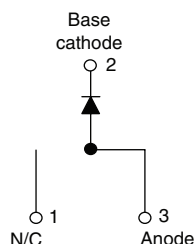


Schottky Rectifier, 19 A


D²PAK


FEATURES

- 125 °C T_J operation ($V_R < 5\text{ V}$)
- 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}	$t_p = 5\text{ }\mu\text{s}$ sine	700	A
V_F	19 Apk, $T_J = 75\text{ }^\circ\text{C}$	0.32	V
T_J	Range	- 55 to 125	$^\circ\text{C}$

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 $T_C = 80\text{ }^\circ\text{C}$, rectangular waveform	19	A
Maximum peak one cycle non-repetitive surge current See fig. 7	I_{FSM}	5 μs sine or 3 μs rect. pulse	700	A
		10 ms sine or 6 ms rect. pulse	330	
Non-repetitive avalanche energy	E_{AS}	$T_J = 25\text{ }^\circ\text{C}$, $I_{AS} = 1.50\text{ A}$, $L = 6\text{ mH}$	6.75	mJ
Repetitive avalanche current	I_{AR}	Current decaying linearly to zero in 1 μs 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 _{FM} ⁽¹⁾	19 A	T _J = 25 °C	0.36	V	
		38 A		0.46		
		19 A	T _J = 75 °C	0.32		0.43
		38 A				
Maximum reverse leakage current See fig. 2	I _{RM} ⁽¹⁾	T _J = 100 °C, V _R = 12 V		465	mA	
		T _J = 100 °C, V _R = 5 V		285		
		T _J = 25 °C	V _R = Rated V _R	10.5		522
		T _J = 100 °C				
Maximum junction capacitance	C _T	V _R = 5 V _{DC} (test signal range 100 kHz to 1 MHz) 25 °C		2000	pF	
Typical series inductance	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	

Note(1) Pulse width < 300 μ s, duty cycle < 2 %

THERMAL - MECHANICAL SPECIFICATIONS					
PARAMETER		SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction temperature range		T _J		- 55 to 125	°C
Maximum storage temperature range		T _{Stg}		- 55 to 150	
Maximum thermal resistance, junction to case		R _{thJC}	DC operation See fig. 4	1.50	°C/W
Typical thermal resistance, case to heatsink		R _{thCS}	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 ² PAK	19TQ015S	

