

Gallium Arsenide Schottky Rectifier

$$I_{FAV} = 14 \text{ A}$$

$$V_{RRM} = 150/180 \text{ V}$$

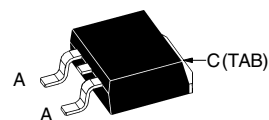
$$C_{Junction} = 22 \text{ pF}$$

Preliminary Data

V_{RSM} V	V_{RRM} V	Type
150	150	DGS 10-015BS
180	180	DGS 10-018BS



TO-263 AB



A = Anode, C = Cathode, TAB = Cathode

Symbol	Conditions	Maximum Ratings	
I_{FAV}	$T_C = 25^\circ\text{C}$; DC	14	A
I_{FAV}	$T_C = 90^\circ\text{C}$; DC	10	A
I_{FSM}	$T_{VJ} = 45^\circ\text{C}$; $t_p = 10 \text{ ms}$ (50 Hz), sine	20	A
T_{VJ}		-55...+175	$^\circ\text{C}$
T_{stg}		-55...+150	$^\circ\text{C}$
P_{tot}	$T_C = 25^\circ\text{C}$	34	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	$T_{VJ} = 25^\circ\text{C}$ $V_R = V_{RRM}$		1.3	mA
	$T_{VJ} = 125^\circ\text{C}$ $V_R = V_{RRM}$	1.6		mA
V_F	$I_F = 5 \text{ A}$; $T_{VJ} = 125^\circ\text{C}$	1.1		V
	$I_F = 5 \text{ A}$; $T_{VJ} = 25^\circ\text{C}$	1.2	1.3	V
C_J	$V_R = 100 \text{ V}$; $T_{VJ} = 125^\circ\text{C}$	22		pF
R_{thJC}			4.4	K/W
Weight		2		g

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

IXYS reserves the right to change limits, Conditions and dimensions.

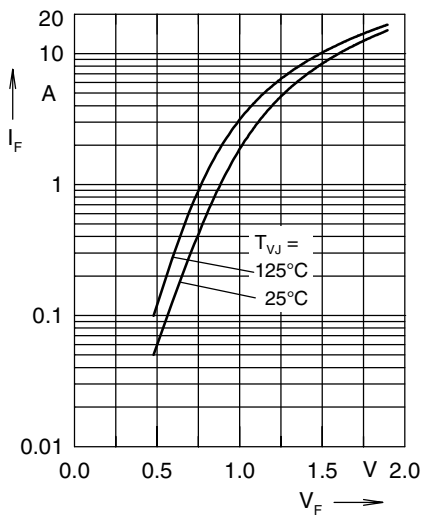


Fig. 1 typ. forward characteristics

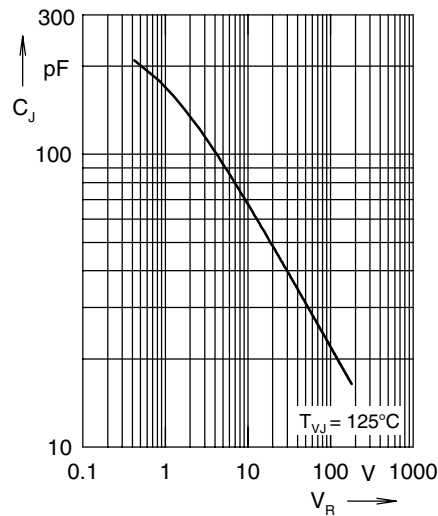


Fig. 2 typ. junction capacity versus blocking voltage

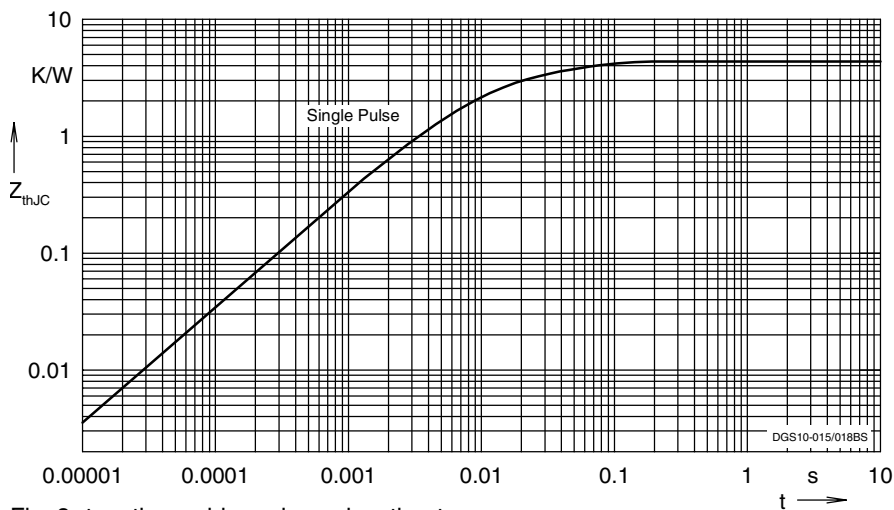


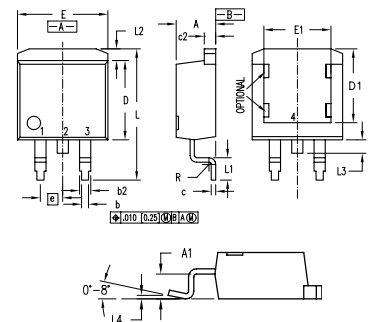
Fig. 3 typ. thermal impedance junction to case

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 not temperature dependant
turn on characteristics	delayed saturation leads to V_{FR}	no turn on overvoltage peak

Outline TO-263 AB



Dim.	Millimeter Min. Max.	Inches 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