

6121 Baker Road,
Suite 108
Minnetonka, MN 55345

www.chtechnology.com



Phone (952) 933-6190
Fax (952) 933-6223

1-800-274-4284

Thank you for downloading this document from C&H Technology, Inc.

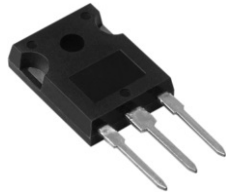
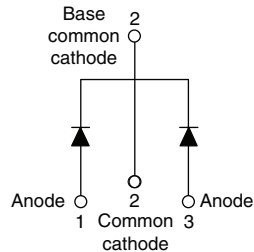
Please contact the C&H Technology team for the following questions -

Technical • Application • Assembly • Availability • Pricing

Phone – 1-800-274-4284

E-Mail – sales@chtechnology.com

High Performance Schottky Generation 5.0, 2 x 30 A


TO-247AC

FEATURES

- 175 °C high performance Schottky diode
- Very low forward voltage drop
- Extremely low reverse leakage
- Optimized V_F vs. I_F trade off for high efficiency
- Increased ruggedness for reverse avalanche capability
- RBSOA available
- Negligible switching losses
- Submicron trench technology
- Full lead (Pb)-free and RoHS compliant devices
- Designed and qualified for industrial level


**RoHS
COMPLIANT**
PRODUCT SUMMARY

$I_{F(AV)}$	2 x 30 A
V_R	100 V
V_F at 30 A at 125 °C	0.64 V

APPLICATIONS

- High efficiency SMPS
- Automotive
- High frequency switching
- Output rectification
- Reverse battery protection
- Freewheeling
- Dc-to-dc systems
- Increased power density systems

MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$	Rectangular waveform	60	A
V_{RRM}		100	V
V_F	30 Apk, $T_J = 125$ °C (typical, per leg)	0.61	
T_J	Range	- 55 to 175	°C

VOLTAGE RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	63CPT100	UNITS
Maximum DC reverse voltage	V_R	$T_J = 25$ °C	100	V

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum average forward current <small>per leg</small> <small>per device</small>	$I_{F(AV)}$	50 % duty cycle at $T_C = 156$ °C, rectangular waveform	30	A
			60	
Maximum peak one cycle non-repetitive surge current	I_{FSM}	5 μ s sine or 3 μ s rect. pulse	2200	A
		10 ms sine or 6 ms rect. pulse	450	
Non-repetitive avalanche energy	E_{AS}	$T_J = 25$ °C, $I_{AS} = 3$ A, $L = 30$ mH	135	mJ
Repetitive avalanche current	I_{AR}	Limited by frequency of operation and time pulse duration so that $T_J < T_J$ max. I_{AS} at T_J max. as a function of time pulse See fig. 8	I_{AS} at T_J max.	A

ELECTRICAL SPECIFICATIONS						
PARAMETER	SYMBOL	TEST CONDITIONS		TYP.	MAX.	UNITS
Forward voltage drop per leg	$V_{FM}^{(1)}$	30 A	$T_J = 25\text{ }^\circ\text{C}$	-	0.77	V
		60 A		-	0.9	
		30A	$T_J = 125\text{ }^\circ\text{C}$	-	0.64	
		60 A		-	076	
Reverse leakage current per leg	$I_{RM}^{(1)}$	$T_J = 25\text{ }^\circ\text{C}$	$V_R = \text{Rated } V_R$	-	200	μA
		$T_J = 125\text{ }^\circ\text{C}$		-	15	mA
Junction capacitance per leg	C_T	$V_R = 5\text{ }V_{DC}$ (test signal range 100 kHz to 1 MHz) $25\text{ }^\circ\text{C}$		1650	-	pF
Series inductance per leg	L_S	Measured lead to lead 5 mm from package body		7.5	-	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}		- 55 to 175	$^\circ\text{C}$
Maximum thermal resistance, junction to case per leg	R_{thJC}	DC operation	0.8	$^\circ\text{C/W}$
Maximum thermal resistance, junction to case per device			0.4	
Typical thermal resistance, case to heatsink	R_{thCS}	Mounting surface, smooth and greased	0.25	
Approximate weight			6	g
			0.21	oz.
Mounting torque	minimum		6 (5)	kgf · cm (lbf · in)
	maximum		12 (10)	
Marking device		Case style TO-247AC	63CPT100	

