

# SKiiP 11AC12T4V1

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MiniSKiiP®1

3-phase bridge inverter

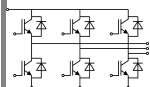
SKiiP 11AC12T4V1

Target Data

## Features

- Trench 4 IGBT's
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

## Typical Applications



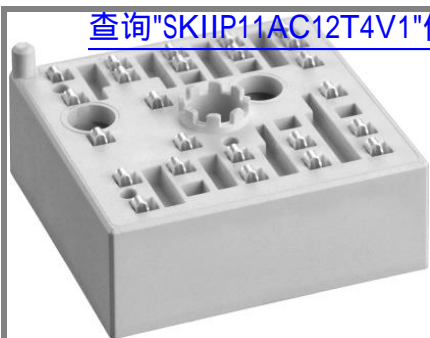
AC

Absolute Maximum Ratings		T <sub>c</sub> = 25 °C, unless otherwise specified	
Symbol	Conditions	Values	Units
<b>IGBT</b>			
V <sub>CES</sub>	T <sub>j</sub> = 25 °C	1200	V
I <sub>C</sub>	T <sub>j</sub> = 175 °C	T <sub>c</sub> = 25 °C	12 A
		T <sub>c</sub> = 70 °C	12 A
I <sub>CRM</sub>	I <sub>CRM</sub> = 3xI <sub>Cnom</sub>	24	A
V <sub>GES</sub>		±20	V
t <sub>psc</sub>	V <sub>CC</sub> = 600 V; V <sub>GE</sub> ≤ 20 V; T <sub>j</sub> = 150 °C V <sub>CES</sub> < 1200 V	10	µs
<b>Inverse Diode</b>			
I <sub>F</sub>	T <sub>j</sub> = 175 °C	T <sub>c</sub> = 25 °C	15 A
		T <sub>c</sub> = 70 °C	13 A
I <sub>FRM</sub>	I <sub>CRM</sub> = 3xI <sub>Cnom</sub>	24	A
<b>Module</b>			
I <sub>t(RMS)</sub>		20	A
T <sub>vj</sub>		-40...+175	°C
T <sub>stg</sub>		-40...+125	°C
V <sub>isol</sub>	AC, 1 min.	2500	V

Characteristics		T <sub>c</sub> = 25 °C, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
<b>IGBT</b>					
V <sub>GE(th)</sub>	V <sub>GE</sub> = V <sub>CE</sub> , I <sub>C</sub> = mA	5	5,8	6,5	V
I <sub>CES</sub>	V <sub>GE</sub> = V, V <sub>CE</sub> = V <sub>CES</sub> T <sub>j</sub> = °C				mA
V <sub>CE0</sub>		T <sub>j</sub> = 25 °C	1,1	1,3	V
		T <sub>j</sub> = 150 °C	1	1,2	V
r <sub>CE</sub>	V <sub>GE</sub> = 15 V	T <sub>j</sub> = 25 °C	94	94	mΩ
		T <sub>j</sub> = 150 °C	156	156	mΩ
V <sub>CE(sat)</sub>	I <sub>Cnom</sub> = 8 A, V <sub>GE</sub> = 15 V	T <sub>j</sub> = 25 °C <sub>chiplev.</sub>	1,85	2,05	V
		T <sub>j</sub> = 150 °C <sub>chiplev.</sub>	2,25	2,45	V
C <sub>ies</sub>	V <sub>CE</sub> = , V <sub>GE</sub> = V f = MHz				nF
C <sub>oes</sub>					nF
C <sub>res</sub>					nF
R <sub>Gint</sub>	T <sub>j</sub> = 25 °C		0		Ω
t <sub>d(on)</sub>	R <sub>Gon</sub> =	V <sub>CC</sub> = 600V I <sub>Cnom</sub> = 8A T <sub>j</sub> = 150 °C			ns
t <sub>r</sub>					ns
E <sub>on</sub>	R <sub>Goff</sub> =	V <sub>GE</sub> = ±15V	0,96		mJ
t <sub>d(off)</sub>					ns
t <sub>f</sub>					ns
E <sub>off</sub>			0,64		mJ
R <sub>th(j-s)</sub>	per IGBT		1,55		K/W

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## 3-phase bridge inverter

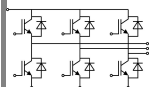
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#### Target Data

