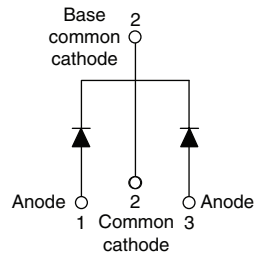


Schottky Rectifier, 2 x 30 A


TO-220AB


FEATURES

- 175 °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
- 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 30 A
V_R	35 to 45 V

DESCRIPTION

This center tap Schottky rectifier has been optimized for low reverse leakage at high temperature. The proprietary barrier technology allows for reliable operation up to 175 °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 (per device)	60	A
V_{RRM}		35 to 45	V
I_{FRM}	$T_C = 142\text{ °C}$ (per leg)	60	A
I_{FSM}	$t_p = 5\ \mu\text{s}$ sine	2600	A
V_F	30 Apk, $T_J = 125\text{ °C}$	0.57	V
T_J	Range	- 65 to 175	°C

VOLTAGE RATINGS

PARAMETER	SYMBOL	61CTQ035PbF	61CTQ040PbF	61CTQ045PbF	UNITS
Maximum DC reverse voltage	V_R	35	40	45	V
Maximum working peak reverse voltage	V_{RWM}				

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum average forward current per leg per device	$I_{F(AV)}$	$T_C = 142\text{ °C}$, rated V_R	30	A
			60	
Peak repetitive forward current per leg	I_{FRM}	Rated V_R , square wave, 20 kHz, $T_C = 142\text{ °C}$	60	
Maximum peak one cycle non-repetitive surge current per leg	I_{FSM}	5 μs sine or 3 μs rect. pulse	2600	
		10 ms sine or 6 ms rect. pulse	350	
Non-repetitive avalanche energy per leg	E_{AS}	$T_J = 25\text{ °C}$, $I_{AS} = 4\text{ A}$, $L = 3.4\text{ mH}$	27	mJ
Repetitive avalanche current per leg	I_{AR}	Current decaying linearly to zero in 1 μs Frequency limited by T_J maximum $V_A = 1.5 \times V_R$ typical	4	A

* Pb containing terminations are not RoHS compliant, exemptions may apply



ELECTRICAL SPECIFICATIONS						
PARAMETER	SYMBOL	TEST CONDITIONS		TYP.	MAX.	UNITS
Maximum forward voltage drop	$V_{FM}^{(1)}$	30 A	$T_J = 25\text{ }^\circ\text{C}$	0.57	0.61	V
		60 A		0.72	0.76	
		30 A	$T_J = 125\text{ }^\circ\text{C}$	0.53	0.57	
		60 A		0.70	0.74	
Maximum instantaneous reverse current	I_{RM}	$T_J = 25\text{ }^\circ\text{C}$	Rated DC voltage	0.06	1	mA
		$T_J = 125\text{ }^\circ\text{C}$		21	40	
Maximum junction capacitance	C_T	$V_R = 5\text{ V}_{DC}$ (test signal range 100 kHz to 1 MHz) 25 °C		1900		pF
Typical series inductance	L_S	Measured from top of terminal to mounting plane		8.0		nH
Maximum voltage rate of change	dV/dt	Rated V_R		10 000		V/ μ s

Note

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

THERMAL - MECHANICAL SPECIFICATIONS							
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS			
Maximum junction and storage temperature range	T_J, T_{Stg}		- 65 to 175	$^\circ\text{C}$			
Maximum thermal resistance, junction to case per leg	R_{thJC}	DC operation	1.2	$^\circ\text{C}/\text{W}$			
Typical thermal resistance, case to heatsink	R_{thCS}	Mounting surface, smooth and greased	0.50				
Approximate weight			2	g			
			0.07	oz.			
Mounting torque	<table border="0"> <tr> <td style="text-align: center;">minimum</td> <td rowspan="2"> </td> <td style="text-align: center;">maximum</td> </tr> </table>	minimum		maximum	Non-lubricated threads	6 (5)	kgf · cm (lbf · in)
		minimum				maximum	
12 (10)							
Marking device		Case style TO-220AB	61CTQ035				
			61CTQ040				
			61CTQ045				

