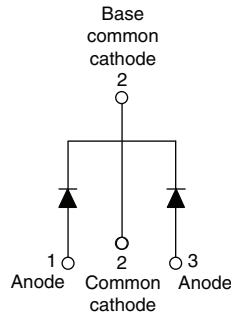


Schottky Rectifier, 2 x 30 A



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	100 V

MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$	Rectangular waveform (per device)	60	A
V_{RRM}		100	V
I_{FRM}	$T_C = 139\text{ °C}$ (per leg)	60	A
I_{FSM}	$t_p = 5\ \mu\text{s}$ sine	1500	
V_F	30 Apk, $T_J = 125\text{ °C}$	0.69	V
T_J	Range	- 65 to 175	°C

VOLTAGE RATINGS

PARAMETER	SYMBOL	63CTQ100G	UNITS
Maximum DC reverse voltage	V_R	100	V
Maximum working peak reverse voltage	V_{RWM}		

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum average forward current	$I_{F(AV)}$	50 % duty cycle at $T_C = 139\text{ °C}$, rectangular waveform	30	A
			60	
Peak repetitive forward current per leg	I_{FRM}	Rated V_R , square wave, 20 kHz, $T_C = 140\text{ °C}$	60	A
Maximum peak one cycle non-repetitive surge current per leg	I_{FSM}	5 μs sine or 3 μs rect. pulse	1500	
		10 ms sine or 6 ms rect. pulse	300	
Non-repetitive avalanche energy per leg	E_{AS}	$T_J = 25\text{ °C}$, $I_{AS} = 0.75\text{ A}$, $L = 40\text{ mH}$	11.25	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	0.75	A

ELECTRICAL SPECIFICATIONS						
PARAMETER	SYMBOL	TEST CONDITIONS		TYP.	MAX.	UNITS
Maximum forward voltage drop	$V_{FM}^{(1)}$	30 A	$T_J = 25\text{ }^\circ\text{C}$	0.78	0.82	V
		60 A		0.94	1.0	
		30 A	$T_J = 125\text{ }^\circ\text{C}$	0.64	0.69	
		60 A		0.78	0.83	
Maximum instantaneous reverse current	I_{RM}	$T_J = 25\text{ }^\circ\text{C}$	$V_R = \text{Rated } V_R$	0.02	0.3	mA
		$T_J = 125\text{ }^\circ\text{C}$		11	20	
Maximum junction capacitance	C_T	$V_R = 5\text{ }V_{DC}$ (test signal range 100 kHz to 1 MHz) $25\text{ }^\circ\text{C}$		1100		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/ μs

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}		- 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	minimum	Non-lubricated threads	6 (5)	kgf · cm (lbf · in)
	maximum		12 (10)	
Marking device		Case style TO-220AB	63CTQ100G	

