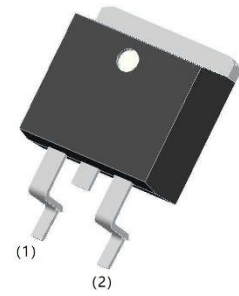
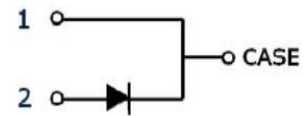


V_{RRM} = 650 V
 $I_F(T_c=150^\circ\text{C})$ = 6.3 A
 Q_c = 19 nC



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



Applications

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

Package Pin definitions

- Pin1-Cathode
- Pin2-Anode

Package Parameters

Part Number	Marking	Package
B1D06065F	B1D06065F	TO-263-2

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	$T_c=25^\circ\text{C}$ $T_c=135^\circ\text{C}$ $T_c=150^\circ\text{C}$	18 8.4 6.3	A
I_{FSM}	Non-Repetitive Forward Surge Current	$T_c=25^\circ\text{C}$, $t_p=10\text{ms}$, sine halfwave	42	A
$\int i^2 dt$	i^2t Value	$T_c=25^\circ\text{C}$, $t_p=10\text{ms}$	8.82	A^2S
P_{tot}	Power Dissipation	$T_c=25^\circ\text{C}$ $T_c=110^\circ\text{C}$	90 38	W
T_j	Operating junction temperature		-55~175	$^\circ\text{C}$
T_{stg}	Storage temperature		-55~135	$^\circ\text{C}$

Thermal Characteristics

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
$R_{th(jc)}$	Thermal resistance from junction to case		1.66		K/W
$R_{th(ja)}$	Thermal resistance from junction to ambient		69		K/W

Electrical Characteristics
Static Characteristics (T_j=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 (T_j=25°C unless otherwise specified)

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
Q _C	Total capacitive charge	V _R =400V T _j =25°C $Q_c = \int_0^{V_R} C(V)dV$		19		nC
C	Total Capacitance	V _R =1V f=1MHz V _R =300V f=1MHz V _R =600V f=1MHz		290 33.7 33		pF