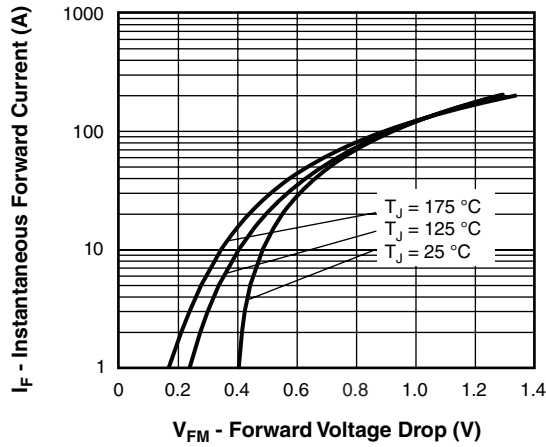


Fig. 1 - Maximum Forward Voltage Drop Characteristics

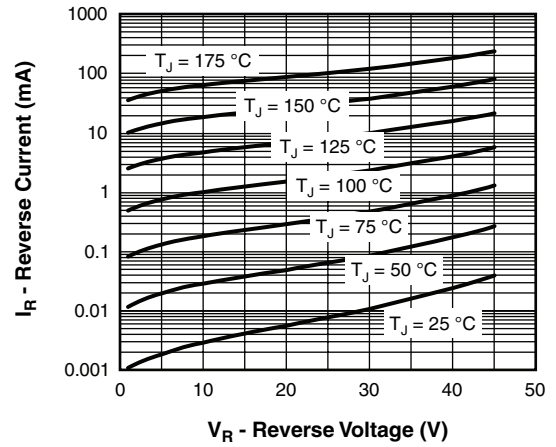


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

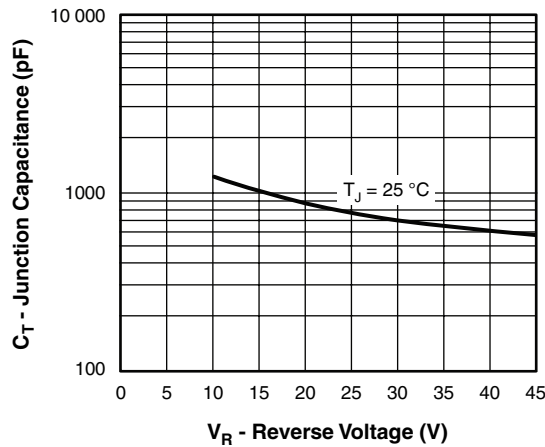


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

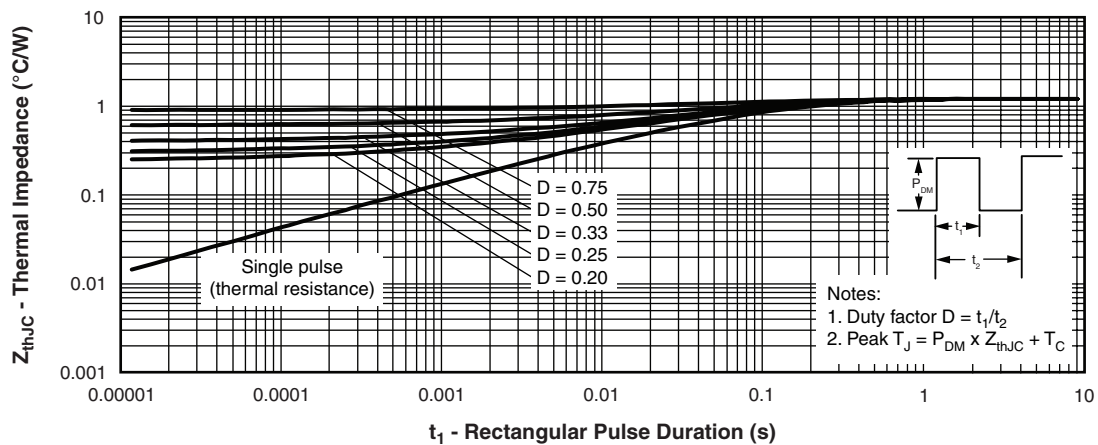


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

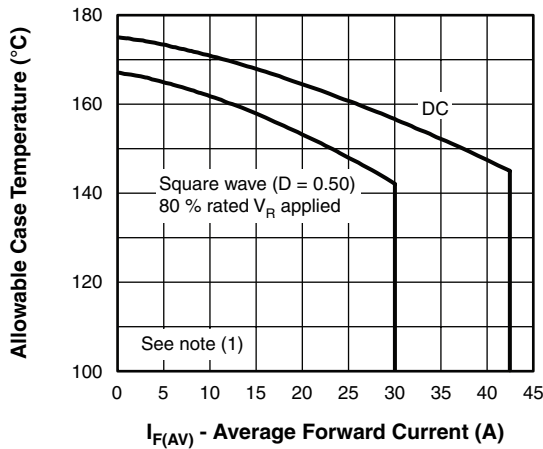


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current

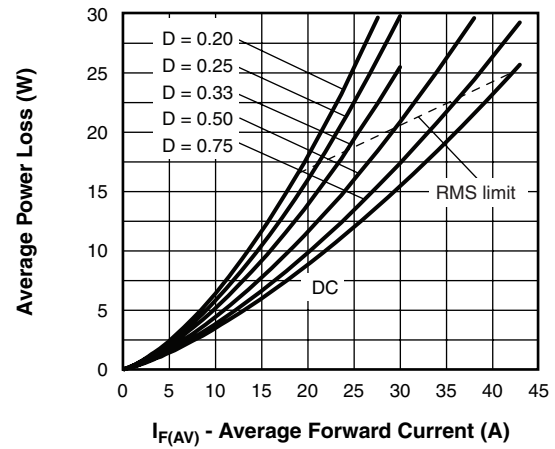


Fig. 6 - Forward Power Loss Characteristics

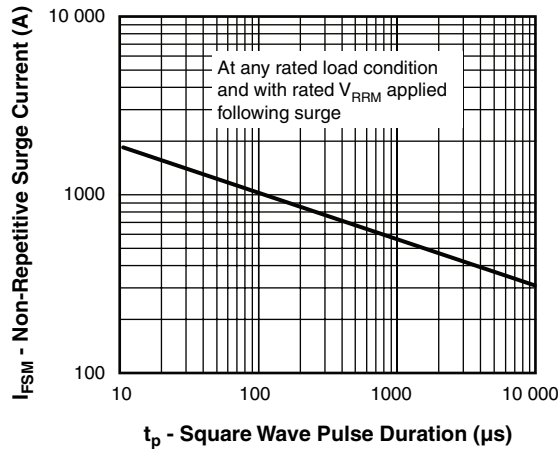


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

Note

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



ORDERING INFORMATION TABLE

Device code	61	C	T	Q	045	PbF
	①	②	③	④	⑤	⑥
	1	-	Current rating (60 = 60 A)			
	2	-	Circuit configuration: C = Common cathode			
	3	-	Package: T = TO-220			
	4	-	Schottky "Q" series			
	5	-	Voltage ratings			
	6	-	• None = Standard production • PbF = Lead (Pb)-free			

035 = 35 V
040 = 40 V
045 = 45 V

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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