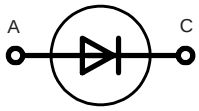
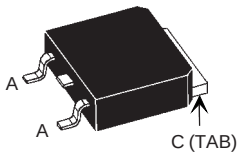
Gallium Arsenide Schottky Rectifier

I_{FAV} = 12 A
V_{RRM} = 100 V
$C_{Junction}$ = 19 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°C; DC	12	A
I_{FAV}	T_C = 90°C; DC	8.5	A
I_{FSM}	T_{VJ} = 45°C; t_p = 10 ms (50 Hz); sine	10	A
T_{VJ}		-55...+175	°C
T_{stg}		-55...+150	°C
P_{tot}	T_C = 25°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°C		0.7	mA
	$V_R = V_{RRM}$;	T_{VJ} = 125°C	0.7		mA
V_F	I_F = 2 A;	T_{VJ} = 125°C	0.54		V
	I_F = 2 A;	T_{VJ} = 25°C	0.62	0.8	V
C_J	V_R = 50 V;	T_{VJ} = 125°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

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

238

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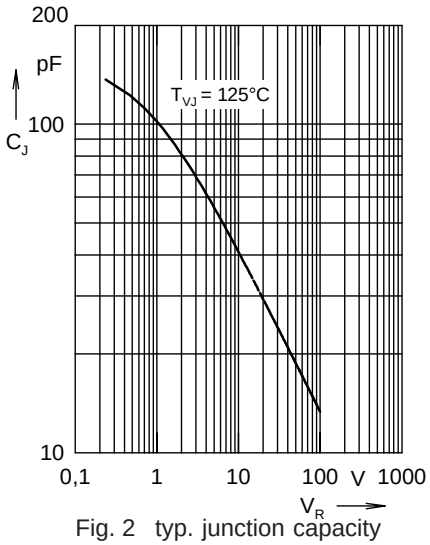


Fig. 1typ. forward characteristics

Fig. 2 typ. junction capacity versus blocking voltage

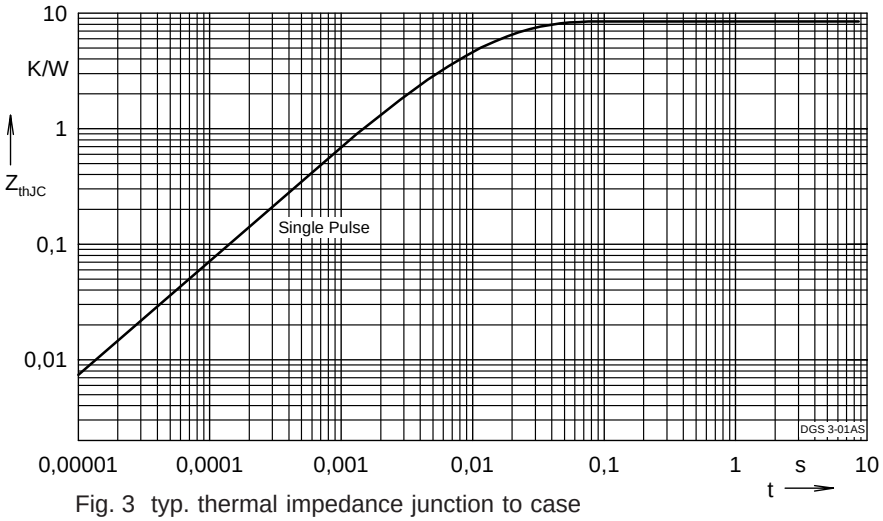
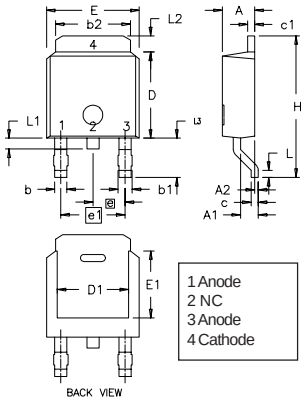


Fig. 3 typ. thermal impedance junction to case

TO-252 AA



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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238