Insulated Gen 2 Schottky Rectifier Module, 400 A

SOT-227

LINKS TO ADDITIONAL RESOURCES

Application Notes

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$ per module at T_C = 60 °C	400 A
V_R	100 V
V_{FM} at 200 A, T_C = 25 °C	0.87 V
Package	SOT-227
Circuit configuration	Two separate diodes, parallel pin-out

FEATURES

- Max. T_J = 150 °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

Pb-free

RoHS COMPLIANT

DESCRIPTION

The VS-QA400FA10 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.

MAJOR RATINGS AND CHARACTERISTICS			
SYMBOL	CHARACTERISTICS	VALUES	UNITS
V_F	I_F = 200 A, T_J = 150 °C	0.73	V
T_J	Range	-40 to +150	°C

ABSOLUTE MAXIMUM RATINGS (T_C = 25 °C unless otherwise specified)					
PARAMETER		SYMBOL	TEST CONDITIONS	VALUES	UNITS
Cathode to anode voltage		V_R		100	V
Average forward current	per module	$I_{F(AV)}$	T_C = 60 °C	400	A
	per diode		T_C = 60 °C	200	
Continuous forward current	per module	I_F	T_C = 90 °C	400	
	per diode		T_C = 90 °C	200	
Single pulse forward current per diode		I_{FSM}	T_C = 150 °C, t = 6 ms, square	1260	
Maximum power dissipation per diode		P_D	T_C = 90 °C	187	W
Non-repetitive avalanche energy per diode		E_{AS}	T_J = 25 °C, I_{AS} = 37.8 A, L = 5 mH	3572	mJ
RMS isolation voltage		V_{ISOL}	Any terminal to case, t = 1 min	2500	V
Operating junction and storage temperatures		T_J, T_{Stg}		-40 to +150	°C

ELECTRICAL SPECIFICATIONS PER DIODE (T_J = 25 °C unless otherwise specified)						
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Cathode to anode breakdown voltage	V_{BR}	I_R = 4 mA	100	-	-	V
Forward voltage	V_{FM}	I_F = 200 A	-	0.87	1.07	
		I_F = 200 A, T_J = 150 °C	-	0.73	-	
Reverse leakage current	I_{RM}	V_R = 100 V	-	0.15	3.2	mA
		T_J = 125 °C, V_R = 100 V	-	82	-	
Junction capacitance	C_T	V_R = 100 V, f = 1 MHz	-	1036	-	pF

THERMAL - MECHANICAL SPECIFICATIONS						
PARAMETER	**SYMBOL**	**TEST CONDITIONS**	**MIN.**	**TYP.**	**MAX.**	**UNITS**
Junction-to-case, single leg conducting	R_{thJC}		-	-	0.32	°C/W
Junction-to-case, both leg conducting			-	-	0.16	
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			

