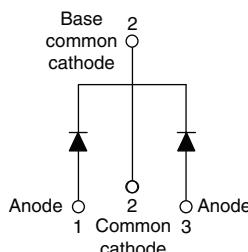


Schottky Rectifier, 2 x 15 A



TO-220AB



FEATURES

- 150 °C T_J operation
- 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	25/30 V

DESCRIPTION

The 32CTQ...PbF Schottky rectifier series has been optimized for low reverse leakage at high temperature. 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}		25/30	V
I_{FSM}	$t_p = 5 \mu s$ sine	900	A
V_F	15 Apk, $T_J = 125$ °C	0.40	V
T_J	Range	- 55 to 150	°C

VOLTAGE RATINGS

PARAMETER	SYMBOL	32CTQ025PbF	32CTQ030PbF	UNITS
Maximum DC reverse voltage	V_R			
Maximum working peak reverse voltage	V_{RWM}	25	30	V

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum average forward current See fig. 5	$I_{F(AV)}$	50 % duty cycle at $T_C = 115$ °C, rectangular waveform	30	A
Maximum peak one cycle non-repetitive surge current See fig. 7	I_{FSM}	5 μs sine or 3 μs rect. pulse	900	
		10 ms sine or 6 ms rect. pulse Following any rated load condition and with rated V_{RRM} applied	250	
Non-repetitive avalanche energy	E_{AS}	$T_J = 25$ °C, $I_{AS} = 1.20$ A, $L = 11.10$ mH	13	mJ
Repetitive avalanche current	I_{AR}	Current decaying linearly to zero in 1 μs 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 See fig. 1	$V_{FM}^{(1)}$	15 A	$T_J = 25^\circ C$	0.49	V	
		30 A		0.58		
		15 A	$T_J = 125^\circ C$	0.40		
		30 A		0.53		
Maximum reverse leakage current See fig. 2	$I_{RM}^{(1)}$	$T_J = 25^\circ C$	$V_R = \text{Rated } V_R$	1.75	mA	
		$T_J = 125^\circ C$		97		
Threshold voltage	$V_{F(TO)}$	$T_J = T_J \text{ maximum}$		0.233	V	
Forward slope resistance	r_f			9.09	$m\Omega$	
Maximum junction capacitance per leg	C_T	$V_R = 5 V_{DC}$ (test signal range 100 kHz to 1 MHz) $25^\circ C$		1300	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	$V/\mu s$	

Note(1) Pulse width < 300 μs , 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	R_{thJC}	DC operation See fig. 4		3.25	°C/W	
				0.50		
Typical thermal resistance, case to heatsink		Mounting surface, smooth and greased				
Approximate weight				2	g	
				0.07	oz.	
Mounting torque	minimum			6 (5)	kgf · cm (lbf · in)	
	maximum			12 (10)		
Marking device		Case style TO-220AB		32CTQ025		
				32CTQ030		

