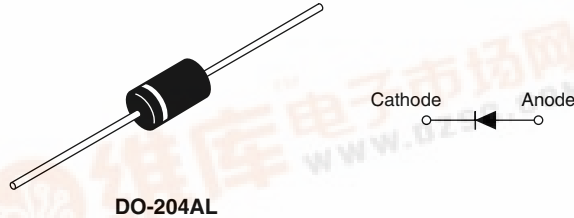




# 11DQ03, 11DQ04

Vishay High Power Products

## Schottky Rectifier, 1.1 A



### 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



RoHS  
COMPLIANT

### PRODUCT SUMMARY

$I_{F(AV)}$	1.1 A
$V_R$	30/40 V

### 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
$V_{RRM}$		30/40	V
$I_{FSM}$	$t_p = 5 \mu s$ sine	225	A
$V_F$	1 Apk, $T_J = 25^\circ C$	0.55	V
$T_J$	Range	- 40 to 150	$^\circ C$

### VOLTAGE RATINGS

PARAMETER	SYMBOL	11DQ03	11DQ04	UNITS
Maximum DC reverse voltage	$V_R$	30	40	V
Maximum working peak reverse voltage	$V_{RWM}$			

### ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum average forward current See fig. 4	$I_{F(AV)}$	50 % duty cycle at $T_C = 75^\circ C$ , rectangular waveform	1.1	A
Maximum peak one cycle non-repetitive surge current See fig. 6	$I_{FSM}$	5 $\mu s$ sine or 3 $\mu s$ rect. pulse	225	
		10 ms sine or 6 ms rect. pulse	35	
Non-repetitive avalanche energy	$E_{AS}$	$T_J = 25^\circ C$ , $I_{AS} = 1.0$ A, $L = 6$ mH	3.0	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



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ELECTRICAL SPECIFICATIONS						
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS	
Maximum forward voltage drop See fig. 1	V <sub>FM</sub> <sup>(1)</sup>	1 A	T <sub>J</sub> = 25 °C	0.55	V	
		2 A		0.71		
		1 A	T <sub>J</sub> = 125 °C	0.50		
		2 A		0.61		
Maximum reverse leakage current See fig. 2	I <sub>RM</sub> <sup>(1)</sup>	T <sub>J</sub> = 25 °C	V <sub>R</sub> = Rated V <sub>R</sub>	1.0	mA	
		T <sub>J</sub> = 125 °C		6.0		
Typical junction capacitance	C <sub>T</sub>	V <sub>R</sub> = 5 V <sub>DC</sub> (test signal range 100 kHz to 1 MHz) 25 °C		60	pF	
Typical series inductance	L <sub>S</sub>	Measured lead to lead 5 mm from package body		8.0	nH	
Maximum voltage rate of change	dV/dt	Rated V <sub>R</sub>		10 000	V/μs	

