


# Insulated Gen 2 Schottky Rectifier Module, 100 A



SOT-227


**RoHS**  
COMPLIANT

## FEATURES

- Max.  $T_J = 150\text{ }^{\circ}\text{C}$
- Two fully independent diodes
- Fully insulated package
- Trench MOS Barrier Schottky technology
- Ultra low forward voltage drop
- Optimized for power conversion: welding and industrial SMPS applications
- Easy to use and parallel
- Industry standard outline
- Designed and qualified for industrial level
- UL approved file E78996 
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

## DESCRIPTION

The VS-QA100FA10 insulated modules integrate two state of the art Trench MOS Schottky technology rectifiers in the compact, industry standard SOT-227 package.

These devices are thus intended for high frequency converters and switching power supplies.

## LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$ per module at $T_C = 93\text{ }^{\circ}\text{C}$	100 A
$V_R$	100 V
$V_{FM}$ at 50 A, $T_C = 25\text{ }^{\circ}\text{C}$	0.83 V
Package	SOT-227
Circuit configuration	Two separate diodes, parallel pin-out

## MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
$V_F$	$I_F = 50\text{ A}$ , $T_J = 150\text{ }^{\circ}\text{C}$	0.66	V
$T_J$	Range	-40 to +150	$^{\circ}\text{C}$

## ABSOLUTE MAXIMUM RATINGS ( $T_C = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Cathode to anode voltage	$V_R$		100	V
Average forward current	$I_{F(AV)}$	$T_C = 93\text{ }^{\circ}\text{C}$	100	A
		$T_C = 93\text{ }^{\circ}\text{C}$	50	
Continuous forward current	$I_F$	$T_C = 90\text{ }^{\circ}\text{C}$	134	
		$T_C = 90\text{ }^{\circ}\text{C}$	67	
Single pulse forward current per diode	$I_{FSM}$	$T_C = 150\text{ }^{\circ}\text{C}$ , $t = 6\text{ ms}$ , square	450	
Maximum power dissipation per diode	$P_D$	$T_C = 90\text{ }^{\circ}\text{C}$	67	W
Non-repetitive avalanche energy per diode	$E_{AS}$	$T_J = 25\text{ }^{\circ}\text{C}$ , $L = 1\text{ mH}$	583	mJ
RMS isolation voltage	$V_{ISOL}$	Any terminal to case, $t = 1\text{ min}$	2500	V
Operating junction and storage temperatures	$T_J$ , $T_{Stg}$		-40 to +150	$^{\circ}\text{C}$

## ELECTRICAL SPECIFICATIONS PER DIODE ( $T_J = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Cathode to anode breakdown voltage	$V_{BR}$	$I_R = 1\text{ mA}$	100	-	-	V
Forward voltage	$V_{FM}$	$I_F = 50\text{ A}$	-	0.83	1.03	
		$I_F = 50\text{ A}$ , $T_J = 150\text{ }^{\circ}\text{C}$	-	0.66	-	
Reverse leakage current	$I_{RM}$	$V_R = 100\text{ V}$	-	0.03	0.8	mA
		$T_J = 125\text{ }^{\circ}\text{C}$ , $V_R = 100\text{ V}$	-	17	-	
Junction capacitance	$C_T$	$V_R = 100\text{ V}$ , $f = 1\text{ MHz}$	-	259	-	pF



THERMAL - MECHANICAL SPECIFICATIONS						
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Junction-to-case, single leg conducting	$R_{thJC}$		-	-	0.89	$^{\circ}\text{C}/\text{W}$
Junction-to-case, both leg conducting			-	-	0.45	
Case-to-heatsink	$R_{thCS}$	Flat, greased surface	-	0.1	-	
Weight			-	30	-	g
Mounting torque		Torque to terminal	-	-	1.1 (9.7)	Nm (lbf.in)
		Torque to heatsink	-	-	1.8 (15.9)	Nm (lbf.in)
Case style			SOT-227			

