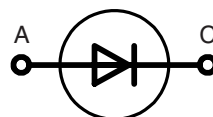
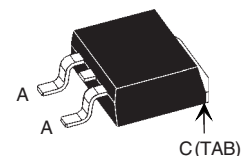


Gallium Arsenide Schottky Rectifier

$$\begin{aligned} I_{FAV} &= 23 \text{ A} \\ V_{RRM} &= 180 \text{ V} \\ C_{Junction} &= 33 \text{ pF} \end{aligned}$$

V_{RSM} V	V_{RRM} V	Type
180	180	DGS 20-018AS


TO-263 AB


A = Anode, C = Cathode, TAB = Cathode

Symbol	Conditions	Maximum Ratings	
I_{FAV}	$T_C = 25^\circ\text{C}$; DC	23	A
I_{FAV}	$T_C = 90^\circ\text{C}$; DC	17	A
I_{FSM}	$T_{VJ} = 45^\circ\text{C}$; $t_p = 10 \text{ ms}$ (50 Hz), sine	30	A
T_{VJ}		-55...+175	$^\circ\text{C}$
T_{stg}		-55...+150	$^\circ\text{C}$
P_{tot}	$T_C = 25^\circ\text{C}$	48	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	$T_{VJ} = 25^\circ\text{C}$ $V_R = V_{RRM}$ $T_{VJ} = 125^\circ\text{C}$ $V_R = V_{RRM}$	2.0	2.0 mA mA
V_F	$I_F = 7.5 \text{ A}$; $T_{VJ} = 125^\circ\text{C}$ $I_F = 7.5 \text{ A}$; $T_{VJ} = 25^\circ\text{C}$	0.8 0.8	V V
C_J	$V_R = 100 \text{ V}$; $T_{VJ} = 125^\circ\text{C}$	33	pF
R_{thJC}		3.1	K/W
Weight		2	g

Applications

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

Pulse test: ① Pulse Width = 5 ms, Duty Cycle < 2.0 %
Data according to IEC 60747 and per diode unless otherwise specified

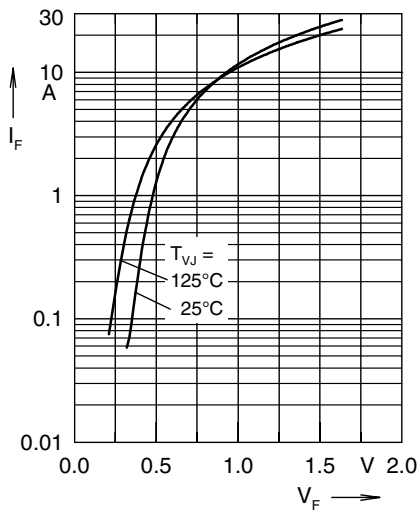


Fig. 1 typ. forward characteristics

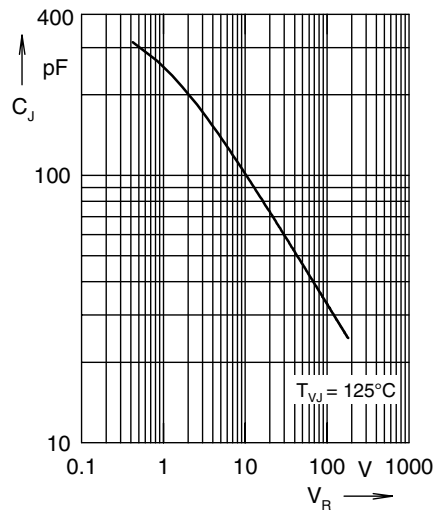


Fig. 2 typ. junction capacity versus blocking voltage

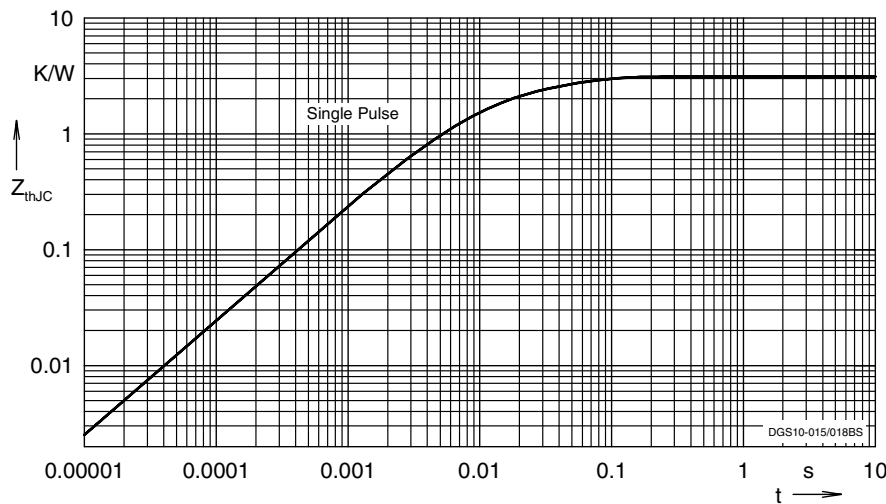
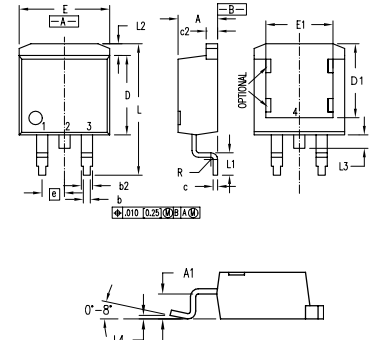


Fig. 3 typ. thermal impedance junction to case

Outline TO-263 AB



Dim.	Millimeter	Inches
	Min. Max.	Min. Max.
A	4.06 4.83	.160 .190
A1	2.03 2.79	.080 .110
b	0.51 0.99	.020 .039
b2	1.14 1.40	.045 .055
c	0.46 0.74	.018 .029
c2	1.14 1.40	.045 .055
D	8.64 9.65	.340 .380
D1	8.00 8.89	.315 .350
E	9.65 10.29	.380 .405
E1	6.22 8.13	.245 .320
e	2.54 BSC	.100 BSC
L	14.61 15.88	.575 .625
L1	2.29 2.79	.090 .110
L2	1.02 1.40	.040 .055
L3	1.27 1.78	.050 .070
L4	0 0.20	0 .008
R	0.46 0.74	.018 .029

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