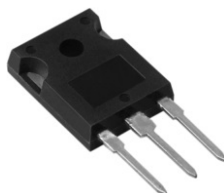
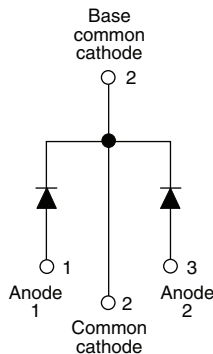


Schottky Rectifier, 2 x 20 A



TO-247AC



FEATURES

- 175 °C T_J operation
- Center tap TO-247 package
- 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 industrial level



RoHS*
COMPLIANT

PRODUCT SUMMARY

$I_{F(AV)}$	2 x 20 A
V_R	80/100 V

DESCRIPTION

The 40CPQ...PbF center tap Schottky rectifier 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	40	A
V_{RRM}		80/100	V
I_{FSM}	$t_p = 5 \mu s$ sine	2950	A
V_F	20 Apk, $T_J = 125^\circ C$ (per leg)	0.61	V
T_J		- 55 to 175	°C

VOLTAGE RATINGS

PARAMETER	SYMBOL	40CPQ080PbF	40CPQ100PbF	UNITS
Maximum DC reverse voltage	V_R	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 = 145 °C, rectangular waveform		40	A
Maximum peak one cycle non-repetitive surge current per leg See fig. 7	I _{FSM}	5 μs sine or 3 μs rect. pulse	Following any rated load condition and with rated V _{RRM} applied	2950	
		10 ms sine or 6 ms rect. pulse		300	
Non-repetitive avalanche energy per leg	E _{AS}	T _J = 25 °C, I _{AS} = 2 A, L = 5.6 mH		11.25	mJ
Repetitive avalanche current per leg	I _{AR}	Current decaying linearly to zero in 1 μs Frequency limited by T _J maximum V _A = 1.5 x V _R typical		0.75	A

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

ELECTRICAL SPECIFICATIONS						
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS	
Maximum forward voltage drop per leg See fig. 1	V _{FM} ⁽¹⁾	20 A	T _J = 25 °C	0.77	V	
		40 A		0.91		
		20 A	T _J = 125 °C	0.61		0.75
		40 A				
Maximum reverse leakage current per leg See fig. 2	I _{RM} ⁽¹⁾	T _J = 25 °C	V _R = Rated V _R	1.25	mA	
		T _J = 125 °C		15		
Maximum junction capacitance per leg	C _T	V _R = 5 V _{DC} (test signal range 100 kHz to 1 MHz) 25 °C		600	pF	
Typical series inductance per leg	L _S	Measured lead to lead 5 mm from package body		7.5	nH	
Maximum voltage rate of change	dV/dt	Rated V _R		10 000	V/μs	

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	°C
Maximum thermal resistance, junction to case per leg		R _{thJC}	DC operation See fig. 4	1.25	°C/W
Maximum thermal resistance, junction to case per package			DC operation	0.63	
Typical thermal resistance, case to heatsink		R _{thCS}	Mounting surface, smooth and greased	0.24	
Approximate weight				6	g
				0.21	oz.
Mounting torque	minimum		Non-lubricated threads	6 (5)	kgf · cm (lbf · in)
	maximum			12 (10)	
Marking device			Case style TO-247AC (JEDEC)	40CPQ080	
				40CPQ100	



