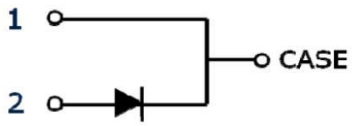
V_{RRM} = **1200 V**

I_F(Tc=150°C) = **10 A**

Q_C = **63 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
B1D10120H	B1D10120H	TO-247-2L

Maximum ratings

Symbol	Parameter	Test conditions	Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		1200	V
V_{RSM}	Surge Peak Reverse Voltage		1200	V
I_F	Continuous Forward Current	Tc=25°C Tc=135°C Tc=150°C	35 16.5 10	A
I_{FSM}	Non-Repetitive Forward Surge Current	Tc=25°C , t_p=10ms, sine halfwave	77	A
$\int i^2dt$	i^2t Value	Tc=25°C ,t_p=10ms	29.6	A^2S
P_{tot}	Power Dissipation	Tc=25°C Tc=110°C	197 85	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		0.76		K/W
$R_{th(ja)}$	Thermal resistance from junction to ambient		35.6		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	1200			V
V_F	Diode forward voltage	I_F=10A T_j=25°C I_F=10A T_j=175°C		1.46 2.05		V
I_R	Reverse current	V_R=1200V T_j=25°C V_R=1200V T_j=175°C		4.5 45		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=800V T_j=25°C $Q_C = \int_0^{VR} C(V)dV$		63		nC
C	Total Capacitance	V_R=1V f=1MHz V_R=400V f=1MHz V_R=800V f=1MHz		614 62 51		pF

