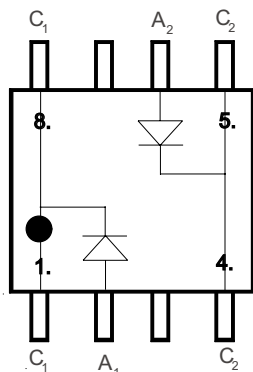


Gallium Arsenide Schottky Rectifier

Isolated Surface Mount Package

Preliminary Data

$$\begin{aligned} I_{DC} &= 4 \text{ A} \\ V_{RRM} &= 250 \text{ V} \\ C_{Junction} &= 9 \text{ pF} \end{aligned}$$



A = Anode, C = Cathode



Symbol	Conditions	Maximum Ratings	
I_{FAV}	$T_C = 25^\circ\text{C}$; DC	04	A
I_{FAV}	$T_C = 90^\circ\text{C}$; DC	3.5	A
I_{FSM}	$T_{VJ} = 45^\circ\text{C}$; $t_p = 10 \text{ ms}$ (50 Hz), sine	10	A
T_{VJ}		-55...+175	$^\circ\text{C}$
T_{stg}		-55...+150	$^\circ\text{C}$
P_{tot}	$T_C = 25^\circ\text{C}$ (20W/device)	TBD	W
Isolation	(Substrate to Case)	>2500	V
Isolation	(Diode to Diode)	>600	V

Features

- Low forward voltage
- Very high switching speed
- $T_{rr} < 15\text{ns}$
- Low junction capacity of GaAs
- low reverse current peak at turn off
- Soft turn off
- Temperature independent switching behaviour
- High temperature operation capability
- Epoxy meets UL 94V-0

Symbol	Conditions	Characteristic Values		
		typ.	max.	
I_R	$T_{VJ} = 25^\circ\text{C}$ $V_R = V_{RRM}$		1.3	mA
	$T_{VJ} = 125^\circ\text{C}$ $V_R = V_{RRM}$	1.3		mA
V_F	$I_F = 2 \text{ A}$; $T_{VJ} = 125^\circ\text{C}$	1.3		V
	$I_F = 2 \text{ A}$; $T_{VJ} = 25^\circ\text{C}$	1.2	1.5	V
C_J	$V_R = 100 \text{ V}$; $T_{VJ} = 125^\circ\text{C}$	9		pF
R_{thJC}			125	C/W

Applications

- MHz switched mode power supplies (SMPS)
- High frequency converters
- Resonant converters

Pulse test: τ_c Pulse Width = 5 ms, Duty Cycle < 2.0 %

Data per diode unless otherwise specified

IXYSRF reserves the right to change limits, conditions and dimensions.

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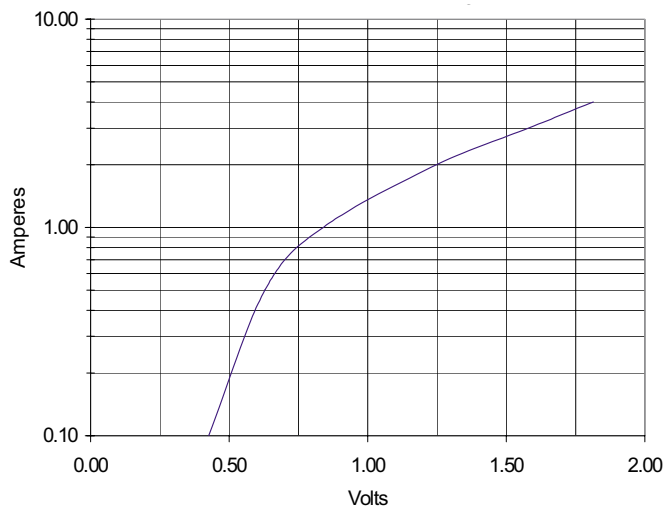


