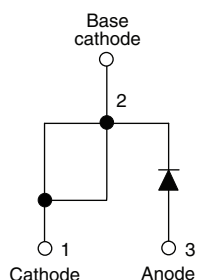


High Performance Schottky Generation 5.0, 30 A


TO-247AC modified


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

APPLICATIONS

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

PRODUCT SUMMARY

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

MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
V_{RRM}		100	V
V_F	30 Apk, $T_J = 125$ °C (typical)	0.61	
T_J	Range	- 55 to 175	°C

VOLTAGE RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	30PT100	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	$I_{F(AV)}$	50 % duty cycle at $T_C = 156$ °C, rectangular waveform	30	A
Maximum peak one cycle non-repetitive surge current	I_{FSM}	5 μ s sine or 3 μ s rect. pulse	2200	
		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 $T_J < T_{J \text{ max.}}$. I_{AS} at $T_J \text{ max.}$ as a function of time pulse See fig. 8	I_{AS} at $T_J \text{ max.}$	A

ELECTRICAL SPECIFICATIONS						
PARAMETER	SYMBOL	TEST CONDITIONS		TYP.	MAX.	UNITS
Forward voltage drop	V _{FM} ⁽¹⁾	30 A	T _J = 25 °C	-	0.77	V
		60 A		-	0.9	
		30 A	T _J = 125 °C	-	0.64	
		60 A		-	0.76	
Reverse leakage current	I _{RM} ⁽¹⁾	T _J = 25 °C	V _R = Rated V _R	-	200	μA
		T _J = 125 °C		TBD	15	mA
Junction capacitance	C _T	V _R = 5 V _{DC} (test signal range 100 kHz to 1 MHz) 25 °C		1650	-	pF
Series inductance	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	°C
Maximum thermal resistance, junction to case	R _{thJC}	DC operation	0.8	°C/W
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 modified (JEDEC)	30PT100	