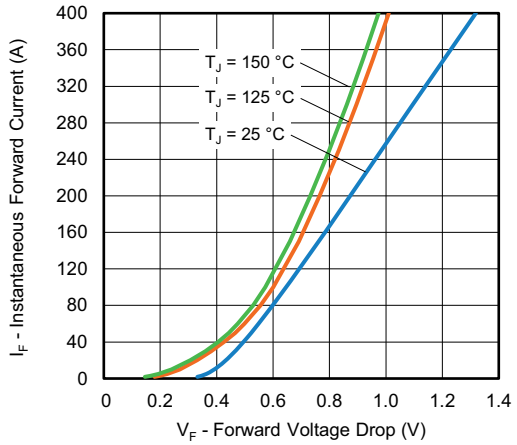


Fig. 1 - Typical Forward Voltage Drop Characteristics

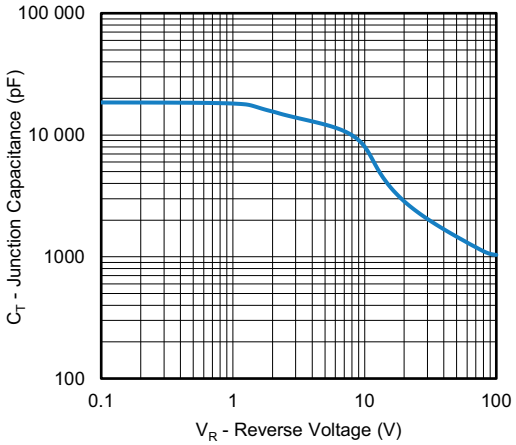


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

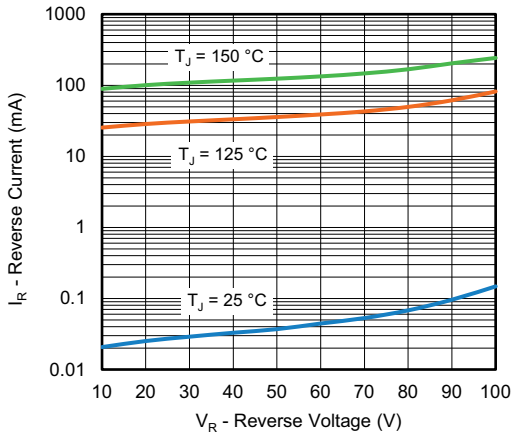


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

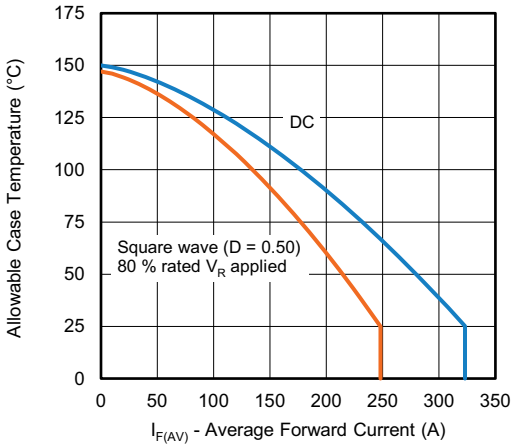


Fig. 4 - Current Rating Characteristics

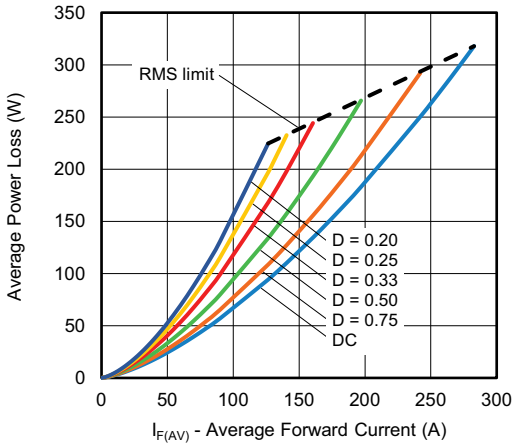


Fig. 5 - Total Power Loss Characteristics

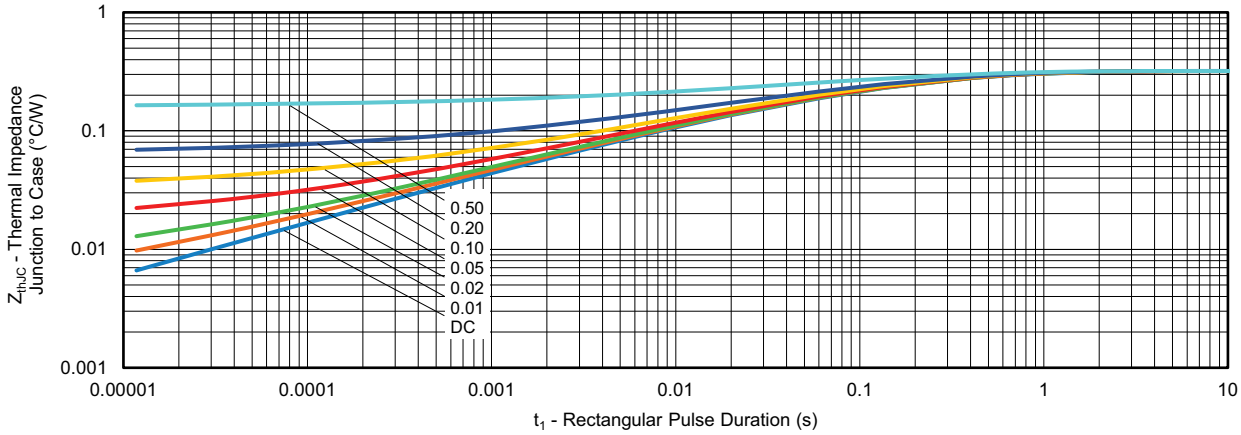


Fig. 6 - Maximum Thermal Impedance Z_{thJC} Characteristics

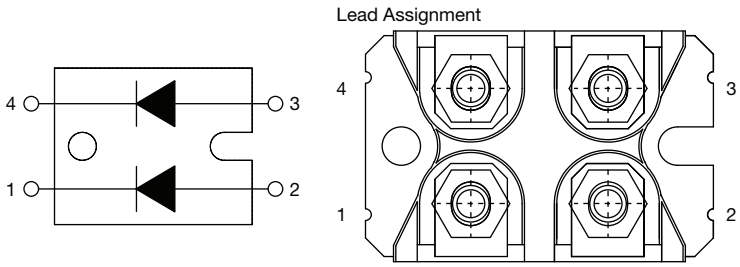
ORDERING INFORMATION TABLE

Device code

VS-	Q	A	400	F	A	10
1	2	3	4	5	6	7

- 1 - Vishay Semiconductors product
- 2 - Schottky technologies
