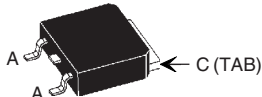


Gallium Arsenide Schottky Rectifier

$$I_{FAV} = 7 \text{ A}$$

$$V_{RRM} = 180 \text{ V}$$

$$C_{Junction} = 8.8 \text{ pF}$$

Type	Marking on product	Circuit	Package
			A = Anode, C = Cathode, TAB = Cathode
DGS 3-018AS	3A180AS		TO-252 AA 

Symbol	Conditions	Maximum Ratings	
$V_{RRM/RSM}$		180	V
I_{FAV}	$T_C = 25^\circ\text{C}$; DC	7	A
I_{FAV}	$T_C = 90^\circ\text{C}$; DC	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}	$T_C = 25^\circ\text{C}$	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

Applications

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

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	$I_F = 2 \text{ A}$; $T_{VJ} = 125^\circ\text{C}$ $I_F = 2 \text{ A}$; $T_{VJ} = 25^\circ\text{C}$	0.85 0.85	V 1.1 V
C_J	$V_R = 100 \text{ V}$; $T_{VJ} = 125^\circ\text{C}$	8.8	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

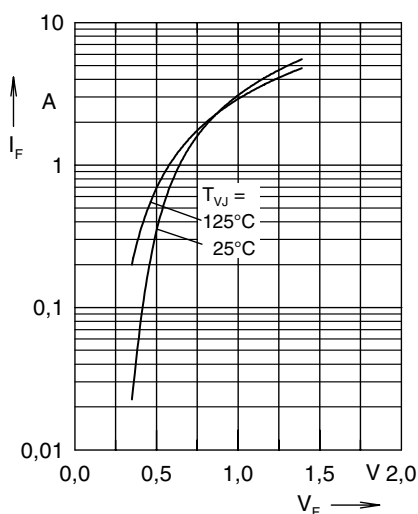


Fig. 1 typ. forward characteristics

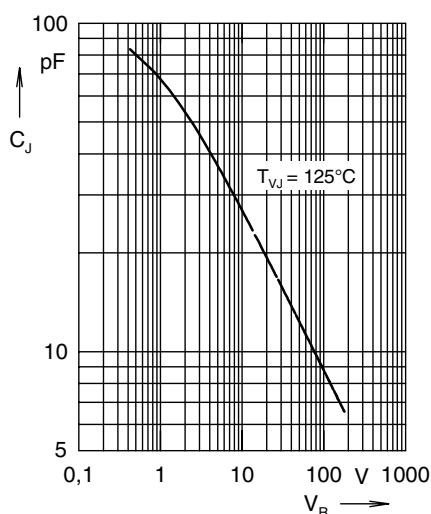


Fig. 2 typ. junction capacity versus blocking voltage

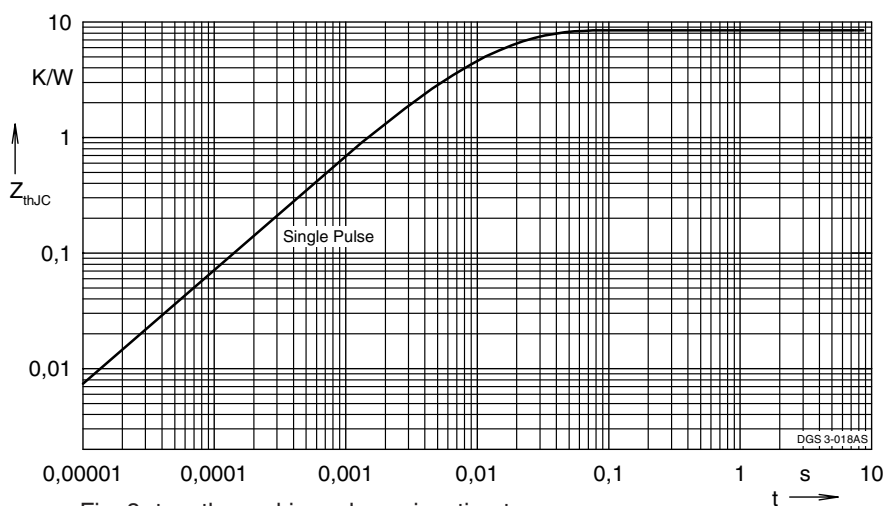
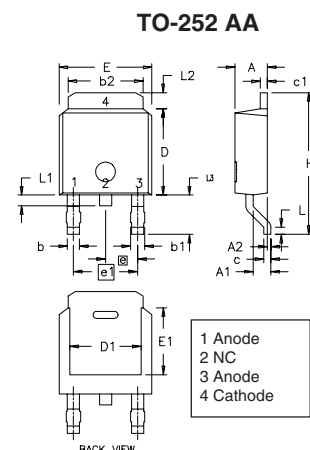


Fig. 3 typ. thermal impedance junction to case



Dim.	Millimeter Min. Max.	Inches 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

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

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