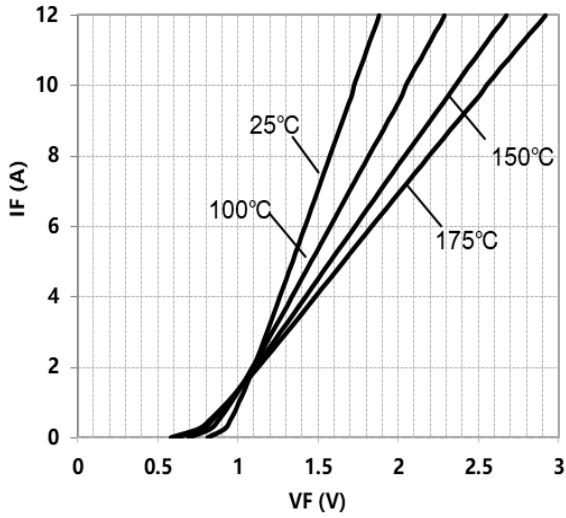


Figure 1. Typical forward characteristics

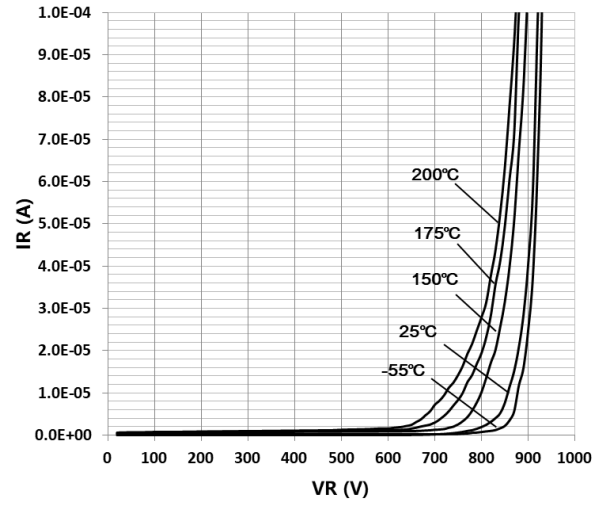


Figure 2. Typical reverse current as function of reverse voltage

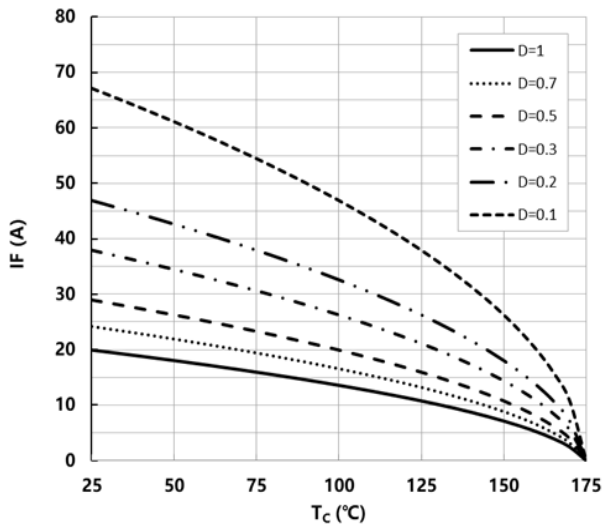


Figure 3. Diode forward current as function of temperature, D=duty cycle

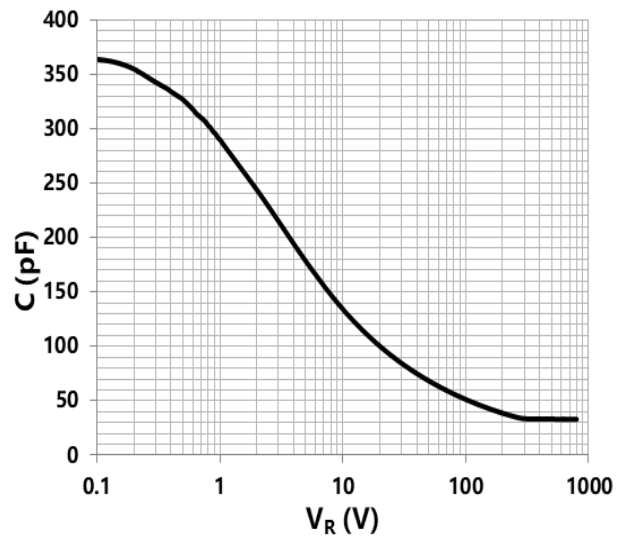


Figure 4. Typical capacitance as function of reverse voltage, $C=f(V_R)$; $T_j=25^\circ\text{C}$; $f=1\text{ MHz}$

