

V_{RRM} = 650 V

$I_F (T_C=155^\circ\text{C})$ = 4 A

Q_C = 12 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)
- Uninterruptible power supplies
- Motor drivers
- Power factor correction

Package Pin Definitions

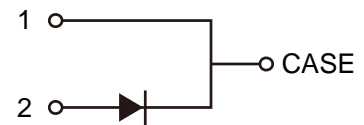
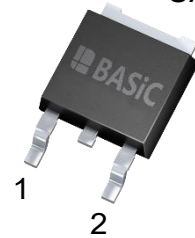
- Pin1- Cathode
- Pin2- Anode

Package Parameters

Part Number	Marking	Package
B1D04065E	B1D04065E	TO-252-2

TO-252-2

CASE



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

Symbol	Parameter	Test conditions	Value	Unit
V_{RRM}	Repetitive peak reverse voltage		650	V
V_{RSM}	Non-repetitive peak reverse voltage		650	V
I_F	Continuous forward current	$T_c=25^\circ\text{C}$ $T_c=155^\circ\text{C}$	14 4	A
I_{FSM}	Non-Repetitive forward surge current	$T_c=25^\circ\text{C}$, $t_p=10\text{ms}$, Half Sine Wave	30	A
$\int i^2 dt$	i^2t value	$T_c=25^\circ\text{C}$, $t_p=10\text{ms}$	4.5	A ² S
P_{tot}	Power dissipation	$T_c=25^\circ\text{C}$ $T_c=110^\circ\text{C}$	60 26	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		2.473		K/W

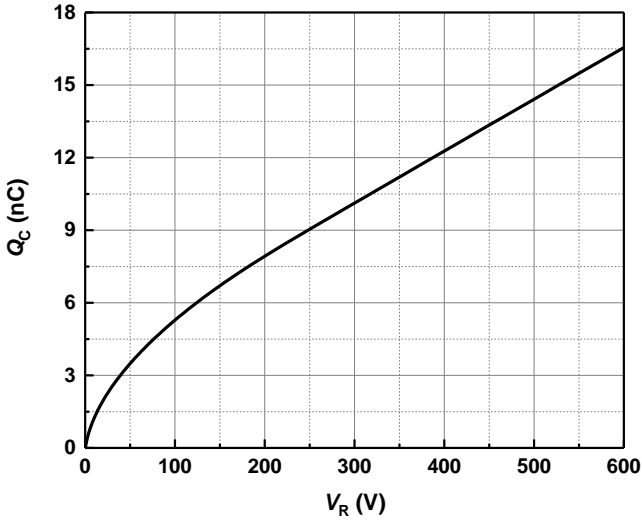
Electrical Characteristics
Static Characteristics

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
V_{DC}	DC blocking voltage	$T_j=25^{\circ}C$	650			V
V_F	Diode forward voltage	$I_F=4A$ $T_j=25^{\circ}C$ $I_F=4A$ $T_j=175^{\circ}C$		1.4 1.7		V
I_R	Reverse current	$V_R=650V$ $T_j=25^{\circ}C$ $V_R=650V$ $T_j=175^{\circ}C$		1 10		μA

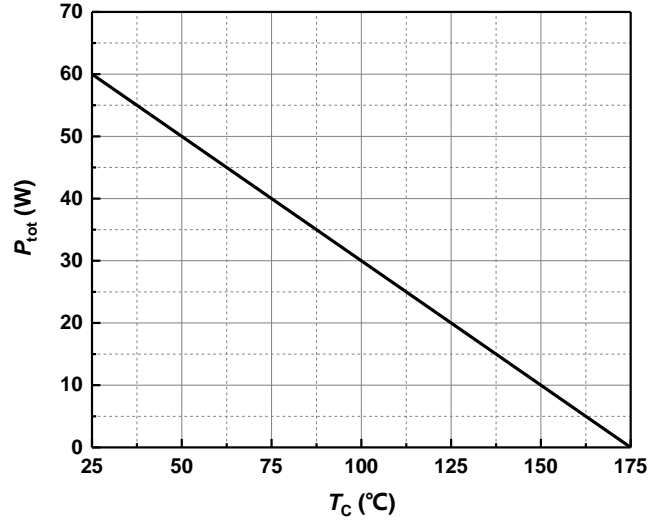
AC Characteristics

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
Q_C	Total capacitive charge	$V_R=400V$ $T_j=25^{\circ}C$ $Q_c = \int_0^{V_R} C(V)dV$		12		nC
C	Total capacitance	$V_R=1V$ $f=1MHz$ $V_R=300V$ $f=1MHz$ $V_R=600V$ $f=1MHz$		181 21.6 21.3		pF
E_C	Capacitance stored energy	$V_R=400V$		1.9		μJ

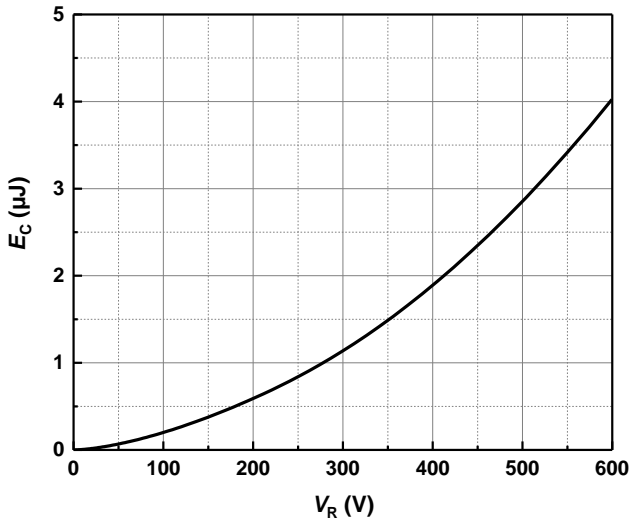
Typical Performance



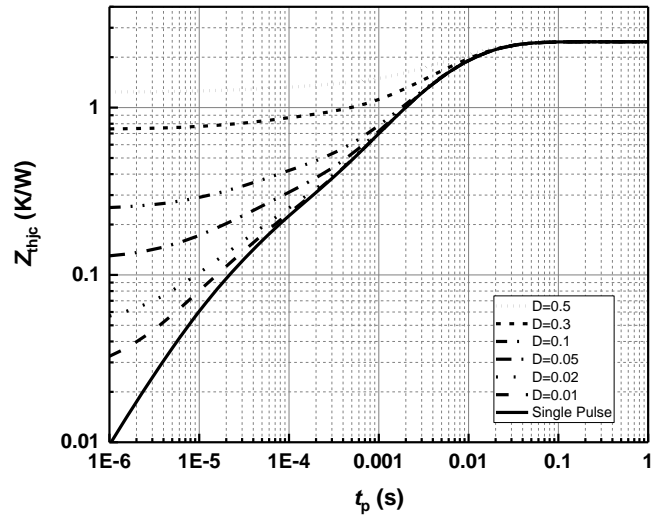
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RIUHYHUVH YROWDJH



)LJXUH3RZHGJLVVLSDWXQDQWLRG
FDVH WHPSHUDWXUH



)LJXUH8DSDFLWDQFH VWRUHG H



)LJXUH0D[WUDQWLKHQVDO LP SHGD
=WKMF W SDUDPHWU

Revision History

Document Version	Date of Release	Description of Changes
Rev. 1.0	2019-05-30	Release of the datasheet.
Rev. 2.0	2020-07-06	Characteristics updated.

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