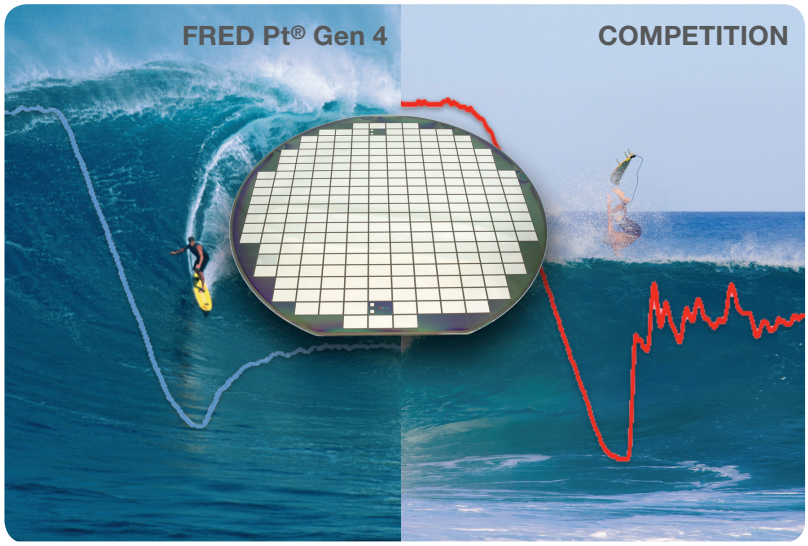
600 V and 650 V Ultrasoft Recovery FRED Pt® Gen 4 Ultrafast Diodes Reduce Conduction Losses and Increase Efficiency



KEY BENEFITS

- FRED Pt® Gen 4 technology
- Designed for use with Vishay's new Trench insulated gate bipolar transistors (IGBT)
- Low I_{RRM} and reverse recovery charge
- Ultrasoft recovery in any switching conditions
- Ultra-low forward voltage down to 1.4 V
- Ultrafast reverse recovery times down to 25 ns
- High operating temperature up to + 175 °C
- RoHS compliant

APPLICATIONS

- High-frequency converters in power modules, motor drives, UPS, solar inverters, and welding machine inverters
- Single- and three-phase inverters, and full- and half-bridge DC/DC converters
- Power factor correction (PFC) circuits, boosters, choppers, and secondary-side rectification

RESOURCES

- Datasheets: please visit http://www.vishay.com/die-wafer/fred_pt_gen4/ for product information
- For technical questions, contact die-wafer@vishay.com
- Material categorization: For definitions of compliance, please see http://www.vishay.com/doc?99912

A WORLD OF SOLUTIONS

600 V and 650 V Ultrasoft Recovery FRED Pt® Gen 4 Ultrafast Diodes Reduce Conduction Losses and Increase Efficiency

The new FRED Pt® Gen 4 Ultrafast recovery diodes provide the perfect complement to Vishay's recently introduced trench insulated gate bipolar transistors (IGBT). Together, the devices provide low EMI and plug-and-play reliability for single- and three-phase inverters, and full- and half-bridge DC/DC converters.

They also show efficient and reliable operation with major suppliers' state-of-the-art IGBTs. The "H" and "U" series diodes can also be used as stand-alone components for PFC circuits, boosters, choppers, and secondary-side rectification.

Designed to minimize conduction losses in medium-speed circuits, "U" series diodes feature extremely low forward voltage down to 1.4 V for 600 V devices. Optimized to deliver high speeds for higher frequency applications, "H" series diodes offer reverse recovery times down to 25 ns with low typical forward voltages down to 1.65 V for 600 V devices.

The Gen 4 diodes feature improved technologies in their active area and termination design — allowing for forward currents ranging from 12 A to 250 A in smaller die sizes than previous-generation devices — while their reduced thickness improves thermal impedance.

Series	Speed	BV_{CES} (V)	I_F (A)	V_F Typ (V)	Max. Temp. (°C)	Die Size X (mm)	Die Size Y (mm)
VS-4FD081H06A6x	H	600	12	1.65	175	2.06	2.06
VS-4FD081U06A6x	U	600	12	1.4	175	2.06	2.06
VS-4FD121H06A6x	H	600	20	1.7	175	3.07	2.43
VS-4FD121U06A6x	U	600	20	1.4	175	3.07	2.43
VS-4FD156H06A6x	H	600	30	1.65	175	3.96	2.59
VS-4FD156U06A6x	U	600	30	1.4	175	3.96	2.59
VS-4FD198H06A6x	H	600	50	1.65	175	5.03	3.35
VS-4FD198U06A6x	U	600	50	1.4	175	5.03	3.35
VS-4FD236H06A6x	H	600	75	1.48	175	4.14	5.99
VS-4FD236U06A6x	U	600	75	1.35	175	4.14	5.99
VS-4FD282H06A6x	H	600	100	1.55	175	4.42	7.16
VS-4FD282U06A6x	U	600	100	1.4	175	4.42	7.16
VS-4FD335H06A6x	H	600	150	1.68	175	8.51	5.28
VS-4FD335U06A6x	U	600	150	1.5	175	8.51	5.28
VS-4FD378H06A6x	H	600	200	1.6	175	9.6	6.04
VS-4FD378U06A6x	U	600	200	1.45	175	9.6	6.04
VS-4FD447H06A6x	H	600	250	1.6	175	6.73	11.35
VS-4FD447U06A6x	U	600	250	1.4	175	6.73	11.35
VS-4FD121H07A6x	H	650	20	1.85	175	3.07	2.43
VS-4FD121U07A6x	U	650	20	1.47	175	3.07	2.43
VS-4FD156H07A6x	H	650	30	1.8	175	3.96	2.59
VS-4FD156U07A6x	U	650	30	1.45	175	3.96	2.59
VS-4FD198H07A6x	H	650	50	1.88	175	5.03	3.35
VS-4FD198U07A6x	U	650	50	1.5	175	5.03	3.35
VS-4FD236H07A6x	H	650	75	1.57	175	4.14	5.99
VS-4FD236U07A6x	U	650	75	1.42	175	4.14	5.99
VS-4FD282H07A6x	H	650	100	1.66	175	4.42	7.16
VS-4FD282U07A6x	U	650	100	1.5	175	4.42	7.16
VS-4FD335H07A6X	H	650	150	1.78	175	8.51	5.28
VS-4FD335U07A6X	U	650	150	1.6	175	8.51	5.28
VS-4FD378H07A6x	H	650	200	1.75	175	9.6	6.04
VS-4FD378U07A6x	U	650	200	1.55	175	9.6	6.04

x = BC (unsawn wafer), FC (die sawn on film)