Typical Performance

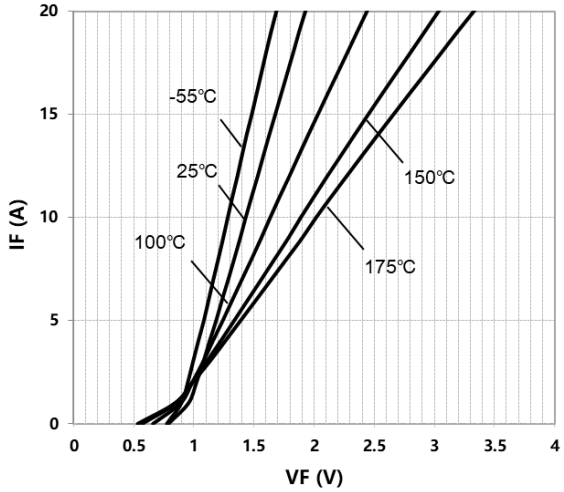


Figure 1. **Typical forward characteristics**

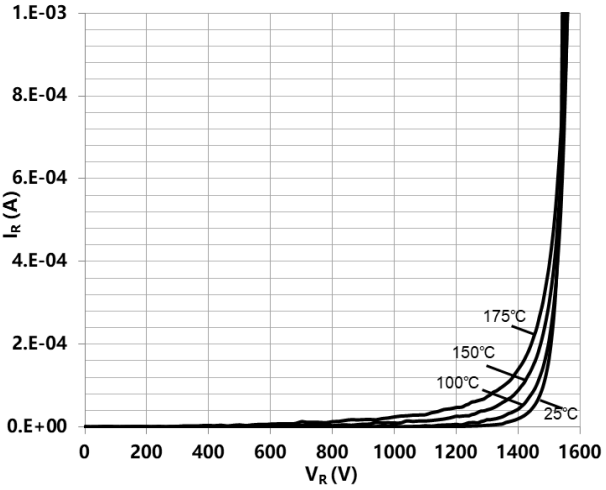


Figure 2. **Typical reverse current as function of reverse voltage**

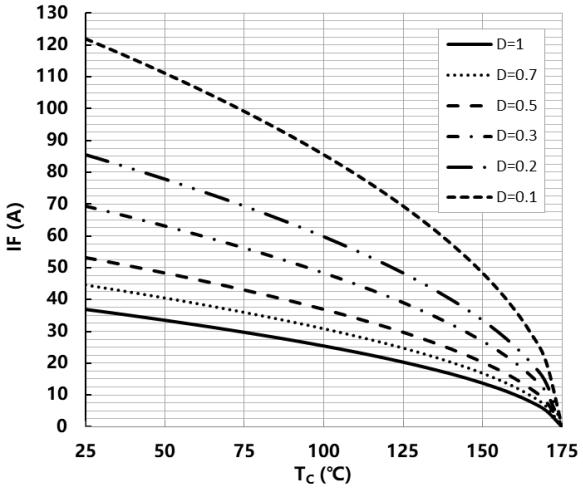


Figure 3. **Diode forward current as function of temperature,** D=duty cycle

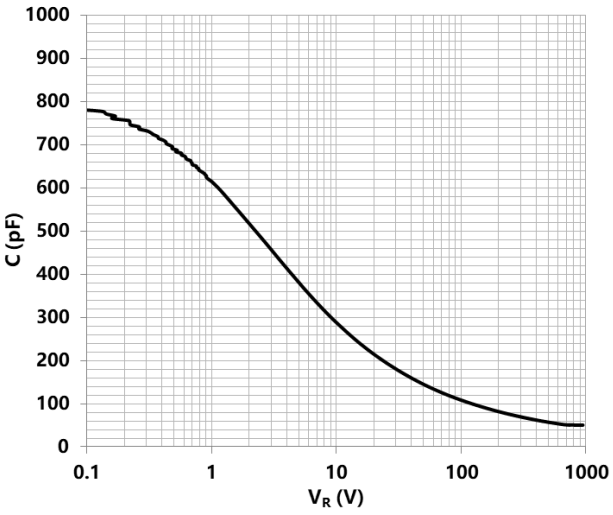


Figure 4. **Typical capacitance as function of reverse voltage,** C=f(V_R); T_j=25°C; f=1 MHz

