

Features

- Extremely low reverse current
- No reverse recovery current
- Temperature independent switching
- Positive temperature coefficient on V_F
- Excellent surge current capability
- Low capacitive charge
- RoHS compliant with Halogen-free

HF

Applications

- Switch mode power supplies (SMPS)
- Uninterruptible power supplies
- Motor drivers
- Power factor correction

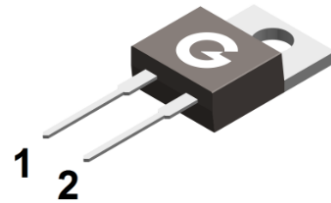
Mechanical Data

- Case: TO-220AC
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Tin-plated; solderability per MIL-STD-202, Method 208

Key performance parameters

Type	GSC2D0465
V_{DC}	650V
I_F @ 150°C	4A
Q_C @400V	13nC
T_j	175°C

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TO-220AC

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
GSC2D0465	TO-220AC	50 pcs / Tube	GSC2D0465

Maximum Ratings (@ $T_j = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	650	V
DC Blocking Voltage	V_{DC}	650	V
Continuous Forward Current ($T_C = 25^\circ\text{C}$)	I_F	11	A
Continuous Forward Current ($T_C = 150^\circ\text{C}$)	I_F	4	A
Peak Forward Surge Current (10ms single half sine-wave, $T_C = 25^\circ\text{C}$)	I_{FSM}	31	A
i^2dt value (10ms single half sine-wave, $T_C = 25^\circ\text{C}$)	$\int i^2 dt$	4.8	A^2s

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation ($T_C = 25^\circ\text{C}$)	P_D	50	W
Power Dissipation ($T_C = 110^\circ\text{C}$)	P_D	21	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	1.9	$^\circ\text{C/W}$
Operating junction Temperature	T_J	-55 ~ +175	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^\circ\text{C}$

Electrical Characteristics (@ $T_J = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Reverse Breakdown Voltage	$V_{(BR)R}$	$I_R = 100\mu\text{A}$	650	-	-	V
Forward Voltage	V_F	$I_F = 4\text{A}, T_J = 25^\circ\text{C}$	-	1.3	1.5	V
		$I_F = 4\text{A}, T_J = 175^\circ\text{C}$	-	1.55	2.2	V
Maximum Peak Reverse Current	I_R	$V_R = 650\text{V}, T_J = 25^\circ\text{C}$	-	0.1	20	μA
		$V_R = 650\text{V}, T_J = 175^\circ\text{C}$	-	2.5	100	μA
Total Capacitive Charge	Q_C	$V_R = 400\text{V}$	-	13	-	nC
Total Capacitance	C_J	$V_R = 0\text{V}, f = 1\text{MHz}$	-	228	-	pF
		$V_R = 200\text{V}, f = 1\text{MHz}$	-	31	-	
		$V_R = 400\text{V}, f = 1\text{MHz}$	-	27	-	

