

# Diode and Thyristor Modules

**INT-A-PAK Modules**  
(34 mm)



INT-A-PAK

**MAGN-A-PAK Modules**  
(Up to 320 A)



MAGN-A-PAK

**High Current, High Voltage  
Three-Phase Bridges**  
(Up to 300 A, 1800 V)



BRIDGES

**Ultrafast 1200 V HEXFRED®  
Dual Diode Modules in  
SOT-227 (200 A, 1200 V)**



HEXFRED®

**AAP Gen 7 Modules**  
(TO-240AA)



AAP Gen7

**Super MAGN-A-PAK  
Modules (Up to 600 A)**



SUPER MAGN-A-PAK

**Ultrafast FRED Pt® Diode  
in SOT-227 (200 A, 400 V)**



FRED PT® DIODE

**TMBS® Modules in  
SOT-227 (300 A, 170 V, and  
200 V)**













TMBS®



# DIODE AND THYRISTOR MODULES

## Focus Products

Standard Diode Modules							
Series	$V_{RRM}$ (V)	$I_{F(AV)}$ (A)	Max. $V_F$ (V) at 25 °C	$I_{FSM}$ (A)	Package		
 <b>VS-T20HF220</b>	2200	20	1.30	380	D-55 (T-Module)	2200 V isolated single diode; suitable for solar applications; UL-approved	
 <b>VS-VSKD91/16</b>	1600	60	1.60	1300	AAP Gen 7 (TO-240AA)	UL-approved; isolated phase-leg module; common cathode and common anode configurations available; lower current and voltage available in same package	
	<b>VS-VSKD166/16PbF</b>	1600	165	1.43	4000	INT-A-PAK	UL-approved; isolated phase-leg module; common cathode and common anode configurations available; lower voltage available in same package
	<b>VS-VSKD236/16PbF</b>	1600	230	1.46	5500	INT-A-PAK	UL-approved; isolated phase-leg module; common cathode and common anode configurations available; lower current available in same package
	<b>VS-VSKD250-20PbF</b>	2000	250	1.29	7015	MAGN-A-PAK	UL-approved; isolated phase-leg module; common cathode and common anode configurations available; lower voltage available in same package
	<b>VS-VSKD320-20PbF</b>	2000	320	1.28	10 110	MAGN-A-PAK	UL-approved; isolated phase-leg module; common cathode and common anode configurations available; lower voltage available in same package
 <b>VS-300MT180C</b>	1800	300	1.54	2400	MTC	UL-approved; three-phase bridge module; lower voltage available in same package	
 <b>VS-VSKD600-20PbF</b>	2000	600	1.45	20 100	Super MAGN-A-PAK	UL-approved; isolated phase-leg module; lower voltage available in same package	

Thyristor Modules							
Series	$V_{RRM}$ (V)	$I_{F(AV)}$ (A)	Max. $V_F$ (V) at 25 °C	$I_{FSM}$ (A)	Package		
 <b>VS-VSKT105/16</b>	1600	105	1.8	2000	AAP Gen 7 (TO-240AA)	UL-approved; isolated phase-leg SCR module; diode-thyristor configuration available; lower current and voltage available in same package	
	<b>VS-VSKT136/16PbF</b>	1600	135	1.57	3200	INT-A-PAK	UL-approved; isolated phase-leg SCR module; diode-thyristor configuration available; lower current and voltage available in same package
	<b>VS-VSKT162/16PbF</b>	1600	160	1.54	4870	INT-A-PAK	UL-approved, isolated phase-leg SCR module; diode-thyristor configuration available; lower current and voltage available in same package
	<b>VS-VSKT320-16PbF</b>	1600	320	1.37	9000	MAGN-A-PAK	UL-approved; isolated phase-leg SCR module; diode-thyristor configuration available; lower current and voltage available in same package
	<b>VS-VSKT500-16PbF</b>	1600	500	1.5	17 800	Super MAGN-A-PAK	UL-approved; isolated phase-leg SCR module; diode-thyristor configuration available
	<b>VS-VSKT570-18PbF</b>	1800	570	1.5	17 800	Super MAGN-A-PAK	UL-approved; isolated phase-leg SCR module; diode-thyristor configuration available; lower voltage available
	<b>VS-VSKS500/08PbF</b>	800	500	1.1	16 646	MAGN-A-PAK block	UL-approved; isolated single SCR module



