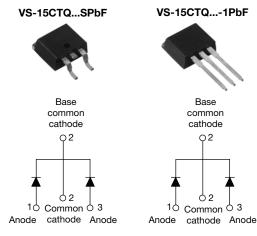


Vishay High Power Products

Schottky Rectifier, 2 x 7.5 A



D²PAK

TO-262

PRODUCT SUMMARY				
I _{F(AV)}	2 x 7.5 A			
V _R	35 V to 45 V			

FEATURES

- 150 °C T_J operation
- Center tap TO-220 package
- Low forward voltage drop
- High frequency operation
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance



FREE

- Guard ring for enhanced ruggedness and long term reliability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Halogen-free according to IEC 61249-2-21 definition
- Compliant to RoHS directive 2002/95/EC
- AEC-Q101 qualified

DESCRIPTION

The VS-15CTQ... center tap Schottky rectifier series 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	15	А			
V _{RRM}	Range	35 to 45	V			
I _{FSM}	$t_p = 5 \ \mu s \ sine$	810	A			
V _F	7.5 Apk, $T_J = 125 \text{ °C}$ (per leg)	0.51	V			
TJ	Range	- 55 to 150	°C			

VOLTAGE RATINGS					
PARAMETER	SYMBOL	VS-15CTQ035SPbF VS-15CTQ035-1PbF	VS-15CTQ040SPbF VS-15CTQ040-1PbF	VS-15CTQ045SPbF VS-15CTQ045-1PbF	UNITS
Maximum DC reverse voltage	V _R	35	40	45	V
Maximum working peak reverse voltage	V _{RWM}	33			

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 = 123 °C, rectangular waveform 15		А	
Maximum peak one cycle IFSM non-repetitive surge current per leg IFSM See fig. 7 IFSM		5 µs sine or 3 µs rect. pulse	Following any rated load condition and with rated	810	А
	10 ms sine or 6 ms rect. pulse		145	~	
Non-repetitive avalanche energy per leg	E _{AS}	T _J = 25 °C, I _{AS} = 1.20 A, L = 11.10 mH 10 m		mJ	
Repetitive avalanche current per leg	I _{AR}	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$		А	

VS-15CTQ...SPbF, VS-15CTQ...-1PbF Series

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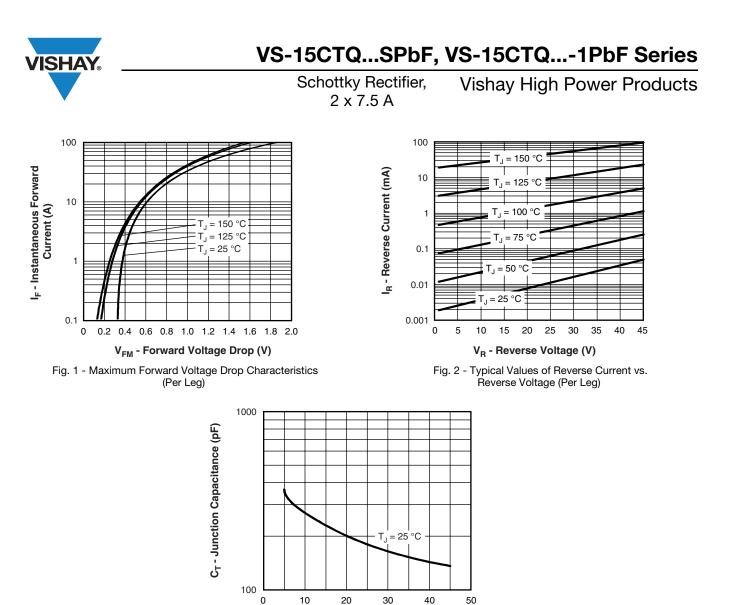


ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
	V _{FM} ⁽¹⁾	7.5 A	• T _J = 25 °C	0.55	V
Maximum forward voltage drop per leg		15 A		0.70	
See fig. 1		7.5 A	• T _J = 125 °C	0.51	
		15 A		0.65	
Maximum reverse leakage current per leg	I _{RM} ⁽¹⁾	T _J = 25 °C	V Deted V	0.8	mA
See fig. 2	IRM (*)	T _J = 125 °C	V _R = Rated V _R	32	
Maximum junction capacitance per leg	CT	V_R = 5 V_{DC} (test signal range 100 kHz to 1 MHz), 25 °C		400	pF
Typical series inductance per leg	L _S	Measured lead to lead 5 mm from package body 8.0		nH	
Maximum voltage rate of change	dV/dt	Rated V _R 10 000 V/µs		V/µs	

