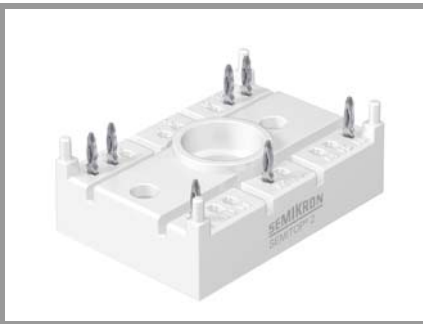


# SK20KDD12SCp



SEMITOP® 2 Press-Fit

## SiC Bridge Rectifier

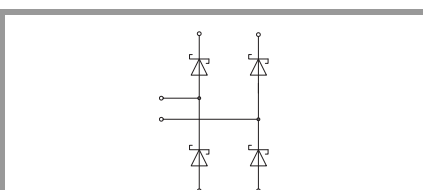
### SK20KDD12SCp

#### Features\*

- 1200V SiC Schottky diodes
- High frequency rectifier
- Smart pinout to ease parallel or series modules connection
- Compact design
- One screw mounting module
- Fully compatible with other SEMITOP® Press-Fit types
- Improved thermal performance by aluminum oxide substrate
- Ultra Low inductance design
- UL recognized, file no. E63532

#### Typical Applications

- Solar inverter
- UPS
- Power Supply



KDD

Absolute Maximum Ratings				
Symbol	Conditions		Values	Unit
<b>Diode 1</b>				
$V_{RRM}$	$T_j = 25\text{ °C}$		1200	V
$I_F$	P12	$T_s = 25\text{ °C}$	19	A
		$T_s = 70\text{ °C}$	16	A
$I_F$	HPTP / HP-PCM	$T_s = 25\text{ °C}$	22	A
		$T_s = 70\text{ °C}$	18	A
$I_{FSM}$	8.3 ms, sin 180°,		33	A
$i^2t$	8.3 ms, sin 180°, $T_j = 150\text{ °C}$		4	A <sup>2</sup> s
$T_j$			-40 ... 175	°C

Absolute Maximum Ratings				
Symbol	Conditions		Values	Unit
<b>Module</b>				
$I_{t(RMS)}$	$\Delta T_{\text{terminal}}$ at PCB joint = 30 K, per pin		35	A
$T_{stg}$	module without TIM		-40 ... 125	°C
$V_{isol}$	AC, sinusoidal, t = 1 min		2500	V

Characteristics						
Symbol	Conditions		min.	typ.	max.	Unit
<b>Diode 1</b>						
$V_F$	$I_F = 10\text{ A}$	$T_j = 25\text{ °C}$	1.40	1.60		V
		chiplevel $T_j = 150\text{ °C}$	1.80	2.10		V
$V_{F0}$	chiplevel	$T_j = 25\text{ °C}$	0.95	1.05		V
		$T_j = 150\text{ °C}$	0.80	0.90		V
$r_F$	chiplevel	$T_j = 25\text{ °C}$	45	55		mΩ
		$T_j = 150\text{ °C}$	100	120		mΩ
$C_j$	$V_R = 800\text{ V}$ , f = 1 MHz, $T_j = 25\text{ °C}$		0.042			nF
$Q_c$	$V_R = 800\text{ V}$ , di/dt <sub>off</sub> = 500 A/μs, $T_j = 25\text{ °C}$		0.034			μC
$R_{th(j-s)}$	per Diode, P12 (Reference)		2.25			K/W
$R_{th(j-s)}$	per Diode, HPTP		1.8			K/W

Characteristics						
Symbol	Conditions		min.	typ.	max.	Unit
<b>Module</b>						
$M_s$	to heatsink		1.8		2	Nm
w	weight			19		g

