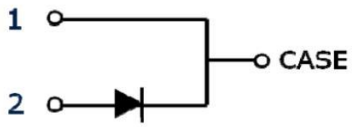
V_{RRM} = **650 V**

I_F(Tc=110°C) = **6 A**

Q_C = **20.4 nC**

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



Benefits

- Essentially No switching losses
- System efficiency improvement over Si Diodes
- Increased power density
- Enabling higher switching frequency
- Reduction of Heat Sink Requirements
- System Cost savings due to smaller magnetics
- Reduced EMI

RoHS

Halogen

Applications

- Switch Mode Power Supplies (SMPS)
- Uninterruptable power supplies
- Motor Drivers
- Power Factor Correction

Pacakge Pin definitions

- Pin1-Cathode
- Pin2-Anode

Package Parameters

Part Number	Marking	Package
B1D06065KF	B1D06065KF	TO-220F-2L

Maximum ratings

Symbol	Parameter	Test conditions	Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		650	V
V_{RSM}	Surge Peak Reverse Voltage		650	V
I_F	Continuous Forward Current	Tc=25°C Tc=110°C Tc=150°C	10.6 6 3	A
I_{FSM}	Non-Repetitive Forward Surge Current	Tc=25°C , t_p=10ms, sine halfwave	44	A
$\int i^2dt$	i^2t Value	Tc=25°C ,t_p=10ms	9.68	A^2S
P_{tot}	Power Dissipation	Tc=25°C Tc=110°C	27 12	W
T_j	Operating junction temperature		-55~175	°C
T_{stg}	Storage temperature		-55~135	°C

Thermal Characteristics

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
$R_{th(jc)}$	Thermal resistance from junction to case		5.394		K/W
$R_{th(ja)}$	Thermal resistance from junction to ambient		61.94		K/W

Electrical Characteristics

Static Characteristics（Tj=25°C unless otherwise specified）

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
V_{DC}	DC blocking voltage	T_j=25°C	650			V
V_F	Diode forward voltage	I_F=6A T_j=25°C I_F=6A T_j=175°C		1.45 1.9		V
I_R	Reverse current	V_R=650V T_j=25°C V_R=650V T_j=175°C		0.05 3		μA

Dynamic Characteristics（Tj=25°C unless otherwise specified）

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
Q_C	Total capactive charge	V_R=400V T_j=25°C $Q_C = \int_0^{VR} C(V)dV$		20.4		nC
C	Total Capacitance	V_R=1V f=1MHz V_R=300V f=1MHz V_R=500V f=1MHz		259 39.1 38.8		pF