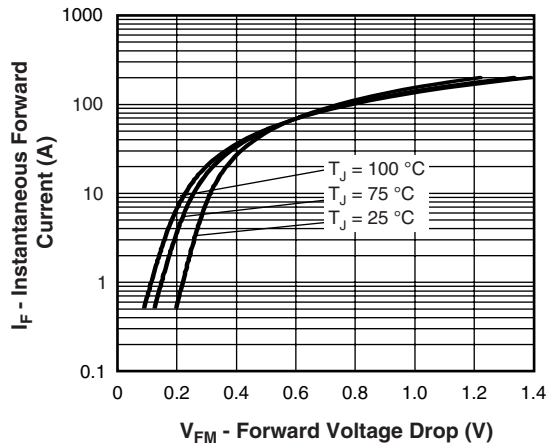


Fig. 1 - Maximum Forward Voltage Drop Characteristics

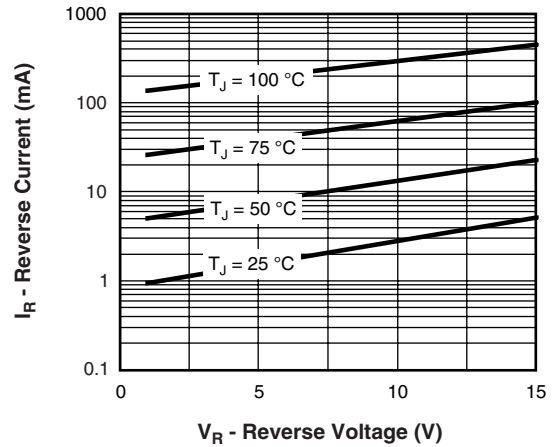


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

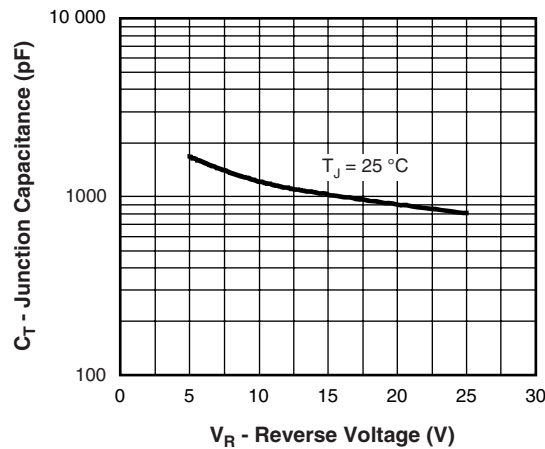
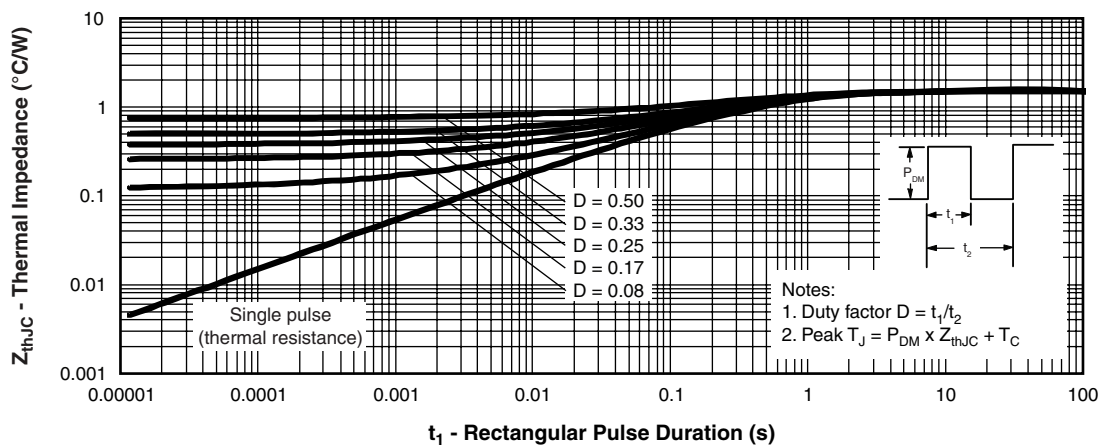


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage


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

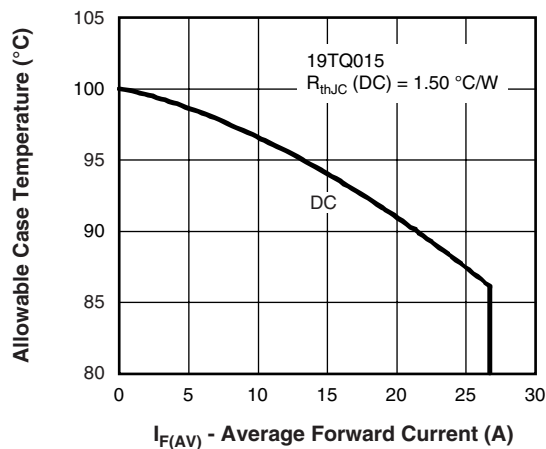


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current

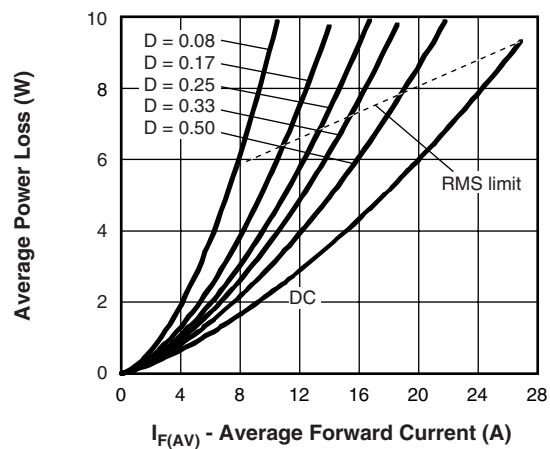


Fig. 6 - Forward Power Loss Characteristics

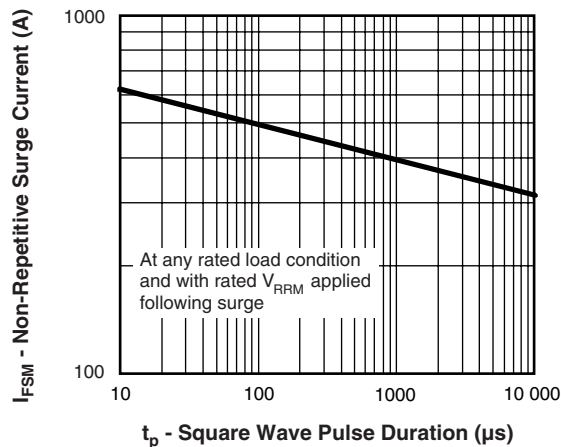


Fig. 7 - Maximum Non-Repetitive Surge Current



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 ² 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	http://www.vishay.com/doc?95014
Part marking information	http://www.vishay.com/doc?95008
Packaging information	http://www.vishay.com/doc?95032



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