

# Gallium Arsenide Schottky Rectifier

Second generation

ISOPLUS220™

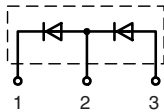
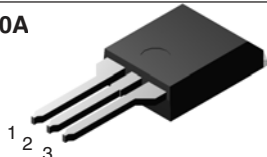
Electrically Isolated Back Surface

Preliminary Data

$$V_{RRM} = 600 \text{ V (2x300V)}$$

$$I_{DC} = 25 \text{ A}$$

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

Type	Marking on product	Circuit	Package
DGSS 10-06CC	DGSS 10-06CC		ISOPLUS220A 

Diode		
Symbol	Conditions	Maximum Ratings
$V_{RRM/RSM}$	(between terminal 1 and 3)	600 V
$V_{RRM/RSM}$		300 V
$I_{FAV}$	$T_C = 25^\circ\text{C}$ ; DC	25 A
$I_{FAV}$	$T_C = 90^\circ\text{C}$ ; DC	15 A
$I_{FSM}$	$T_{VJ} = 45^\circ\text{C}$ ; $t_p = 10 \text{ ms}$ (50 Hz), sine	80 A
$P_{tot}$	$T_C = 25^\circ\text{C}$	29 W

## 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
  - low leakage current
- ISOPLUS220™ Package:*
- isolated back surface
  - low coupling capacity between pins and heatsink
  - enlarged creepage
  - high reliability
  - industry standard outline

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
$V_F$	$I_F = 10 \text{ A}$ ; $T_{VJ} = 25^\circ\text{C}$		1.7	2.1 V
	$I_F = 10 \text{ A}$ ; $T_{VJ} = 125^\circ\text{C}$		1.2	V
$I_R$	$V_R = V_{RRM}$ ; $T_{VJ} = 25^\circ\text{C}$			0.25 mA
	$V_R = V_{RRM}$ ; $T_{VJ} = 125^\circ\text{C}$		25	$\mu\text{A}$
$I_{RM}$	} $I_F = 5 \text{ A}$ ; $-di_F/dt = 150 \text{ A}/\mu\text{s}$ ; $V_R = 150 \text{ V}$ ; $T_{VJ} = 125^\circ\text{C}$		1.4	A
			23	ns
$C_J$	$V_R = 150 \text{ V}$ ; $T_{VJ} = 125^\circ\text{C}$		10.7	pF
$R_{thJC}$				5.2 KW

Data according to IEC 60747 and per diode unless otherwise specified

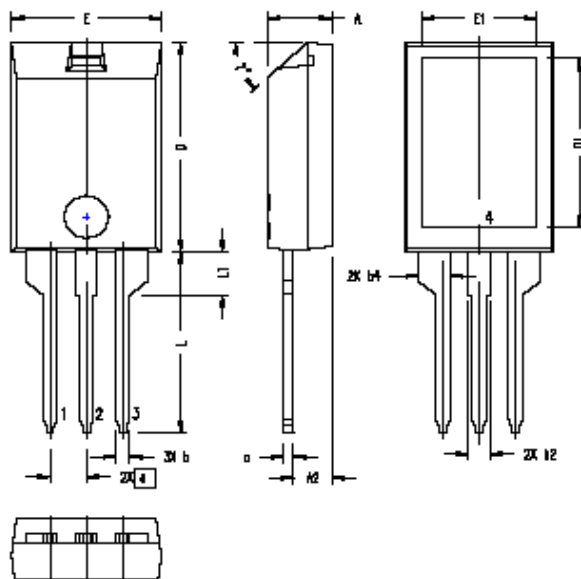
## Applications

*Power Factor Correction (PFC) 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

Component			
Symbol	Conditions	Maximum Ratings	
$I_{RMS}$	per pin	45	A
$T_{VJ}$		-55...+175	°C
$T_{stg}$		-55...+150	°C
$V_{ISOL}$	$I_{ISOL} \leq 1 \text{ mA}; 50/60 \text{ Hz}$	2500	V~
$F_c$	mounting force with clip	10...50	N

