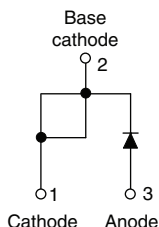


High Performance Schottky Generation 5.0, 8 A


TO-220AC


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

$I_{F(AV)}$	8 A
V_R	100 V
V_F at 8 A at 125 °C	0.58 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
V_{RRM}		100	V
V_F	8 Apk, $T_J = 125$ °C (typical)	0.55	
T_J	Range	- 55 to 175	°C

VOLTAGE RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	8TT100	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 $T_C = 163\text{ }^{\circ}\text{C}$, rectangular waveform		8	A
Maximum peak one cycle non-repetitive surge current	I_{FSM}	5 μs sine or 3 μs rect. pulse	Following any rated load condition and with rated V_{RRM} applied	850	
		10 ms sine or 6 ms rect. pulse		210	
Non-repetitive avalanche energy	E_{AS}	$T_J = 25\text{ }^{\circ}\text{C}$, $I_{AS} = 1.5\text{ A}$, $L = 60\text{ mH}$		67	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	$V_{FM}^{(1)}$	8 A	-	0.72	V
		16 A		0.85	
		8 A	-	0.58	
		16 A		0.69	
Reverse leakage current	$I_{RM}^{(1)}$	$T_J = 25\text{ }^{\circ}\text{C}$	-	65	μA
		$T_J = 125\text{ }^{\circ}\text{C}$	-	4	mA
Junction capacitance	C_T	$V_R = 5\text{ V}_{DC}$ (test signal range 100 kHz to 1 MHz) $25\text{ }^{\circ}\text{C}$	520	-	pF
Series inductance	L_S	Measured lead to lead 5 mm from package body	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}		- 55 to 175	°C
Maximum thermal resistance, junction to case	R _{thJC}	DC operation	2	°C/W
Typical thermal resistance, case to heatsink	R _{thCS}	Mounting surface, smooth and greased	0.5	
Approximate weight			2	g
			0.07	oz.
Mounting torque	minimum		6 (5)	kgf · cm (lbf · in)
	maximum		12 (10)	
Marking device		Case style TO-220AC	8TT100	