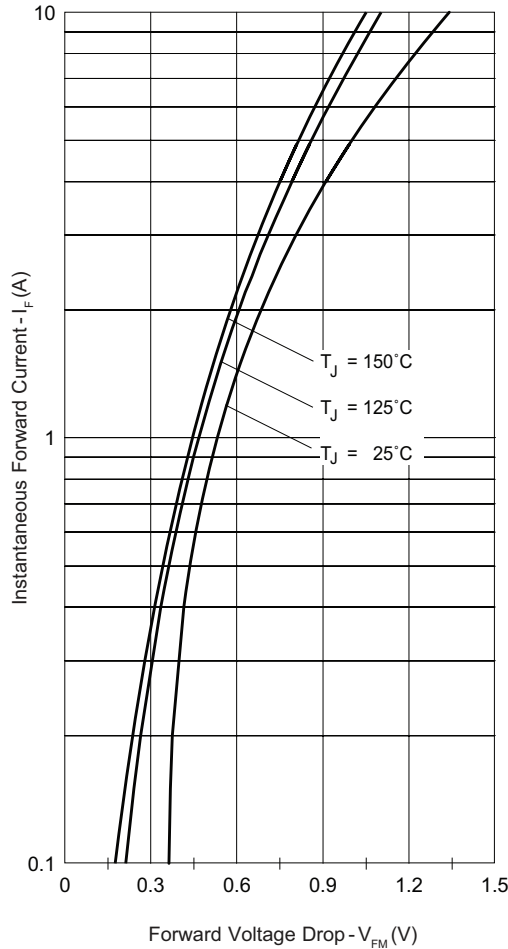
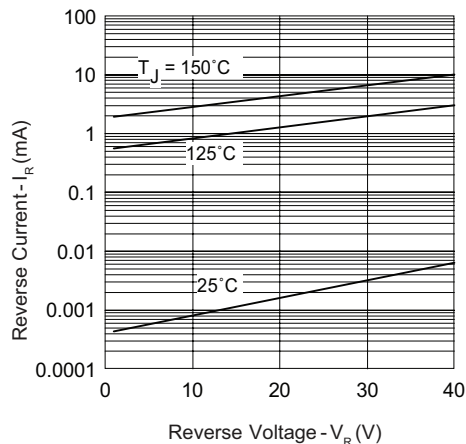
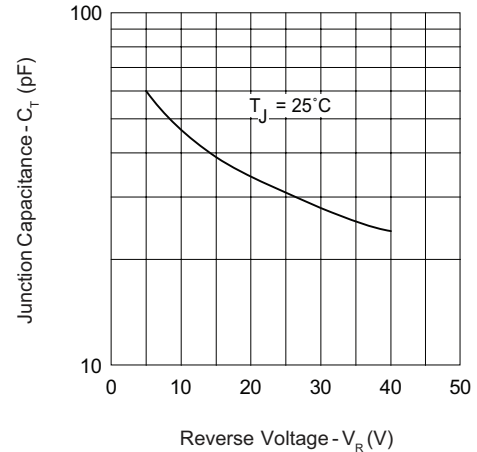
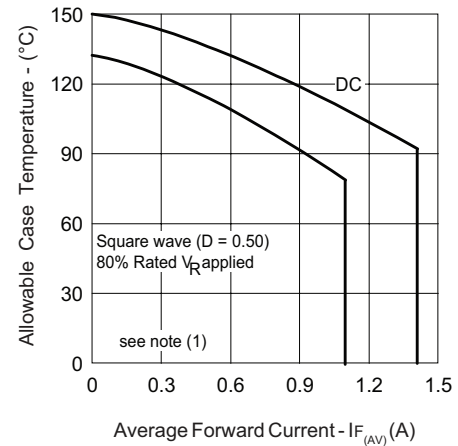
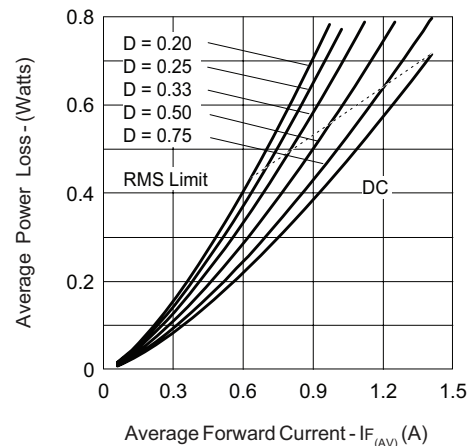
## Note

(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	$^{\circ}\text{C}$
Maximum thermal resistance, junction to ambient	$R_{thJA}$	DC operation Without cooling fin	100	$^{\circ}\text{C/W}$
Typical thermal resistance, junction to lead	$R_{thJL}$	DC operation See fig. 4	81	
Approximate weight			0.33	g
			0.012	oz.
Marking device		Case style DO-204AL (DO-41)	11DQ03	
			11DQ04	

## Note

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

**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 Allowable Case Temperature vs. Average Forward Current****Fig. 5 - Forward Power Loss Characteristics****Note**

(1) Formula used:  $T_C = T_J - (P_d + P_{dREV}) \times R_{thJC}$ ;

$P_d$  = Forward power loss =  $I_{F(AV)} \times V_{FM}$  at  $(I_{F(AV)}/D)$  (see fig. 6);  $P_{dREV}$  = Inverse power loss =  $V_{R1} \times I_R (1 - D)$ ;  $I_R$  at  $V_{R1} = 80\%$  rated  $V_R$

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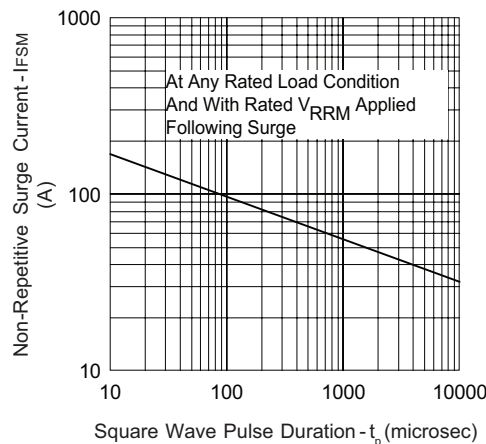


Fig. 6 - Maximum Non-Repetitive Surge Current

## ORDERING INFORMATION TABLE

Device code	11	D	Q	04	TR
	①	②	③	④	⑤
①	- 11 = 1.1 A (axial and small packages - current is x 10)				
②	- D = DO-41 package				
③	- Q = Schottky Q.. series				
④	- 04 = Voltage ratings				
⑤	- TR = Tape and reel package (5000 pcs)				
	None = Box package (1000 pcs)				

03 = 30 V
04 = 40 V

LINKS TO RELATED DOCUMENTS	
Dimensions	<a href="http://www.vishay.com/doc?95241">http://www.vishay.com/doc?95241</a>
Part marking information	<a href="http://www.vishay.com/doc?95304">http://www.vishay.com/doc?95304</a>
Packaging information	<a href="http://www.vishay.com/doc?95308">http://www.vishay.com/doc?95308</a>



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