High Performance
Schottky Generation 5.0,
2 x 30 A

Vishay High Power Products

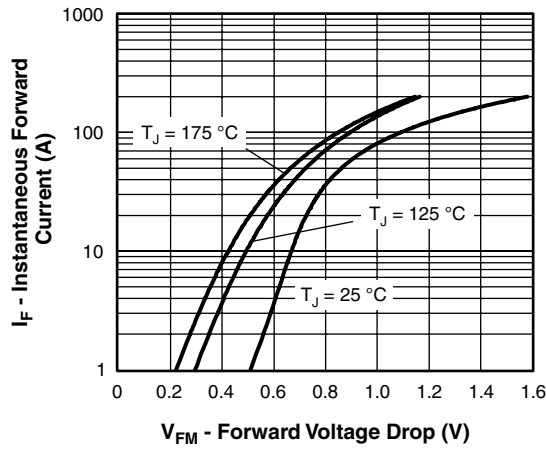


Fig. 1 - Maximum Forward Voltage Drop Characteristics

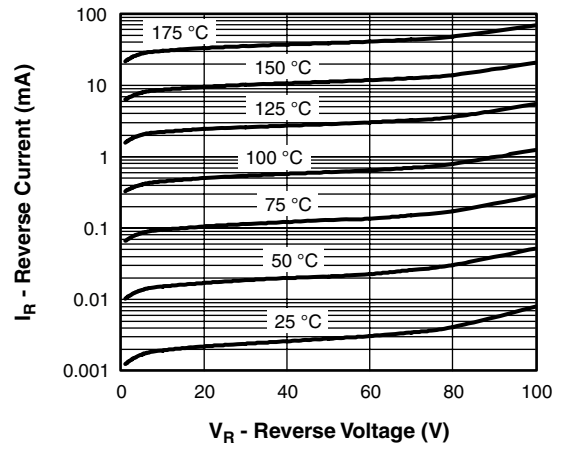


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

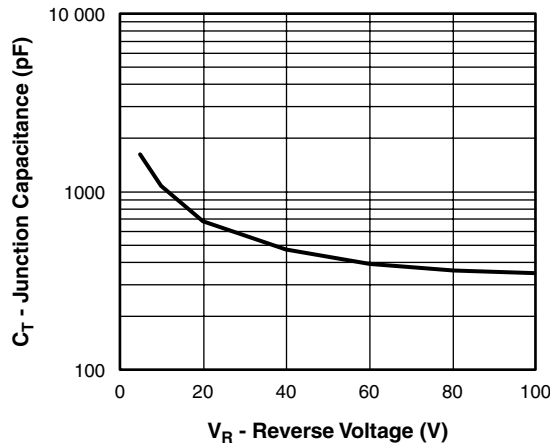


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

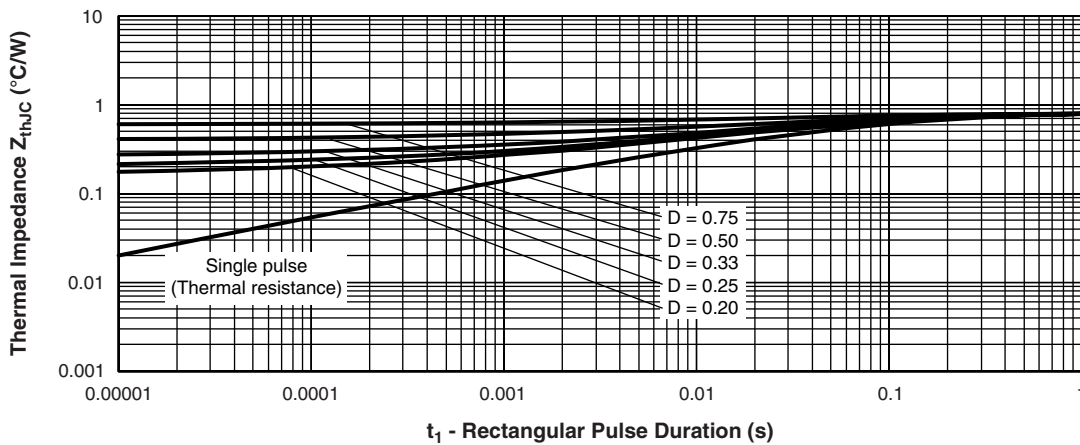


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

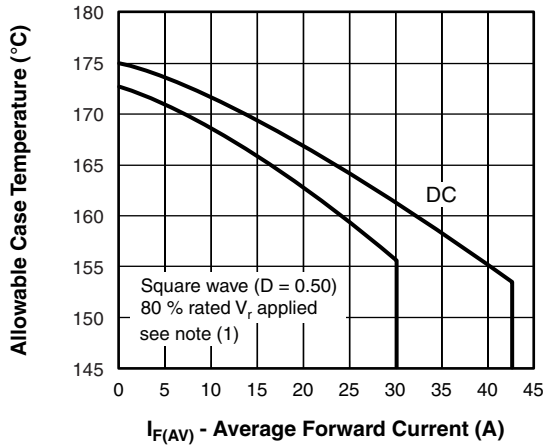


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current