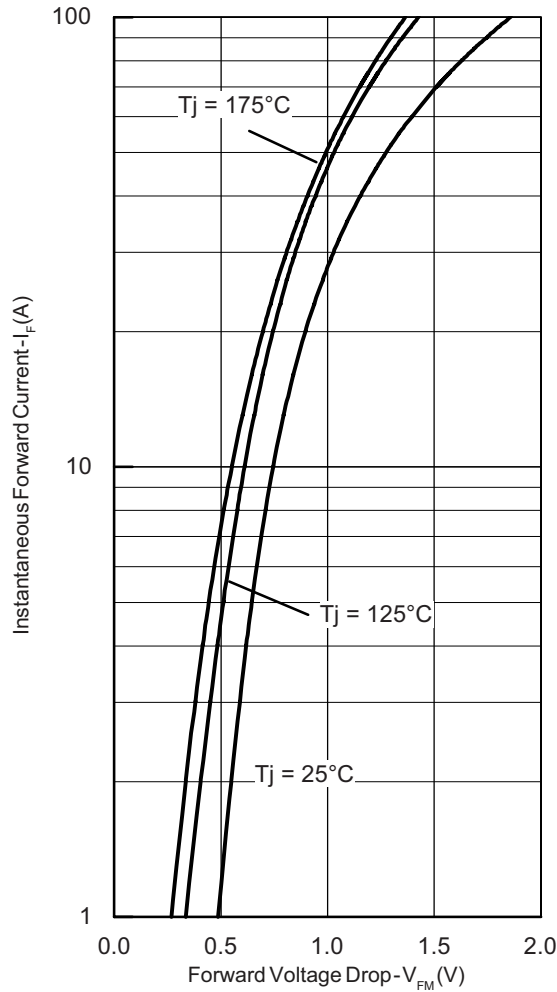


Fig. 1 - Maximum Forward Voltage Drop Characteristics

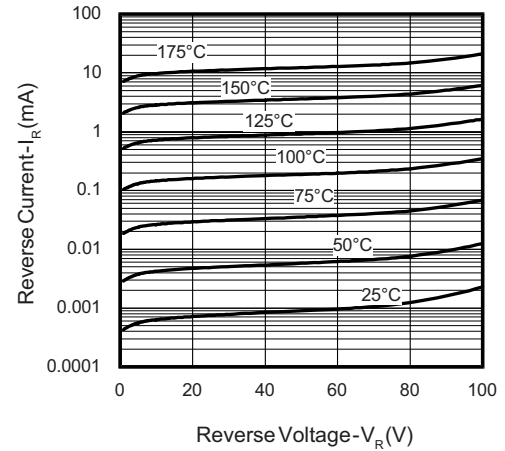


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

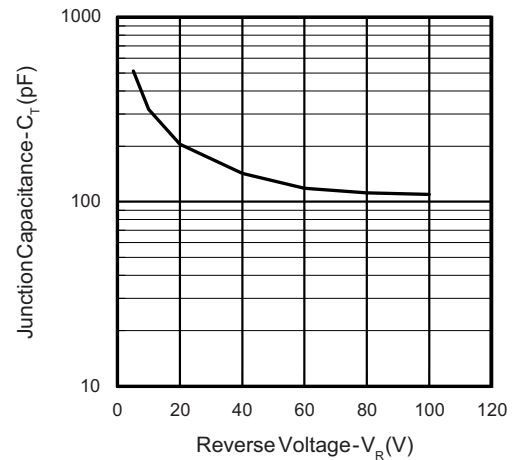
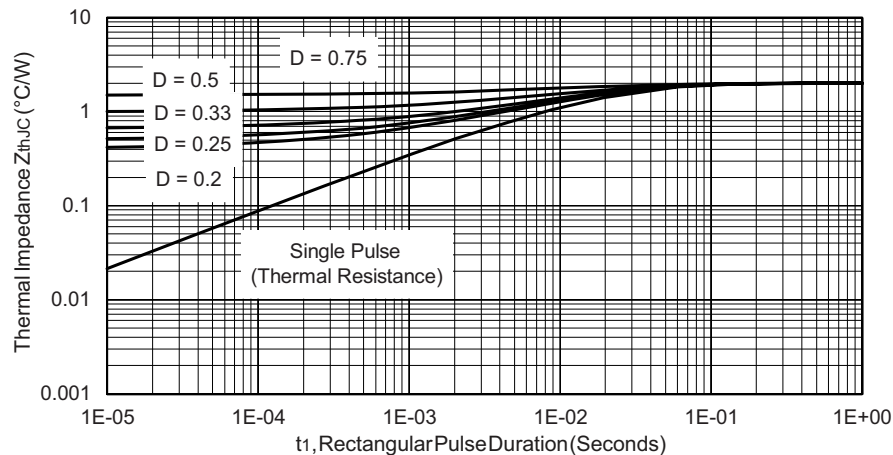


