



# Silicon Carbide Schottky Diode

## ASC3DA02017HD

$V_{RRM}$	=	1700 V
$I_F$	=	20 A
$Q_C$	=	110 nC

### Features

- Low Schottky barrier height
- No reverse recovery
- 3DSiC® technology
- Avalanche capability
- Surge current capability

### Applications

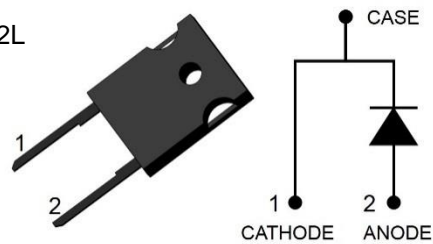
- General purpose
- Power switching circuits
- Freewheeling diodes
- SMPS, Solar Inverter, UPS

### Advantages

- Unipolar rectifier
- High efficiency
- Low switching losses
- Ease of paralleling with thermal stability
- Low capacitive charge

### Package

TO-247-2L



### Absolute Maximum Ratings

Symbol	Parameter	Conditions	Values	Unit
$V_{RRM}$	Peak repetitive Reverse Voltage		1700	V
$I_F$	Continuous Forward Current	$T_C = 25^\circ\text{C}$ $T_C = 150^\circ\text{C}$	25 20	A
$I_{F,Max}$	Non-repetitive Peak Forward Current	$T_C = 25^\circ\text{C}$ , $t_P = 10\mu\text{s}$ , pulse $T_C = 150^\circ\text{C}$ , $t_P = 10\mu\text{s}$ , pulse	1100 900	A
$I_{FSM}$	Non-repetitive Forward Surge Current	$T_C = 25^\circ\text{C}$ , $t_P = 10\text{ms}$ , half sine pulse $T_C = 150^\circ\text{C}$ , $t_P = 10\text{ms}$ , half sine pulse	140 120	A
$P_{tot}$	Power Dissipation	$T_C = 25^\circ\text{C}$ $T_C = 150^\circ\text{C}$	220	W
$T_J$	Operating Junction Temperature Range		-55 to +175	$^\circ\text{C}$

### Electrical Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$V_F$	Forward Voltage	$I_F = 20\text{ A}$ , $T_C = 25^\circ\text{C}$ $I_F = 20\text{ A}$ , $T_C = 100^\circ\text{C}$ $I_F = 20\text{ A}$ , $T_C = 175^\circ\text{C}$		1.6 2.0 2.6	1.7 2.1 2.7	V
$I_R$	Reverse Current	$V_R = 1700\text{ V}$ , $T_C = 25^\circ\text{C}$ $V_R = 1700\text{ V}$ , $T_C = 100^\circ\text{C}$ $V_R = 1700\text{ V}$ , $T_C = 175^\circ\text{C}$		1 1.5 3		$\mu\text{A}$
$Q_C$	Total Capacitive Charge	$V_R = 800\text{ V}$ , $dI/dt = 200\text{ A}/\mu\text{s}$		110		nC
C	Total Capacitance	$V_R = 1\text{ V}$ , $f = 100\text{ kHz}$ $V_R = 400\text{ V}$ , $f = 100\text{ kHz}$ $V_R = 1000\text{ V}$ , $f = 100\text{ kHz}$		1550 100 66		pF

### Thermal Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit
$R_{\theta JC}$	Thermal Resistance, Junction to Case		0.55		$^\circ\text{C}/\text{W}$