Fig. 1 Typical forward characteristics

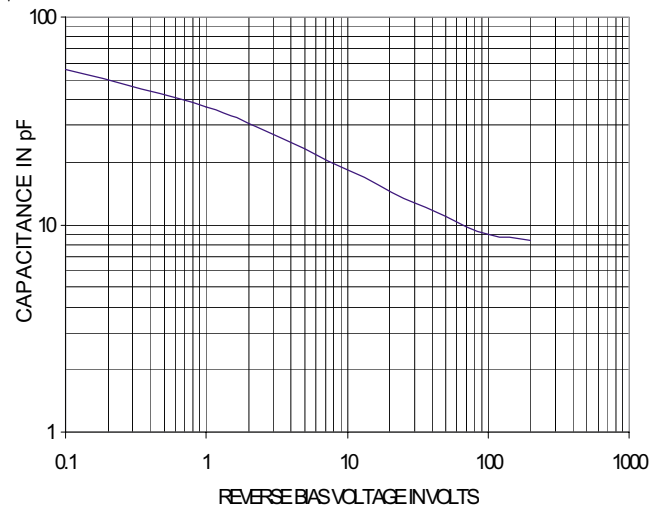


Fig. 2 Typical junction capacity versus blocking voltage

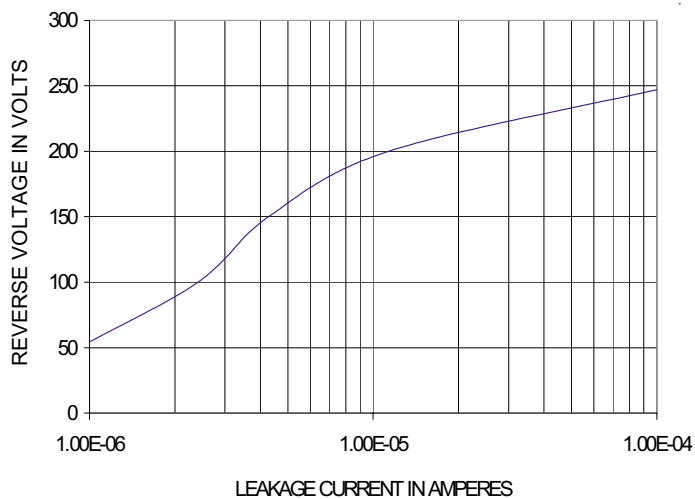


Fig. 3 Typical leakage current vs. voltage at 25C

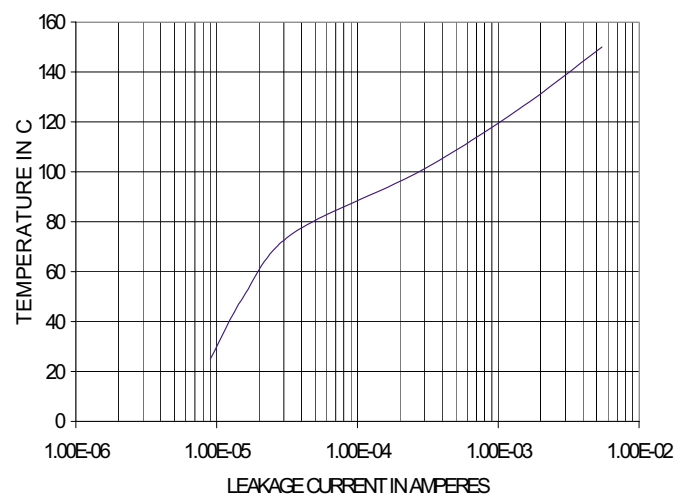


Fig. 4 Typical leakage current vs. temperature at 100V Reverse

Explanatory comparison of the basic operational behavior of rectifier diodes and Gallium Arsenide Schottky diodes:

	Rectifier Diode	GaAs Schottky Diode
Conduction	By majority + minority carriers	By majority carriers only
Forward characteristics	$V_F(I_F)$	$V_F(I_F)$, see Fig. 1
Turn off characteristics	Extraction of excess carriers causes temperature dependant reverse recovery (t_{rr} , I_{RM} , Q_{rr})	Reverse current charges junction capacity C_J , see Fig. 2; not temperature dependent
Turn on characteristics	Delayed saturation leads to V_{FR}	No turn on overvoltage peak