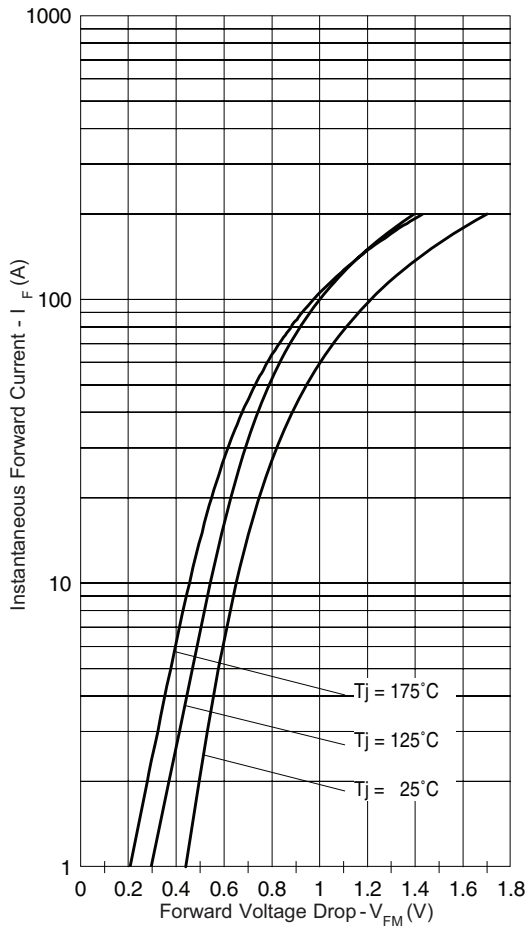


Fig. 1 - Maximum Forward Voltage Drop Characteristics

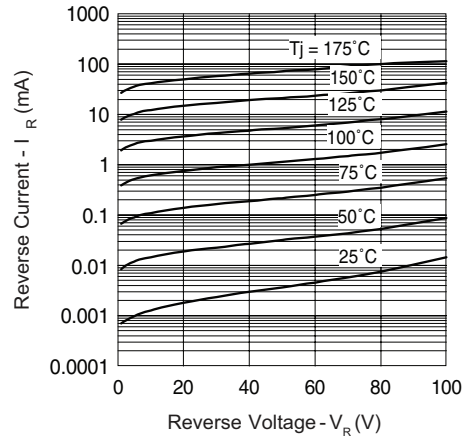


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

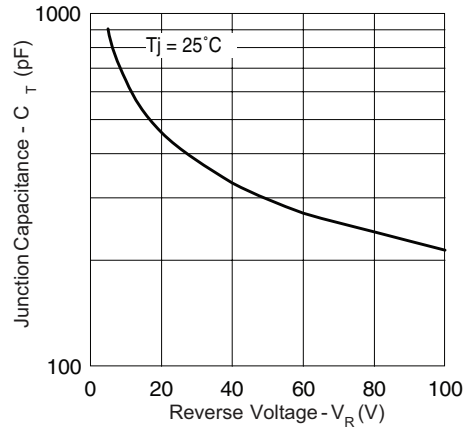
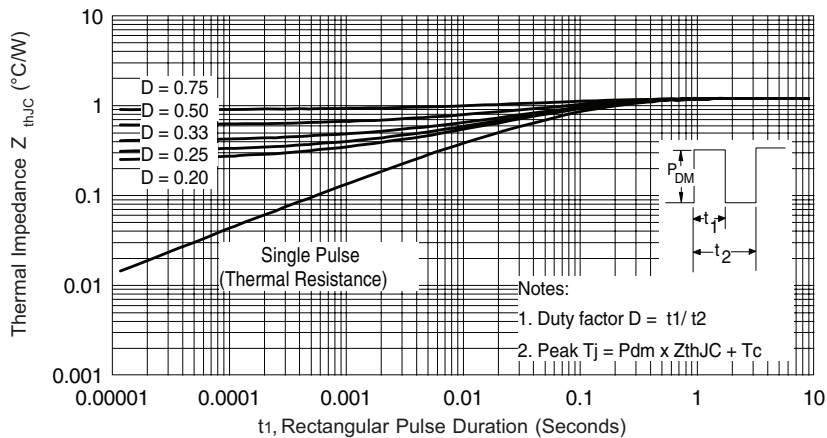


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage


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

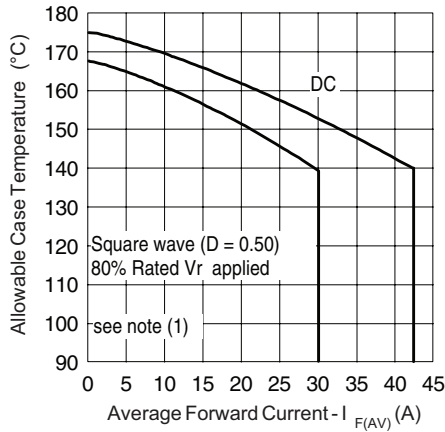


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current

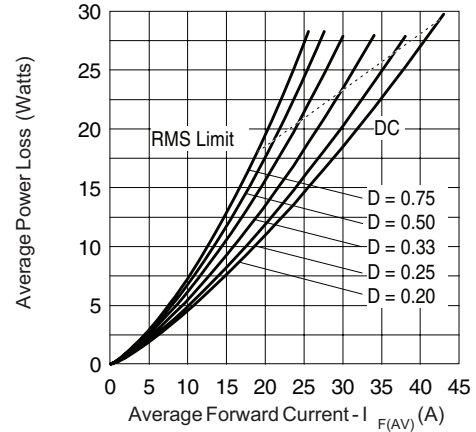


Fig. 6 - Forward Power Loss Characteristics

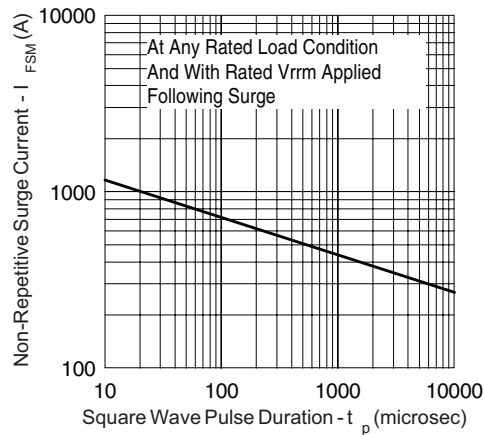


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

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	63	C	T	Q	100	G	-
	①	②	③	④	⑤	⑥	⑦
1	-	Current rating (60 A)					
2	-	C = Common cathode					
3	-	T = TO-220					
4	-	Q = Schottky "Q" series					
5	-	Voltage rating (100 = 100 V)					
6	-	G = Schottky generation					
7	-	• 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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