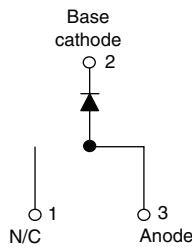


## Schottky Rectifier, 19 A


**D<sup>2</sup>PAK**


### FEATURES

- 125 °C  $T_J$  operation ( $V_R < 5$  V)
- Optimized for OR-ing applications
- Ultra low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Designed and qualified for Q101 level

### DESCRIPTION

The 19TQ015.. Schottky rectifier has been optimized for ultra low forward voltage drop specifically for the OR-ing of parallel power supplies. The proprietary barrier technology allows for reliable operation up to 125 °C junction temperature. Typical applications are in parallel switching power supplies, converters, reverse battery protection, and redundant power subsystems.

### PRODUCT SUMMARY

$I_{F(AV)}$	19 A
$V_R$	15 V

### MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$	Rectangular waveform	19	A
$V_{RRM}$		15	V
$I_{FSM}$	$t_p = 5 \mu s$ sine	700	A
$V_F$	19 Apk, $T_J = 75$ °C	0.32	V
$T_J$	Range	- 55 to 125	°C

### VOLTAGE RATINGS

PARAMETER	SYMBOL	19TQ015S	UNITS
Maximum DC reverse voltage	$V_R$	15	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 $T_C = 80$ °C, rectangular waveform	19	A
Maximum peak one cycle non-repetitive surge current See fig. 7	$I_{FSM}$	5 $\mu s$ sine or 3 $\mu s$ rect. pulse	700	A
		10 ms sine or 6 ms rect. pulse	330	
Non-repetitive avalanche energy	$E_{AS}$	$T_J = 25$ °C, $I_{AS} = 1.50$ A, $L = 6$ mH		6.75 mJ
Repetitive avalanche current	$I_{AR}$	Current decaying linearly to zero in 1 $\mu s$ Frequency limited by $T_J$ maximum $V_A = 3 \times V_R$ typical	1.50	A

**ELECTRICAL SPECIFICATIONS**

PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS	
Maximum forward voltage drop See fig. 1	V <sub>FM</sub> <sup>(1)</sup>	19 A	T <sub>J</sub> = 25 °C	0.36	V	
		38 A		0.46		
		19 A	T <sub>J</sub> = 75 °C	0.32		
		38 A		0.43		
Maximum reverse leakage current See fig. 2	I <sub>RM</sub> <sup>(1)</sup>	T <sub>J</sub> = 100 °C, V <sub>R</sub> = 12 V		465	mA	
		T <sub>J</sub> = 100 °C, V <sub>R</sub> = 5 V		285		
		T <sub>J</sub> = 25 °C	V <sub>R</sub> = Rated V <sub>R</sub>	10.5		
		T <sub>J</sub> = 100 °C		522		
Maximum junction capacitance	C <sub>T</sub>	V <sub>R</sub> = 5 V <sub>DC</sub> (test signal range 100 kHz to 1 MHz) 25 °C		2000	pF	
Typical series inductance	L <sub>S</sub>	Measured lead to lead 5 mm from package body		8.0	nH	
Maximum voltage rate of change	dV/dt	Rated V <sub>R</sub>		10 000	V/μs	

**Note**

(1) Pulse width < 300 μs, duty cycle < 2 %

**THERMAL - MECHANICAL SPECIFICATIONS**

PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS	
Maximum junction temperature range	T <sub>J</sub>			- 55 to 125	°C	
Maximum storage temperature range	T <sub>Stg</sub>			- 55 to 150		
Maximum thermal resistance, junction to case	R <sub>thJC</sub>	DC operation See fig. 4		1.50	°C/W	
Typical thermal resistance, case to heatsink	R <sub>thCS</sub>	Mounting surface, smooth and greased		0.50		
Approximate weight				2	g	
				0.07	oz.	
Mounting torque	minimum			6 (5)	kgf · cm (lbf · in)	
	maximum			12 (10)		
Marking device		Case style D <sup>2</sup> PAK		19TQ015S		