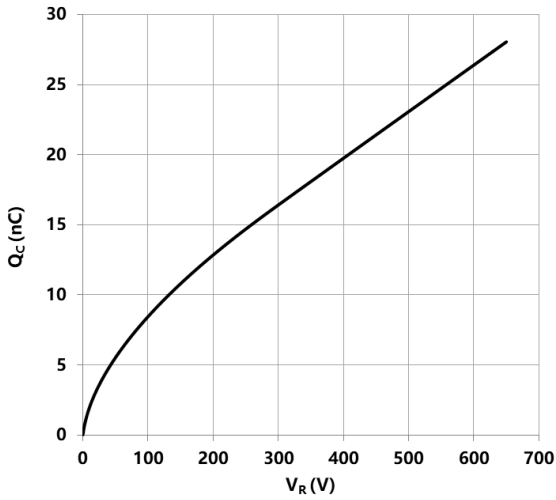


Figure 5. Typical reverse charge as function of reverse voltage

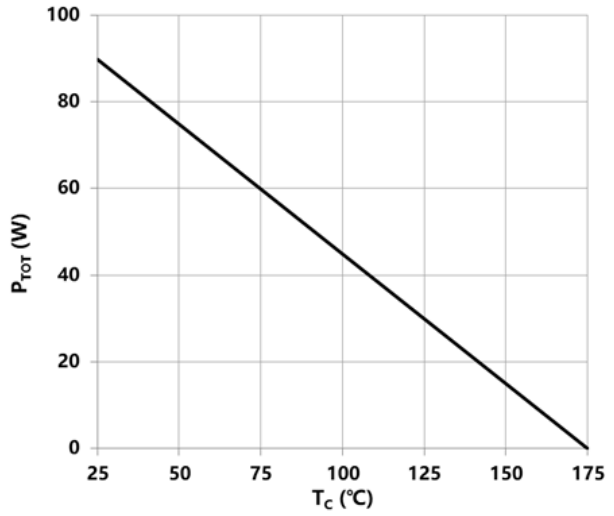


Figure 6. Power dissipation as function of case temperature

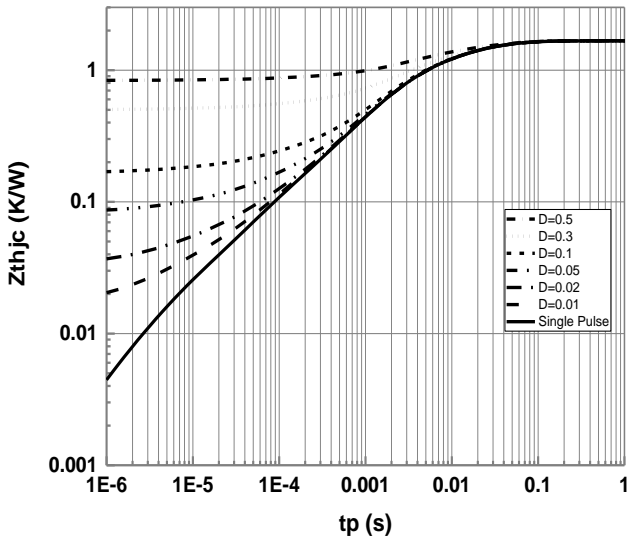
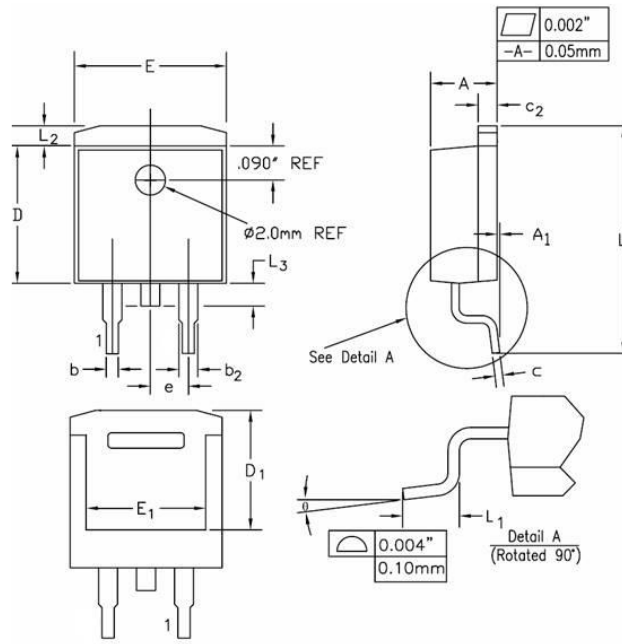


Figure 7. Max. transient thermal impedance, $Z_{th,jc}=f(t)$, parameter: $D=t / T$

Package Dimensions



POS	Inches		Millimeters	
	Min	Max	Min	Max
A	0.17	0.18	4.32	4.57
A1	-	0.01	-	0.25
b	0.028	0.037	0.71	0.94
b2	0.045	0.055	1.15	1.4
c	0.014	0.025	0.356	0.635
c2	0.048	0.055	1.22	1.4
D	0.35	0.37	8.89	9.4
D1	0.255	0.324	6.48	8.23
E	0.395	0.405	10.04	10.28
E1	0.31	0.318	7.88	8.08
e	0.1	BSC.	2.54	BSC.
L	0.58	0.62	14.73	15.75
L1	0.09	0.11	2.29	2.79
L2	0.045	0.055	1.15	1.39
L3	0.05	0.07	1.27	1.77
θ	0°	8°	0°	8°

Revision History:

Preliminary Version

Previous Revision:

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Shenzhen, China
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