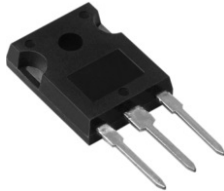
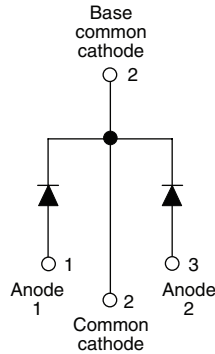


## Schottky Rectifier, 2 x 15 A



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 15 A
$V_R$	35 to 45 V

### DESCRIPTION

The 30CPQ...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	30	A
$V_{RRM}$		35 to 45	V
$I_{FSM}$	$t_p = 5 \mu s$ sine	1020	A
$V_F$	15 Apk, $T_J = 125^\circ C$ (per leg)	0.50	V
$T_J$		- 55 to 150	°C

### VOLTAGE RATINGS

PARAMETER	SYMBOL	30CPQ035PbF	30CPQ040PbF	30CPQ045PbF	UNITS
Maximum DC reverse voltage	$V_R$	35	40	45	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 $T_C = 124^\circ C$ , rectangular waveform	30	A
Maximum peak one cycle non-repetitive surge current per leg See fig. 7	$I_{FSM}$	5 $\mu s$ sine or 3 $\mu s$ rect. pulse	1020	
		10 ms sine or 6 ms rect. pulse	265	
Non-repetitive avalanche energy per leg	$E_{AS}$	$T_J = 25^\circ C$ , $I_{AS} = 3 A$ , $L = 4.4 mH$	20	mJ
Repetitive avalanche current per leg	$I_{AR}$	Current decaying linearly to zero in 1 $\mu s$ Frequency limited by $T_J$ maximum $V_A = 1.5 \times V_R$ typical	3	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	$V_{FM}^{(1)}$	15 A	$T_J = 25\text{ }^\circ\text{C}$	0.54	V
		30 A		0.68	
		15 A	$T_J = 125\text{ }^\circ\text{C}$	0.50	
		30 A		0.64	
Maximum reverse leakage current per leg See fig. 2	$I_{RM}^{(1)}$	$T_J = 25\text{ }^\circ\text{C}$	$V_R = \text{Rated } V_R$	1.75	mA
		$T_J = 125\text{ }^\circ\text{C}$		70	
Maximum junction capacitance per leg	$C_T$	$V_R = 5\text{ }V_{DC}$ (test signal range 100 kHz to 1 MHz) $25\text{ }^\circ\text{C}$		900	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/ $\mu$ s

### 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	$T_J, T_{Stg}$			- 55 to 150	$^\circ\text{C}$
Maximum thermal resistance, junction to case per leg	$R_{thJC}$	DC operation See fig. 4		2.20	$^\circ\text{C/W}$
Maximum thermal resistance, junction to case per package		DC operation		1.10	
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)		30CPQ035	
				30CPQ040	
				30CPQ045	



