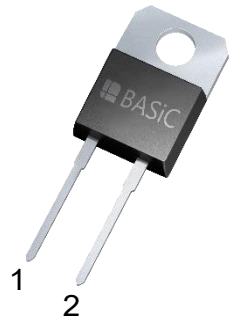
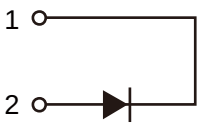
B2D08065KS

SiC Schottky Diode

V_{RRM}	=	**650 V**
I_F (T_C=150°C)	=	**8 A**
Q_C	=	**24 nC**

TO-220-isolated





Features

- Ceramic package provides 2.5kV isolation
- 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

- Electrically isolated package
- 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
B2D08065KS	B2D08065KS	TO-220-isolated

Maximum Ratings (T_C=25℃ 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°C T_C=150°C	26 8	A
I_{FSM}	Non-Repetitive forward surge current	T_C=25°C , t_p=10ms, Half Sine Wave	64	A
$\int i^2dt$	i^2t value	T_C=25°C ,t_p=10ms	20.48	A^2S
P_{tot}	Power dissipation	T_C=25°C T_C=110°C	86 37	W
T_j	Operating junction temperature		-55~175	°C
T_{stg}	Storage temperature		-55~175	°C
	TO-220 mounting torque	M3 Screw	0.7	Nm

Thermal Characteristics

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
$R_{th(jc)}$	Thermal resistance from junction to case		1.73		K/W

Electrical Characteristics

Static Characteristics

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=8A T_j=25°C I_F=8A T_j=175°C		1.28 1.54		V
I_R	Reverse current	V_R=650V T_j=25°C V_R=650V T_j=175°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°C $Q_C = \int_0^{VR} C(V)dV$		24		nC
C	Total capacitance	V_R=1V f=1MHz V_R=300V f=1MHz V_R=600V f=1MHz		365 41.1 40.7		pF
E_C	Capacitance stored energy	V_R=400V		6		μJ

