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[Vishay Semiconductor/Diodes Division](#)
[VS-50SQ060G](#)

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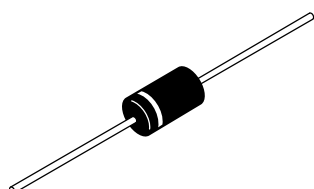
sales@integrated-circuit.com



50SQ...G Series

Vishay High Power Products

Schottky Rectifier, 5 A



DO-204AR



FEATURES

- 175 °C T_J operation
- Low forward voltage drop
- High frequency operation
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Guard ring for enhanced ruggedness and long term reliability
- Lead (Pb)-free
- Designed and qualified for industrial level



RoHS
COMPLIANT

PRODUCT SUMMARY

I _{F(AV)}	5 A
V _R	60 to 100 V

DESCRIPTION

The 50SQ...G axial leaded Schottky rectifier series has been optimized for low reverse leakage at high temperature. The proprietary barrier technology allows for reliable operation up to 175 °C junction temperature. Typical applications are in switching power supplies, converters, freewheeling diodes, and reverse battery protection.

MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
I _{F(AV)}	Rectangular waveform	5	A
V _{RRM}	Range	60 to 100	V
I _{FSM}	t _p = 5 μs sine	1900	A
V _F	5 Apk, T _J = 125 °C	0.52	V
T _J	Range	- 55 to 175	°C

VOLTAGE RATINGS

PARAMETER	SYMBOL	50SQ060G	50SQ080G	50SQ100G	UNITS
Maximum DC reverse voltage	V _R	60	80	100	V
Maximum working peak reverse voltage	V _{RWM}				

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum average forward current See fig. 5	I _{F(AV)}	50 % duty cycle at T _C = 119 °C, rectangular waveform	5	A
Maximum peak one cycle non-repetitive surge current See fig. 7	I _{FSM}	5 μs sine or 3 μs rect. pulse	1900	
		10 ms sine or 6 ms rect. pulse	290	
Non-repetitive avalanche energy	E _{AS}	T _J = 25 °C, I _{AS} = 1.0 A, 46 μs square pulse	7.5	mJ
Repetitive avalanche current	I _{AR}	Current decaying linearly to zero in 1 μs Frequency limited by, T _J maximum V _A = 1.5 x V _R typical	1.0	A

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ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop See fig. 1	$V_{FM}^{(1)}$	5 A	$T_J = 25\text{ }^\circ\text{C}$	0.66	V
		10 A		0.77	
		5 A	$T_J = 125\text{ }^\circ\text{C}$	0.52	
		10 A		0.62	
Maximum reverse leakage current See fig. 2	$I_{RM}^{(1)}$	$T_J = 25\text{ }^\circ\text{C}$	$V_R = \text{Rated } V_R$	0.15	mA
		$T_J = 125\text{ }^\circ\text{C}$		7	
Maximum junction capacitance	C_T	$V_R = 5\text{ }V_{DC}$ (test signal range 100 kHz to 1 MHz) 25 °C		500	pF
Typical series inductance	L_S	Measured lead to lead 5 mm from body		10	nH
Maximum voltage rate of change	dV/dt	Rated V_R		10 000	V/ μ s

Note

(1) Pulse width < 300 μ s, duty cycle < 2 %

THERMAL - MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum junction and storage temperature range	T_J, T_{Stg}			- 55 to 175	$^\circ\text{C}$
Maximum thermal resistance, junction to lead	R_{thJL}	DC operation; see fig. 4 1/8" lead length		8.0	$^\circ\text{C}/\text{W}$
Typical thermal resistance, junction to air	R_{thJA}			44	
Approximate weight				1.4	g
				0.049	oz.
Marking device		Case style DO-204AR (JEDEC)		50SQ060G	
				50SQ080G	
				50SQ100G	



