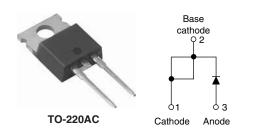
Vishay High Power Products

Schottky Rectifier, 15 A



PRODUCT SUMMARY				
I _{F(AV)}	15 A			
V _R	35 to 45 V			

FEATURES

- 150 °C T_J operation
- 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
- Designed and qualified for industrial level

DESCRIPTION

The 12TQ... 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	CHARACTERISTICS VALUES			
I _{F(AV)}	Rectangular waveform	15	A		
V _{RRM}	Range	35 to 45	V		
I _{FSM}	t _p = 5 μs sine	990	A		
V _F	15 Apk, T _J = 125 °C	0.50	V		
TJ	Range	- 55 to 150	°C		

VOLTAGE RATINGS					
PARAMETER	SYMBOL	12TQ035	12TQ040	12TQ045	UNITS
Maximum DC reverse voltage	V _R	35	40	45	V
Maximum working peak reverse voltage	V _{RWM}	55	40	45	v

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 °C, rectangular waveform		15		
Maximum peak one cycle non-repetitive surge current		5 µs sine or 3 µs rect. pulse	Following any rated load condition and with rated	990	A
See fig. 7	IFSM	10 ms sine or 6 ms rect. pulse	V _{RRM} applied	250	
Non-repetitive avalanche energy	E _{AS}	$T_J = 25 \text{ °C}, I_{AS} = 2.4 \text{ A}, L = 5.5 \text{ mH}$		16	mJ
Repetitive avalanche current	I _{AR}	Current decaying linearly to zero in 1 μ s Frequency limited by T _J maximum V _A = 1.5 x V _R typical		2.4	А

12TQ... Series

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ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
	V _{FM} ⁽¹⁾	15 A	T _J = 25 °C	0.56	v
Maximum forward voltage drop		30 A		0.71	
See fig. 1		15 A	• T _J = 125 °C	0.50	
		30 A		0.64	
Maximum reverse leakage current	I _{BM} ⁽¹⁾	T _J = 25 °C	$V_R = Rated V_R$	1.75	mA
See fig. 2	IRM (''	T _J = 125 °C		70	
Maximum junction capacitance	CT	$V_{\rm R}$ = 5 $V_{\rm DC}$ (test signal range 100 kHz to 1 MHz) 25 °C		900	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

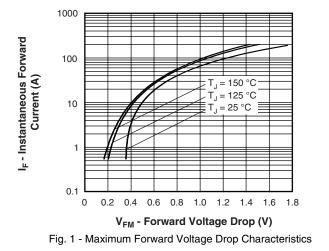
 $^{(1)}\,$ Pulse width < 300 $\mu s,$ duty cycle < 2 %

THERMAL - MECHANICAL SPECIFICATIONS					
PARAMETER		SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction and state temperature range	orage	T _J , T _{Stg}		- 55 to 150	°C
Maximum thermal resistance, junction to case		R _{thJC}	DC operation 2 See fig. 4		°C/W
Typical thermal resistance, case to heatsink		R _{thCS}	Mounting surface, smooth and greased	0.50	0/11
Approvimate weight				2	g
Approximate weight				0.07	0Z.
Mounting torque	minimum			6 (5)	kgf ⋅ cm
Mounting torque maximum				12 (10)	(lbf · in)
				12TQ035	
Marking device		Case style TO-220AC		12T0	2040
				12T0	2045

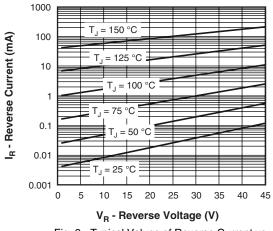


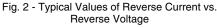
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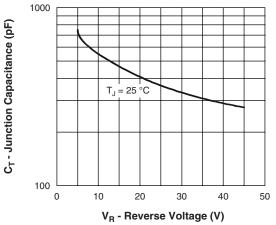


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

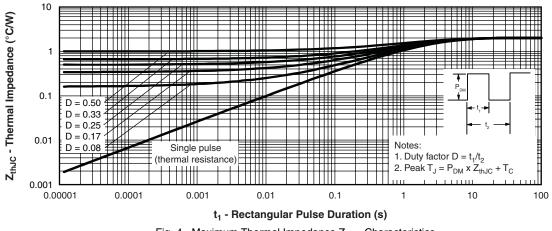


Fig. 4 - Maximum Thermal Impedance ZthJC Characteristics

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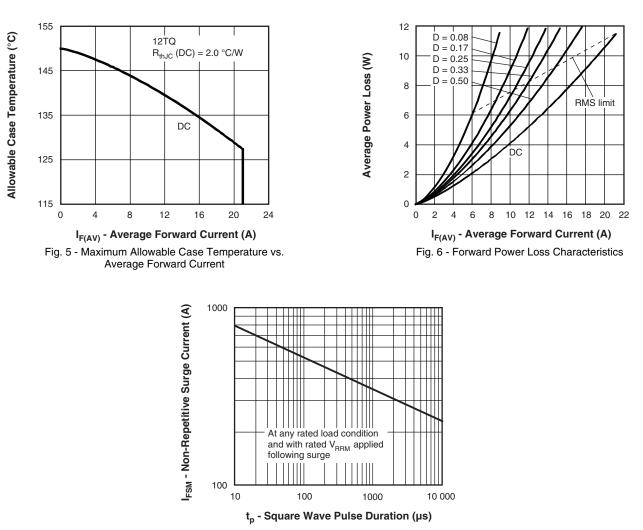


Fig. 7 - Maximum Non-Repetitive Surge Current

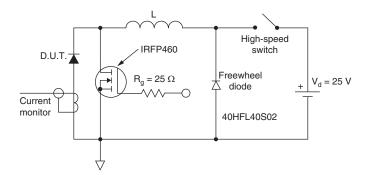


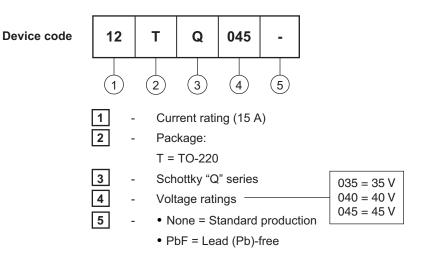
Fig. 8 - Unclamped Inductive Test Circuit



Schottky Rectifier, 15 A

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ORDERING INFORMATION TABLE



Tube standard pack quantity: 50 pieces

LINKS TO RELATED DOCUMENTS				
Dimensions http://www.vishay.com/doc?95221				
Part marking information	http://www.vishay.com/doc?95224			



Vishay

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