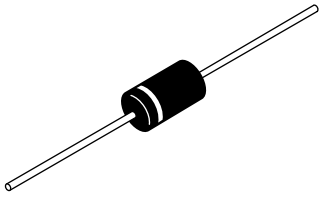
Schottky Rectifier, 2 A



DO-204AL

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	
$I_{F(AV)}$	2 A
V_R	60 V

DESCRIPTION

The 21DQ06 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	2	A
V_{RRM}		60	V
V_F	2 Apk, T_J = 125 °C	0.55	
T_J	Range	- 40 to 150	°C

VOLTAGE RATINGS			
PARAMETER	**SYMBOL**	**21DQ06**	**UNITS**
Maximum DC reverse voltage	V_R	60	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 = 106 °C, rectangular waveform		2	A
Maximum peak one cycle non-repetitive surge current See fig. 6	I_{FSM}	5 µs sine or 3 µs rect. pulse	Following any rated load condition and with rated V_{RRM} applied	340	
		10 ms sine or 6 ms rect. pulse		60	
Non-repetitive avalanche energy	E_{AS}	T_J = 25 °C, I_{AS} = 1 A, L = 8 mH		4.0	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		0.5	A

ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	TEST CONDITIONS		VALUES		UNITS
				TYP.	MAX.	
Maximum forward voltage drop	V_{FM} (1)	2 A	T_J = 25 °C	0.53	0.60	V
		4 A		0.67	0.75	
		2 A	T_J = 125 °C	0.49	0.55	
		4 A		0.61	0.67	
Maximum reverse leakage current	I_{RM} (1)	T_J = 25 °C	V_R = Rated V_R	0.02	0.50	mA
		T_J = 125 °C		7.0	10	
Typical junction capacitance	C_T	V_R = 5 V_{DC} (test signal range 100 kHz to 1 MHz) 25 °C		120		pF
Typical series inductance	L_S	Measured lead to lead 5 mm from package body		8.0		nH

Note

(1) Pulse width < 300 µs, 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	25	
Approximate weight			0.33	g
			0.012	oz.
Marking device		Case style DO-204AL (D-41)	21DQ06	

Note

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

For technical questions, contact: diodes-tech@vishay.com
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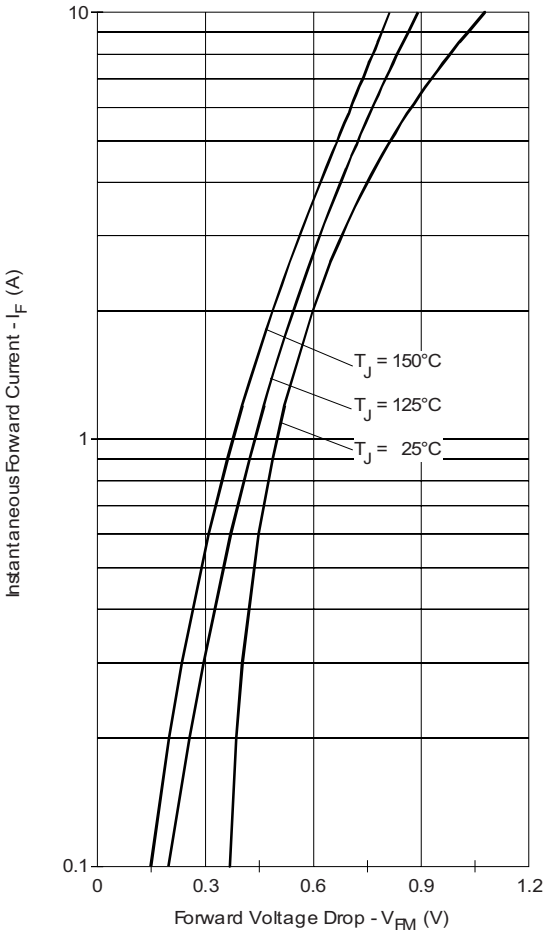

