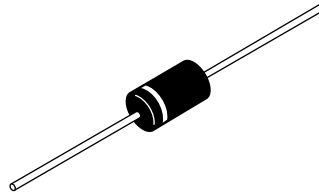
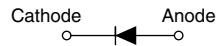


Schottky Rectifier, 5 A


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 plating
- Designed and qualified for industrial level


RoHS
COMPLIANT

PRODUCT SUMMARY

$I_{F(AV)}$	5 A
V_R	60 to 100 V

DESCRIPTION

The 50SQ... 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, $T_J = 125 \text{ }^\circ\text{C}$	0.52	V
T_J	Range	- 55 to 175	$^\circ\text{C}$

VOLTAGE RATINGS

PARAMETER	SYMBOL	50SQ060	50SQ080	50SQ100	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 $T_C = 119 \text{ }^\circ\text{C}$, rectangular waveform	5	A		
Maximum peak one cycle non-repetitive surge current See fig. 7	I_{FSM}	<table border="1"> <tr> <td>5 μs sine or 3 μs rect. pulse</td> <td rowspan="2">Following any rated load condition and with rated V_{RRM} applied</td> </tr> <tr> <td>10 ms sine or 6 ms rect. pulse</td> </tr> </table>	5 μs sine or 3 μs rect. pulse		Following any rated load condition and with rated V_{RRM} applied	10 ms sine or 6 ms rect. pulse
5 μs sine or 3 μs rect. pulse	Following any rated load condition and with rated V_{RRM} applied					
10 ms sine or 6 ms rect. pulse						
Non-repetitive avalanche energy	E_{AS}	$T_J = 25 \text{ }^\circ\text{C}$, $I_{AS} = 1.0 \text{ A}$, $L = 15 \text{ mH}$	7.5	mJ		
Repetitive avalanche current	I_{AR}	Current decaying linearly to zero in 1 μs Frequency limited by, T_J maximum $V_A = 1.5 \times V_R$ 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	$I_{RM}^{(1)}$	$T_J = 25\text{ }^\circ\text{C}$	$V_R = \text{Rated } V_R$	0.55	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/ 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	$^\circ\text{C/W}$
Typical thermal resistance, junction to air	R_{thJA}			44	
Approximate weight				1.4	g
				0.049	oz.
Marking device			Case style DO-204AR (JEDEC)	50SQ060	
				50SQ080	
				50SQ100	