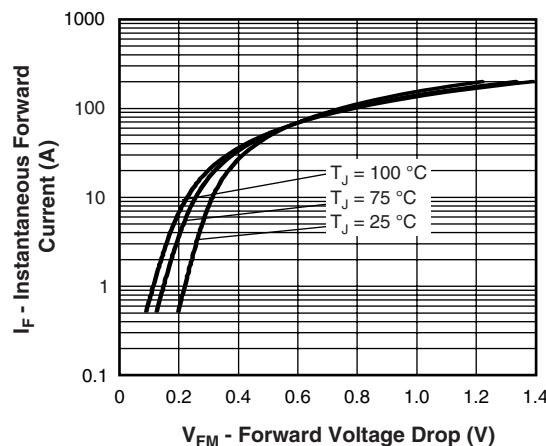


Fig. 1 - Maximum Forward Voltage Drop Characteristics

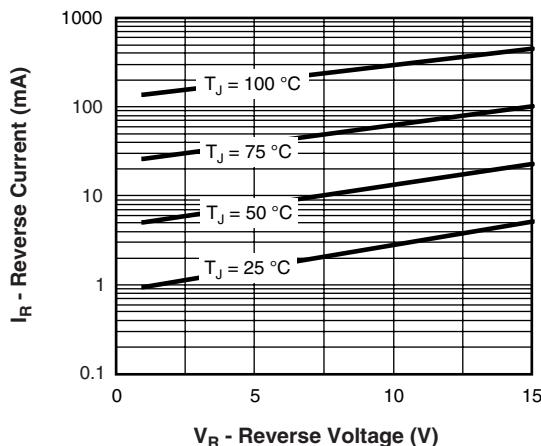


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

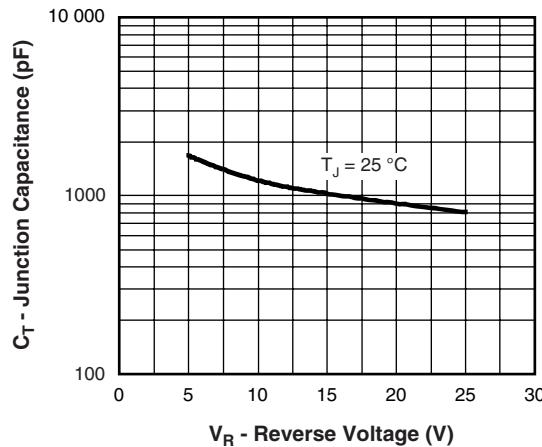


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

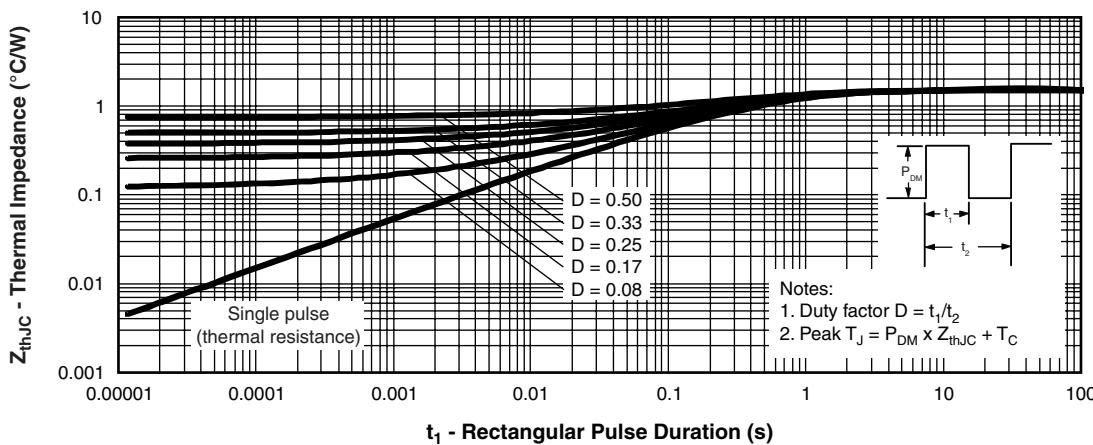


Fig. 4 - Maximum Thermal Impedance  $Z_{thJC}$  Characteristics

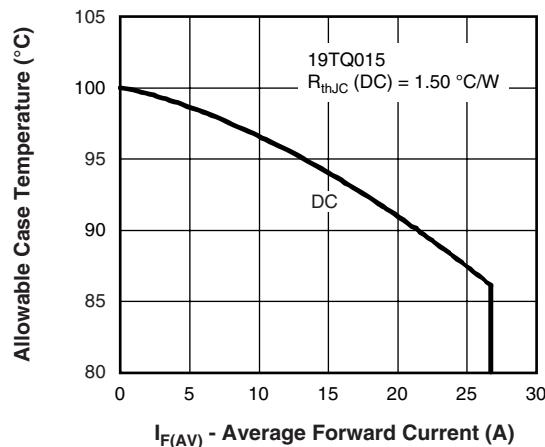


Fig. 5 - Maximum Allowable Case Temperature vs.  
Average Forward Current

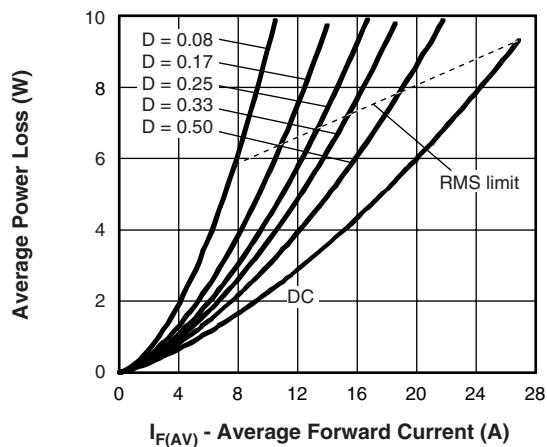


Fig. 6 - Forward Power Loss Characteristics

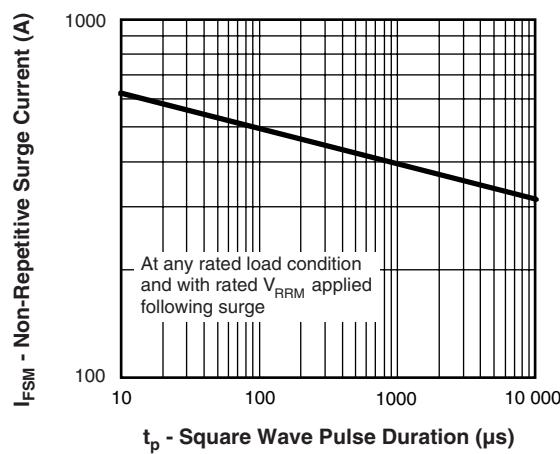


Fig. 7 - Maximum Non-Repetitive Surge Current

