, $di_F/dt = 100$ A/ $\mu\text{s}$ , $V_R = 30$ V	Package	
VS-E5PX6012L-N3	1200	60	105	X	2.1	2950	30	TO-247AD 2L	
New FRED Pt® Gen 5 hyperfast rectifier; 1200 V; 60 A; X-type; optimized for extreme switching speed and low $Q_{rr}$ ; TO-247AD 2L package for best thermal performance									
VS-E5PH6012L-N3	1200	60	115	H	1.7	4080	38	TO-247AD 2L	
New FRED Pt® Gen 5 hyperfast rectifier; 1200 V; 60 A; H-type; optimized for high switching speed; low $V_F$ and low $Q_{rr}$ ; TO-247AD 2L package for best thermal performance									

Specifically designed to improve the efficiency of PFC and output rectification stages of EV / HEV battery charging stations, the booster stage of solar inverters, and UPS applications, these devices are perfectly matched to operate with MOSFETs or high speed IGBTs.

### EFFICIENCY OF PFC VS. OUTPUT POWER OF PFC AT 50 °C



# FRED Pt<sup>®</sup> Gen 5 Hyperfast Rectifiers, 1200 V - Designed for High Speed Performance in EV Chargers and UPS

## Advantages of FRED Pt<sup>®</sup> Gen 5 Hyperfast Rectifiers, 1200 V

- Best in class trade-off for low conduction losses and switching losses
- Designed to improve efficiency of hard and soft switching applications vs. competition
- Optimized for high speed operation
- 175 °C maximum operating junction temperature and polyimide passivation for enhanced reliability

## For the Following Applications

- EV / HEV battery charging stations
- Booster stage of solar inverters and UPS

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