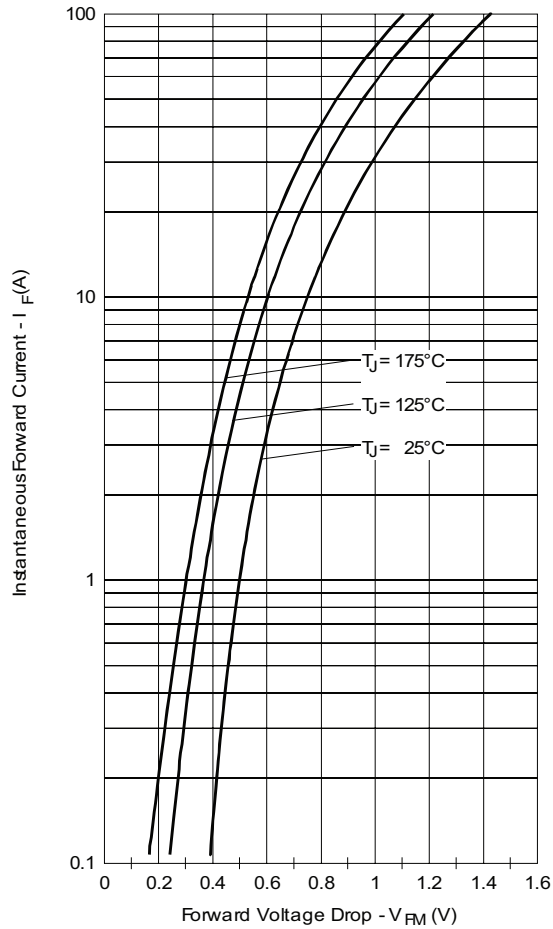


Fig. 1 - Maximum Forward Voltage Drop Characteristics

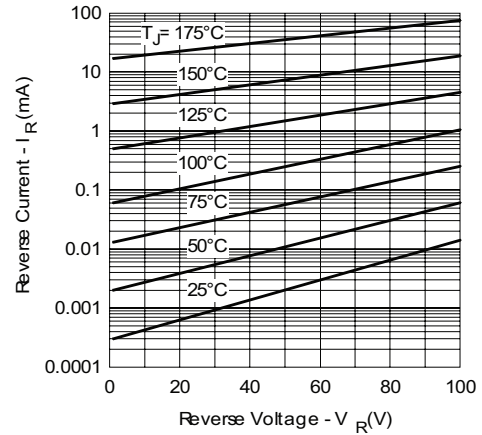


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

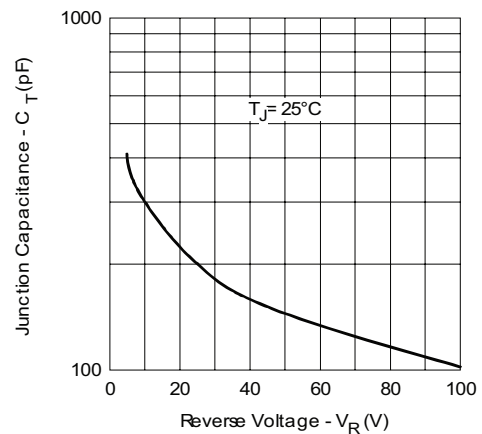


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

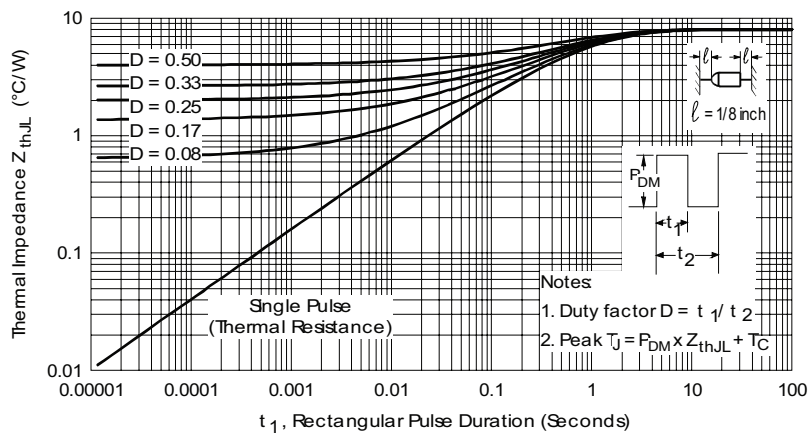


Fig. 4 - Maximum Thermal Impedance Z_{thJL} Characteristics

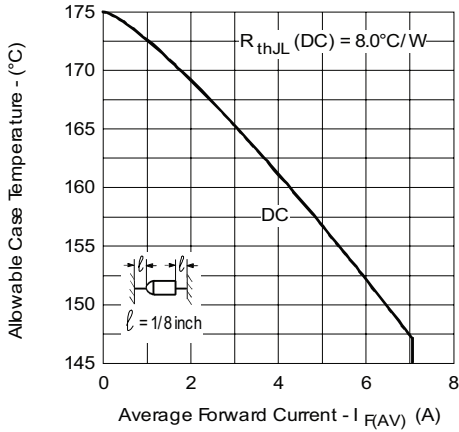


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current

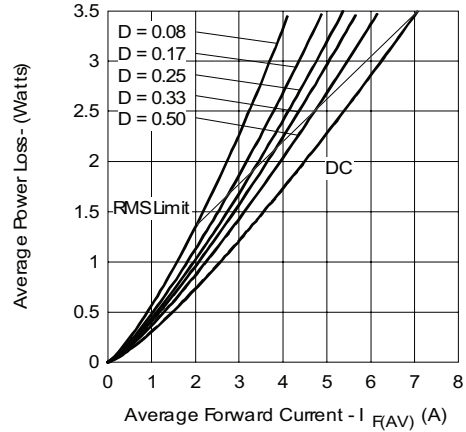


Fig. 6 - Forward Power Loss Characteristics

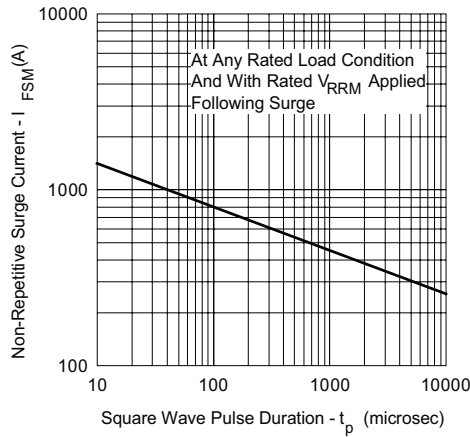


Fig. 7 - Maximum Non-Repetitive Surge Current

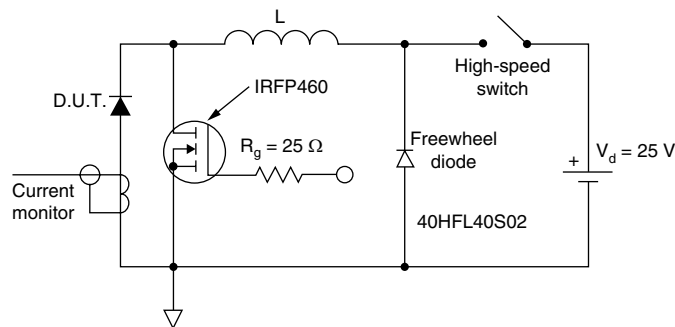
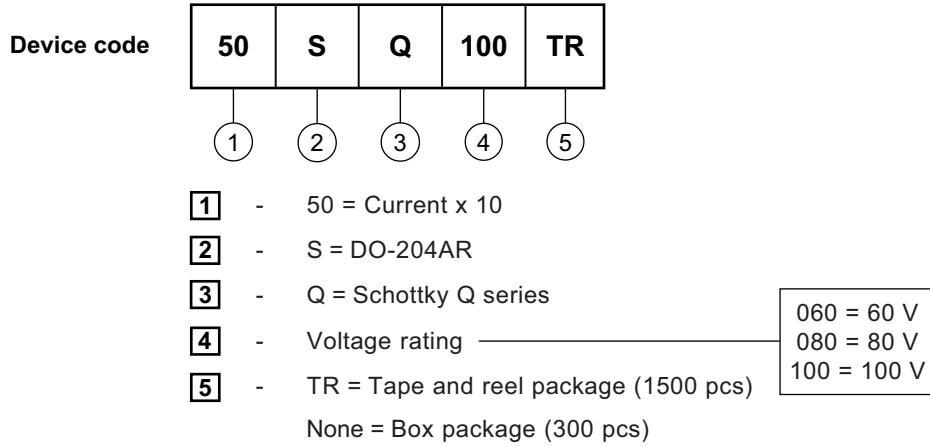


Fig. 8 - Unclamped Inductive Test Circuit



ORDERING INFORMATION TABLE



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



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