

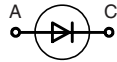

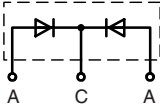

# Gallium Arsenide Schottky Rectifier

## Second generation

$$V_{RRM} = 300 \text{ V}$$

$$I_{DC} = 29 \text{ A}$$

$$C_{Junction} = 10.7 \text{ pF}$$

Type	Marking on product	Circuit	Package
DGS 17-03CS	17A300AS	Single 	TO-252 AA 
DGSK 36-03CS	DGSK 36-03CS	Common cathode 	TO-263 AB  A = Anode, TAB = Cathode

Diode				
Symbol	Conditions	Maximum Ratings		
$V_{RRM/RSM}$		300	V	
$I_{FAV}$	$T_C = 25^\circ\text{C}; \text{DC}$	29	A	
$I_{FAV}$	$T_C = 90^\circ\text{C}; \text{DC}$	17.5	A	
$I_{FSM}$	$T_{VJ} = 45^\circ\text{C}; t_p = 10 \text{ ms (50 Hz), sine}$	20	A	
$P_{tot}$	$T_C = 25^\circ\text{C}$	34	W	
Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
$V_F$	$I_F = 7.5 \text{ A}; T_{VJ} = 25^\circ\text{C}$	1.5	1.9	V
	$I_F = 7.5 \text{ A}; T_{VJ} = 125^\circ\text{C}$	1.1		V
$I_R$	$V_R = V_{RRM}; T_{VJ} = 25^\circ\text{C}$		0.25	mA
	$V_R = V_{RRM}; T_{VJ} = 125^\circ\text{C}$	0.25		mA
$I_{RM}$	$I_F = 5 \text{ A}; -di_F/dt = 150 \text{ A}/\mu\text{s};$ $V_R = 150 \text{ V}; T_{VJ} = 125^\circ\text{C}$	1.4		A
$t_{rr}$		23		ns
$C_J$	$V_R = 150 \text{ V}; T_{VJ} = 125^\circ\text{C}$	10.7		pF
$R_{thJC}$				4.4 KW

Data according to IEC 60747 and per diode unless otherwise specified

Component				
Symbol	Conditions	Maximum Ratings		
$T_{VJ}$		-55...+175	$^\circ\text{C}$	
$T_{stg}$		-55...+150	$^\circ\text{C}$	
Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
Weight	TO-252	0.3		g
	TO-263	2		g

### Features

*GaAs Schottky Diode with Enhanced Barrier Height:*

- lowest operating forward voltage drop due to additional injection of minority carriers
- high switching speed
  - low junction capacity of GaAs diode independent from temperature
  - short and low reverse recovery current peak due to short lifetime of minority carriers
  - soft turn off

*Surface Mount Packages:*

- Incorporating Single and Dual Diode Topologies
- Industry Standard Package Outlines
- Epoxy meets UL 94V-0

### Applications

*Switched Mode Power Supplies:*

- AC-DC converters
  - DC-DC converters
- with:*
- high switching frequency
  - high efficiency
  - low EMI
- for use e. g. in:*
- telecom
  - computer
  - automotive equipment

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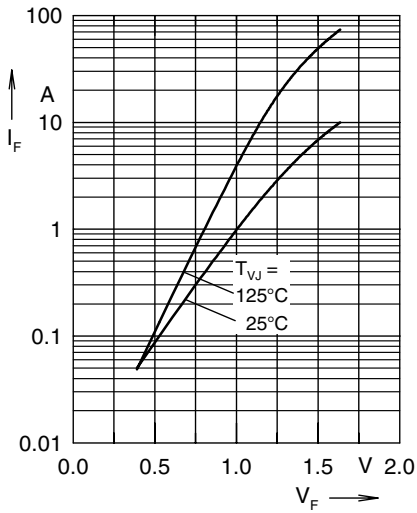


Fig. 1 typ. forward characteristics

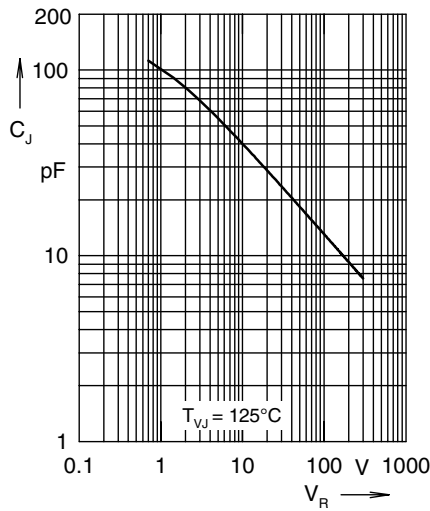


Fig. 2 typ. junction capacity versus blocking voltage

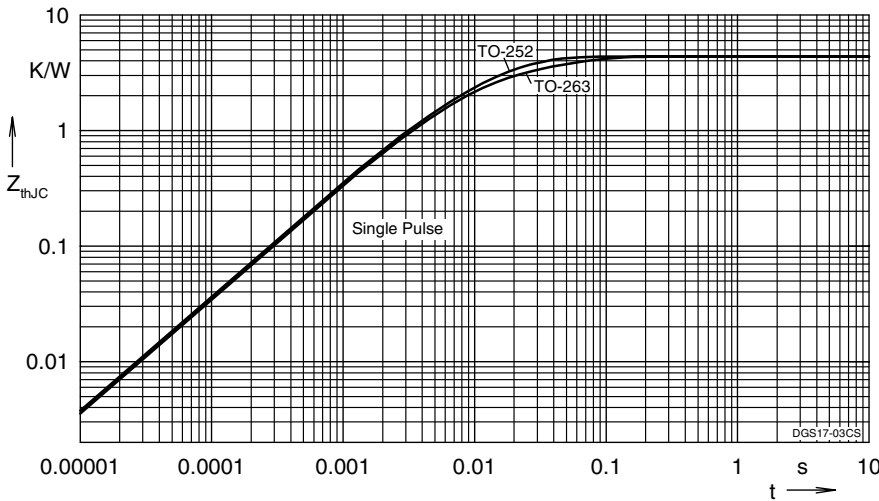
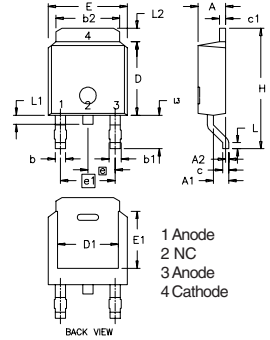


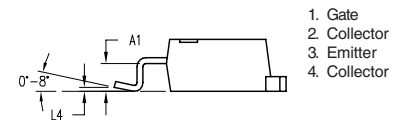
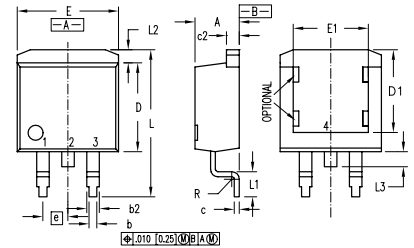
Fig. 3 typ. thermal impedance junction to case

### Outlines TO-252 AA



Dim.	Millimeter		Inches	
	Min.	Max.	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

### Outlines 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

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