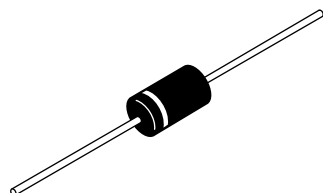


## Schottky Rectifier, 5 A


**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
$I_{FSM}$	$t_p = 5 \mu s$ sine	1900	A
$V_F$	5 Apk, $T_J = 125^\circ C$	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 $T_C = 119^\circ C$ , rectangular waveform	5	A
Maximum peak one cycle non-repetitive surge current See fig. 7	$I_{FSM}$	5 $\mu s$ sine or 3 $\mu s$ rect. pulse	1900	
		10 ms sine or 6 ms rect. pulse	290	
Non-repetitive avalanche energy	$E_{AS}$	$T_J = 25^\circ C$ , $I_{AS} = 1.0$ A, 46 $\mu s$ square pulse	7.5	mJ
Repetitive avalanche current	$I_{AR}$	Current decaying linearly to zero in 1 $\mu s$ Frequency limited by, $T_J$ maximum $V_A = 1.5 \times V_R$ typical	1.0	A

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) $25\text{ }^{\circ}\text{C}$		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/μs

**Note**(1) Pulse width < 300  $\mu$ 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	

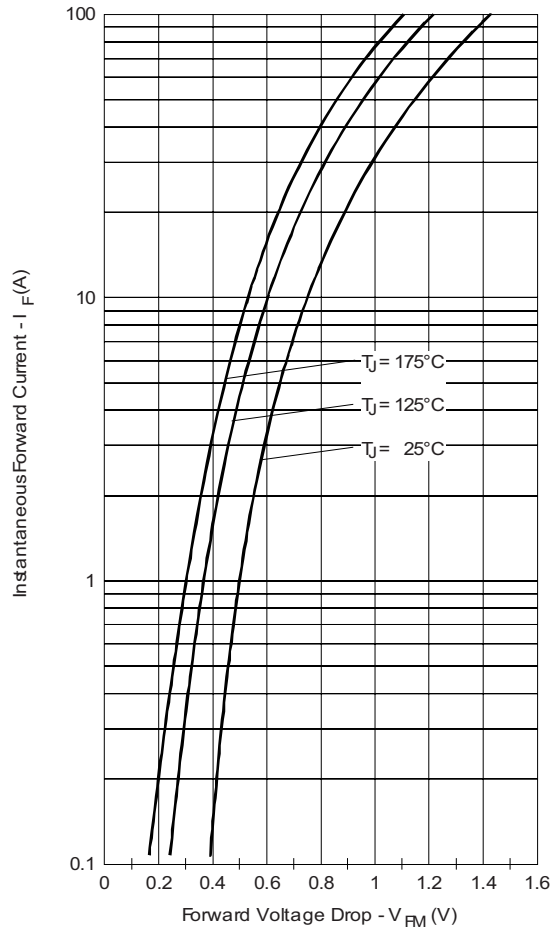


Fig. 1 - Maximum Forward Voltage Drop Characteristics

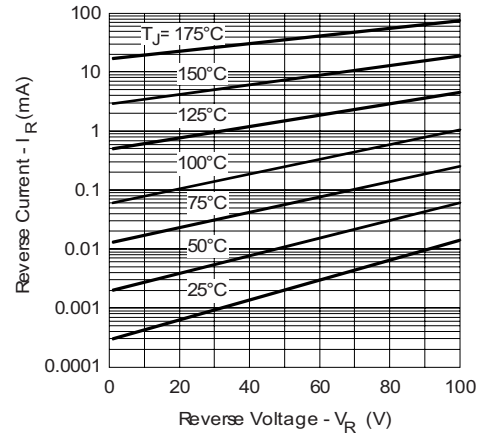


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

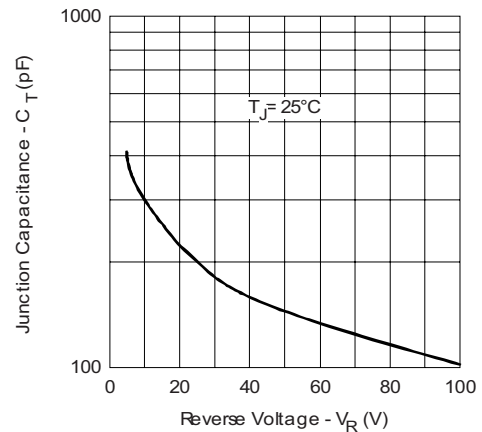


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

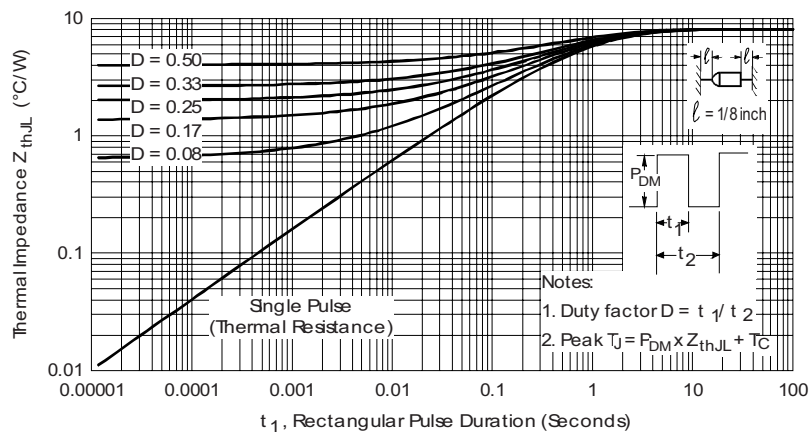


