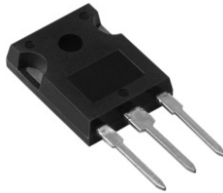
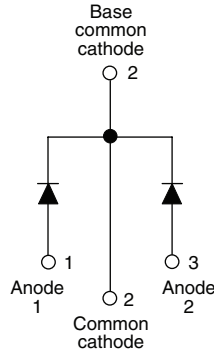


Schottky Rectifier, 2 x 20 A



TO-247AC



FEATURES

- 150 °C T_J operation
- Center tap TO-247 package
- Very 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	50/60 V

DESCRIPTION

The 40CPQ...PbF center tap Schottky rectifier has been optimized for very low forward voltage drop with moderate leakage. The proprietary barrier technology allows for reliable operation up to 150 °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}		50/60	V
I_{FSM}	$t_p = 5 \mu s$ sine	3200	A
V_F	20 Apk, $T_J = 125 \text{ }^\circ\text{C}$ (per leg)	0.49	V
T_J		- 55 to 150	$^\circ\text{C}$

VOLTAGE RATINGS

PARAMETER	SYMBOL	40CPQ050PbF	40CPQ060PbF	UNITS
Maximum DC reverse voltage	V_R	50	60	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 $T_C = 120 \text{ }^\circ\text{C}$, 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	3200	
		10 ms sine or 6 ms rect. pulse	320	
Non-repetitive avalanche energy per leg	E_{AS}	$T_J = 25 \text{ }^\circ\text{C}$, $I_{AS} = 2 \text{ A}$, $L = 9.0 \text{ mH}$	18	mJ
Repetitive avalanche current per leg	I_{AR}	Current decaying linearly to zero in 1 μs Frequency limited by T_J maximum $V_A = 1.5 \times V_R$ typical	2	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	$T_J = 25\text{ }^\circ\text{C}$	0.53	V
		40 A		0.68	
		20 A	$T_J = 125\text{ }^\circ\text{C}$	0.49	
		40 A		0.64	
Maximum reverse leakage current per leg See fig. 2	$I_{RM}^{(1)}$	$T_J = 25\text{ }^\circ\text{C}$	$V_R = \text{Rated } V_R$	1.7	mA
		$T_J = 125\text{ }^\circ\text{C}$		96	
Maximum junction capacitance per leg	C_T	$V_R = 5\text{ }V_{DC}$ (test signal range 100 kHz to 1 MHz) $25\text{ }^\circ\text{C}$		1600	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/ 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 150	$^\circ\text{C}$
Maximum thermal resistance, junction to case per leg	R_{thJC}	DC operation See fig. 4		1.25	$^\circ\text{C/W}$
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)	40CPQ050	
				40CPQ060	

