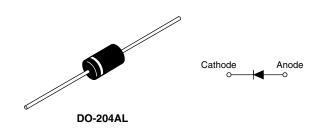


Vishay High Power Products

Schottky Rectifier, 1.1 A



PRODUCT SUMMARY			
I _{F(AV)}	1.1 A		
V _R	90/100 V		

FEATURES

- Low profile, axial leaded outline
- High frequency operation



- Very low forward voltage drop
- 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

DESCRIPTION

The 11DQ.. axial leaded Schottky rectifier has been optimized for very low forward voltage drop, with moderate leakage. 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	1.1	A		
V _{RRM}		90/100	V		
I _{FSM}	t _p = 5 μs sine	85	А		
V _F	1 Apk, T _J = 25 °C	0.85	V		
T _J	Range	- 40 to 150	°C		

VOLTAGE RATINGS					
PARAMETER	SYMBOL	11DQ09	11DQ10	UNITS	
Maximum DC reverse voltage	V_{R}	90	100	V	
Maximum working peak reverse voltage	V_{RWM}	90	100	V	

ABSOLUTE MAXIMUM RATINGS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum average forward current See fig. 4	I _{F(AV)}	I _{F(AV)} 50 % duty cycle at T _C = 75 °C, rectangular waveform		1.1	
Maximum peak one cycle non-repetitive surge current	I _{FSM}	5 μs sine or 3 μs rect. pulse	Following any rated load condition and with rated	85	Α
See fig. 6		10 ms sine or 6 ms rect. pulse V _{RRM} applied	14		
Non-repetitive avalanche energy	E _{AS}	$T_J = 25 ^{\circ}\text{C}, I_{AS} = 0.5 \text{A}, L = 8 \text{mH}$		1.0	mJ
Repetitive avalanche current	I _{AR}	Current decaying linearly to zero in 1 μ s Frequency limited by T_J maximum $V_A = 1.5 \times V_R$ typical		0.5	Α

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ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop	V _{FM} ⁽¹⁾	1 A	T _J = 25 °C	0.85	V
		2 A		0.96	
See fig. 1	V FM (*)	1 A	T _J = 125 °C	0.68	
		2 A		0.78	
Maximum reverse leakage current	I _{RM} ⁽¹⁾	T _J = 25 °C	V _R = Rated V _R	0.5	mA
See fig. 2	'RM \''	T _J = 125 °C		1.0	IIIA
Typical junction capacitance	C _T	$V_R = 5 V_{DC}$ (test signal range 100 kHz to 1 MHz) 25 °C		35	pF
Typical series inductance	L _S	Measured lead to lead 5 mm from package body		8.0	nΗ
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 ⁽¹⁾ , T _{Stg}		- 40 to 150	°C
Maximum thermal resistance, junction to ambient	R _{thJA}	DC operation Without cooling fin	100	°C/W
Typical thermal resistance, junction to lead	R _{thJL}	DC operation See fig. 4	81	C/VV
Approximate weight			0.33	g
Approximate weight			0.012	oz.
Marking device		Coop at the DO 201AL (DO 11)	11DQ09	
		Case style DO-204AL (DO-41)	11D	Q10

Note

$$^{(1)} \quad \frac{dP_{tot}}{dT_J} < \frac{1}{R_{thJA}} \quad \text{thermal runaway condition for a diode on its own heatsink}$$



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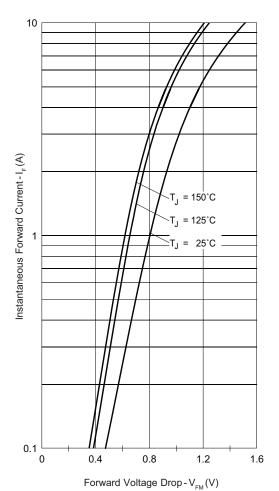


Fig. 1 - Maximum Forward Voltage Drop Characteristics

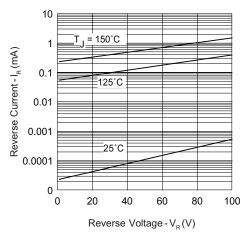


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

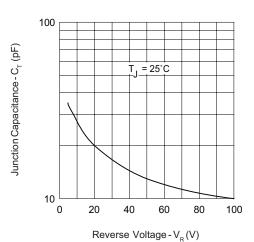


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

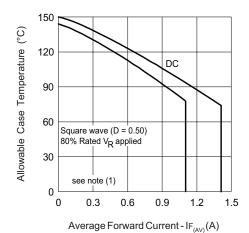


Fig. 4 - Maximum Ambient Temperature vs.
Average Forward Current

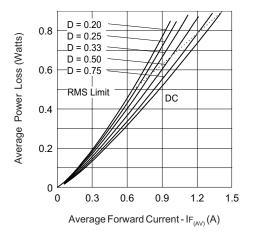


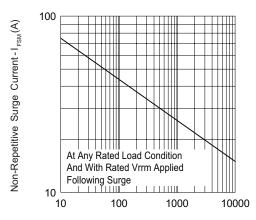
Fig. 5 - Forward Power Loss Characteristics

Note

(1) Formula used: $T_C = T_J - (Pd + Pd_{REV}) \times R_{thJC}$; $Pd = Forward power loss = I_{F(AV)} \times V_{FM}$ at $(I_{F(AV)}/D)$ (see fig. 6); $Pd_{REV} = Inverse power loss = V_{R1} \times I_R$ (1 - D); I_R at $V_{R1} = 80$ % rated V_R

Vishay High Power Products Schottky Rectifier, 1.1 A



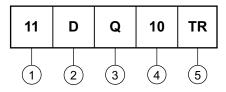


Square Wave Pulse Duration - t_p (microsec)

Fig. 6 - Maximum Non-Repetitive Surge Current

ORDERING INFORMATION TABLE

Device code



- 1 11 = 1.1 A (axial and small packages current is x 10)
- 2 D = DO-41 package
- 3 Q = Schottky Q.. series
- TR = Tape and reel package (5000 pcs)

None = Box package (1000 pcs)

LINKS TO RELATED DOCUMENTS			
Dimensions http://www.vishay.com/doc?95241			
Part marking information http://www.vishay.com/doc?95304			
Packaging information http://www.vishay.com/doc?95308			



Vishay

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