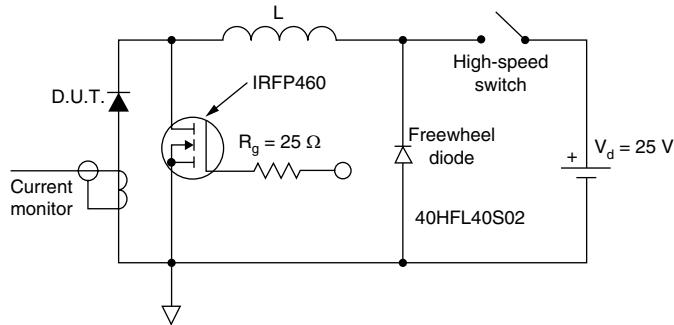


Fig. 8 - Unclamped Inductive Test Circuit

**ORDERING INFORMATION TABLE**

Device code	19	T	Q	015	S	TRL	-
	(1)	(2)	(3)	(4)	(5)	(6)	(7)

- 1** - Current rating (19 A)
- 2** - Circuit configuration:  
T = TO-220
- 3** - Schottky "Q" series
- 4** - Voltage rating (015 = 15 V)
- 5** - • S = D<sup>2</sup>PAK
- 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	<a href="http://www.vishay.com/doc?95014">http://www.vishay.com/doc?95014</a>
Part marking information	<a href="http://www.vishay.com/doc?95008">http://www.vishay.com/doc?95008</a>
Packaging information	<a href="http://www.vishay.com/doc?95032">http://www.vishay.com/doc?95032</a>

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