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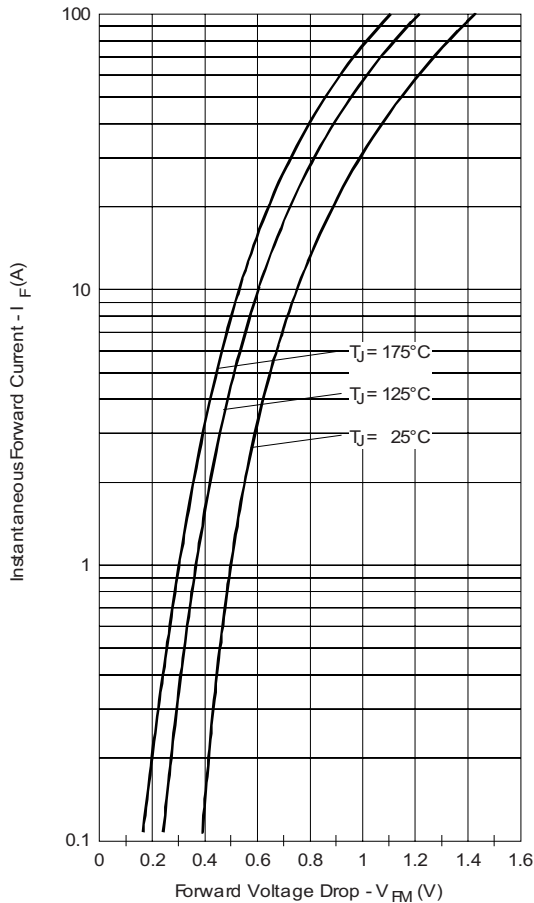


Fig. 1 - Maximum Forward Voltage Drop Characteristics

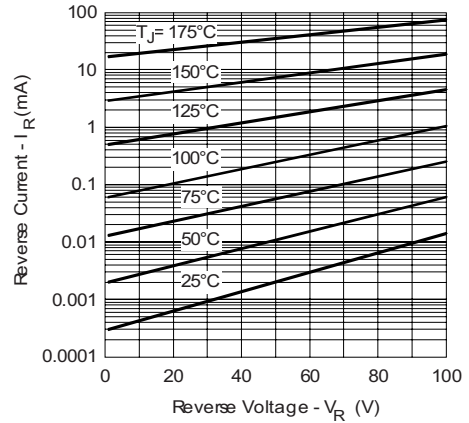


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

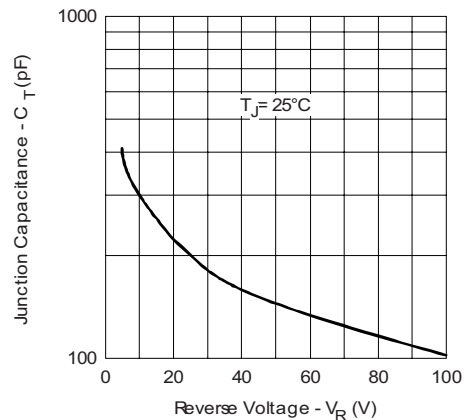


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

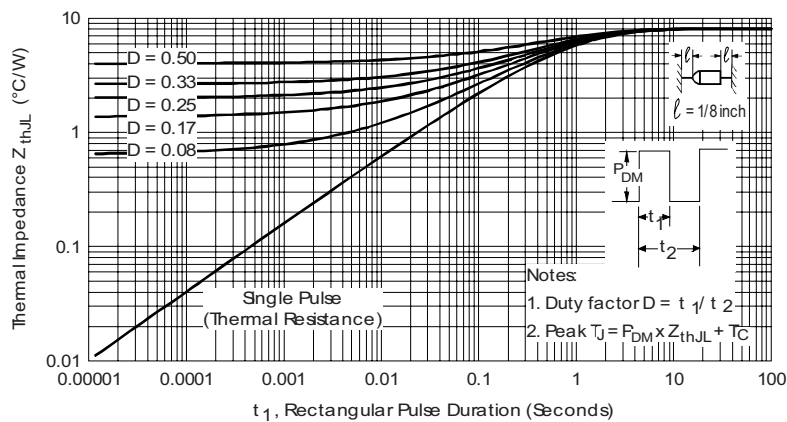


Fig. 4 - Maximum Thermal Impedance Z_{thJL} Characteristics

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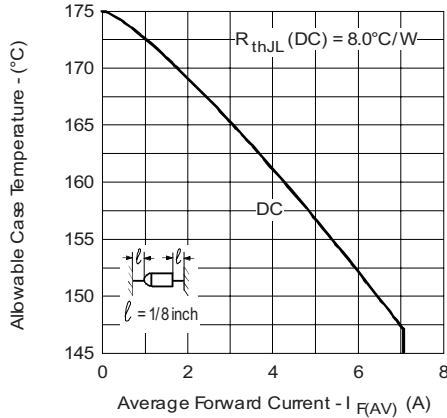