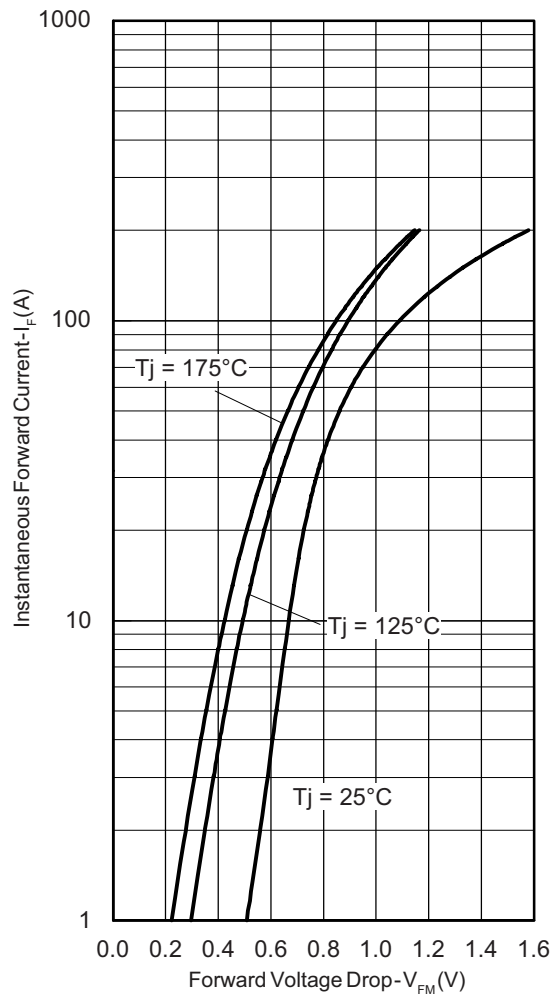


Fig. 1 - Maximum Forward Voltage Drop Characteristics

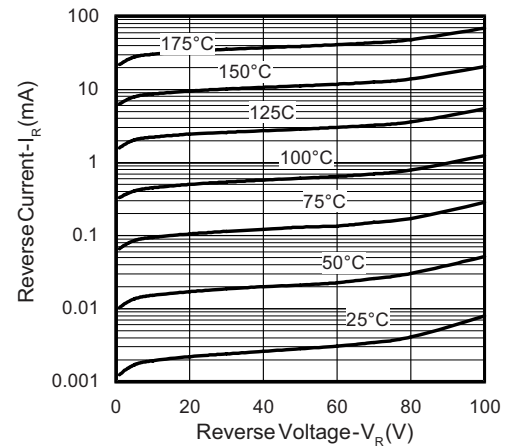


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

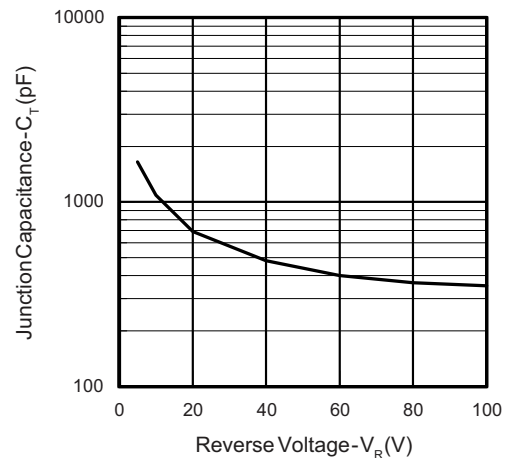
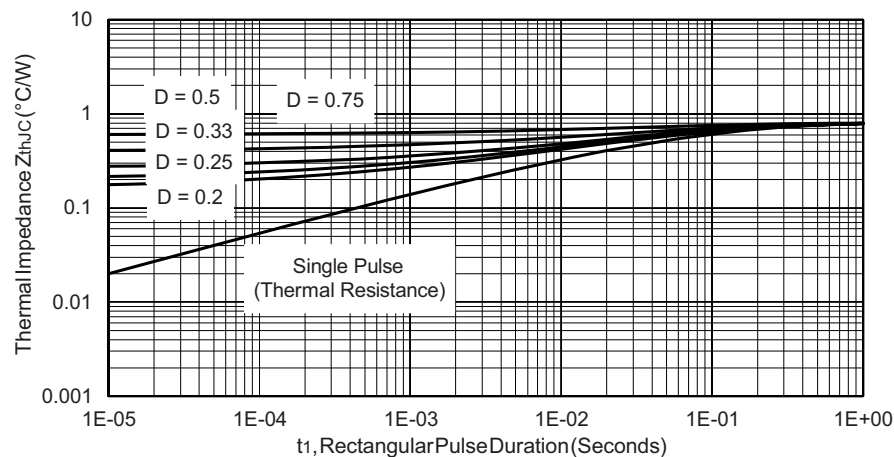


