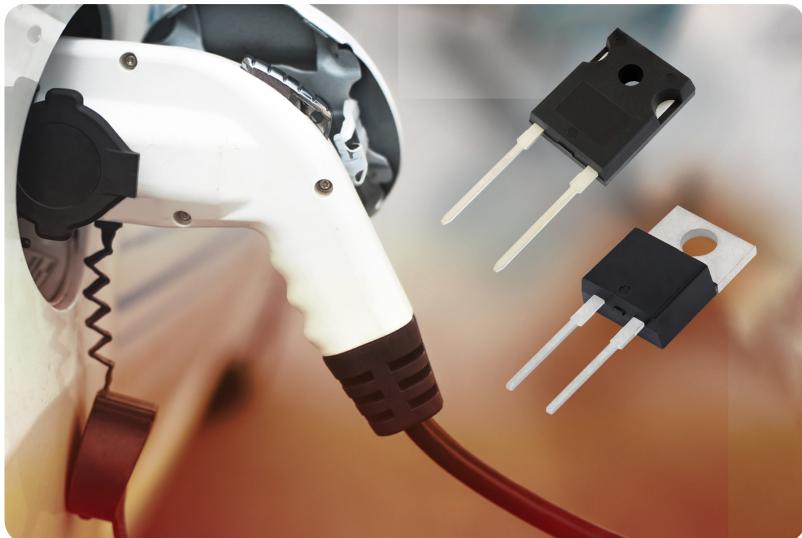


FRED Pt® Gen 5 1200 V Hyperfast and Ultrafast Rectifiers

30 A and 60 A FRED Pt® Gen 5 1200 V Hyperfast and Ultrafast Rectifiers Reduce Conduction and Switching Losses



KEY BENEFITS

- Forward currents of 30 A and 60 A
- Offered in TO-247AD 2L and 2L TO-220AC packages
- Available in X-type hyperfast and H-type ultrafast speed classes
 - X-type rectifiers offer the advantage of lower Q_{rr}
 - H-type devices feature lower forward voltage
- High temperature operation to +175 °C

APPLICATIONS

- Three-phase T-type PFC and output rectification stages for EV / HEV battery charging stations, booster stages for solar inverters, and UPS and welding applications

RESOURCES

- Datasheets: please see table on next page for the list of products
- For technical questions, contact DiodesAmericas@vishay.com, DiodesEurope@vishay.com, DiodesAsia@vishay.com
- Material categorization: for definitions of compliance, please see www.vishay.com/doc?99912

A WORLD OF
SOLUTIONS™



FRED Pt® Gen 5 1200 V Hyperfast and Ultrafast Rectifiers

Vishay introduces six new 30 A and 60 A FRED Pt® Gen 5 1200 V hyperfast and ultrafast rectifiers that offer the best conduction and switching loss trade-off for devices in their classes. These rectifiers are designed to increase the efficiency of high frequency converters, and hard- and soft-switched or resonant designs.

- Matched to operate with MOSFETs or high speed IGBTs
- Offer up to 10 % lower losses than competing silicon solutions
 - Cut the efficiency gap with SiC diodes in half
 - Provide a cost-effective alternative for applications with frequencies in the range of 50 kHz
- Offer the same forward voltage as competing solutions, while delivering up to 40 % lower switching losses and Q_{rr}

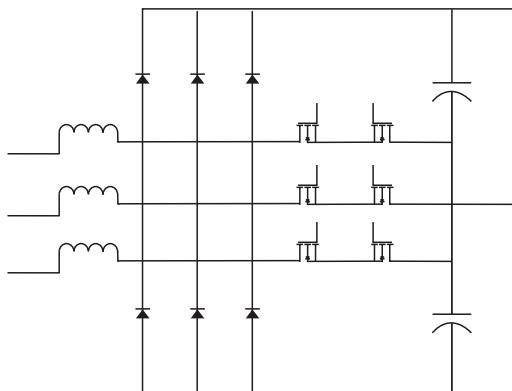
KEY SPECIFICATIONS: SINGLE DIODE, 1200 V, 30 A CURRENT RATING							
PART NUMBER	V_{CES} (V)	$I_{F(AV)}$, D = 0.5 (A)	SPEED CLASS	TYPICAL V_F (V), $T_J = 125^\circ\text{C}$, $I_F = 30$ A	TYPICAL Q_{rr} (nC), $T_J = 125^\circ\text{C}$, $I_F = 20$ A, $V_R = 400$ V, $dI_F/dt = 600$ A/ μs	t_{rr} CLASS (ns), $T_J = 25^\circ\text{C}$, $I_F = 1$ A, $V_R = 30$ V, $dI_F/dt = 100$ A/ μs	PACKAGE
VS-E5PX3012L-N3	1200	30	X	2.1	1550	26	TO-247AD 2L
VS-E5TX3012-N3		30	X	2.1	1550	26	2L TO-220AC
VS-E5PH3012L-N3		30	H	1.7	2150	32	TO-247AD 2L
VS-E5TH3012-N3		30	H	1.7	2150	32	2L TO-220AC

KEY SPECIFICATIONS: SINGLE DIODE, 1200 V, 60 A CURRENT RATING							
PART NUMBER	V_{CES} (V)	$I_{F(AV)}$, D = 0.5 (A)	SPEED CLASS	TYPICAL V_F (V), $T_J = 125^\circ\text{C}$, $I_F = 30$ A	TYPICAL Q_{rr} (nC), $T_J = 125^\circ\text{C}$, $I_F = 20$ A, $V_R = 400$ V, $dI_F/dt = 600$ A/ μs	t_{rr} CLASS (ns), $T_J = 25^\circ\text{C}$, $I_F = 1$ A, $V_R = 30$ V, $dI_F/dt = 100$ A/ μs	PACKAGE
VS-E5PX6012L-N3	1200	60	X	2.1	2950	30	TO-247AD 2L
VS-E5PH6012L-N3		60	H	1.7	4080	38	TO-247AD 2L

FRED Pt® Gen 5 1200 V Hyperfast and Ultrafast Rectifiers

Three-Level T-Type PFC - Typical Application Schematic

Featuring a unique combination of low conduction and switching losses, these 1200 V rectifiers are the right choice for high frequency converters, both hard switched and soft switched / resonant.



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 1200 V devices are perfectly matched to operate with MOSFETs or high speed IGBTs.

Efficiency of Real-World T-Type PFC vs. Output Power Using Various Diodes, Tested at 50 °C Ambient

