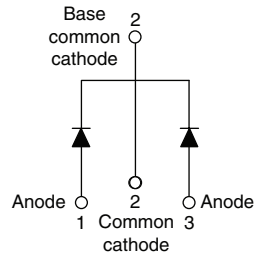


Schottky Rectifier, 2 x 30 A


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
- Designed and qualified for industrial level

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.

PRODUCT SUMMARY

$I_{F(AV)}$	2 x 30 A
V_R	45 V

MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$	Rectangular waveform (per device)	60	A
V_{RRM}		45	V
I_{FRM}	$T_C = 142\text{ °C}$ (per leg)	60	A
I_{FSM}	$t_p = 5\ \mu\text{s}$ sine	2600	
V_F	30 Apk, $T_J = 125\text{ °C}$	0.57	V
T_J	Range	- 65 to 175	°C

VOLTAGE RATINGS

PARAMETER	SYMBOL	61CTQ045	UNITS
Maximum DC reverse voltage	V_R	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



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	$^\circ\text{C/W}$				
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 rowspan="2">maximum</td> </tr> <tr> <td style="text-align: center;">_____</td> </tr> </table>	minimum		maximum	_____	Non-lubricated threads	6 (5)	kgf · cm (lbf · in)
		minimum					maximum	

12 (10)								
Marking device		Case style TO-220AB	61CTQ045					

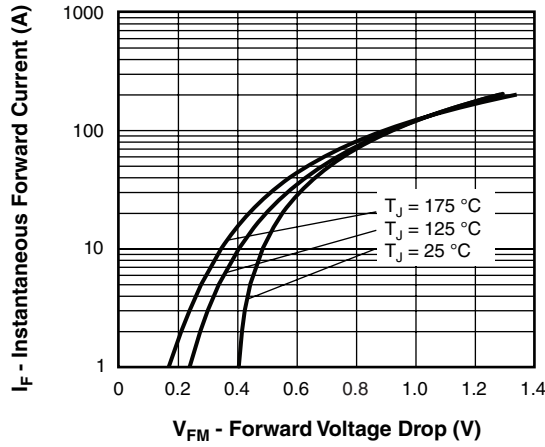


Fig. 1 - Maximum Forward Voltage Drop Characteristics

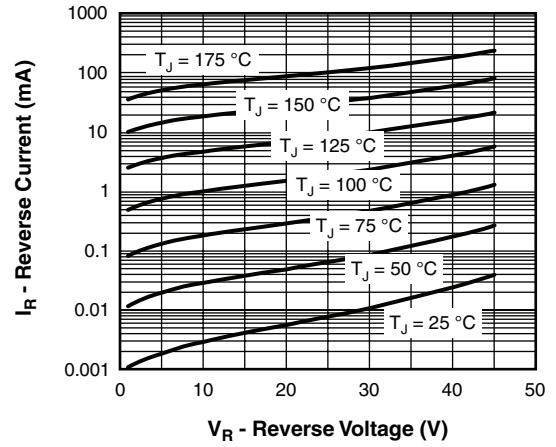


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

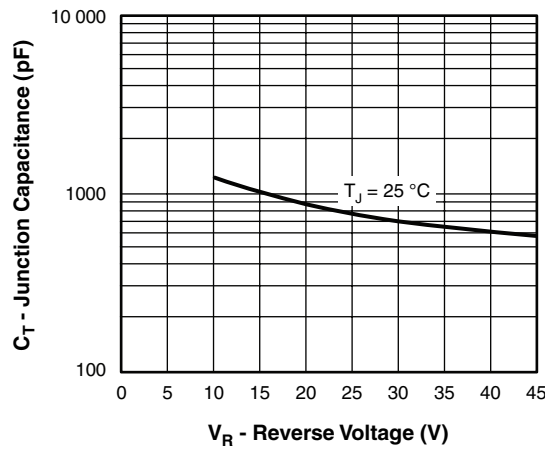
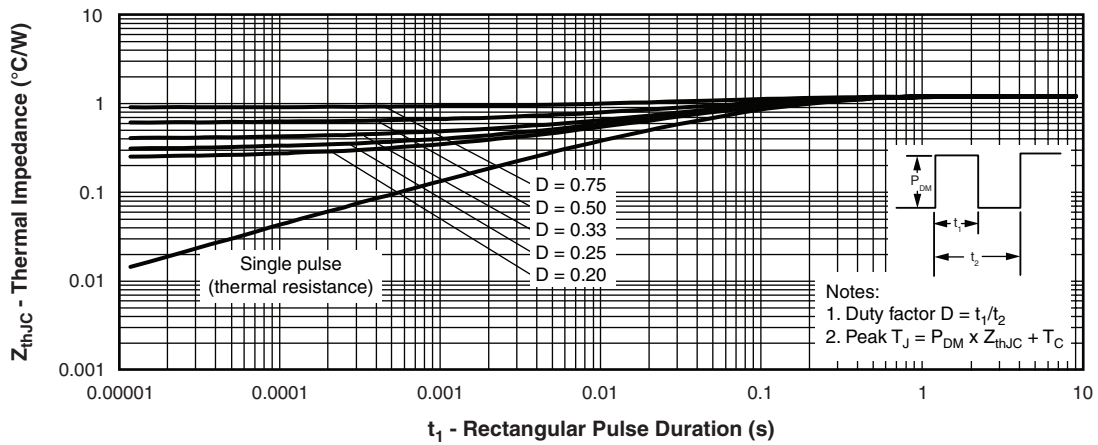