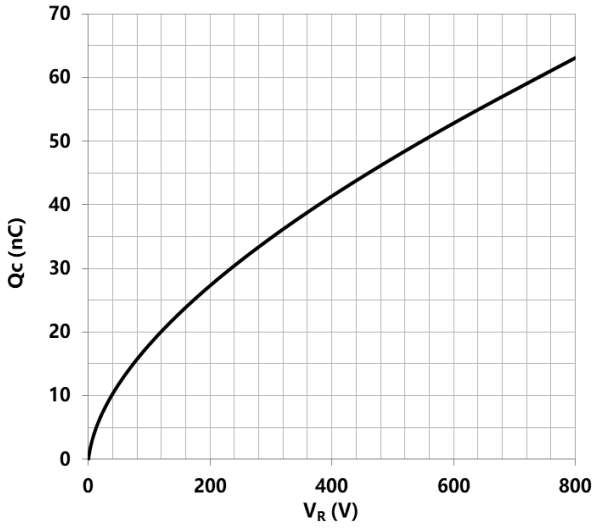


Figure 5. **Typical reverse charge as function of reverse voltage**

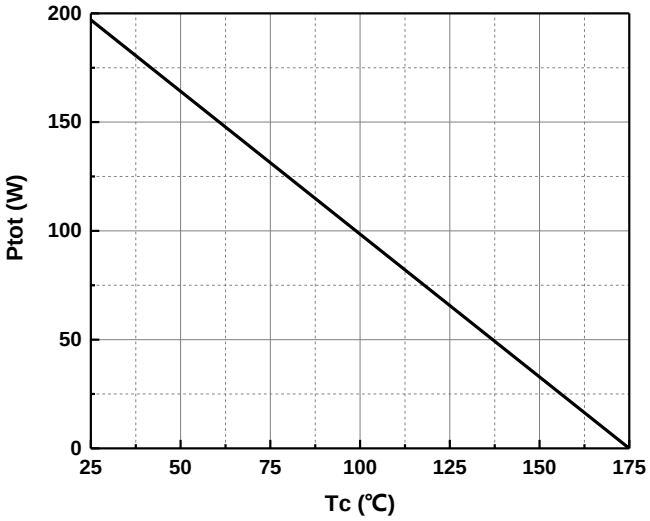


Figure 6. **Power dissipation as function of case temperature**

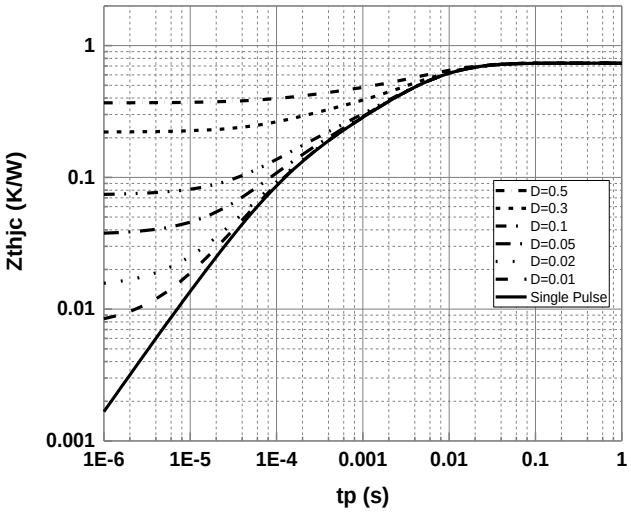
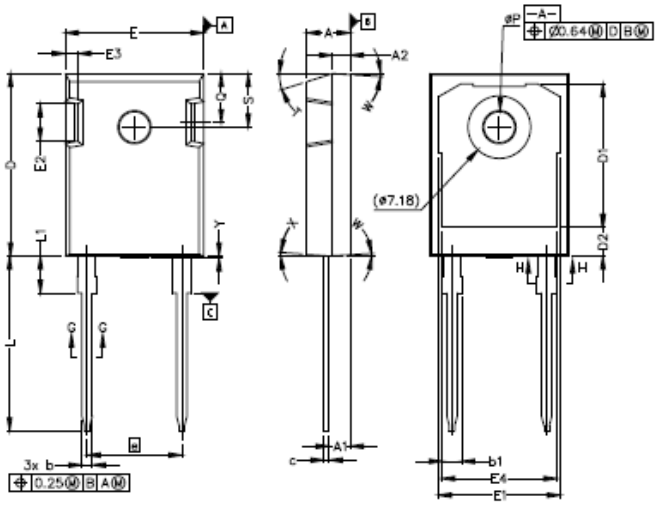


Figure 7. **Max. transient thermal impedance,** $Z_{th,jc}$=f(*t*), parameter: D=*t* /*T*

Package Dimensions



POS	Inches		Millimeters	
	Min	Max	Min	Max
A	0.190	0.205	4.70	5.31
A1	0.087	0.102	2.21	2.59
A2	0.059	0.098	1.50	2.49
b	0.039	0.055	0.99	1.40
b1	0.065	0.095	1.65	2.41
c	0.015	0.035	0.38	0.89
D	0.819	0.845	20.80	21.46
D1	0.640	0.683	16.25	17.35
D2	0.112	0.124	2.86	3.16
E	0.620	0.640	15.49	16.26
E1	0.516	0.557	13.10	14.15
E2	0.135	0.201	3.43	5.10
E3	0.039	0.075	1.00	1.90
E4	0.487	0.529	12.38	13.43
e	0.428 BSC		10.88 BSC	
L	0.78	0.80	19.81	20.32
L1	-	0.177	-	4.50
ØP	0.138	0.144	3.51	3.66
Q	0.212	0.244	5.38	6.20
S	0.238	0.248	6.04	6.3
T	17.5° REF.			
W	3.5° REF.			
X	4° REF.			
Y	0	0.5	0	0.02

Revision History

Revision: Preliminary Version

Previous Revision:

Information

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

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