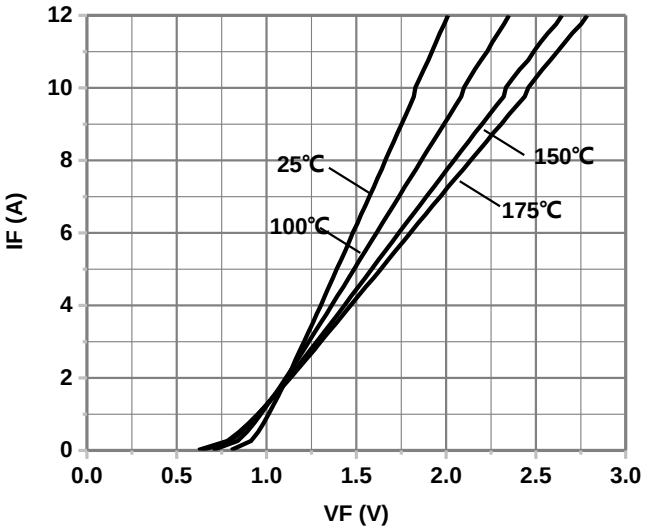


Figure 1. **Typical forward characteristics**

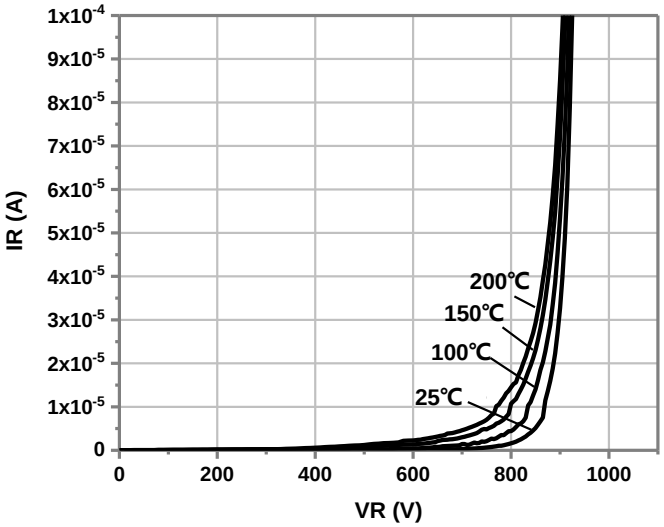


Figure 2. **Typical reverse current as function of reverse voltage**

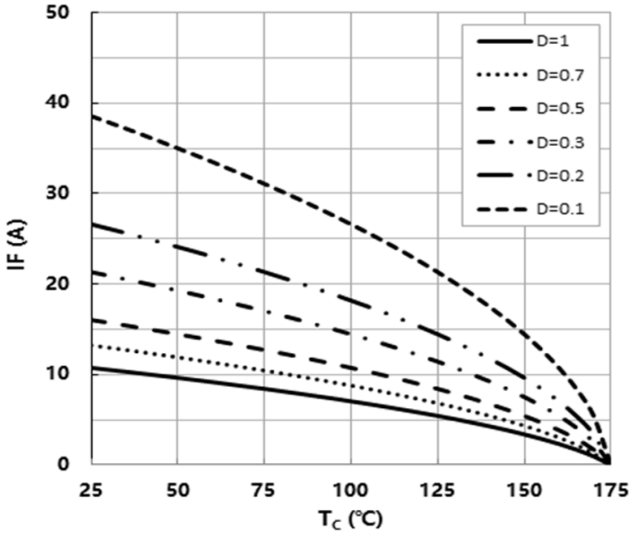


Figure 3. **Diode forward current as function of temperature,** D=duty cycle

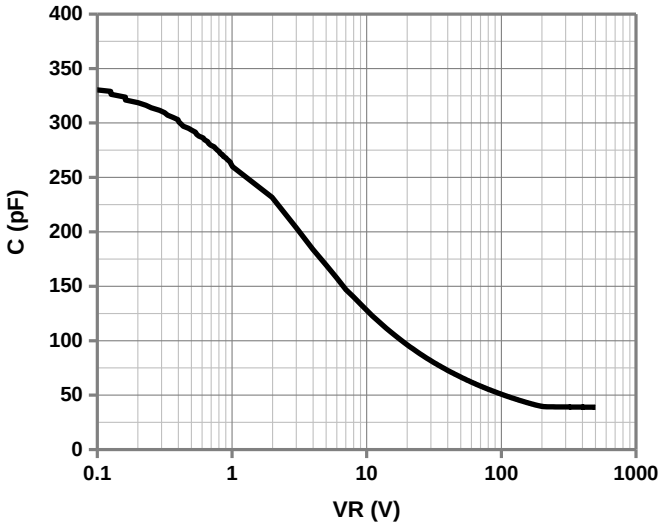


Figure 4. **Typical capacitance as function of reverse voltage,** C=f(V_R); T_j=25°C; f=1 MHz