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage


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

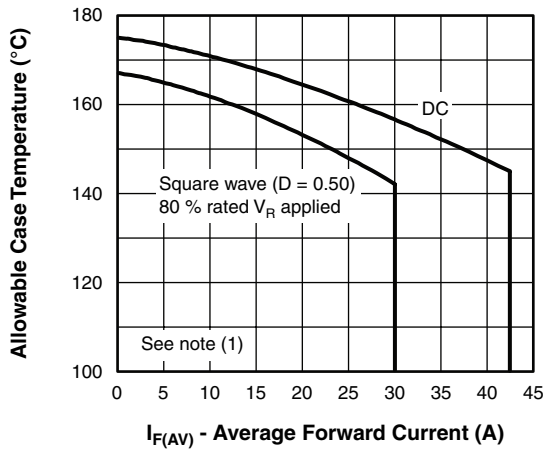


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current

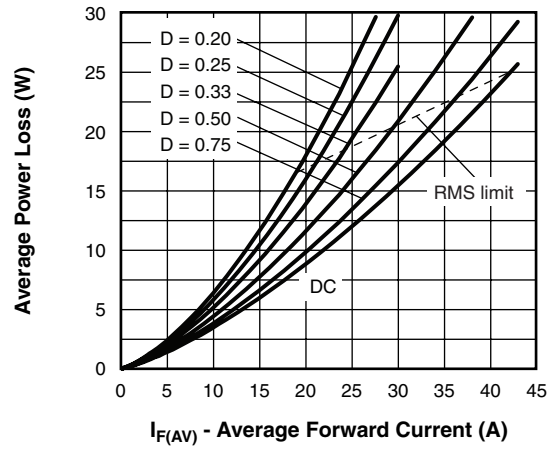


Fig. 6 - Forward Power Loss Characteristics

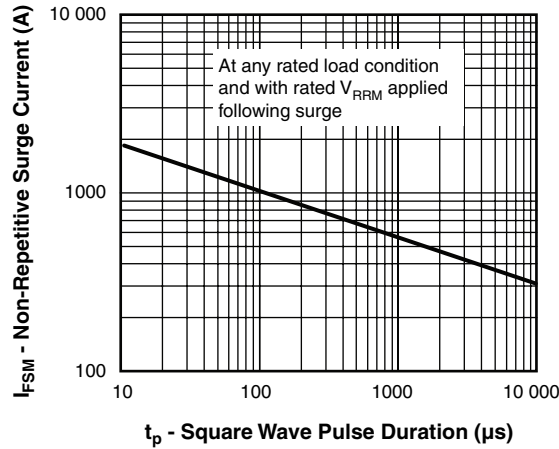


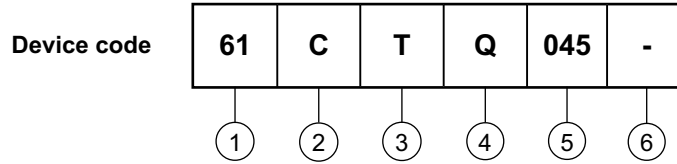
Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

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



- 1** - Current rating (60 = 60 A)
- 2** - Circuit configuration:
C = Common cathode
- 3** - Package:
T = TO-220
- 4** - Schottky "Q" series
- 5** - Voltage rating (045 = 45 V)
- 6** -
 - 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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