# DIODE AND THYRISTOR MODULES

## Focus Products

Ultrafast Modules							
Series	$V_{RRM}$ (V)	$I_{F(AV)}$ (A)	Max. $V_F$ (V) at 25 °C	$t_{rr}$ (ns) at 25 °C - High $I_F$	$Q_{rr}$ (nC) at 125 °C - High $I_F$	Package	
	<b>VS-UFH280FA30</b>	280	300	1.27	58	429	SOT-227
	UL-approved; $T_J = 175$ °C; isolated dual ultrafast FRED Pt® diode module; low thermal resistance; low $V_F$ ; low $t_{rr}/Q_{rr}$						
	<b>VS-UFB280FA40</b>	400	280	1.24	93	1740	SOT-227
	UL-approved; $T_J = 175$ °C; isolated dual ultrafast FRED Pt® diode module; 200 V also available; low thermal resistance						
	<b>VS-UFL230FA60</b>	600	230	1.44	104	2200	SOT-227
	UL-approved; $T_J = 175$ °C; isolated dual ultrafast FRED Pt® diode module; lower $t_{rr}$ (83 ns) also available; low thermal resistance						
	<b>VS-UFB310CB40</b>	400	310	1.3	89	400	SOT-227
	UL-approved; non-isolated; $T_J = 175$ °C; common cathode dual ultrafast FRED Pt® diode module; 600 V also available						
	<b>VS-HFA220FA120</b>	1200	220	4.7	157	2850	SOT-227
	UL-approved; isolated dual ultrafast FRED Pt® diode module; 200 V also available; low thermal resistance; lower current also available						
	<b>VS-VSUD400CW60</b>	600	400	1.45	90	4730	TO-244
	UL-approved; non-isolated; $T_J = 175$ °C; common cathode FRED Pt® diode module						
	<b>VS-VSKDU162/12PbF</b>	1200	110	2.5	150	2000	INT-A-PAK
	UL-approved; isolated ultrafast HEXFRED® diodes phase-leg module						
	<b>VS-UFB250FA60</b>	600	170	1.19	166	3500	SOT-227
	UL-approved; $T_J = 175$ °C; isolated dual ultrafast FRED Pt® diodes module						
	<b>VS-UFB211FA40</b>	400	280	1.24	93	1740	SOT-227
	UL-approved; $T_J = 175$ °C; isolated dual ultrafast FRED Pt® diodes module; extremely low thermal resistance						
	<b>VS-HFA70FA120</b>	1200	70	3	134	790	SOT-227
	UL-approved; isolated dual ultrafast HEXFRED® diodes module; antiparallel pin-out						
	<b>VS-HFA70EA120</b>	1200	70	3	145	910	SOT-227
	UL-approved; non-isolated; $T_J = 175$ °C; common cathode FRED Pt® diodes module						
	<b>VS-VSKEF500/06PBF</b>	600	500	1.4	138	3340	INT-A-PAK
UL-approved; isolated ultrafast diode; FRED Pt® Gen 4 single-switch module with ultrasoft reverse recovery current							
Schottky Modules							
Series	$V_{RRM}$ (V)	$I_{F(AV)}$ (A)	Max. $V_F$ (V) at 25 °C	$I_{FSM}$ (A)	Package		
	<b>VS-241NQ045PbF</b>	45	240	0.8	3450	HALF-PAK (D-67)	
	UL-approved; non-isolated; cathode-to-base Schottky diode module; $T_J = 175$ °C						
	<b>VS-243NQ100PbF</b>	100	240	0.95	3300	HALF-PAK (D-67)	
	UL-approved; non-isolated; cathode-to-base Schottky diode module; $T_J = 175$ °C						
	<b>VS-QA300FA170</b>	170	300	0.98	1575	SOT-227	
	UL-approved; isolated Trench MOS Barrier Schottky (TMBS®) diode module; $T_J = 175$ °C; low thermal resistance; very low $V_F$						
	<b>VS-QA250FA20</b>	200	250	1.2	900	SOT-227	
UL-approved; isolated Trench MOS Barrier Schottky (TMBS®) diode module; $T_J = 175$ °C; low thermal resistance; very low $V_F$							
	<b>VS-301CNQ045PbF</b>	45	300	0.9	3200	TO-244	
	UL-approved; non-isolated; common cathode Schottky diode module; $T_J = 175$ °C						
	<b>VS-403CNQ100PbF</b>	100	400	1.07	3300	TO-244	
UL-approved; non-isolated; common cathode Schottky diode module; $T_J = 175$ °C							
	<b>VS-VSKDS409/150</b>	150	400	1.33	2300	AAP Gen 7 (TO-240AA)	
	UL-approved; isolated; dual diode (phase-leg) Schottky diode module; $T_J = 175$ °C						
	<b>VS-VSKCS409/150</b>	150	400	1.33	2300	AAP Gen 7 (TO-240AA)	
UL-approved; isolated; dual diode (common cathode) Schottky diode module; $T_J = 175$ °C							

# Vishay Rectifier Power Modules: the Best Solution for Input / Output Rectification

## Advantages of Vishay Modules

- Wide current and voltage range (standard diode / SCR modules, ultrafast, and Schottky)
- UL-approved - high isolation voltage
- Wide variety of  $V_F$  /  $t_{rr}$  trade-offs on ultrafast diode modules
- FRED Pt® and HEXFRED® provide ultrasoft recovery current shape
- Gen 2 Trench MOS Barrier Schottky (TMBS®) diode modules provide low forward voltages and low leakage currents

## For the Following Applications

- Welding (input and output rectification)
- UPS
- Motor drives
- Switch mode power supplies
- DC/DC converters
- Electric vehicle chargers
- Battery chargers
- Plasma cutters



Vishay provides reliable and complete solutions for input and output rectification with state-of-the-art of silicon technology and power packages

## Useful Links

- Modules, Thyristor  
[www.vishay.com/modules/thyristor-modules/](http://www.vishay.com/modules/thyristor-modules/)
- Modules, Diode  
[www.vishay.com/modules/diode-modules/](http://www.vishay.com/modules/diode-modules/)
- Power Modules  
[www.vishay.com/doc?49382](http://www.vishay.com/doc?49382)

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