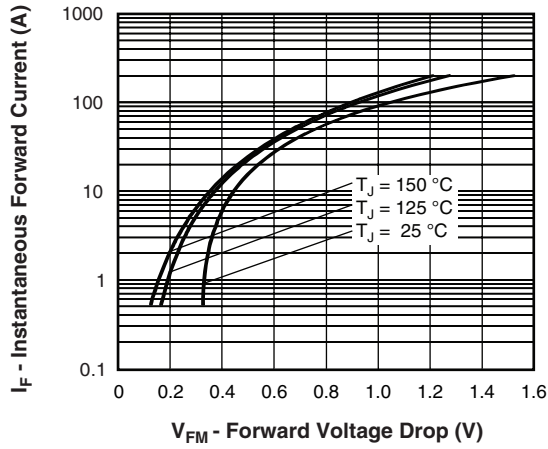


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

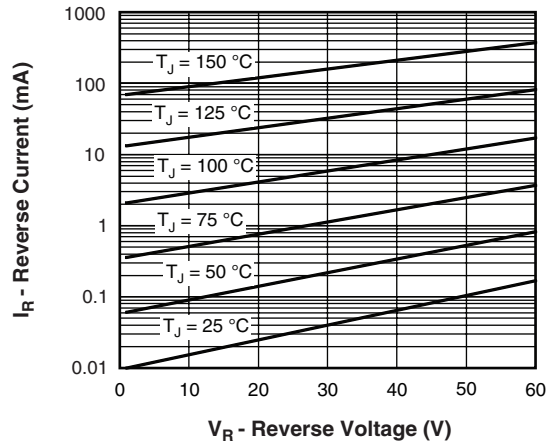


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

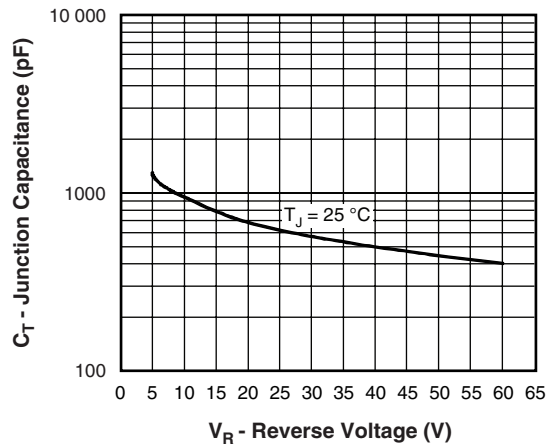


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

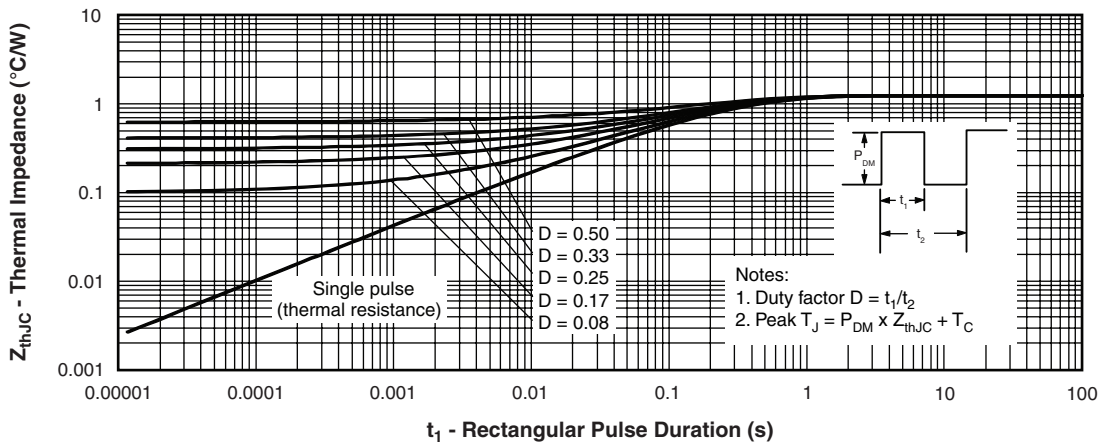


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics (Per Leg)

40CPQ050PbF/40CPQ060PbF



Vishay High Power Products Schottky Rectifier, 2 x 20 A

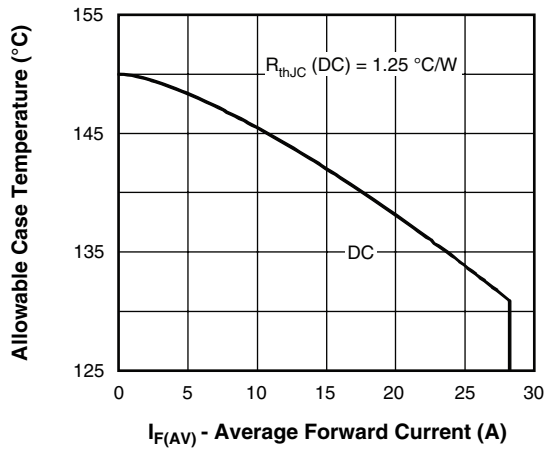


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current (Per Leg)

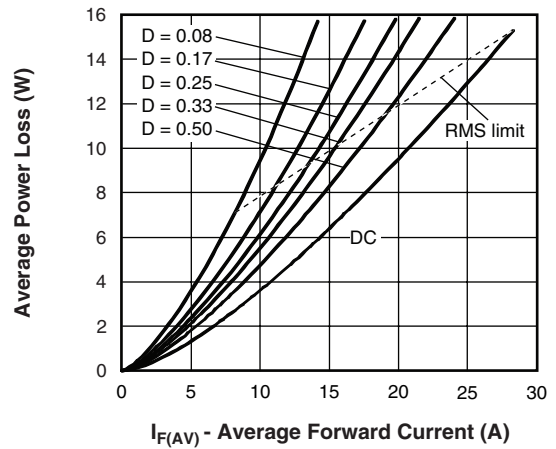


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

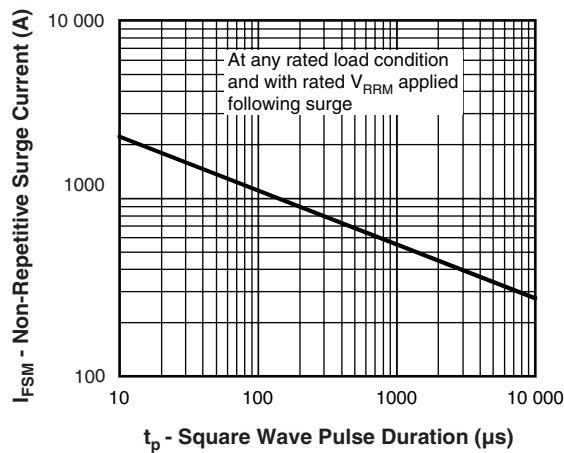


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)



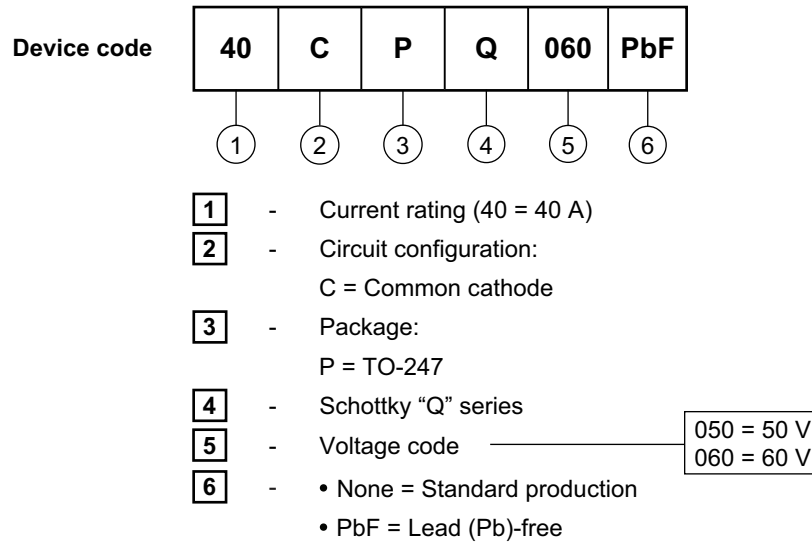
Fig. 8 - Unclamped Inductive Test Circuit



40CPQ050PbF/40CPQ060PbF

Schottky Rectifier, 2 x 20 A Vishay High Power Products

ORDERING INFORMATION TABLE



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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