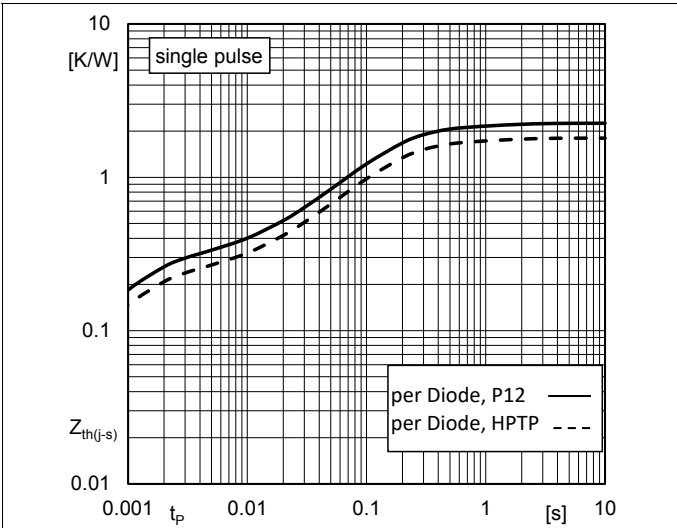


Fig. 1: Transient thermal impedance vs. time

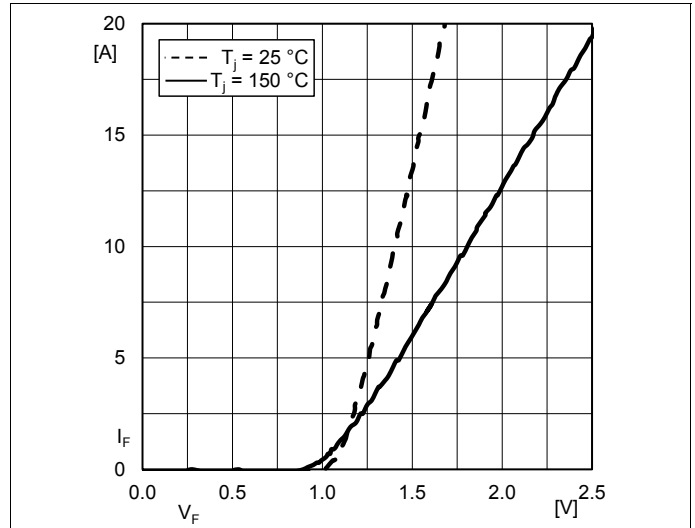


Fig. 2: Typ. Diode1 forward characteristic, incl.  $R_{CC+EE}$

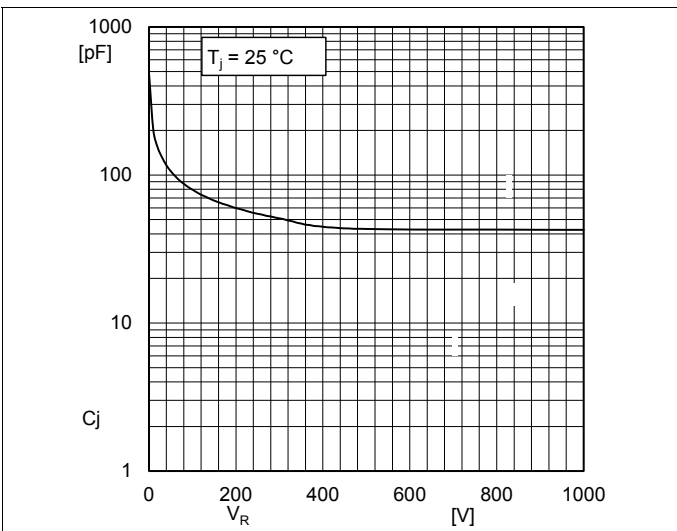
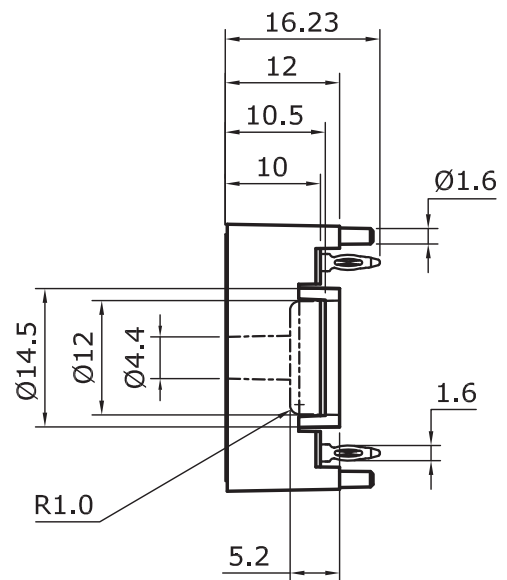
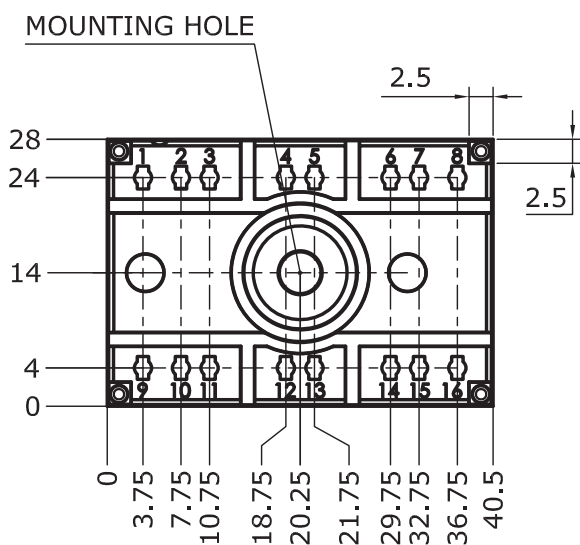
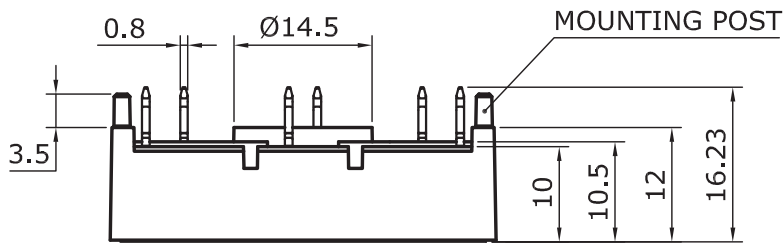


Fig. 3: Typ. capacitance-voltage charact. (1 MHz)

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Dimensions: mm

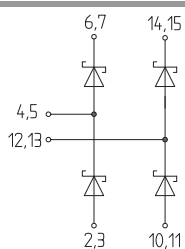
Tolerance system: ISO 2768-m



Suggested drilled hole diameter for terminal pins in the circuit board:  
- refer Mounting Instruction SEMITOP® Classic

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SEMITOP 2 Press-Fit



KDD

## IMPORTANT INFORMATION AND WARNINGS

This is an electrostatic discharge sensitive device (ESDS) according to international standard IEC 61340.

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