Fig. 4 - Maximum Thermal Impedance  $Z_{thJL}$  Characteristics

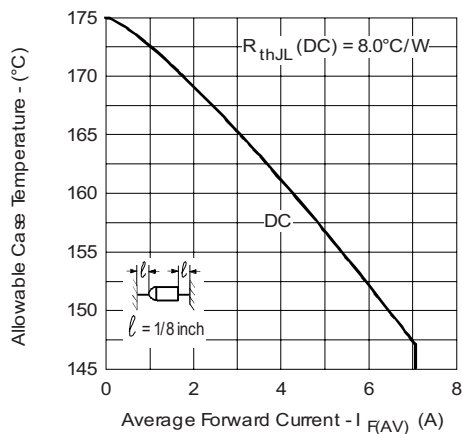


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current

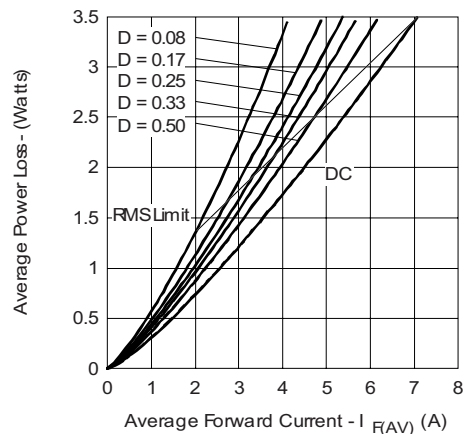


Fig. 6 - Forward Power Loss Characteristics

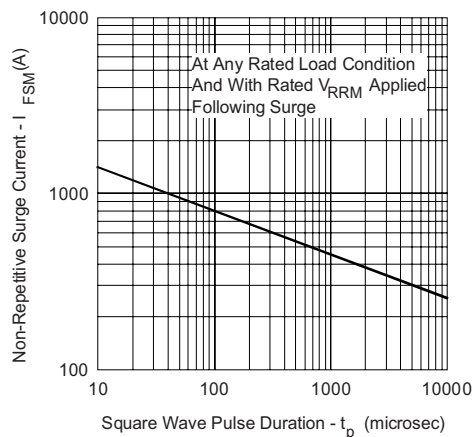


Fig. 7 - Maximum Non-Repetitive Surge Current

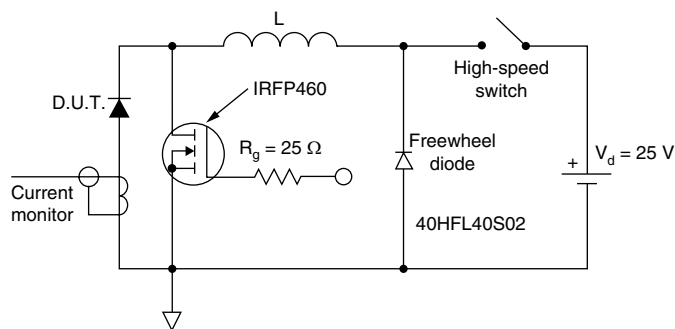


Fig. 8 - Unclamped Inductive Test Circuit



### ORDERING INFORMATION TABLE

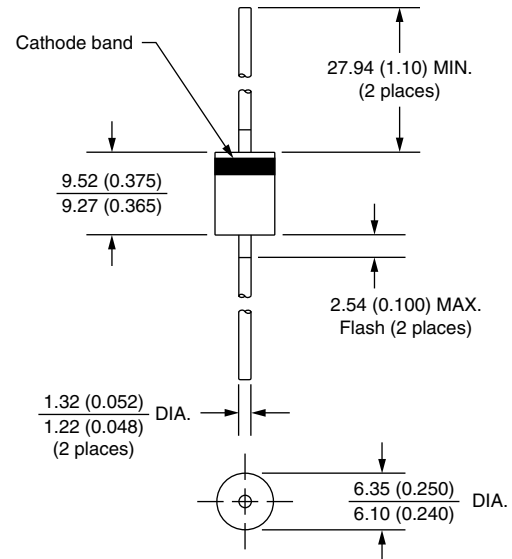
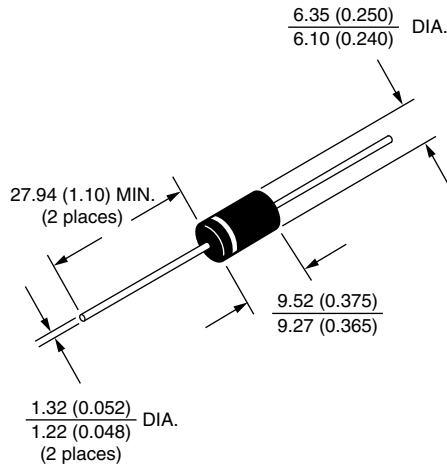
Device code	50	S	Q	100	G	TR
	1	2	3	4	5	6
1	- Current rating (5 A)					
2	- S = DO-204AR package					
3	- Q = Schottky Q.. series					
4	- Voltage ratings					
5	- G = Schottky generation					
6	- • None = Box (300 pieces) • TR = Tape and reel (1200 pieces)					

060 = 60 V  
080 = 80 V  
100 = 100 V

LINKS TO RELATED DOCUMENTS	
Dimensions	<a href="http://www.vishay.com/doc?95243">http://www.vishay.com/doc?95243</a>
Part marking information	<a href="http://www.vishay.com/doc?95325">http://www.vishay.com/doc?95325</a>
Packaging information	<a href="http://www.vishay.com/doc?95332">http://www.vishay.com/doc?95332</a>

## Axial DO-204AR

**DIMENSIONS** in millimeters (inches)





## Disclaimer

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