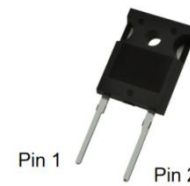
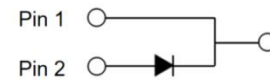


## Silicon Carbide Schottky Diode (SiC SBD)

### 1. Product Features:

- Revolutionary semiconductor material - Silicon Carbide
- Temperature independent switching behavior
- Low forward voltage even at high operating temperature
- Excellent thermal performance
- Specified dv/dt ruggedness
- Qualified according to JEDEC for target applications
- Pb-free lead plating; RoHS compliant

### HDW30S065A



Pin 1 – Cathode

Pin 2 – Anode

**Package: TO-247-2**

### 2. Product Applications

- Solar Inverters
- Uninterruptable Power Supplies (UPS)
- Motor drives
- Power Factor Correction (PFC)
- Switch Mode Power Supplies (SMPS)
- On Board Charger (OBC)

### 3. Typical Performance Parameters

Tab.1. Typical Performance Parameters

Type	$V_{DC}$	$I_F$	$Q_C$	$T_{vjmax}$	Marking	Package
HDW30S065A	650V	30A	85nC	175°C	HDW30S065A	TO-247-2

## 4. Maximum Ratings

Tab.2. Maximum Ratings

Parameters	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	$V_{RRM}$	650	V
Surge Peak Reverse Voltage	$V_{RSM}$	650	V
Continuous Forward Current , $T_c = 25^\circ\text{C}$ $T_c = 125^\circ\text{C}$ $T_c = 150^\circ\text{C}$	$I_F$	- 50 30	A
Repetitive Peak Forward Current $T_c = 25^\circ\text{C}, t_p = 10\text{ms}$	$I_{FRM}$	60	
Non-Repetitive Peak Forward Surge Current $T_c = 25^\circ\text{C}, t_p = 10\text{ms}$ , Half Sine Wave	$I_{FSM}$	150	
Non-Repetitive Peak Forward Current $T_c = 25^\circ\text{C}, t_p = 10\mu\text{s}$	$I_{F,max}$	1100	
Power Dissipation $T_c = 25^\circ\text{C}$ $T_c = 125^\circ\text{C}$ $T_c = 150^\circ\text{C}$	$P_{tot}$	263 87 44	W
Operating Junction	$T_j$	-55 to +175	°C
Storage Temperature	$T_{stg}$	-55 to +175	

## 5. Thermal Properties

Tab.3. Thermal Properties

Parameters	Symbol	Conditions	Typ. value	Unit
Thermal resistance (junction - case)	$R_{th(j-c)}$		0.57	°C/W

## 6. Electrical Characteristics

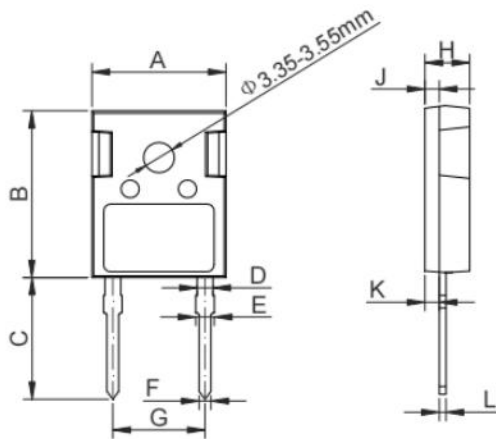
**Tab.4. Static Characteristic (  $T_{vj} = 25^{\circ}\text{C}$ , unless otherwise specified)**

Parameters	Symbol	Conditions	Min. value	Typ. value	Max. value	Unit
DC blocking voltage	$V_{DC}$	$T_j = 25^{\circ}\text{C}$	650	-	-	V
Diode forward voltage	$V_F$	$I_F = 30\text{A}, T_j = 25^{\circ}\text{C}$	-	1.41	1.8	V
		$I_F = 30\text{A}, T_j = 175^{\circ}\text{C}$	-	1.84	-	
Reverse current	$I_R$	$V_R = 650\text{V}, T_j = 25^{\circ}\text{C}$	-	2	20	$\mu\text{A}$
		$V_R = 650\text{V}, T_j = 175^{\circ}\text{C}$	-	40	200	

**Tab.5. Dynamic Characteristic (  $T_{vj} = 25^{\circ}\text{C}$ , unless otherwise specified)**

Parameters	Symbol	Conditions	Min. value	Typ. value	Max. value	Unit
Total capacitive charge	$Q_C$	$V_R = 400\text{V}, Q_C = \int_0^{V_R} C(V)dV$	-	85	-	nC
Total Capacitance	$C$	$V_R = 0\text{V}, f = 1\text{MHz}$	-	2050	-	pF
		$V_R = 200\text{V}, f = 1\text{MHz}$	-	162	-	
		$V_R = 400\text{V}, f = 1\text{MHz}$	-	137	-	
Capacitance Stored Energy	$E_C$	$V_R = 400\text{V}$	-	21	-	$\mu\text{J}$

### 7. Package Dimensions



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.50	15.80	16.10	0.610	0.622	0.634
B	20.80	21.00	22.20	0.819	0.827	0.835
C	19.70	20.00	20.30	0.776	0.787	0.799
D	1.80	2.00	2.20	0.071	0.079	0.087
E	1.90	2.10	2.30	0.075	0.083	0.091
F	1.00	1.20	1.40	0.039	0.047	0.055
G		10.88			0.428	
H	4.80	5.00	5.20	0.189	0.197	0.205
J	1.90	2.00	2.10	0.075	0.079	0.083
K	2.20	2.35	2.50	0.087	0.093	0.098
L	0.41	0.60	0.79	0.016	0.024	0.031

## 8. Version Information

Version No.	Status	Date changed	Version revision record
V1.0	Preview edition	2022/07	