

Features

- Low conduction loss due to low V_F
- Extremely low switching loss by tiny Q_C
- Highly rugged due to better surge current
- Industrial standard quality and reliability

HF

Applications

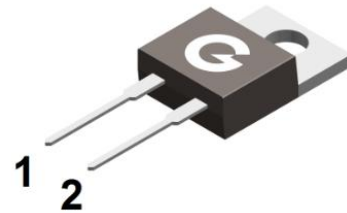
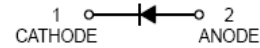
- UPS
- Power Inverter
- High performance SMPS
- Power factor correction

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	GSC2D2065
V_{DC}	650V
$I_F @ 155^\circ\text{C}$	20A
$Q_C @ 400V$	62nC
T_J	175°C



TO-220AC

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
GSC2D2065	TO-220AC	50 pcs / Tube	GSC2D2065

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

Parameter	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	650	V
Surge Peak Reverse Voltage	V_{RSM}	650	V
DC Peak Reverse Voltage	V_R	650	V
Continuous Forward Current ($T_C = 25^\circ\text{C}$)	I_F	58	A
Continuous Forward Current ($T_C = 135^\circ\text{C}$)	I_F	30	A
Continuous Forward Current ($T_C = 155^\circ\text{C}$)	I_F	20	A
Non-Repetitive Forward Surge Current (10ms single half sine-wave, $T_C = 25^\circ\text{C}$)	I_{FSM}	160	A
Non-Repetitive Forward Surge Current (10ms single half sine-wave, $T_C = 110^\circ\text{C}$)		140	A
Repetitive Peak Forward Surge Current (10ms half sine-wave, $T_C = 25^\circ\text{C}$)	I_{FRM}	90	A
Repetitive Peak Forward Surge Current (10ms half sine-wave, $T_C = 110^\circ\text{C}$)		54	A
i^2dt value (10ms single half sine-wave, $T_C = 25^\circ\text{C}$)	$\int i^2 dt$	128	A^2s
i^2dt value (10ms single half sine-wave, $T_C = 110^\circ\text{C}$)		98	A^2s

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation ($T_C = 25^\circ\text{C}$)	P_D	136	W
Power Dissipation ($T_C = 110^\circ\text{C}$)		59	
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	1.10	$^\circ\text{C/W}$
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	$I_F = 20\text{A}, T_J = 25^\circ\text{C}$	-	1.3	1.5	V
		$I_F = 20\text{A}, T_J = 175^\circ\text{C}$	-	1.5	-	V
Maximum Peak Reverse Current	I_R	$V_R = 650\text{V}, T_J = 25^\circ\text{C}$	-	-	80	μA
		$V_R = 650\text{V}, T_J = 175^\circ\text{C}$	-	-	200	μA
Total Capacitive Charge	Q_C	$V_R = 400\text{V}, di/dt = 100\text{A}/\mu\text{s}$	-	62	-	nC
Total Capacitance	C_J	$V_R = 0\text{V}, f = 1\text{MHz}$	-	1176	-	pF
		$V_R = 200\text{V}, f = 1\text{MHz}$	-	119	-	
		$V_R = 400\text{V}, f = 1\text{MHz}$	-	98	-	