Ratings and Characteristics Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

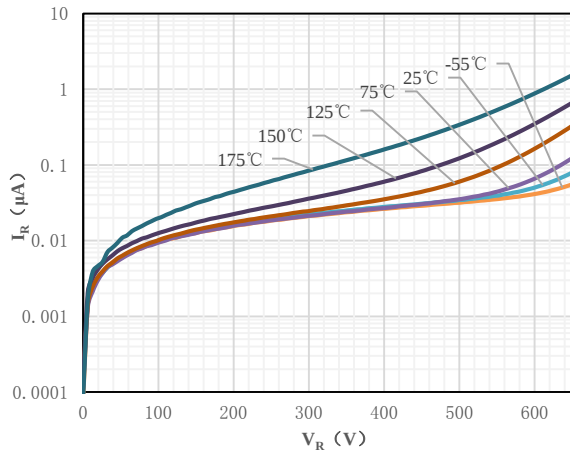


Fig 1 Typical Reverse Characteristic

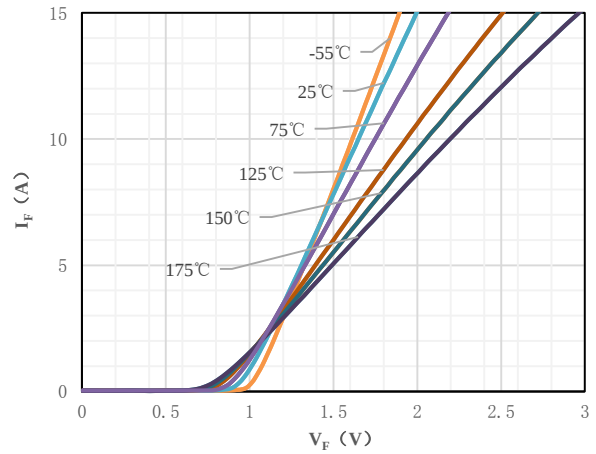


Fig 2 Typical Forward Characteristics

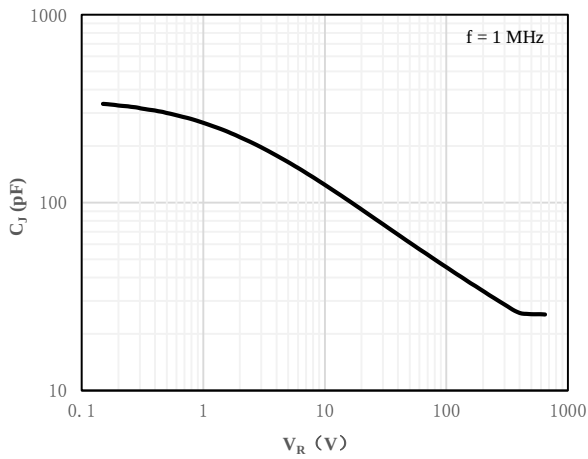


Fig 3 Capacitance vs. Reverse Voltage

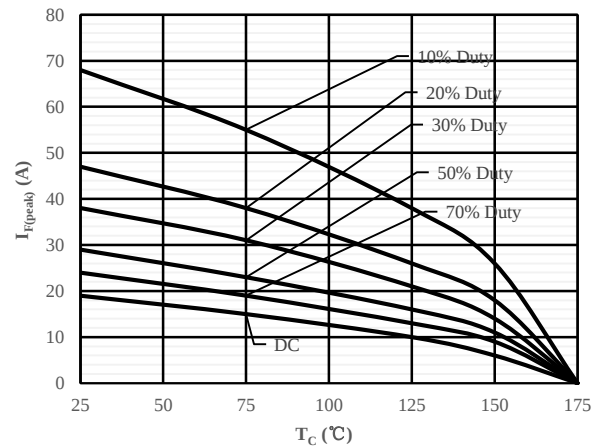


Fig 4 Current Derating

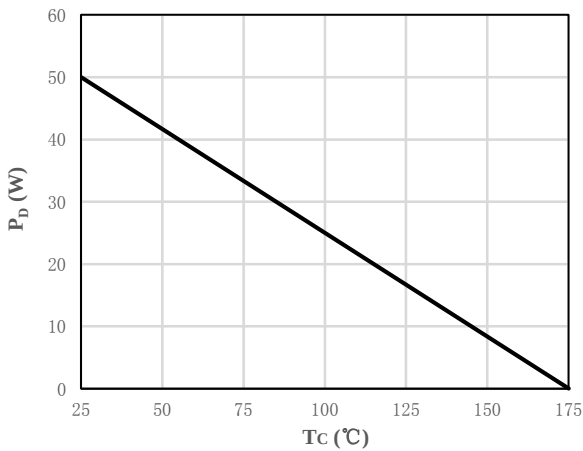
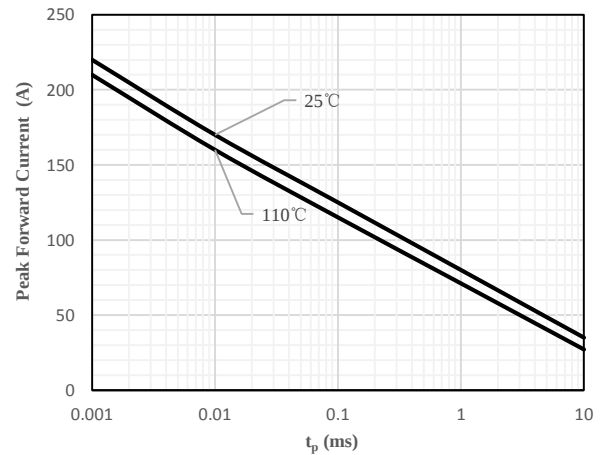
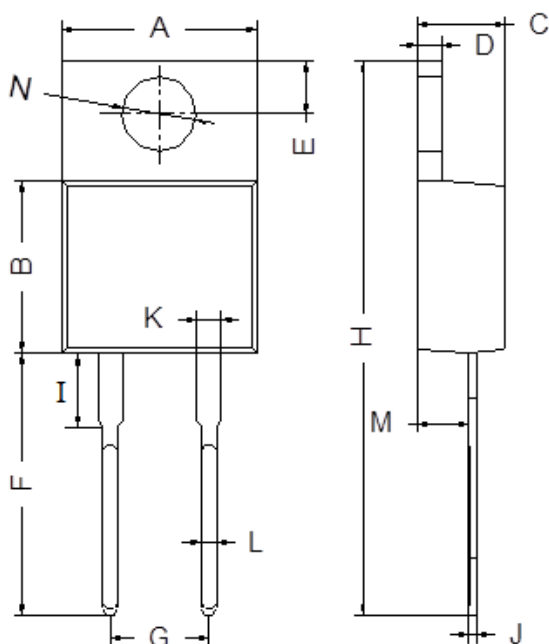


Fig 5 Power Derating



**Fig 6 Non-repetitive Peak Forward Surge Current
vs. Pulse Duration (Sinusoidal Waveform)**

Package Outline Dimensions (Unit: mm)



TO-220AC		
Dimension	Min.	Max.
A	9.80	10.30
B	8.70	9.10
C	4.37	4.77
D	1.07	1.47
E	2.64	2.84
F	13.14	13.74
G	4.98	5.18
H	28.03	28.83
I	3.50	4.00
J	0.28	0.48
K	1.22	1.32
L	0.71	0.91
M	2.40	2.60
N	3.76	3.96