

Features

- Low Forward Voltage Drop (V_F)
- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- Low Leakage Current (I_L)
- Temperature-Independent Switching Behavior
- Positive Temperature Coefficient on V_F

Benefits

- Higher System Level Efficiency
- Increase System Power Density
- Reduction of Heat Sink Requirements
- Parallel Devices Without Thermal Runaway

Applications

- Switch Mode Power Supplies (SMPS)
- Server/Telecom Power Supplies
- Industrial Power Supplies
- Solar
- UPS

Part Number	Package	Marking
GC6D10065A	T0-220-2	GC6D10065

V_{RRM}	=	650 V
$I_F (T_c=155^\circ\text{C})$	=	10 A
Q_c	=	34 nC



T0-220-2

Package



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

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_{RRM}	Repetitive Peak Reverse Voltage	650	V		
V_{DC}	DC Blocking Voltage	650	V		
I_F	Continuous Forward Current	37 19 10	A	$T_c=25^\circ\text{C}$ $T_c=125^\circ\text{C}$ $T_c=155^\circ\text{C}$	
I_{FRM}	Repetitive Peak Forward Surge Current	45 28	A	$T_c=25^\circ\text{C}$, $t_p = 10$ ms, Half Sine Wave $T_c=110^\circ\text{C}$, $t_p = 10$ ms, Half Sine Wave	
I_{FSM}	Non-Repetitive Peak Forward Surge Current	86 75	A	$T_c=25^\circ\text{C}$, $t_p = 10$ ms, Half Sine Wave $T_c=110^\circ\text{C}$, $t_p = 10$ ms, Half Sine Wave	
I_{FMax}	Non-Repetitive Peak Forward Surge Current	1250 1100	A	$T_c=25^\circ\text{C}$, $t_p = 10$ μs , Pulse $T_c=110^\circ\text{C}$, $t_p = 10$ μs , Pulse	
P_{tot}	Power Dissipation	109 47	W	$T_c=25^\circ\text{C}$ $T_c=110^\circ\text{C}$	
T_J, T_{stg}	Operating Junction and Storage Temperature	-55 to +175	$^\circ\text{C}$		
	TO-220 Mounting Torque	1 8.8	Nm lbf-in	M3 Screw 6-32 Screw	

Electrical Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	Forward Voltage	1.27 1.37	1.50 1.60	V	$I_F = 10\text{ A}$ $T_J = 25^\circ\text{C}$ $I_F = 10\text{ A}$ $T_J = 175^\circ\text{C}$	
I_R	Reverse Current	2 15	50 200	μA	$V_R = 650\text{ V}$ $T_J = 25^\circ\text{C}$ $V_R = 650\text{ V}$ $T_J = 175^\circ\text{C}$	
Q_C	Total Capacitive Charge	34		nC	$V_R = 400\text{ V}$, $I_F = 10\text{ A}$ $T_J = 25^\circ\text{C}$	
C	Total Capacitance	610 67 53		pF	$V_R = 0\text{ V}$, $T_J = 25^\circ\text{C}$, $f = 1\text{ MHz}$ $V_R = 200\text{ V}$, $T_J = 25^\circ\text{C}$, $f = 1\text{ MHz}$ $V_R = 400\text{ V}$, $T_J = 25^\circ\text{C}$, $f = 1\text{ MHz}$	
E_C	Capacitance Stored Energy	5.2		μJ	$V_R = 400\text{ V}$	

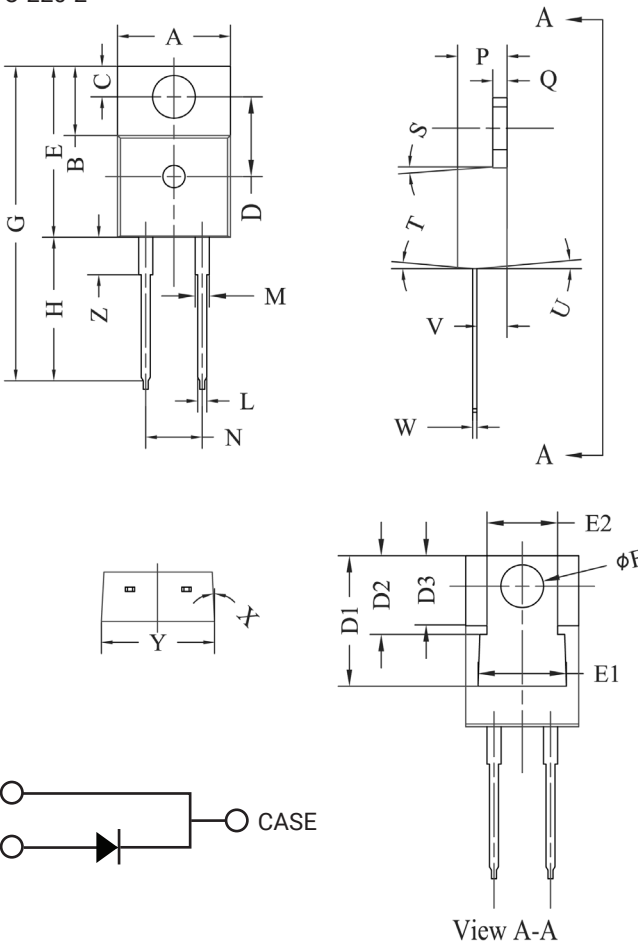
Note: This is a majority carrier diode, so there is no reverse recovery charge.

Thermal Characteristics

Symbol	Parameter	Typ.	Unit	Note
$R_{\theta JC}$	Thermal Resistance from Junction to Case	1.38	$^\circ\text{C/W}$	

Package Dimensions

Package TO-220-2

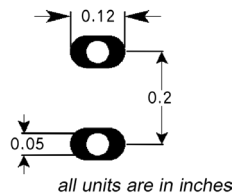


POS	Inches		Millimeters	
	Min	Max	Min	Max
A	.381	.410	9.677	10.414
B	.235	.255	5.969	6.477
C	.100	.120	2.540	3.048
D	.223	.337	5.664	8.560
D1	.457-.490		11.60-12.45 typ	
D2	.277-.303 typ		7.04-7.70 typ	
D3	.244-.252 typ		6.22-6.4 typ	
E	.590	.615	14.986	15.621
E1	.302	.326	7.68	8.28
E2	.227	.251	5.77	6.37
F	.143	.153	3.632	3.886
G	1.105	1.147	28.067	29.134
H	.500	.550	12.700	13.970
L	.025	.036	.635	.914
M	.045	.055	1.143	1.550
N	.195	.205	4.953	5.207
P	.165	.185	4.191	4.699
Q	.048	.054	1.219	1.372
S	3°	6°	3°	6°
T	3°	6°	3°	6°
U	3°	6°	3°	6°
V	.094	.110	2.388	2.794
W	.014	.025	.356	.635
X	3°	5.5°	3°	5.5°
Y	.385	.410	9.779	10.414
Z	.130	.150	3.302	3.810

NOTE:

1. Dimension L, M, W apply for Solder Dip Finish

Recommended Solder Pad Layout



TO-220-2

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