Typical Performance

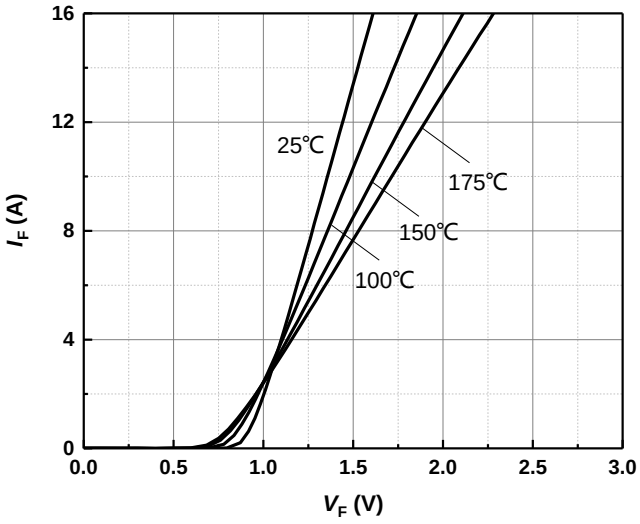


Figure 1. Typical forward characteristics

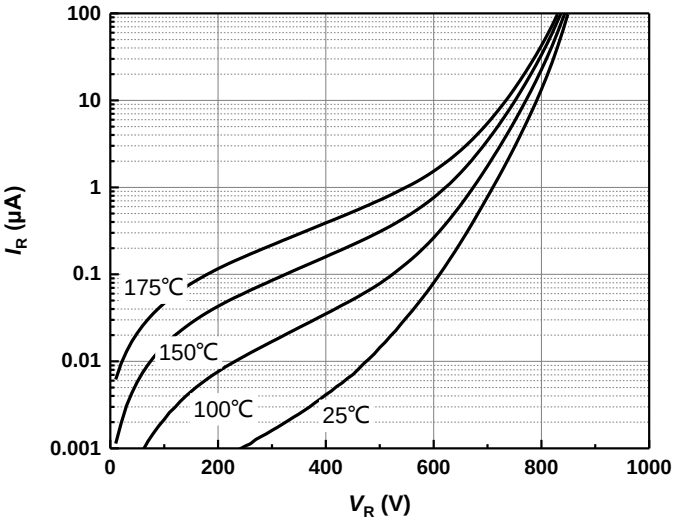


Figure 2. Typical reverse current as function of reverse voltage

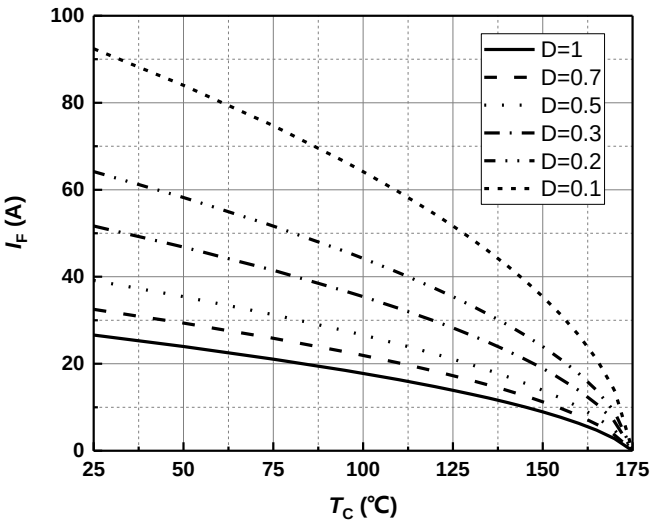


Figure 3. Diode forward current as function of temperature, D=duty cycle

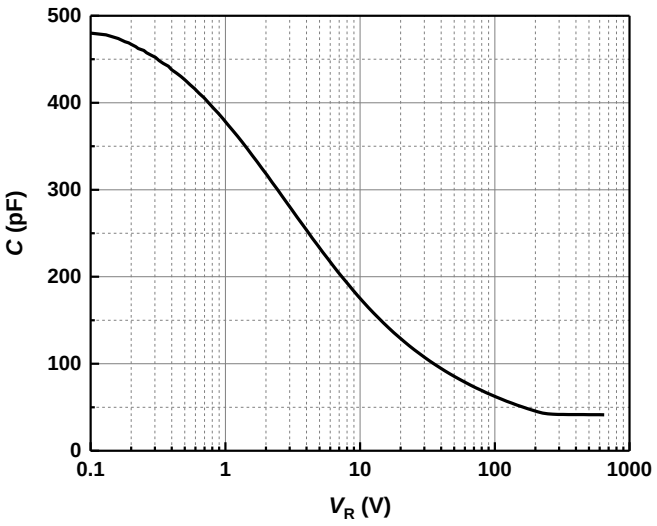


Figure 4. Typical capacitance as function of reverse voltage, C=f(V_R); T_j=25°C; f=1 MHz