40CPQ080PbF/40CPQ100PbF

Schottky Rectifier, 2 x 20 A Vishay High Power Products

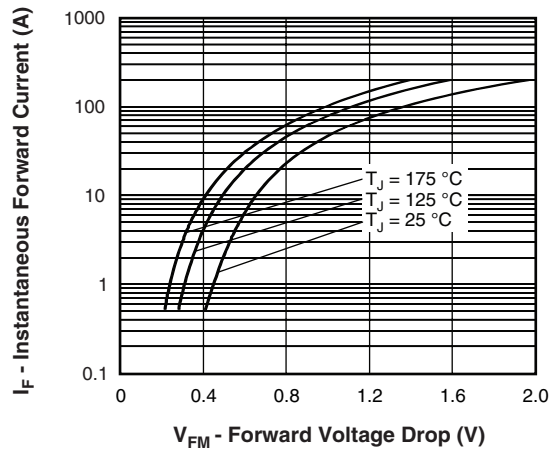


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

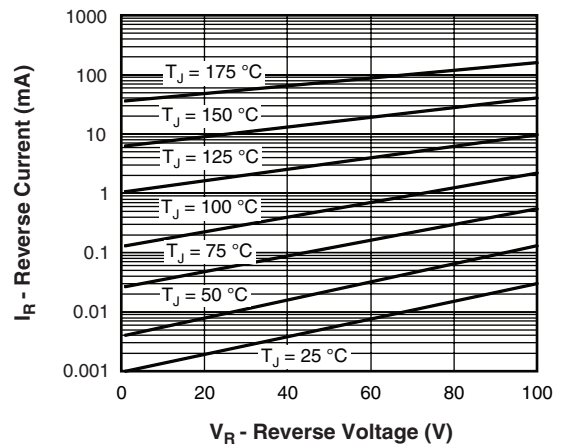


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

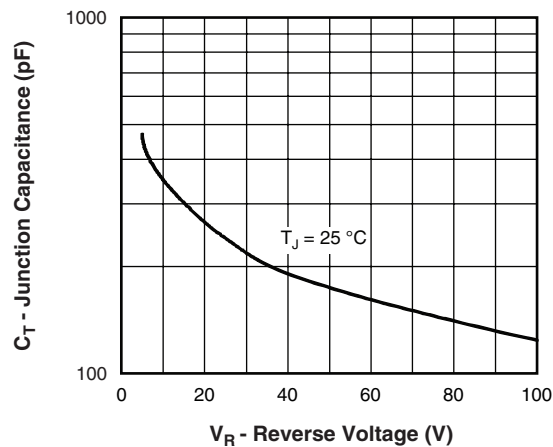


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

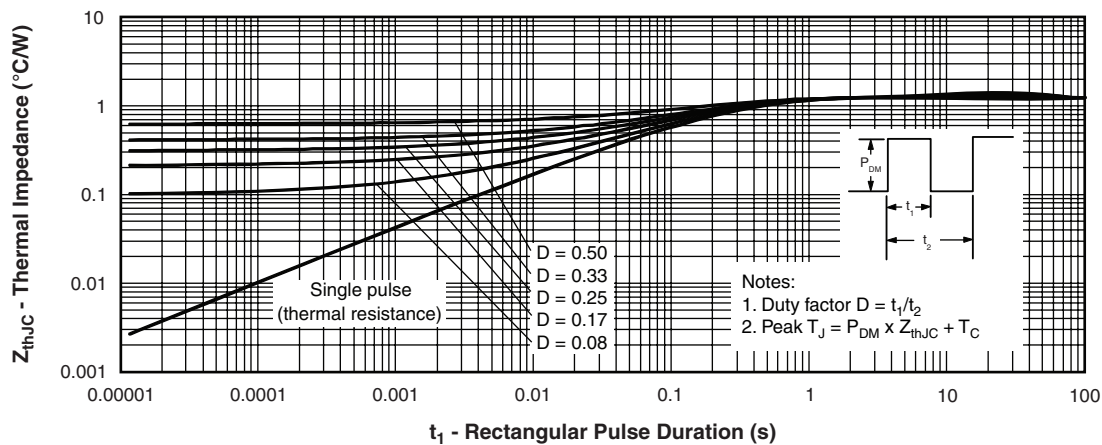


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics (Per Leg)

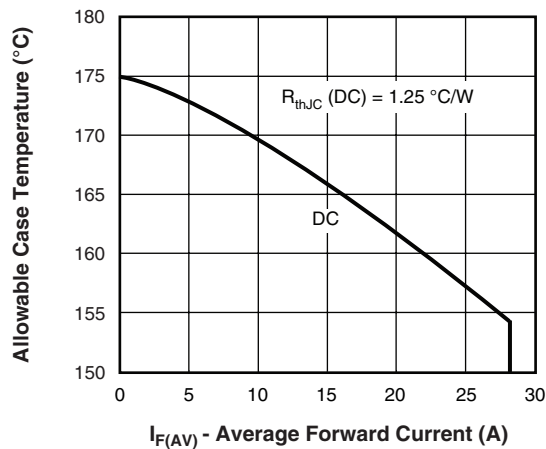


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current (Per Leg)

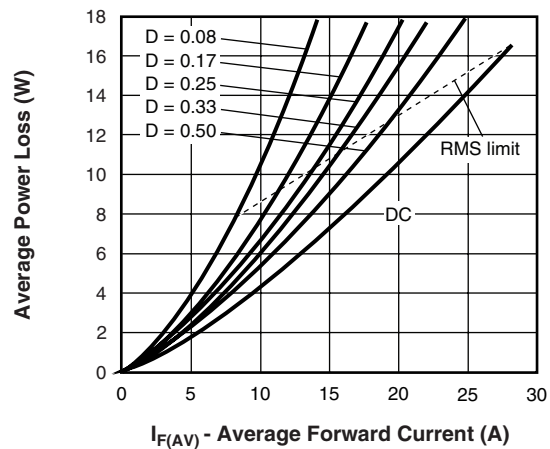


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

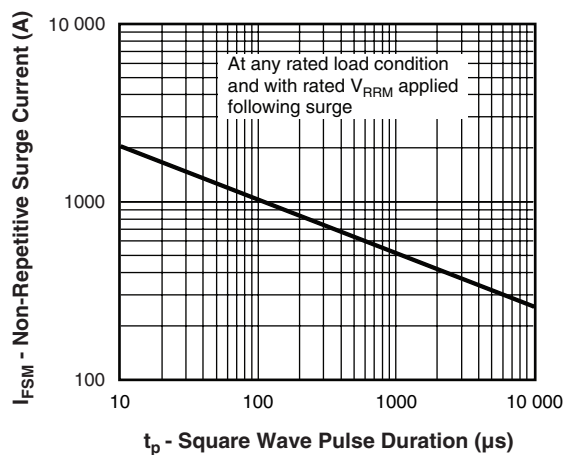


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)



Fig. 8 - Unclamped Inductive Test Circuit



ORDERING INFORMATION TABLE

Device code	40	C	P	Q	100	PbF
	1	2	3	4	5	6
	1	-	-	-	-	-
	2	-	-	-	-	-
	3	-	-	-	-	-
	4	-	-	-	-	-
	5	-	-	-	-	-
	6	-	-	-	-	-

1

-

Current rating (40 = 40 A)

2

-

Circuit configuration:
C = Common cathode

3

-

Package:
P = TO-247

4

-

Schottky "Q" series

5

-

Voltage code

6

-

• None = Standard production
• PbF = Lead (Pb)-free

080 = 80 V
100 = 100 V

Tube standard pack quantity: 25 pieces

LINKS TO RELATED DOCUMENTS	
Dimensions	http://www.vishay.com/doc?95223
Part marking information	http://www.vishay.com/doc?95226



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