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

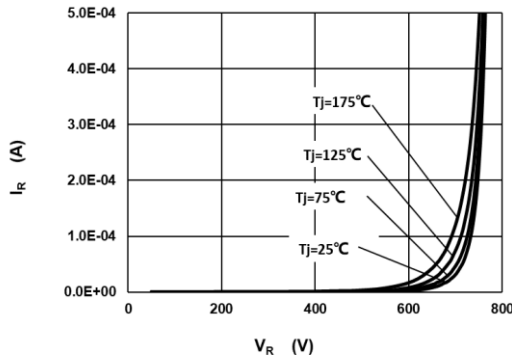


Fig 1 Typical Reverse Characteristic

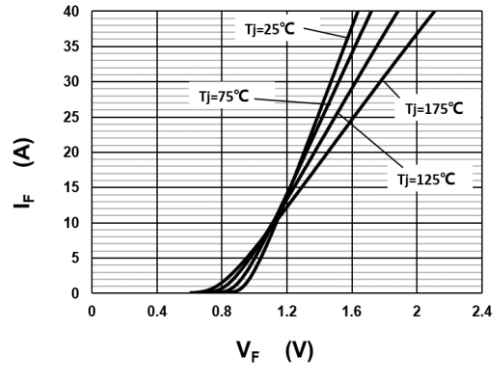


Fig 2 Typical Forward Characteristics

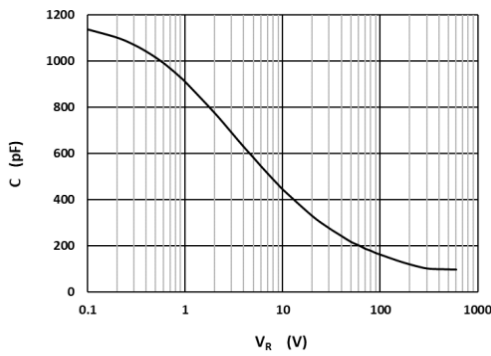


Fig 3 Capacitance vs. Reverse Voltage

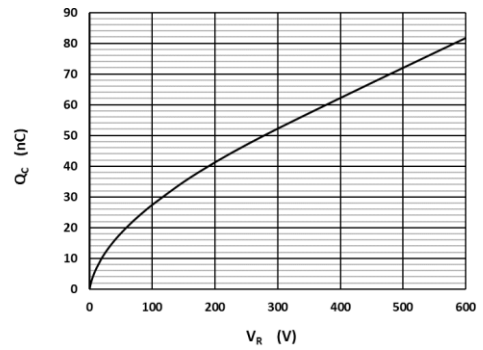


Fig 4 Reverse Charge vs. Reverse Voltage

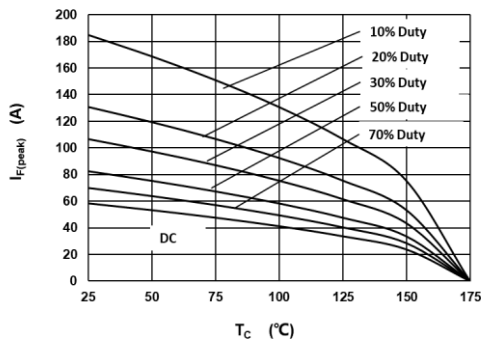


Fig 5 Current Derating

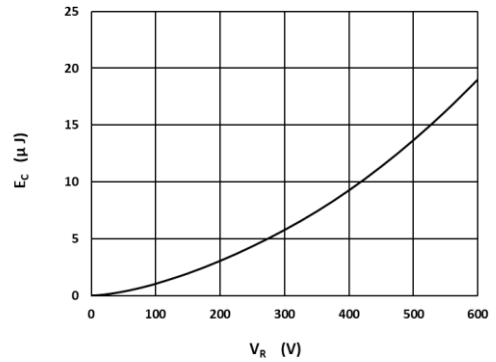


Fig 6 Typical Capacitance Stored Energy

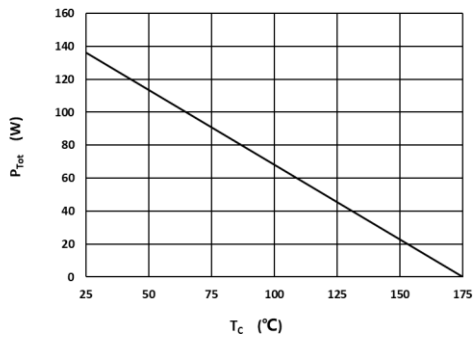
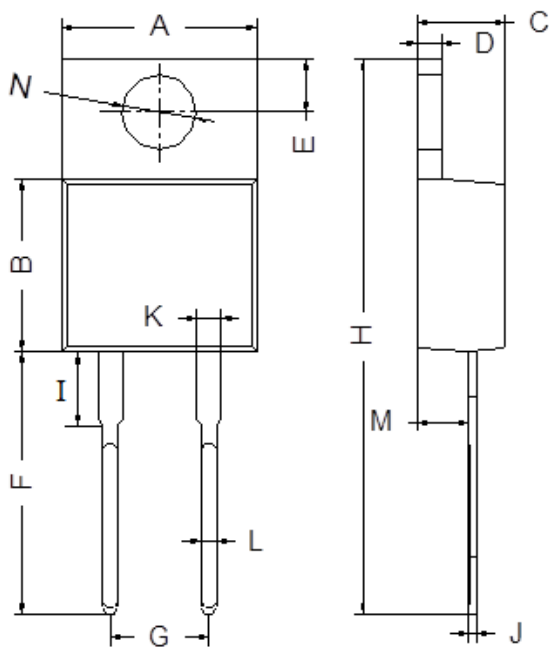


Fig 7 Power Derating

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

IMPORTANT NOTICE

Changzhou Galaxy Century Microelectronics (GME) reserves the right to make changes without further notice to any product information (copyrighted) herein to make corrections, modifications, improvements, or other changes. GME does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others.