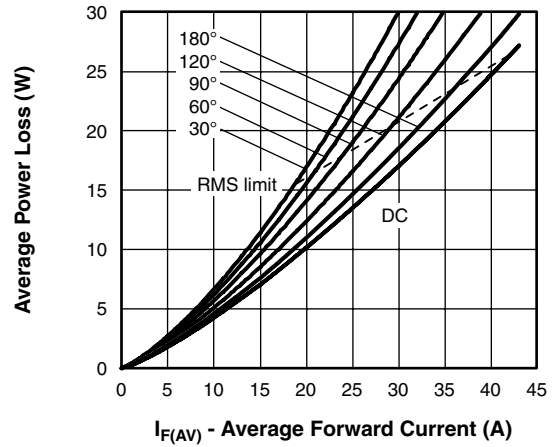


Fig. 6 - Forward Power Loss Characteristics

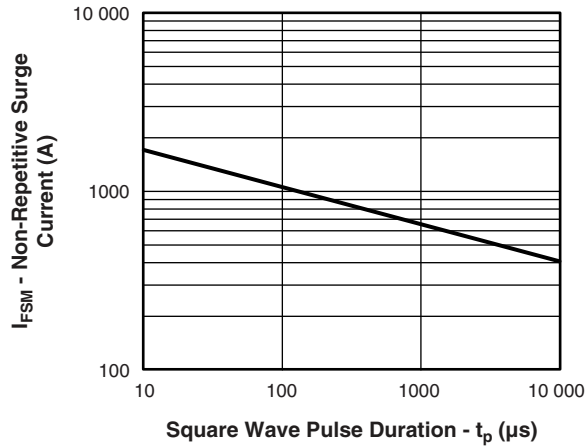


Fig. 7 - Maximum Non-Repetitive Surge Current

Note

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



High Performance Schottky Generation 5.0,
2 x 30 A Vishay High Power Products

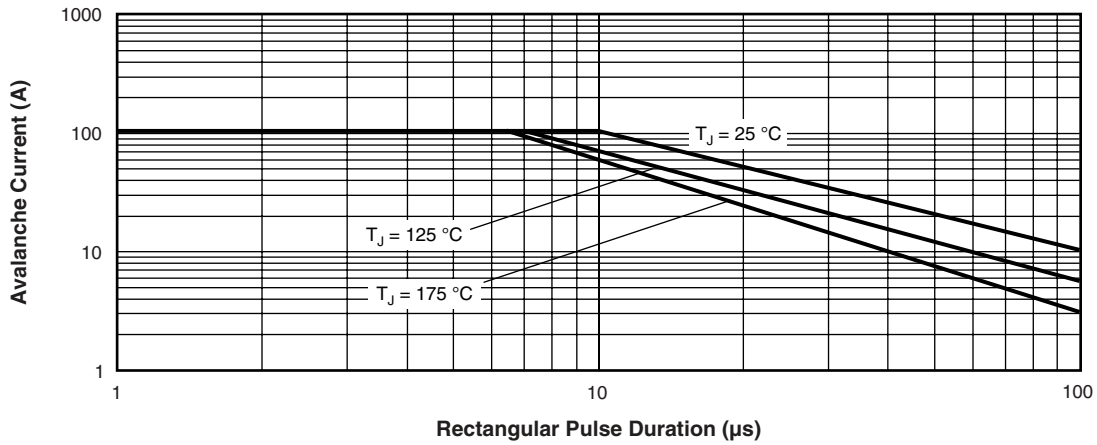


Fig. 8 - Reverse Bias Safe Operating Area (Avalanche Current vs. Rectangular Pulse Duration)

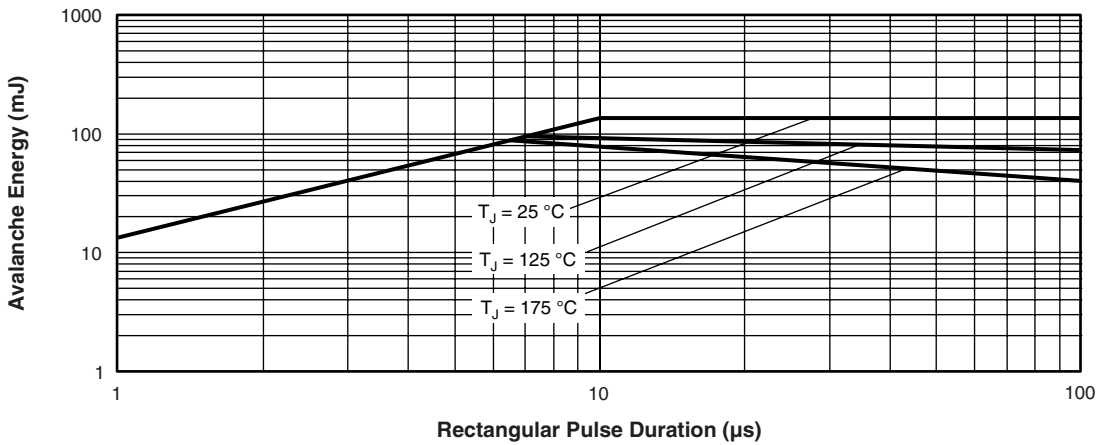


Fig. 9 - Reverse Bias Safe Operating Area (Avalanche Energy vs. Rectangular Pulse Duration)

ORDERING INFORMATION TABLE

Device code	63	C	P	T	100
	①	②	③	④	⑤

- 1** - Current rating (60 A)
- 2** - Circuit configuration:
C = Common cathode
- 3** - Package:
P = TO-247
- 4** - T = Trench
- 5** - Voltage code (100 V)

Tube standard pack quantity: 25 pieces

LINKS TO RELATED DOCUMENTS	
Dimensions	http://www.vishay.com/doc?95223
Part marking information	http://www.vishay.com/doc?95226
SPIICE model	http://www.vishay.com/doc?95227



Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.