

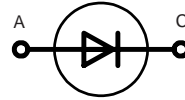
Gallium Arsenide Schottky Rectifier

$$I_{FAV} = 12 \text{ A}$$

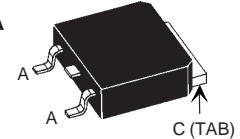
$$V_{RRM} = 100 \text{ V}$$

$$C_{\text{Junction}} = 19 \text{ pF}$$

V_{RSM} V	V_{RRM} V	Type	Marking on product
100	100	DGS 3-01AS	3A010AS



TO-252 AA



A = Anode, C = Cathode, TAB = Cathode

Symbol	Conditions	Maximum Ratings	
I_{FAV}	$T_C = 25^\circ\text{C}$; DC	12	A
I_{FAV}	$T_C = 90^\circ\text{C}$; DC	8.5	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_{sig}		-55...+150	$^\circ\text{C}$
P_{tot}	$T_C = 25^\circ\text{C}$	18	W

Features

- Low forward voltage
- Very high switching speed
- 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 ①	$V_R = V_{RRM}$; $T_{VJ} = 25^\circ\text{C}$ $V_R = V_{RRM}$; $T_{VJ} = 125^\circ\text{C}$	0.7	0.7 mA mA
V_F	$I_F = 2 \text{ A}$; $T_{VJ} = 125^\circ\text{C}$ $I_F = 2 \text{ A}$; $T_{VJ} = 25^\circ\text{C}$	0.54 0.62	V V
C_J	$V_R = 50 \text{ V}$; $T_{VJ} = 125^\circ\text{C}$	19	pF
R_{thJC}			8.5 K/W
Weight		0.3	g

Pulse test: ① Pulse Width = 5 ms, Duty Cycle < 2.0%

Data according to DIN/IEC 747 and per diode unless otherwise specified

Applications

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

tbd

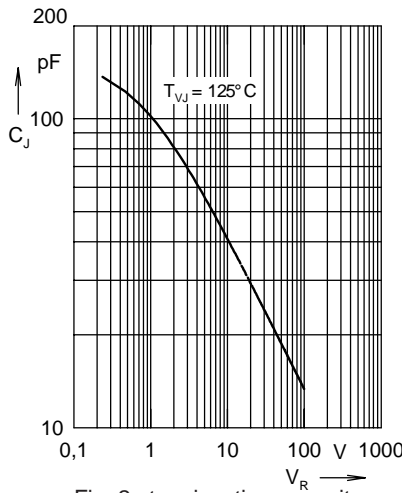


Fig. 1 typ. forward characteristics

Fig. 2 typ. junction capacity versus blocking voltage

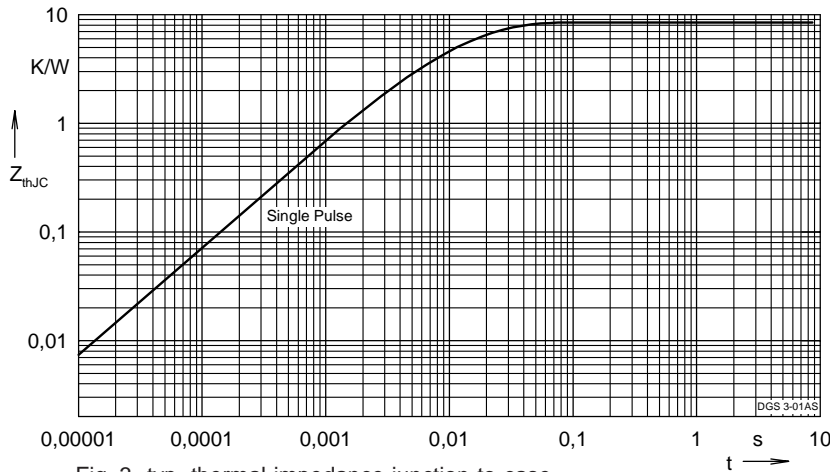


Fig. 3 typ. thermal impedance junction to case

TO-252 AA

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	2.19	2.38	0.086	0.094
A1	0.89	1.14	0.035	0.045
A2	0	0.13	0	0.005
b	0.64	0.89	0.025	0.035
b1	0.76	1.14	0.030	0.045
b2	5.21	5.46	0.205	0.215
c	0.46	0.58	0.018	0.023
c1	0.46	0.58	0.018	0.023
D	5.97	6.22	0.235	0.245
D1	4.32	5.21	0.170	0.205
E	6.35	6.73	0.250	0.265
E1	4.32	5.21	0.170	0.205
e	2.28 BSC		0.090 BSC	
e1	4.57 BSC		0.180 BSC	
H	9.40	10.42	0.370	0.410
L	0.51	1.02	0.020	0.040
L1	0.64	1.02	0.025	0.040
L2	0.89	1.27	0.035	0.050
L3	2.54	2.92	0.100	0.115

1 Anode
2 NC
3 Anode
4 Cathode

BACK VIEW

Note:
explanatory comparison of the basic operational behaviour 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 dependant
turn on characteristics	delayed saturation leads to V_{FR}	no turn on overvoltage peak

IXYS reserve the right to change limits, conditions and dimensions.