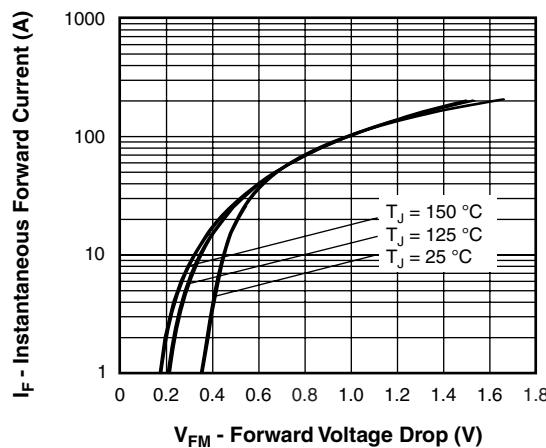


Fig. 1 - Maximum Forward Voltage Drop Characteristics

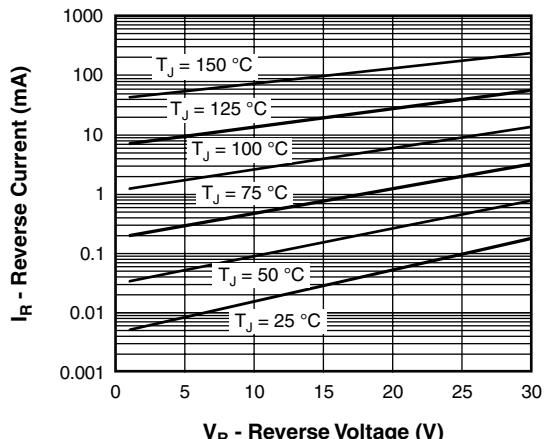


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

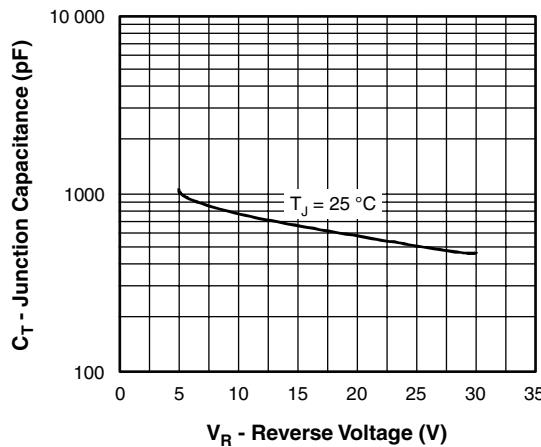


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

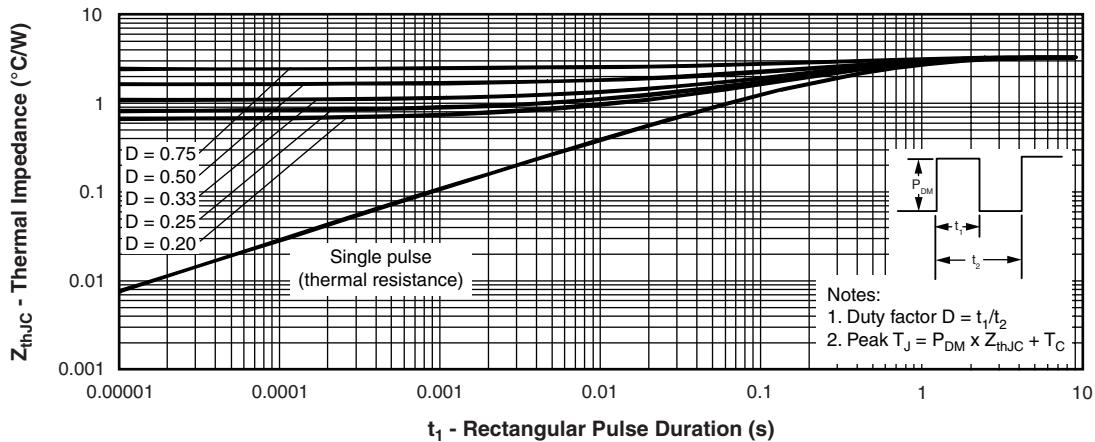


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

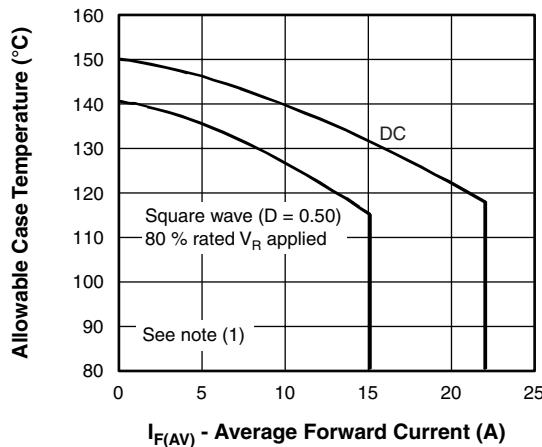


Fig. 5 - Maximum Allowable Case Temperature vs.
Average Forward Current

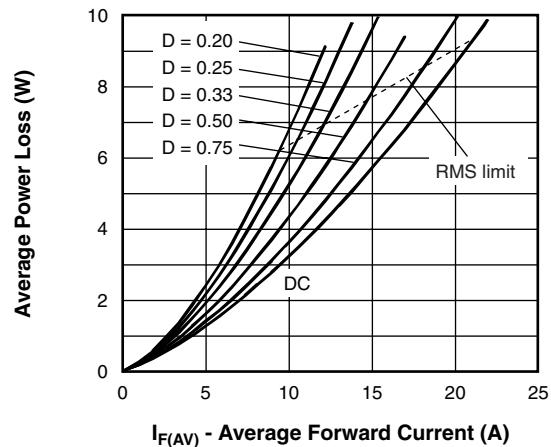


Fig. 6 - Forward Power Loss Characteristics

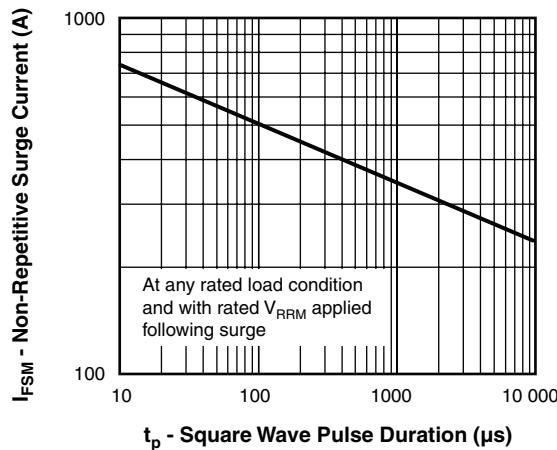


Fig. 7 - Maximum Non-Repetitive Surge Current

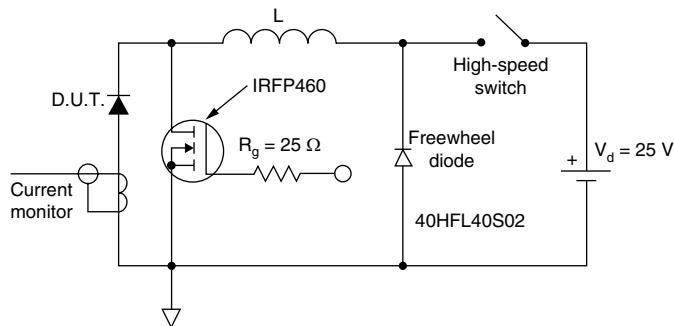


Fig. 8 - Unclamped Inductive Test Circuit

Note

(1) Formula used: $T_C = T_J - (P_d + P_{d,REV}) \times R_{th,JC}$
 $P_d = \text{Forward power loss} = I_{F(AV)} \times V_{FM}$ at $(I_{F(AV)}/D)$ (see fig. 6);
 $P_{d,REV} = \text{Inverse power loss} = V_{R1} \times I_R (1 - D)$; I_R at $V_{R1} = 80\%$ rated V_R

ORDERING INFORMATION TABLE

Device code	32	C	T	Q	030	PbF
	1	2	3	4	5	6
	1	- Current rating (30 A)				
	2	- Circuit configuration				
		C = Common cathode				
	3	- Package				
		T = TO-220				
	4	- Schottky "Q" series				
	5	- Voltage ratings			025 = 25 V	
	6	-			030 = 30 V	
		• None = Standard production				
		• PbF = Lead (Pb)-free				

Tube standard pack quantity: 50 pieces

LINKS TO RELATED DOCUMENTS	
Dimensions	http://www.vishay.com/doc?95222
Part marking information	http://www.vishay.com/doc?95225

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