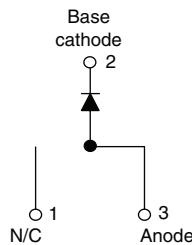


Schottky Rectifier, 8 A


 D²PAK


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 ("PbF" suffix)
- Designed and qualified for Q101 level


 RoHS*
COMPLIANT

PRODUCT SUMMARY

I _{F(AV)}	8 A
V _R	80/100 V

DESCRIPTION

The 8TQ... 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	8	A
V _{RRM}	Range	80/100	V
I _{FSM}	t _p = 5 µs sine	850	A
V _F	8 Apk, T _J = 125 °C	0.58	V
T _J	Range	- 55 to 175	°C

VOLTAGE RATINGS

PARAMETER	SYMBOL	8TQ080SPbF	8TQ100SPbF	UNITS
Maximum DC reverse voltage	V _R			
Maximum working peak reverse voltage	V _{RWM}	80	100	V

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 = 157 °C, rectangular waveform	8	A
Maximum peak one cycle non-repetitive surge current See fig. 7	I _{FSM}	5 µs sine or 3 µs rect. pulse	850	A
		10 ms sine or 6 ms rect. pulse	230	
Non-repetitive avalanche energy	E _{AS}	T _J = 25 °C, I _{AS} = 0.50 A, L = 60 mH	7.50	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	0.50	A

* Pb containing terminations are not RoHS compliant, exemptions may apply

8TQ...SPbF Series

Vishay High Power Products Schottky Rectifier, 8 A



ELECTRICAL SPECIFICATIONS

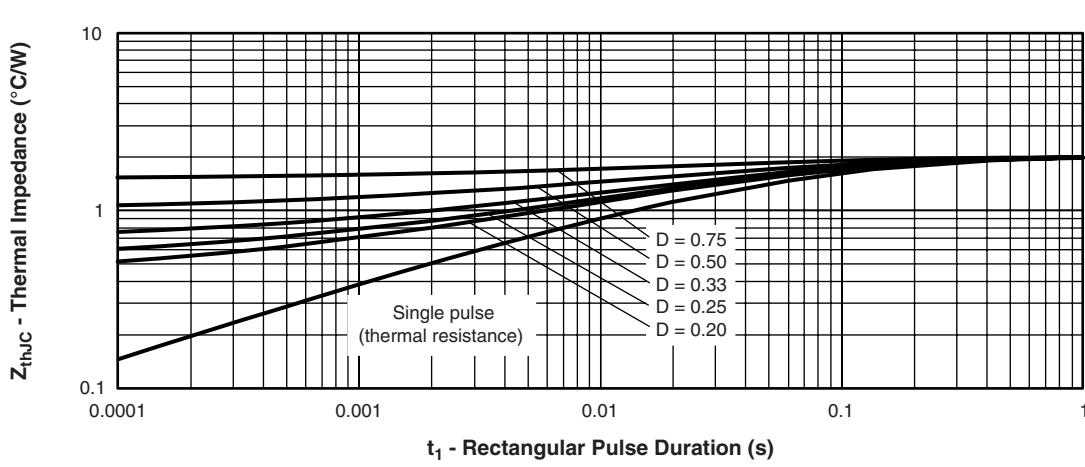
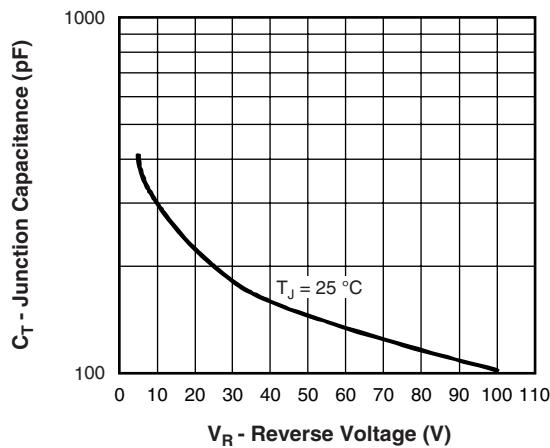
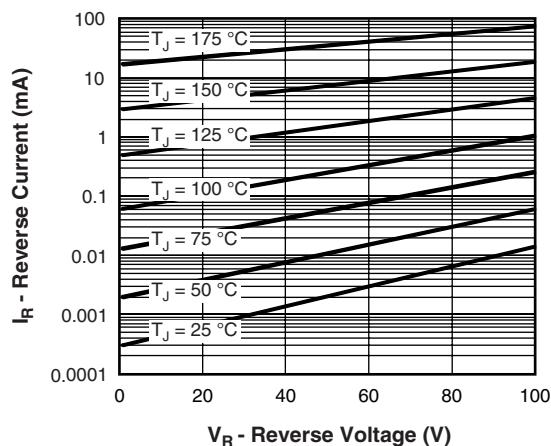
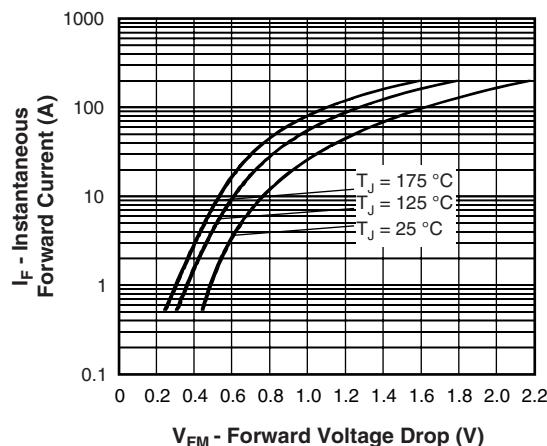
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS	
Maximum forward voltage drop See fig. 1	V_{FM} (1)	8 A	$T_J = 25 \text{ }^\circ\text{C}$	0.72	V	
		16 A		0.88		
		8 A	$T_J = 125 \text{ }^\circ\text{C}$	0.58		
		16 A		0.69		
Maximum reverse leakage current See fig. 2	I_{RM} (1)	$T_J = 25 \text{ }^\circ\text{C}$	$V_R = \text{Rated } V_R$	0.55	mA	
		$T_J = 125 \text{ }^\circ\text{C}$		7		
Maximum junction capacitance	C_T	$V_R = 5 \text{ V}_{\text{DC}}$ (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 package body		8	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 case	R_{thJC}	DC operation See fig. 4		2.0	$^\circ\text{C}/\text{W}$
Typical thermal resistance, case to heatsink	R_{thCS}	Mounting surface, smooth and greased		0.50	
Approximate weight				2	g
				0.07	oz.
Mounting torque	minimum			6 (5)	$\text{k}\text{gf} \cdot \text{cm}$ (lbf · in)
	maximum			12 (10)	
Marking device		Case style D ² PAK		8TQ100S	