- 3 - Present silicon generation
- 4 - Current rating (400 = 400 A)
- 5 - Circuit configuration (two separate diodes, parallel pin-out)
- 6 - Package indicator (SOT-227 standard insulated base)
- 7 - Voltage rating (10 = 100 V)

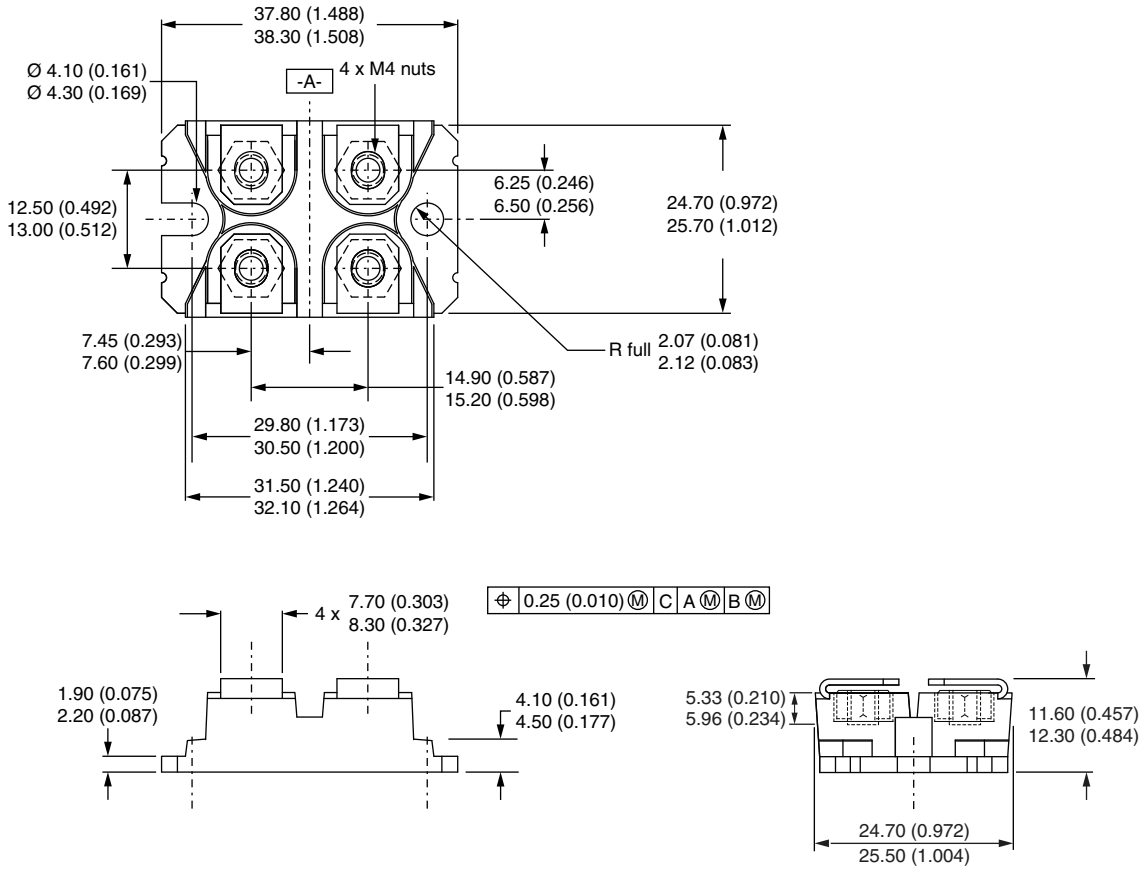
Quantity per tube is 10, M4 screw and washer included

CIRCUIT CONFIGURATION		
CIRCUIT	**CIRCUIT CONFIGURATION CODE**	**CIRCUIT DRAWING**
Two separate diodes, parallel pin-out	F	

LINKS TO RELATED DOCUMENTS	
Dimensions	www.vishay.com/doc?95423
Part marking information	www.vishay.com/doc?95425

SOT-227 Generation 2

DIMENSIONS in millimeters (inches)



Note

- Controlling dimension: millimeter

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