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage


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

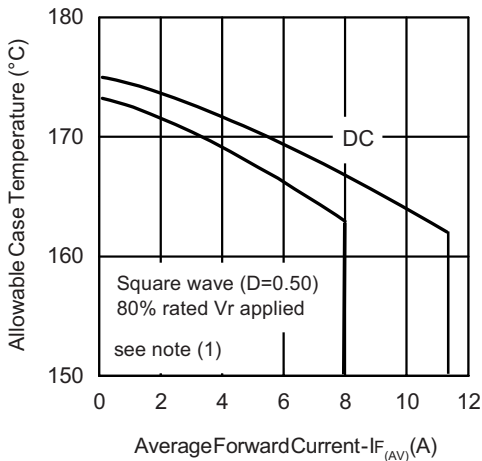


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current

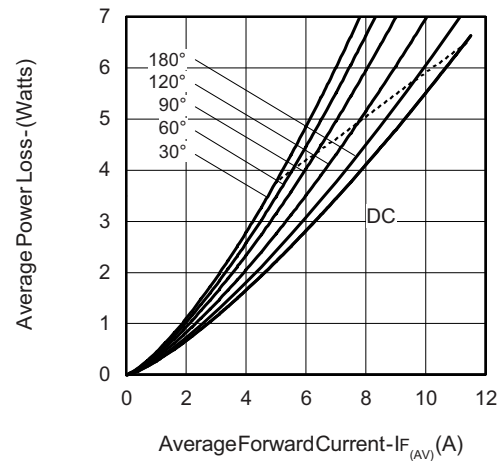


Fig. 6 - Forward Power Loss Characteristics

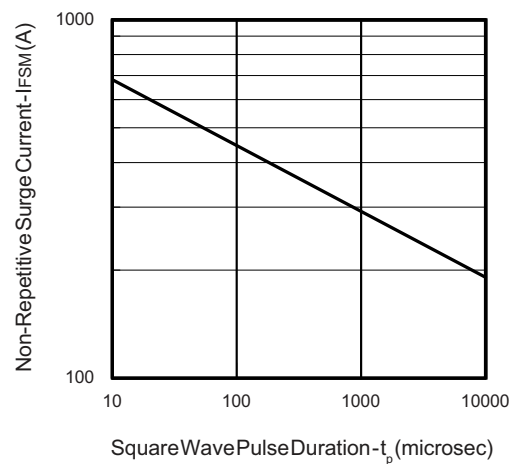


Fig. 7 - Maximum Non-Repetitive Surge Current

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

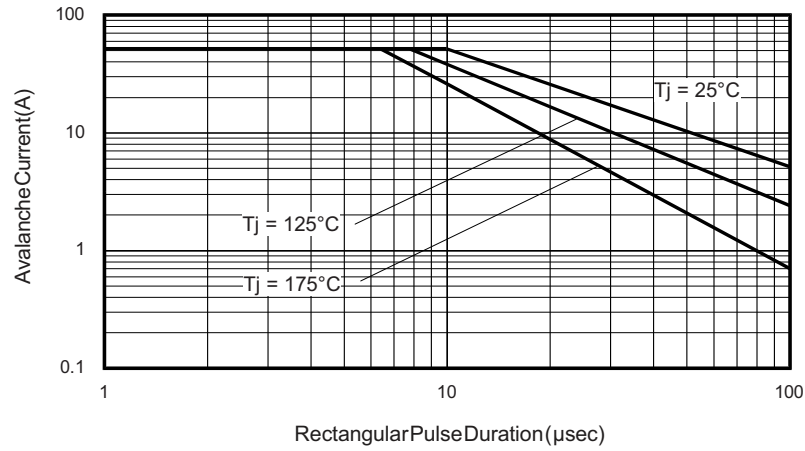


Fig. 8 - Reverse Bias Safe Operating Area (Avalanche Current vs. Rectangular Pulse Duration)

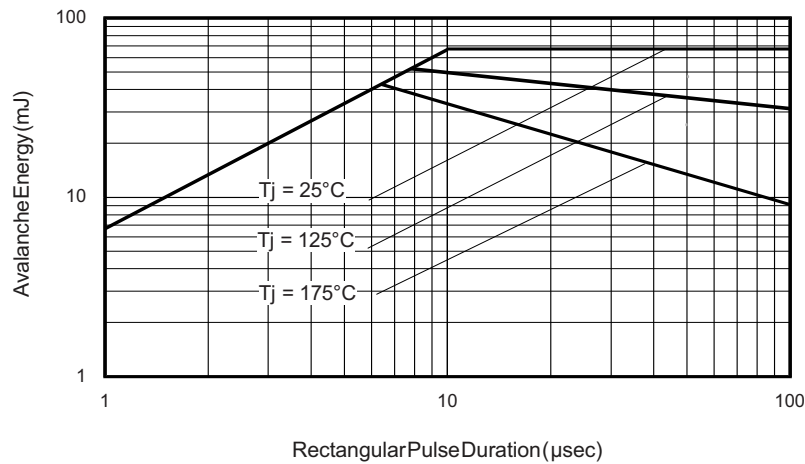
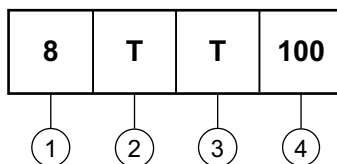


Fig. 9 - Reverse Bias Safe Operating Area (Avalanche Energy vs. Rectangular Pulse Duration)

ORDERING INFORMATION TABLE

Device code



- 1** - Current rating (8 A)
- 2** - Package:
T = TO-220
- 3** - T = Trench
- 4** - Voltage code (100 V)

Tube standard pack quantity: 50 pieces

LINKS TO RELATED DOCUMENTS	
Dimensions	http://www.vishay.com/doc?95221
Part marking information	http://www.vishay.com/doc?95224
SPICE model	http://www.vishay.com/doc?95231



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