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
$C_p$	coupling capacity between shorted pins and mounting tab in the case		15	pF
$R_{thcs}$			0.3	K/W
Weight			2	g

**ISOPLUS220 OUTLINE**


SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.157	.197	4.00	5.00
A2	.098	.118	2.50	3.00
b	.035	.051	0.90	1.30
b2	.049	.065	1.25	1.65
b4	.093	.100	2.35	2.55
c	.028	.039	0.70	1.00
D	.591	.630	15.00	16.00
D1	.472	.512	12.00	13.00
E	.394	.433	10.00	11.00
E1	.295	.335	7.50	8.50
e	.100 BASIC		2.55 BASIC	
L	.512	.571	13.00	14.50
L1	.118	.138	3.00	3.50
T*			42.5*	47.5*

**NOTE:**

1. Bottom heatsink (Pin 4) is electrically isolated from Pin 1, 2, or 3.
2. This drawing will meet dimensional requirement of JEDEC SS Product Outline TO-273 except D and D1 dimension.

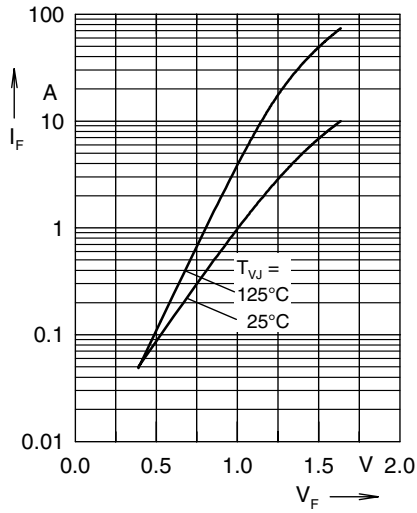


Fig. 1 typ. forward characteristics

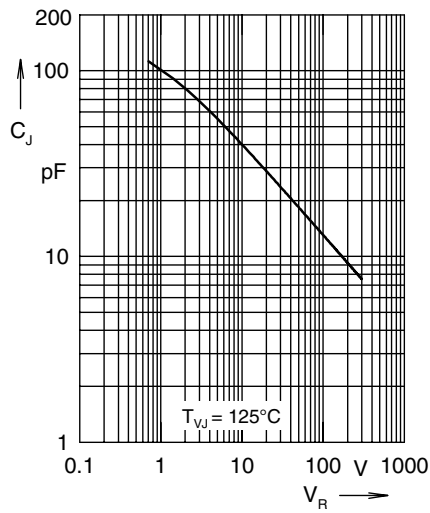


Fig. 2 typ. junction capacity versus blocking voltage

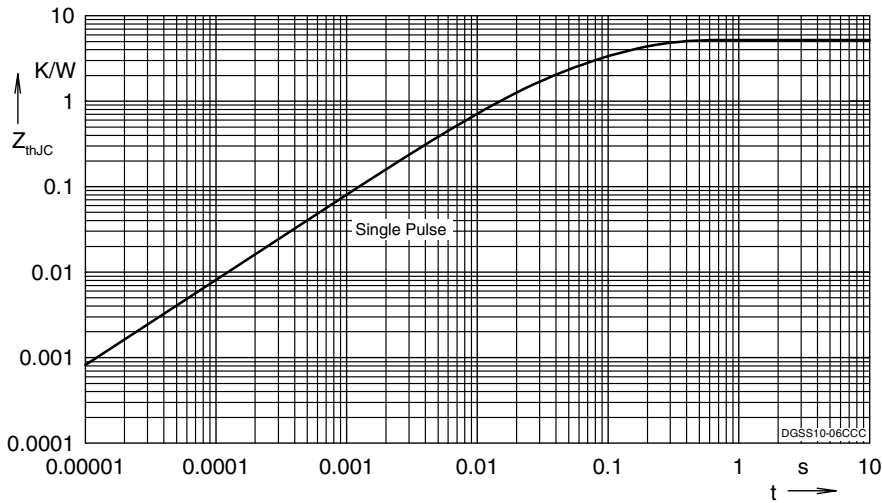


Fig. 3 typ. thermal impedance junction to case