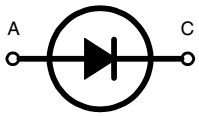
Gallium Arsenide Schottky Rectifier

I_{FAV} = 23 A
V_{RRM} = 180 V
$C_{Junction}$ = 33 pF

Preliminary Data

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



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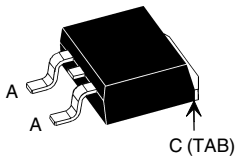

A = Anode, C = Cathode , TAB = Cathode

Symbol	Conditions	Maximum Ratings	
I_{FAV}	T_C = 25°C; DC	23	A
I_{FAV}	T_C = 90°C; DC	17	A
I_{FSM}	T_{VJ} = 45°C; t_p = 10 ms (50 Hz), sine	30	A
T_{VJ}		-55...+175	°C
T_{stg}		-55...+150	°C
P_{tot}	T_C = 25°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

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°C $V_R = V_{RRM}$		2.0	mA
	T_{VJ} = 125°C $V_R = V_{RRM}$	2.0		mA
V_F	I_F = 7.5 A; T_{VJ} = 125°C	0.8		V
	I_F = 7.5 A; T_{VJ} = 25°C	0.8	1.0	V
C_J	V_R = 100 V; T_{VJ} = 125°C	33		pF
R_{thJC}			3.1	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.

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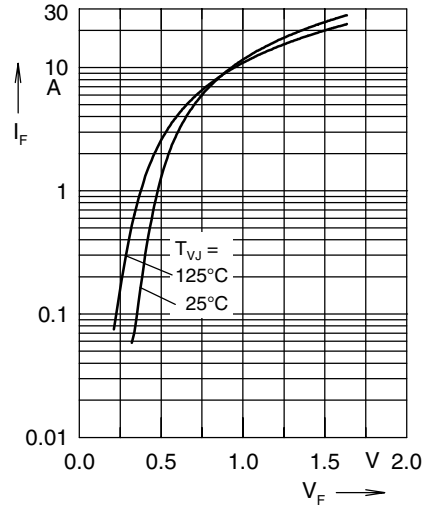


Fig. 1 typ. forward characteristics

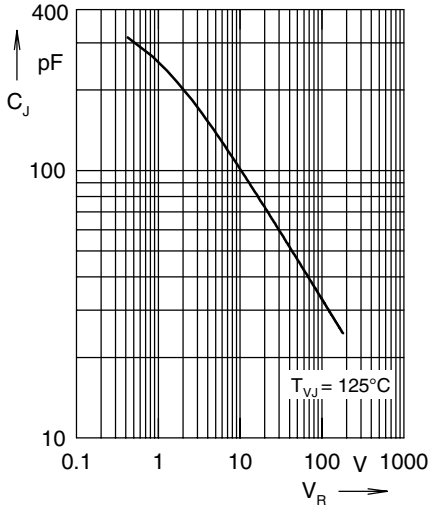


Fig. 2 typ. junction capacity versus blocking voltage

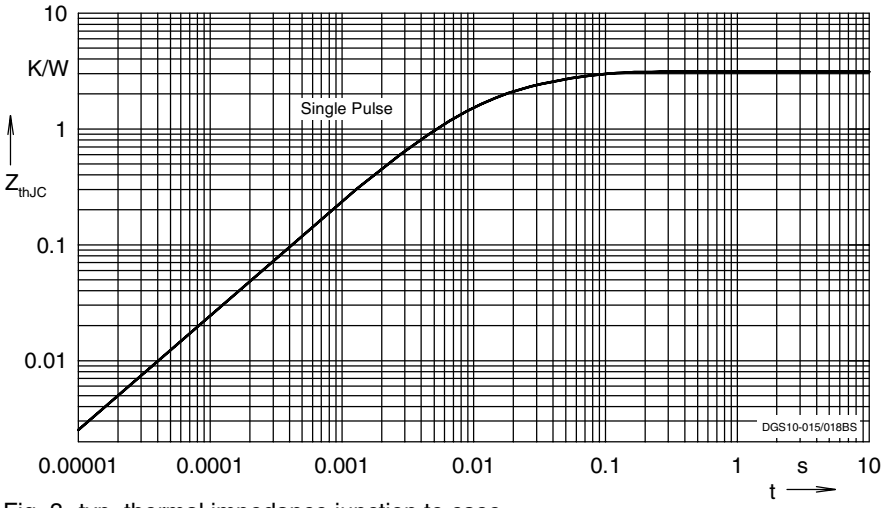
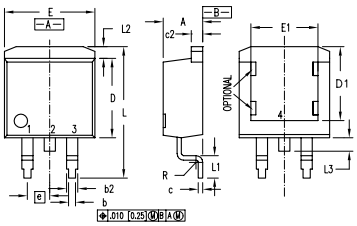


Fig. 3 typ. thermal impedance junction to case

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 junction capacity C_J, see Fig. 2; 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

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