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage


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

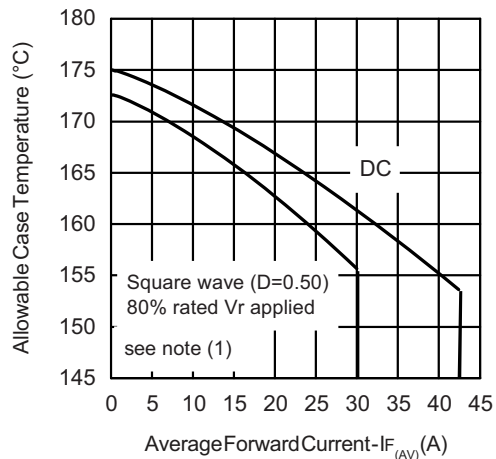


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current

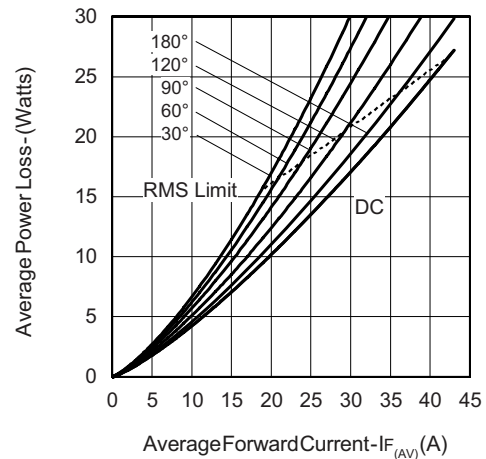


Fig. 6 - Forward Power Loss Characteristics

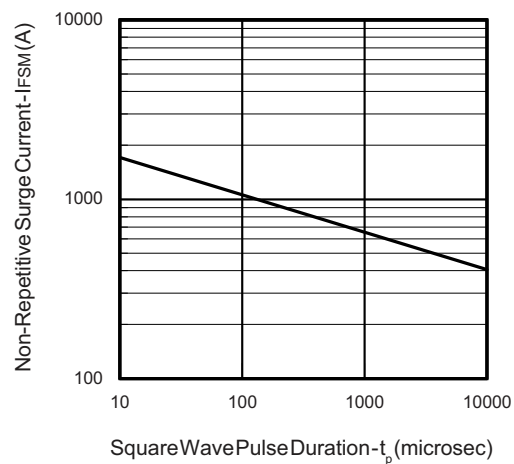


Fig. 7 - Maximum Non-Repetitive Surge Current

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

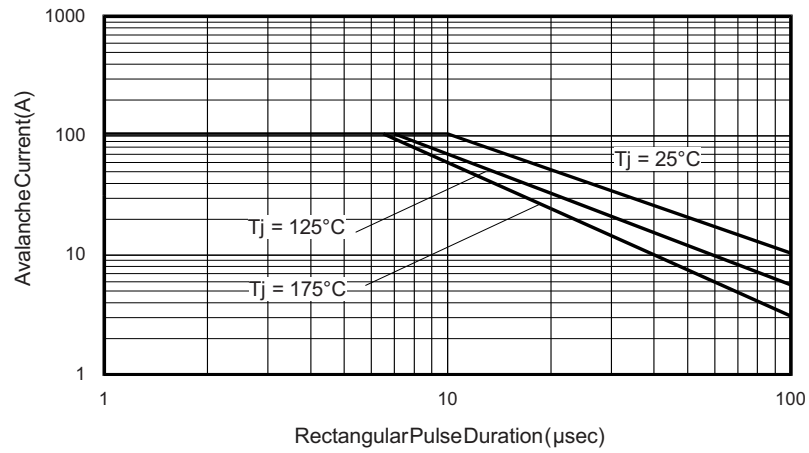


Fig. 8 - Reverse Bias Safe Operating Area (Avalanche Current vs. Rectangular Pulse Duration)

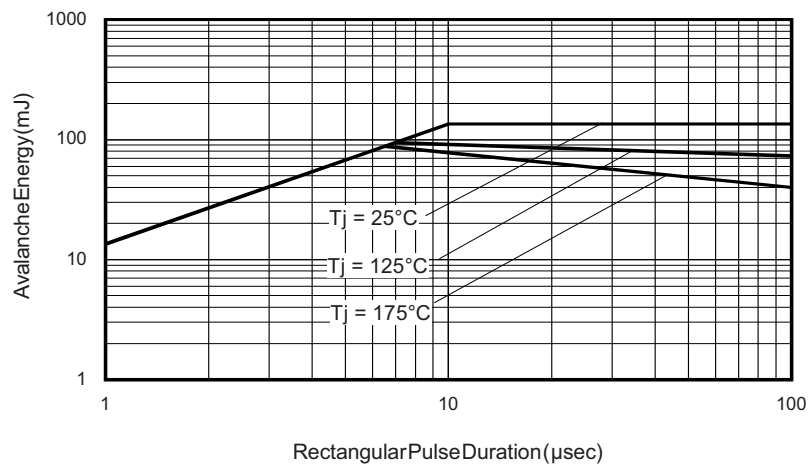
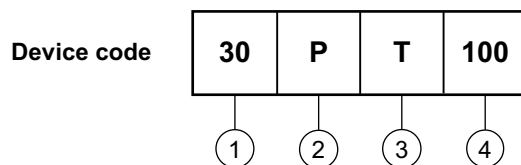


Fig. 9 - Reverse Bias Safe Operating Area (Avalanche Energy vs. Rectangular Pulse Duration)

ORDERING INFORMATION TABLE



- 1 - Current rating (30 A)
- 2 - Package:
P = TO-247 (modified)
- 3 - T = Trench
- 4 - Voltage code (100 V)

Tube standard pack quantity: 25 pieces

LINKS TO RELATED DOCUMENTS	
Dimensions	http://www.vishay.com/doc?95253
Part marking information	http://www.vishay.com/doc?95255
SPIICE model	http://www.vishay.com/doc?95232



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