Typical Performance

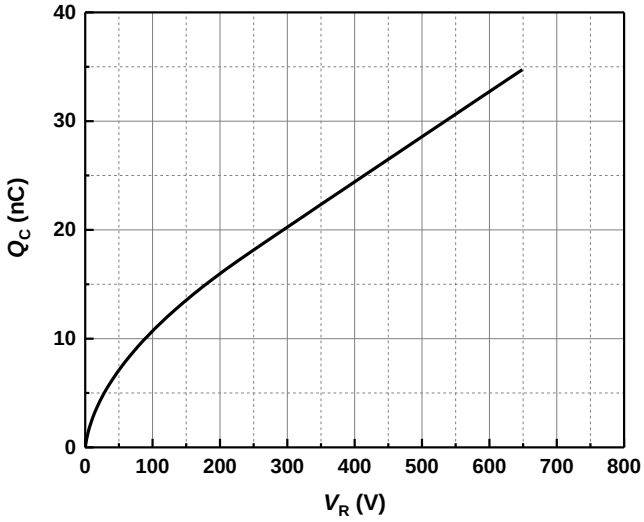


Figure 5. Typical reverse charge as function of reverse voltage

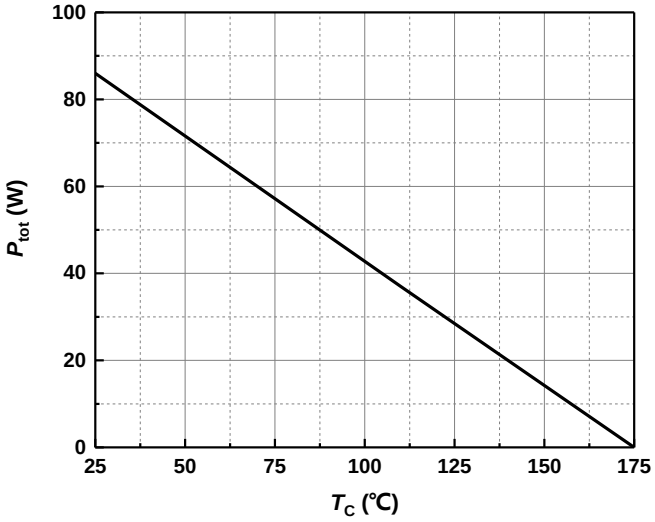


Figure 6. Power dissipation as function of case temperature

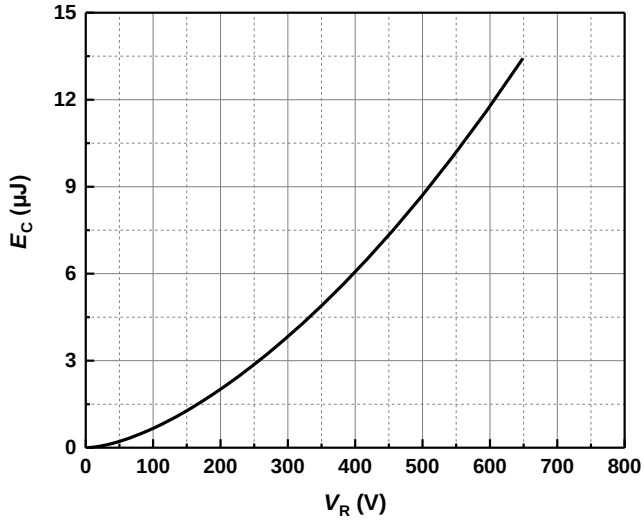


Figure 7.Capacitance stored energy

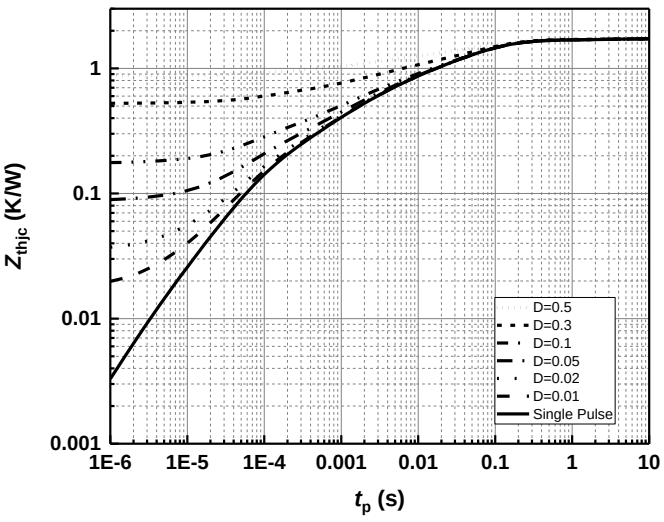
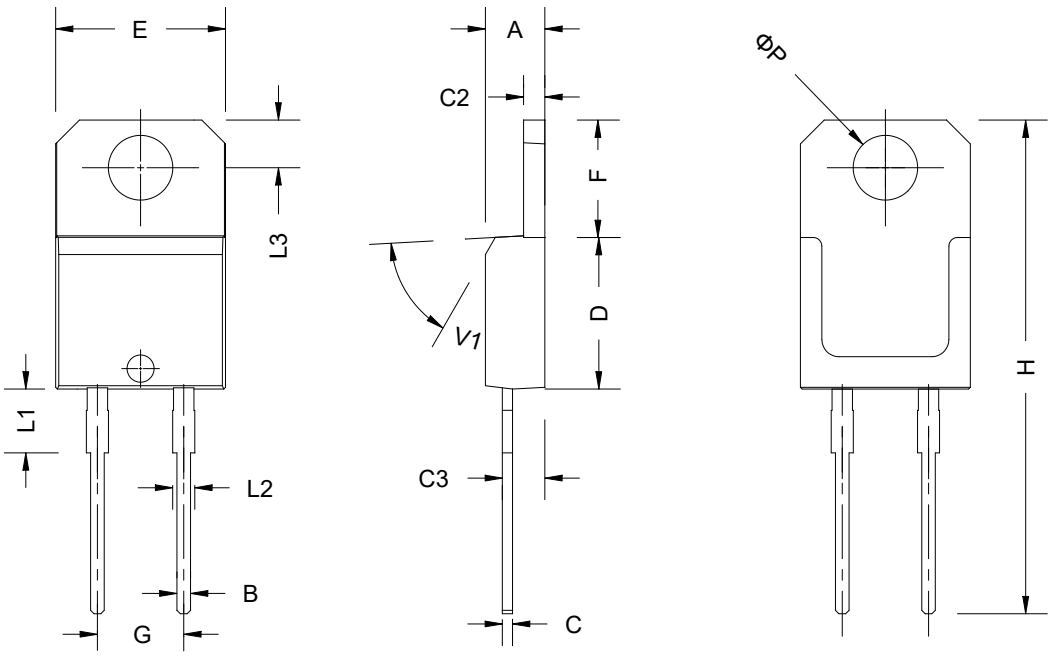
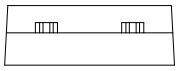


Figure 8. Max. transient thermal impedance, Z_{thjc}= f(t), parameter: $D=t/T$

Package Dimensions





SYMBOL	mm		
	MIN	NOM	MAX
A	4.40	4.50	4.60
B	0.61	0.75	0.88
C	0.46	0.58	0.70
C2	1.21	1.265	1.32
C3	2.40	2.56	2.72
D	8.60	9.15	9.70
E	9.80	10.1	10.4
F	6.55	6.75	6.95
G		5.08 BSC	
H	28.0	28.9	29.8
L1		3.75	
L2	1.14		1.70
L3	2.65	2.80	2.95
V1		45°	
ϕ P			3.88

Revision History

Document Version	Date of Release	Description of changes
Rev. 0.1	2021-01-26	Release of the preliminary datasheet.

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

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