# 30CPQ035PbF/30CPQ040PbF/30CPQ045PbF

Schottky Rectifier, 2 x 15 A Vishay High Power Products

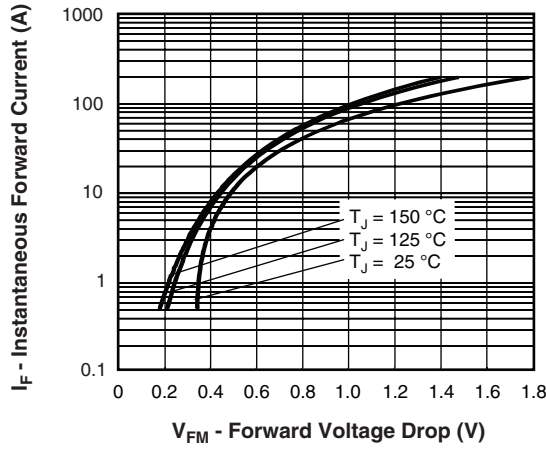


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

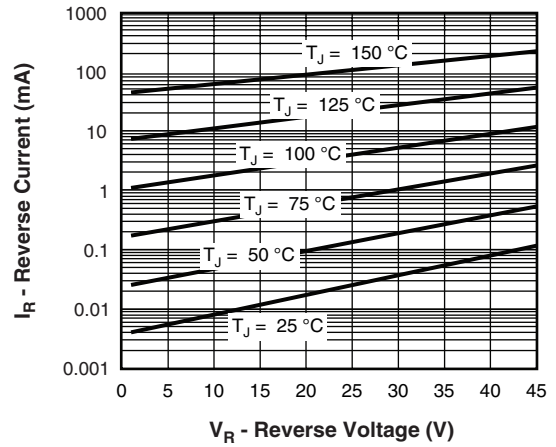


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

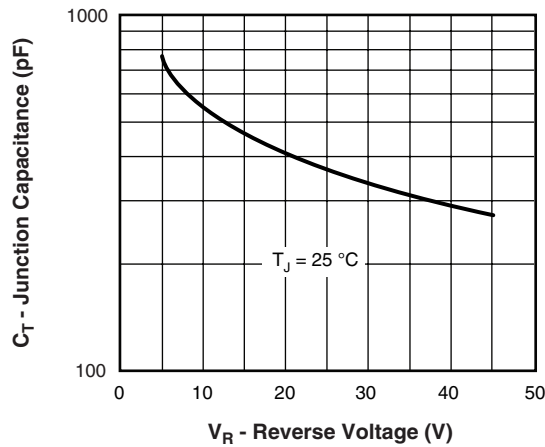


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

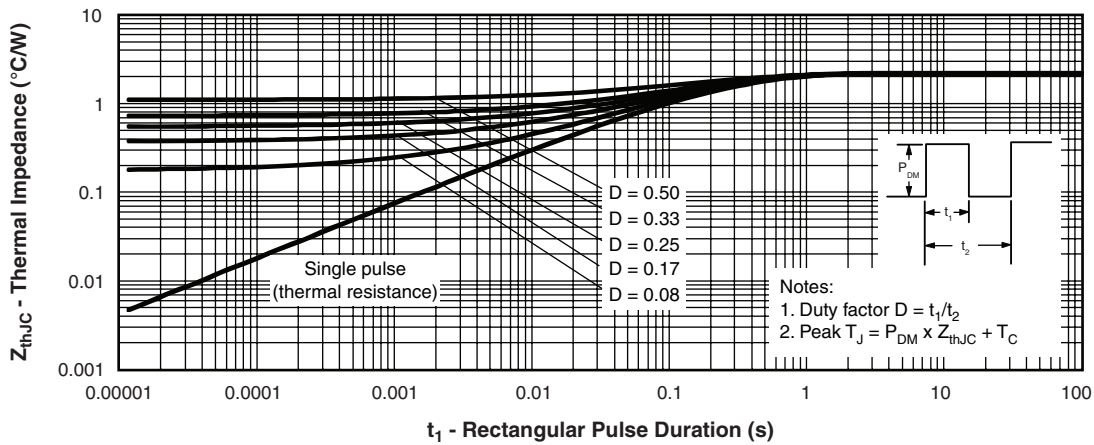


Fig. 4 - Maximum Thermal Impedance  $Z_{thJC}$  Characteristics (Per Leg)

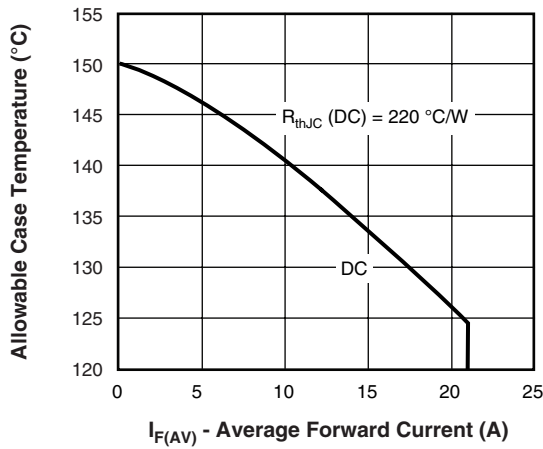


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current (Per Leg)

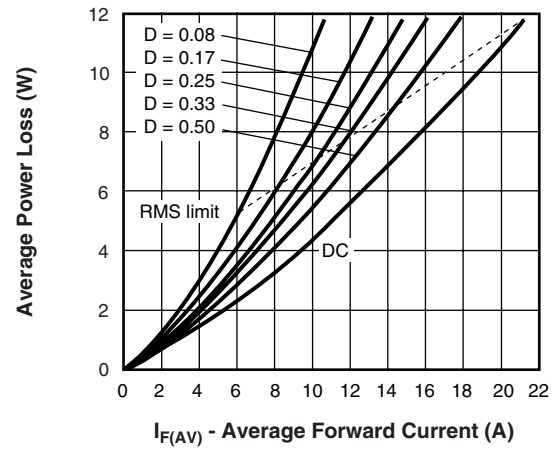


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

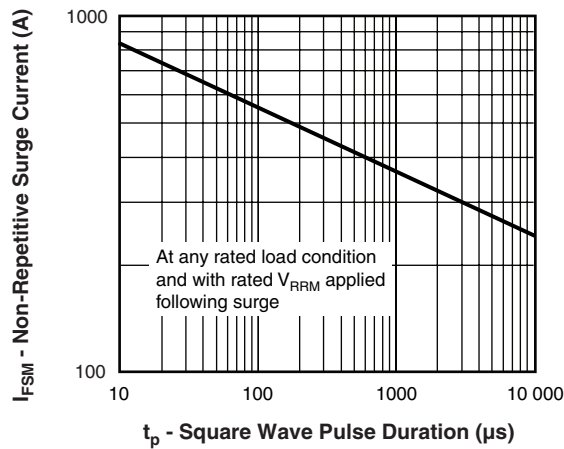


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)



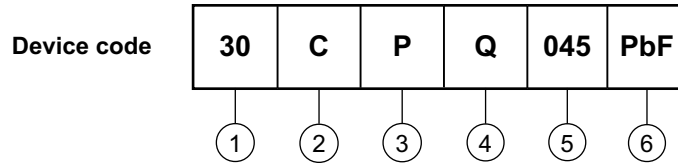
Fig. 8 - Unclamped Inductive Test Circuit



# 30CPQ035PbF/30CPQ040PbF/30CPQ045PbF

Schottky Rectifier, 2 x 15 A Vishay High Power Products

## ORDERING INFORMATION TABLE



**1** - Current rating (30 = 30 A)

**2** - Circuit configuration:  
C = Common cathode

**3** - Package:  
P = TO-247

**4** - Schottky "Q" series

**5** - Voltage code

035 = 35 V
040 = 40 V
045 = 45 V

**6** -  
• None = Standard production  
• PbF = Lead (Pb)-free

Tube standard pack quantity: 25 pieces

### LINKS TO RELATED DOCUMENTS

Dimensions	<a href="http://www.vishay.com/doc?95223">http://www.vishay.com/doc?95223</a>
Part marking information	<a href="http://www.vishay.com/doc?95226">http://www.vishay.com/doc?95226</a>



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