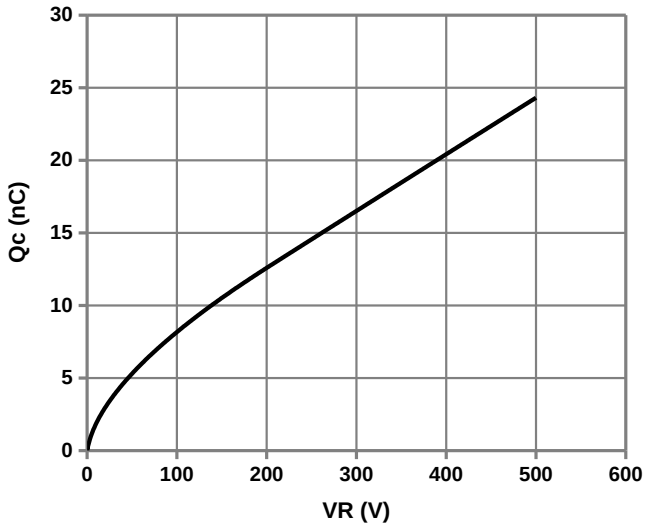


Figure 5. **Typical reverse charge as function of reverse voltage**

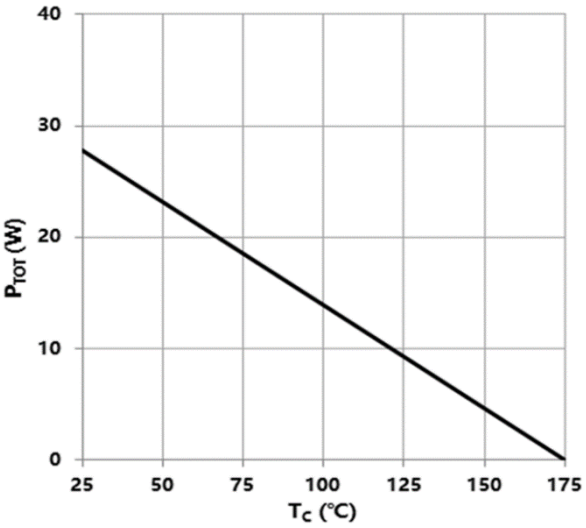


Figure 6. **Power dissipation as function of case temperature**

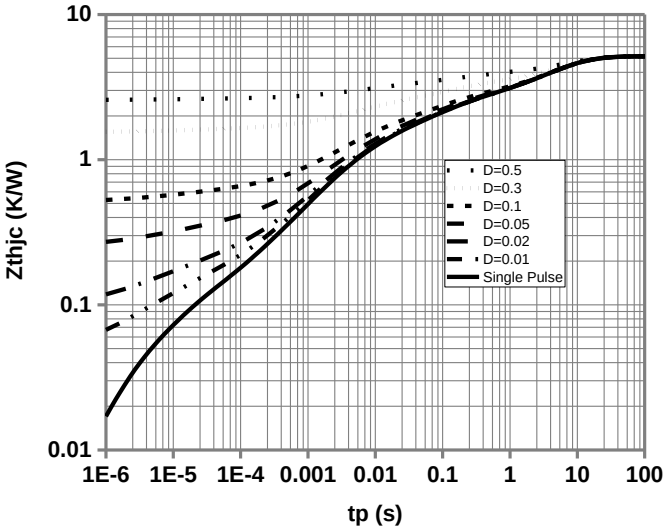
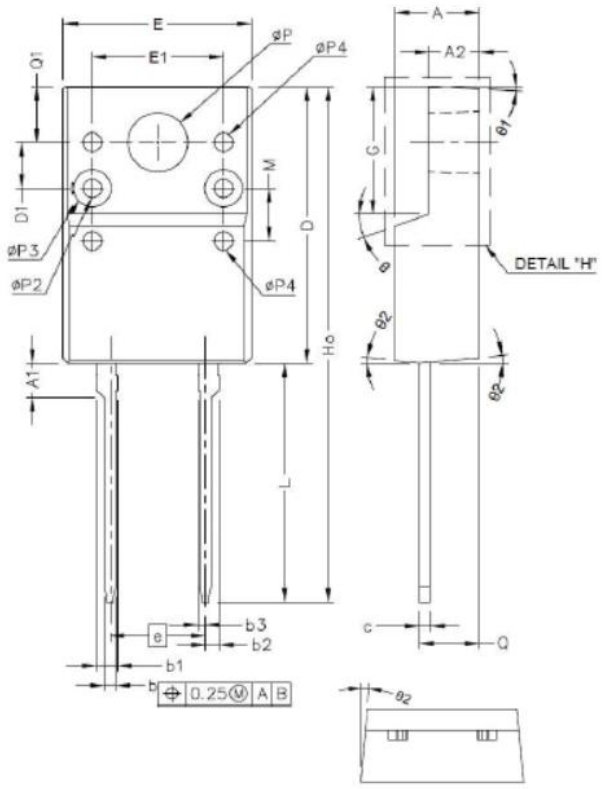


Figure 7. **Max. transient thermal impedance,** $Z_{th,jc}$=f(t), parameter: D=t /T

Package Dimensions



SYMBOL	MIN (mm)	MAX (mm)
A	4.30	4.93
A1	1.80	3.90
A2	2.34	2.90
b	0.40	0.91
b1	1.00	1.40
b2	0.56	0.93
b3	0.24	0.55
C	0.40	0.80
D	14.70	16.07
D1	2.50 TYP	
D2	2.66 TYP	
e	4.83	5.33
E	9.70	10.36
E1	7.00 TYP	
G	6.50	7.10
Ho	28 TYP	
L	12.10	13.50
L1		0.50
M	2.86 TYP	
ØP	2.98	3.40
Q	3.10	3.30
Q1	2.70	3.50
Θ	20° TYP	
Θ1	3° TYP	
Θ2	5° TYP	

Revision History:

2019-05-15
Preliminary Version

Information
For further information on technology, delivery terms and conditions and prices, please contact the nearest BASiC Semiconductor Office

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