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#### Typical Applications



AC

Characteristics		min.	typ.	max.	Units
<b>Inverse Diode</b>					
$V_F = V_{EC}$	$I_{Fnom} = 8 \text{ A}; V_{GE} = 15 \text{ V}$		2,4	2,75	V
			2,45	2,8	V
$V_{F0}$			1,3	1,5	V
			0,9	1,1	V
$r_F$			138	156	mΩ
			194	213	mΩ
$I_{RRM}$	$I_{Fnom} = \text{A}$				A
$Q_{rr}$					μC
$E_{rr}$	$V_{GE} = \pm 15 \text{ V}$		0,6		mJ
$R_{th(j-s)}$	per diode		2,33		K/W
$M_s$	to heat sink	2		2,5	Nm
w			35		g
<b>Temperature sensor</b>					
$R_{ts}$	3%, $T_r = 25^\circ \text{C}$		1000		Ω
$R_{ts}$	3%, $T_r = 100^\circ \text{C}$		1670		Ω

This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

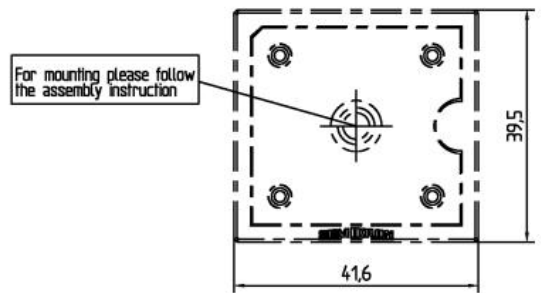
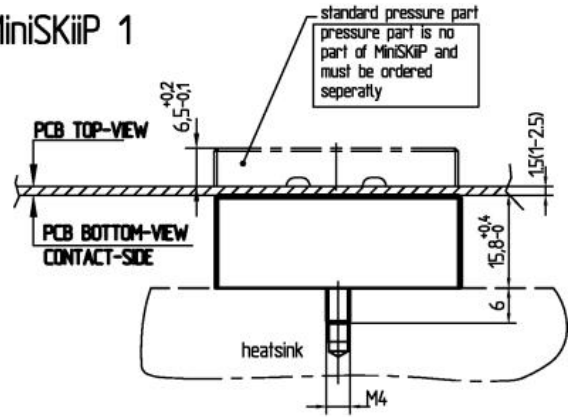
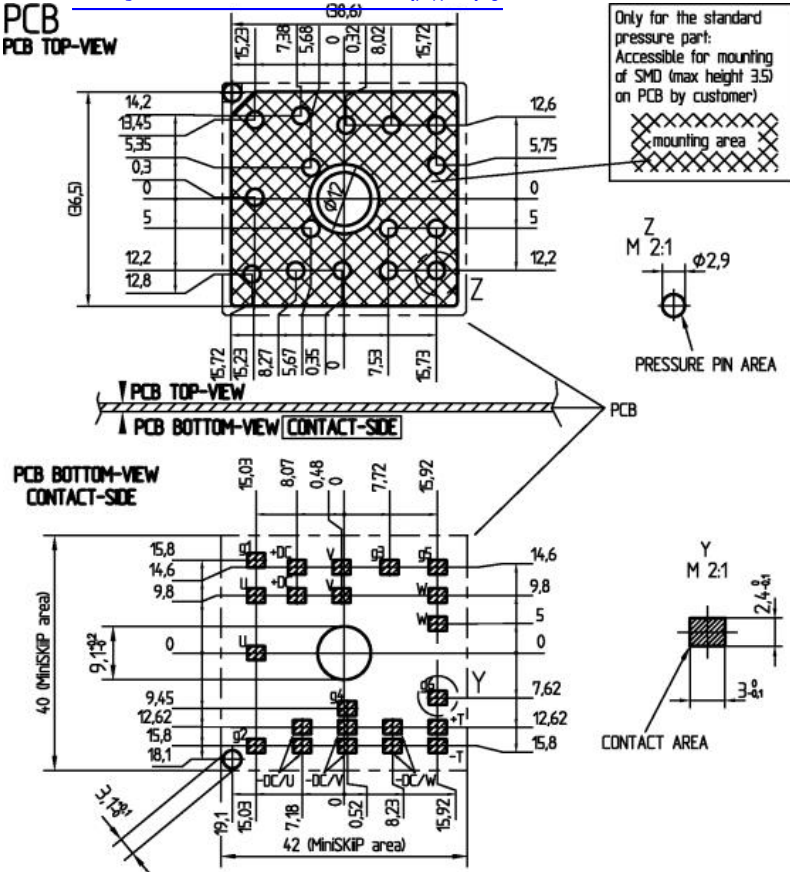
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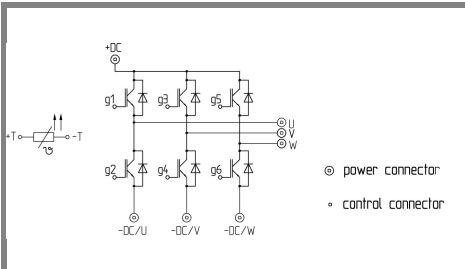
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no. E 63 532

## MiniSKiiP 1



case



pinout