Fig. 1 - Maximum Forward Voltage Drop Characteristics

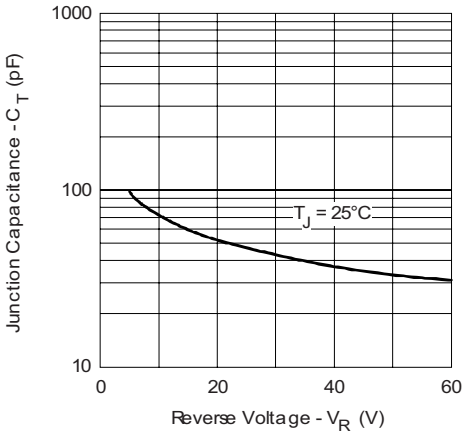

Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

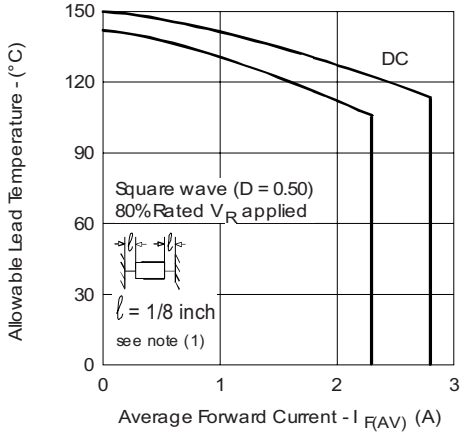

Fig. 4 - Maximum Allowable Lead Temperature vs. Average Forward Current

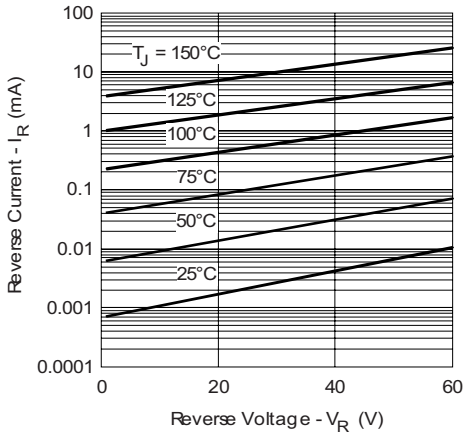

Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

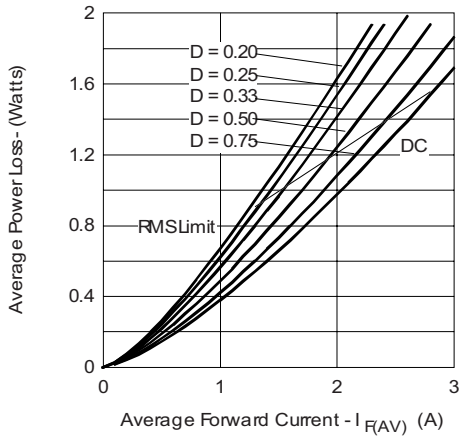

Fig. 5 - Forward Power Loss Characteristics

Note

(1) Formula used: $T_L = T_J - (Pd + Pd_{REV}) \times R_{thJL}$;
Pd = Forward power loss = $I_{F(AV)} \times V_{FM}$ at ($I_{F(AV)}$/D) (see fig. 5); Pd_{REV} = Inverse power loss = $V_{R1} \times I_R$ (1 - D); I_R at V_{R1} = 80 % rated V_R

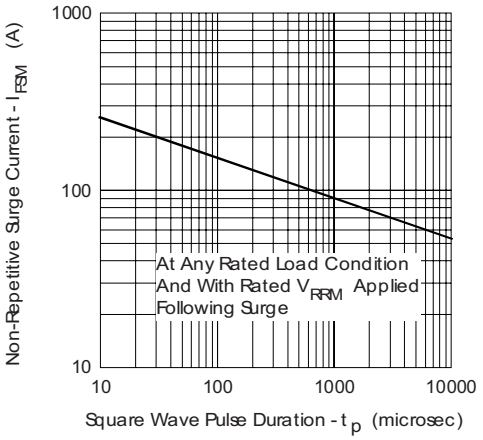

Fig. 6 - Maximum Non-Repetitive Surge Current

ORDERING INFORMATION TABLE

Device code

21	D	Q	06	TR
1	2	3	4	5

1 - 21 = 2.1 A (axial and small packages - current is x 10)

2 - D = DO-41 package

3 - Q = Schottky Q.. series

4 - 06 = Voltage rating: 60 V

5 -
- TR = Tape and reel package (5000 pcs)
- TB = Tape and box package (ammunition - 3000 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

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