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current

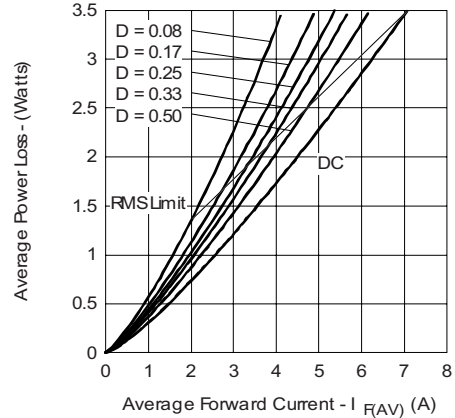


Fig. 6 - Forward Power Loss Characteristics

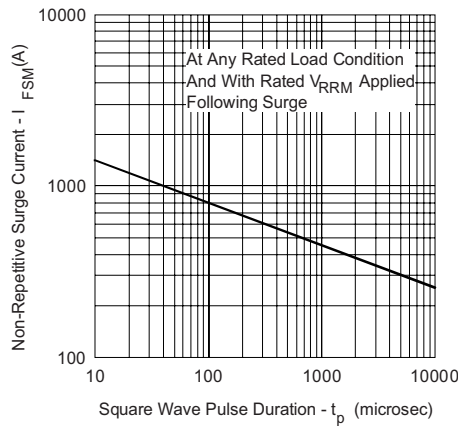


Fig. 7 - Maximum Non-Repetitive Surge Current

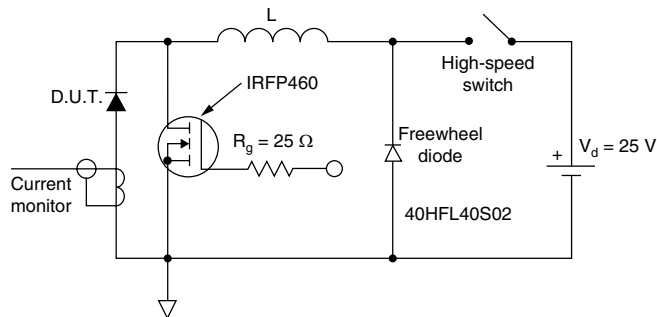


Fig. 8 - Unclamped Inductive Test Circuit



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ORDERING INFORMATION TABLE

Device code	50	S	Q	100	G	TR
	①	②	③	④	⑤	⑥
	1	-	Current rating (5 A)			
	2	-	S = DO-204AR package			
	3	-	Q = Schottky Q.. series			
	4	-	Voltage ratings			060 = 60 V 080 = 80 V 100 = 100 V
	5	-	G = Schottky generation			
	6	-	• None = Box (300 pieces) • TR = Tape and reel (1200 pieces)			

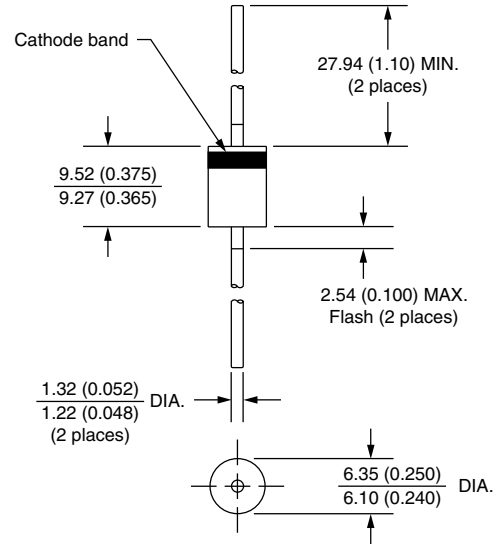
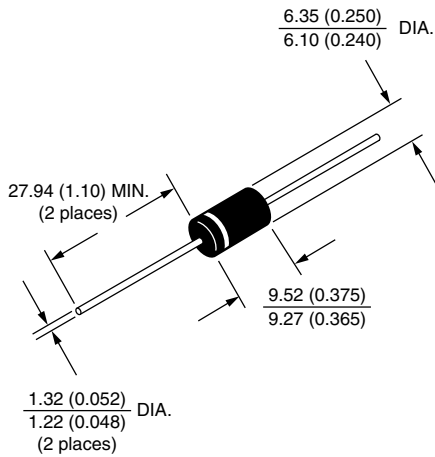
LINKS TO RELATED DOCUMENTS	
Dimensions	http://www.vishay.com/doc?95243
Part marking information	http://www.vishay.com/doc?95325
Packaging information	http://www.vishay.com/doc?95332



Outline Dimensions
 Vishay Semiconductors

Axial DO-204AR

DIMENSIONS in millimeters (inches)





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