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	°C
Maximum thermal resistance, junction to case per leg		Р	DC operation See fig. 4	3.50	
Maximum thermal resistance, junction to case per package		R _{thJC}	DC operation	1.75	°C/W
Typical thermal resistance, case to heatsink		R _{thCS} Mounting surface, smooth and greased 0.50		0.50	
Approximate weight				2	g
				0.07	oz.
	minimum			6 (5)	kgf · cm
Mounting torque maximum				12 (10)	(lbf · in)
Marking device			Case style D ² PAK		Q045S
			Case style TO-262	15CTC	2045-1



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

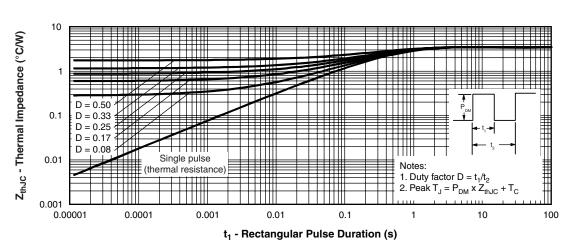
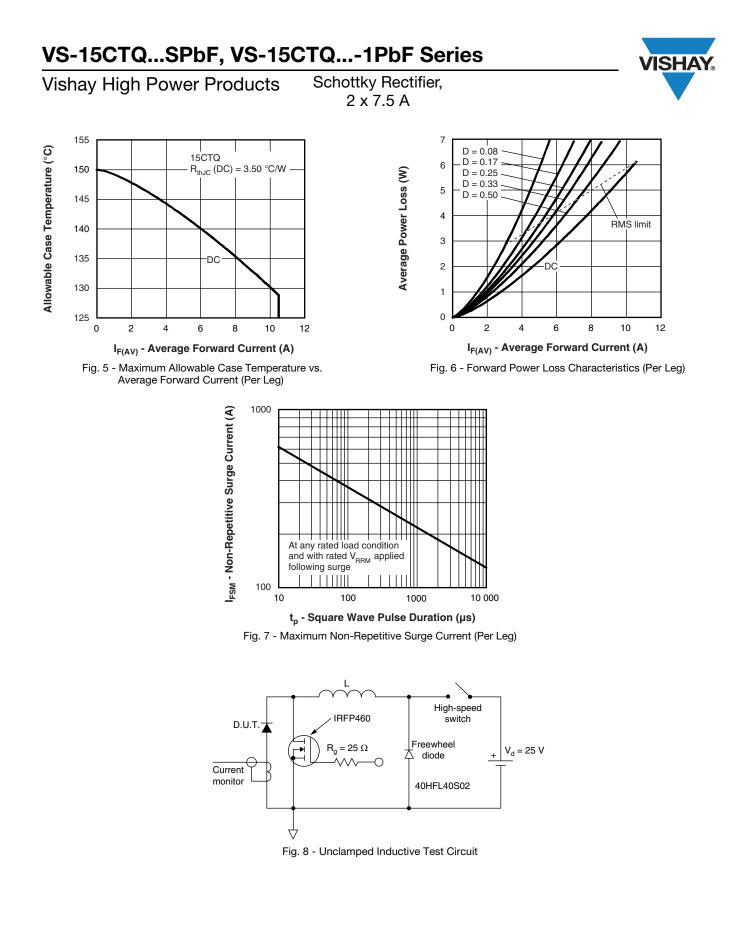


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics (Per Leg)



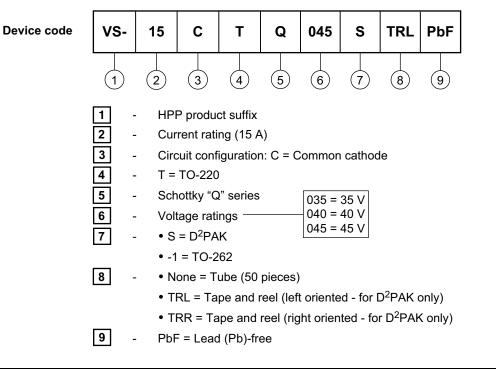


VS-15CTQ...SPbF, VS-15CTQ...-1PbF Series

Schottky Rectifier, 2 x 7.5 A

Vishay High Power Products

ORDERING INFORMATION TABLE



LINKS TO RELATED DOCUMENTS					
Dimensions	www.vishay.com/doc?95014				
Part marking information	www.vishay.com/doc?95008				
Packaging information	www.vishay.com/doc?95032				



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