### Typical Performance

Fig. 1. Forward Characteristics

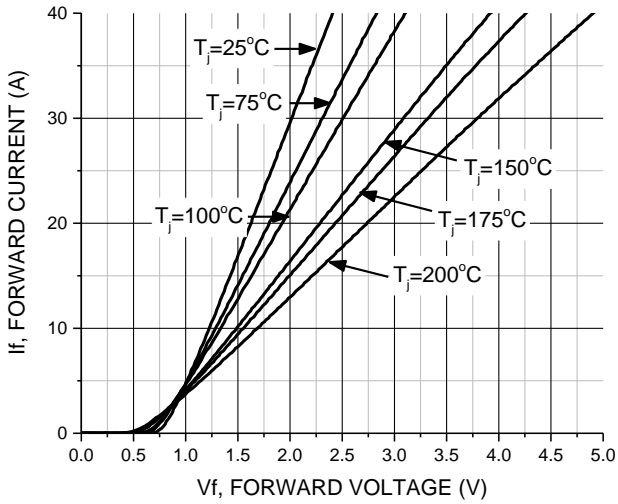


Fig. 2. Reverse Characteristics

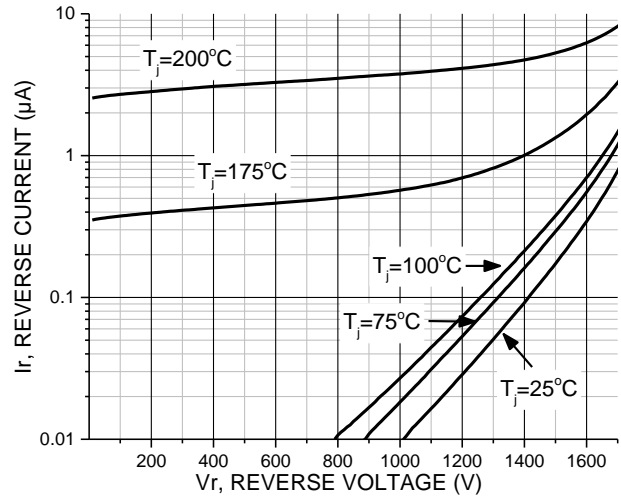


Fig. 3. Reverse Characteristics

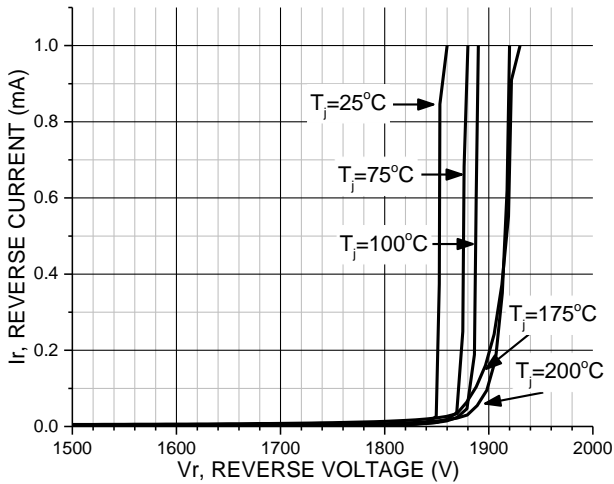


Fig. 4. Capacitance vs. Reverse Voltage

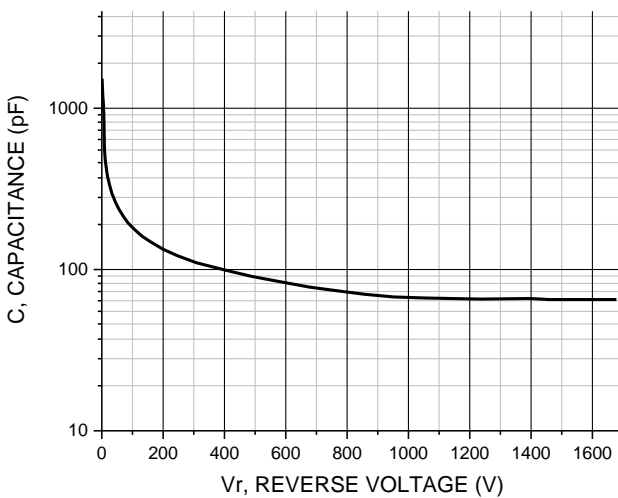
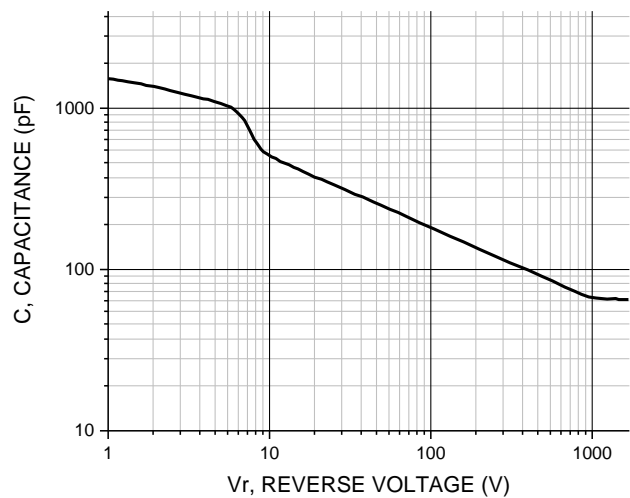
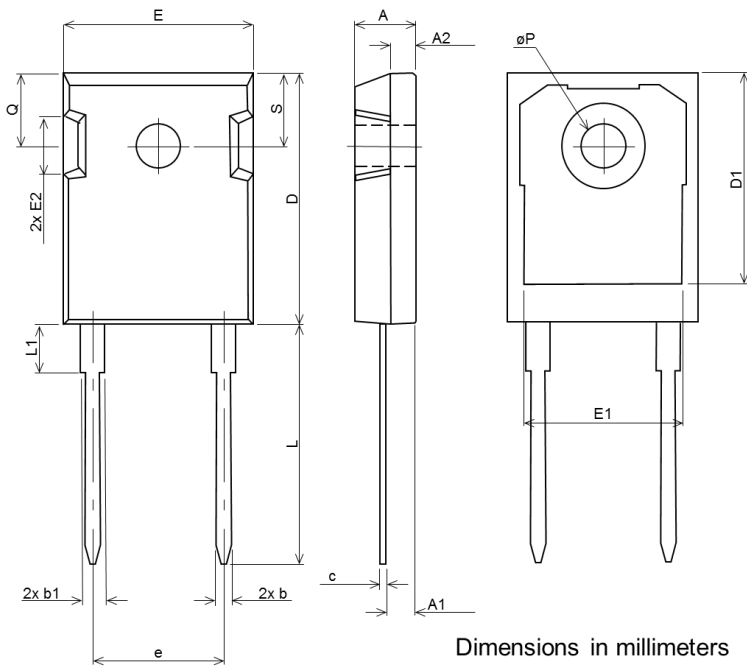


Fig. 5. Capacitance vs. Reverse Voltage



### Package Dimensions



Symbol	Min.	Nom.	Max.
A	4.83	5.02	5.21
A1	2.29	2.41	2.54
A2	1.91	2.04	2.16
b	1.14	1.27	1.40
b1	1.91	2.10	2.20
c	0.61	0.71	0.80
D	20.80	21.07	21.34
D1	17.43	17.63	17.83
E	15.75	15.94	16.13
E1	13.06	13.26	13.46
E2	4.32	4.58	4.83
e	10.90		
L	19.81	20.19	20.57
L1	3.81	4.07	4.32
P	3.55	3.60	3.65
Q	5.59	5.90	6.20
S	6.15		

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