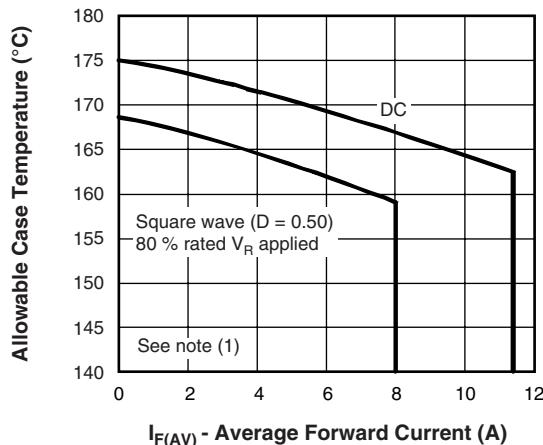


Fig. 5 - Maximum Allowable Case Temperature vs.
Average Forward Current

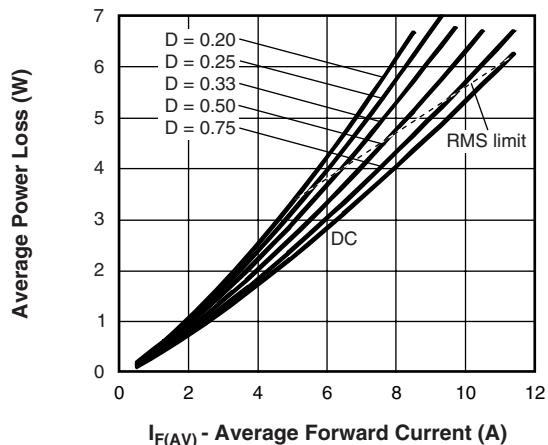


Fig. 6 - Forward Power Loss Characteristics

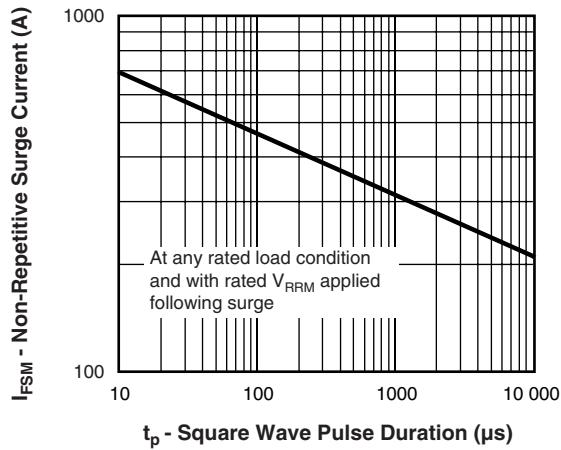


Fig. 7 - Maximum Non-Repetitive Surge Current

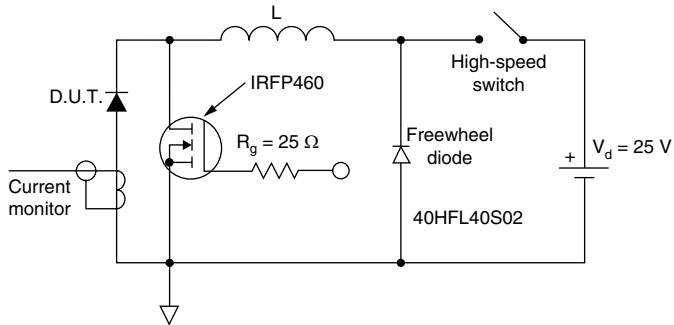


Fig. 8 - Unclamped Inductive Test Circuit

Note

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

ORDERING INFORMATION TABLE

Device code	8	T	Q	100	S	TRL	PbF
	1	2	3	4	5	6	7

- 1** - Current rating (8 A)
- 2** - Circuit configuration:
T = TO-220
- 3** - Schottky "Q" series
- 4** - Voltage ratings
 - 080 = 80 V
 - 100 = 100 V
- 5** - • S = D²PAK
- 6** - • None = Tube (50 pieces)
 - TRL = Tape and reel (left oriented)
 - TRR = Tape and reel (right oriented)
- 7** - • None = Standard production
 - PbF = Lead (Pb)-free

LINKS TO RELATED DOCUMENTS	
Dimensions	http://www.vishay.com/doc?95046
Part marking information	http://www.vishay.com/doc?95054
Packaging information	http://www.vishay.com/doc?95032
SPICE models	http://www.vishay.com/doc?95291



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