



New 600 V and 1200 V FRED Pt[®] Gen 5 Hyperfast and Ultrafast Rectifiers in Compact SOT-227 Package Reduce Conduction and Switching Losses, Increase Efficiency in Automotive, Solar, and UPS Applications

Product Benefits:

- 600 V and 1200 V devices available
- Offered in the compact SOT-227 package
- High current capability:
 - 30 A at 600 V in the single-phase bridge configuration
 - 60 A to 300 A at 600 V and 1200 V in the dual-diode configuration
- Available in X-type Hyperfast and H-type Ultrafast speed classes
- High temperature operation to +175 °C



Market Applications:

- PFC and output rectification stages for EV / HEV battery charging stations, booster stages for solar inverters, and UPS

The News:

Vishay Intertechnology introduces 15 new FRED Pt[®] Gen 5 600 V and 1200 V Hyperfast and Ultrafast rectifiers in the compact SOT-227 package. Offering the best conduction and switching loss trade-off for devices in their class, the Vishay Semiconductors rectifiers are designed to increase the efficiency of high frequency converters and of soft-switched or resonant designs.

- Matched to operate with MOSFETs or high speed IGBTs
- The rectifiers offer lower conduction losses than previous-generation devices, while maintaining low reverse recovery losses
- The semiconductor in the SOT-227 package is isolated from the copper base plate, allowing for common heatsinks and compact assemblies to be built
- H-type devices offer the advantage of lower conduction losses and X-type devices feature faster recovery times

**The Key Specifications:**

Part #	Configuration	V _R (V)	V _{FM} (V)	I _{FAV} (A)	t _{rr} (ns) typ.	Q _{rr} (nC) typ.	Speed class	R _{thJC} (°C/W) max.
VS-U5FH30BA60	Single phase	600	1.6	30	57	300 ²	H	1.39
VS-U5FH60FA60	Dual diode	600	1.37	30 ¹	61	400 ²	H	0.95
VS-U5FH120FA60	Dual diode	600	1.36	60 ¹	67	600 ²	H	0.7
VS-U5FH150FA60	Dual diode	600	1.34	75 ¹	70	600 ⁴	H	0.54
VS-U5FH300FA60	Dual diode	600	1.36	150 ¹	76	900 ⁵	H	0.35
VS-U5FH60FA120	Dual diode	1200	2.08	30 ¹	54	1300 ⁶	H	1.1
VS-U5FH120FA120	Dual diode	1200	1.99	60 ¹	71	2300 ⁷	H	0.69
VS-U5FH240FA120	Dual diode	1200	1.99	120 ¹	98	3400 ⁸	H	0.38
VS-U5FX60FA60	Dual diode	600	1.6	30 ¹	57	300 ²	X	0.95
VS-U5FX120FA60	Dual diode	600	1.6	60 ¹	63	400 ³	X	0.7
VS-U5FX150FA60	Dual diode	600	1.6	75 ¹	65	360 ⁴	X	0.54
VS-U5FX300FA60	Dual diode	600	1.6	150 ¹	72	400 ⁵	X	0.35
VS-U5FX60FA120	Dual diode	1200	2.91	30 ¹	41	800 ⁶	X	1.1
VS-U5FX120FA120	Dual diode	1200	2.75	60 ¹	46	1200 ⁷	X	0.69
VS-U5FX240FA120	Dual diode	1200	2.8	120 ¹	60	1600 ⁸	X	0.38

¹ Per diode² I_F = 30 A, di/dt = 1000 A/μs, V_R = 400 V, T_J = 25 °C³ I_F = 60 A, di/dt = 1000 A/μs, V_R = 400 V, T_J = 25 °C⁴ I_F = 75 A, di/dt = 1000 A/μs, V_R = 400 V, T_J = 25 °C⁵ I_F = 150 A, di/dt = 1000 A/μs, V_R = 400 V, T_J = 25 °C⁶ I_F = 30 A, di/dt = 1000 A/μs, V_R = 800 V, T_J = 25 °C⁷ I_F = 60 A, di/dt = 1000 A/μs, V_R = 800 V, T_J = 25 °C⁸ I_F = 120 A, di/dt = 1000 A/μs, V_R = 800 V, T_J = 25 °C**Availability:**

Samples quantities of the new FRED Pt rectifiers are available now. Production quantities are available with lead times of 26 weeks.

To access the product datasheets on the Vishay Website, go to
<https://www.vishay.com/search/?searchChoice=part&query=VS-U5F>

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