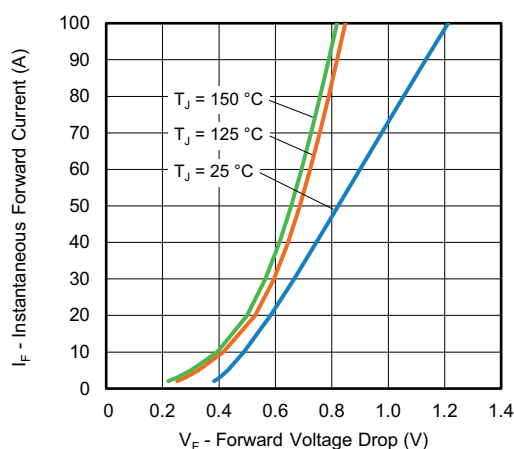


Fig. 1 - Typical Forward Voltage Drop Characteristics

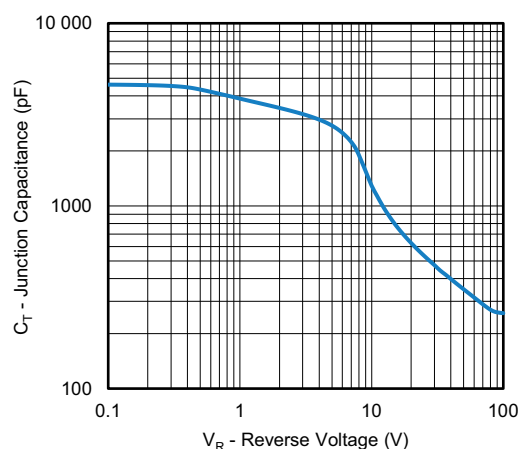


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

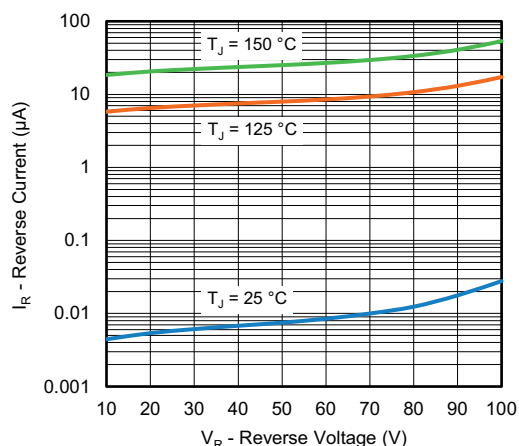


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

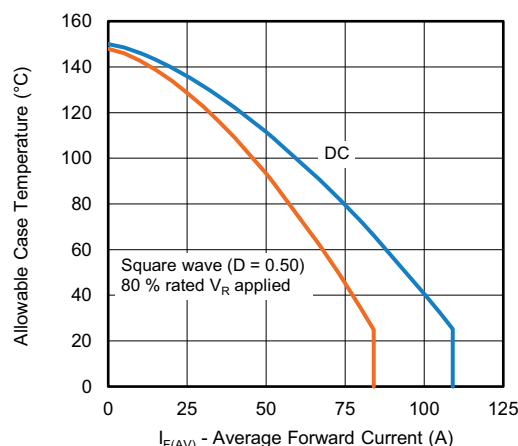


Fig. 4 - Current Rating Characteristics

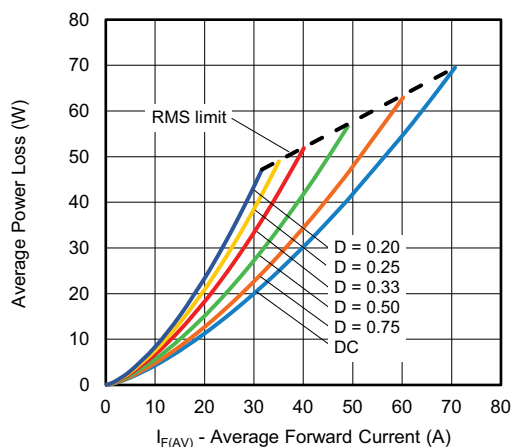
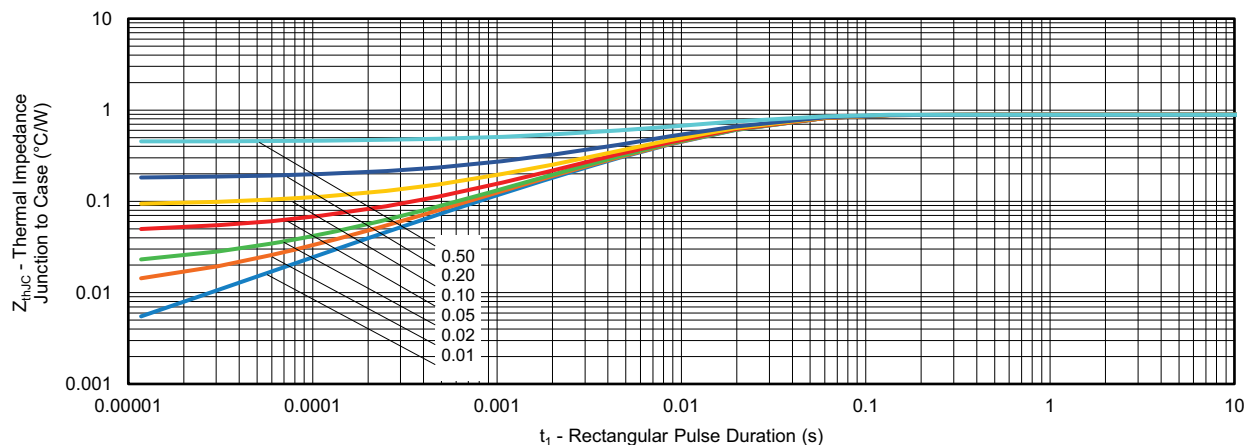


Fig. 5 - Total Power Loss Characteristics


Fig. 6 - Maximum Thermal Impedance  $Z_{thJC}$  Characteristics

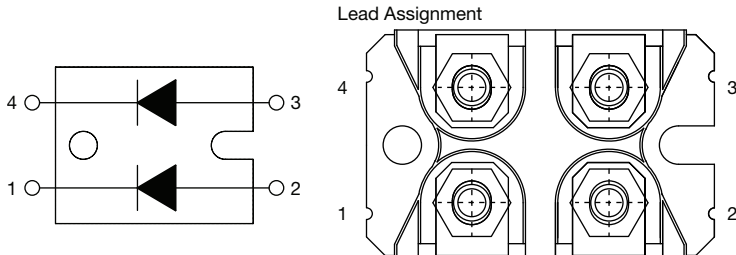
## ORDERING INFORMATION TABLE

Device code	VS-	Q	A	100	F	A	10
	1	2	3	4	5	6	7

- 1** - Vishay Semiconductors product
- 2** - Schottky technologies
- 3** - Present silicon generation
- 4** - Current rating (100 = 100 A)
- 5** - Circuit configuration (two separate diodes, parallel pin-out)
- 6** - Package indicator (SOT-227 standard insulated base)
- 7** - Voltage rating (10 = 100 V)

Quantity per tube is 10, M4 screw and washer included



CIRCUIT CONFIGURATION		
CIRCUIT	CIRCUIT CONFIGURATION CODE	CIRCUIT DRAWING
Two separate diodes, parallel pin-out	F	 <p>The circuit drawing consists of two parts. On the left, a schematic shows two diodes connected in parallel. The top diode has its anode at pin 4 and its cathode at pin 3. The bottom diode has its anode at pin 1 and its cathode at pin 2. On the right, a lead assignment diagram shows the physical package with four pins labeled 1, 2, 3, and 4. Pin 1 is at the bottom left, pin 2 at the bottom right, pin 3 at the top right, and pin 4 at the top left.</p>

LINKS TO RELATED DOCUMENTS	
Dimensions	<a href="http://www.vishay.com/doc?95423">www.vishay.com/doc?95423</a>
Part marking information	<a href="http://www.vishay.com/doc?95425">www.vishay.com/doc?95425</a>



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