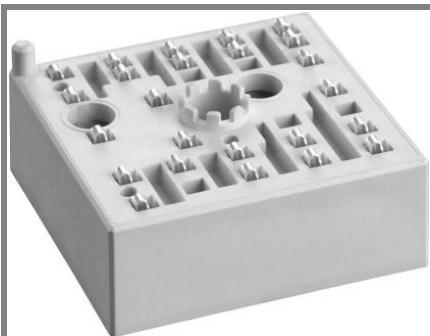


# SKiiP 12AC12T4V1



MiniSKiiP®1

## 3-phase bridge inverter

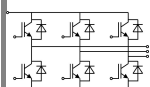
### SKiiP 12AC12T4V1

#### 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

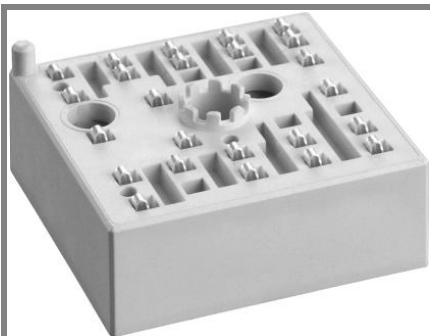


AC

Absolute Maximum Ratings		$T_c = 25\text{ °C}$ , unless otherwise specified	
Symbol	Conditions	Values	Units
<b>IGBT</b>			
$V_{CES}$	$T_j = 25\text{ °C}$	1200	V
$I_C$	$T_j = 175\text{ °C}$	$T_c = 25\text{ °C}$	18
		$T_c = 70\text{ °C}$	18
$I_{CRM}$	$I_{CRM} = 3 \times I_{Cnom}$	45	A
$V_{GES}$		$\pm 20$	V
$t_{psc}$	$V_{CC} = 600\text{ V}; V_{GE} \leq 20\text{ V}; T_j = 150\text{ °C}$ $V_{CES} < 1200\text{ V}$	10	$\mu\text{s}$
<b>Inverse Diode</b>			
$I_F$	$T_j = 175\text{ °C}$	$T_c = 25\text{ °C}$	22
		$T_c = 70\text{ °C}$	18
$I_{FRM}$	$I_{CRM} = 3 \times I_{Cnom}$	45	A
$I_{FSM}$	$t_p = 10\text{ ms}; \text{sin.}$	$T_j = 25\text{ °C}$	60
<b>Module</b>			
$I_{t(RMS)}$		40	A
$T_{vj}$		-40...+175	$^{\circ}\text{C}$
$T_{stg}$		-40...+125	$^{\circ}\text{C}$
$V_{isol}$	AC, 1 min.	2500	V

Characteristics		$T_c = 25\text{ °C}$ , unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
<b>IGBT</b>					
$V_{GE(th)}$	$V_{GE} = V_{CE}, I_C = \text{mA}$	5	5,8	6,5	V
$I_{CES}$	$V_{GE} = V, V_{CE} = V_{CES}, T_j = \text{°C}$				mA
$V_{CE0}$		$T_j = 25\text{ °C}$	1,1	1,3	V
		$T_j = 150\text{ °C}$	1	1,2	V
$r_{CE}$	$V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}$	50	50	$\text{m}\Omega$
		$T_j = 150\text{ °C}$	83	83	$\text{m}\Omega$
$V_{CE(sat)}$	$I_{Cnom} = 15\text{ A}, V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}_{chiplev.}$	1,85	2,05	V
		$T_j = 150\text{ °C}_{chiplev.}$	2,25	2,45	V
$C_{res}$	$V_{CE} = V, V_{GE} = V$	$f = \text{MHz}$			nF
$C_{oes}$					nF
$C_{res}$					nF
$R_{Gint}$	$T_j = 25\text{ °C}$		0		$\Omega$
$t_{d(on)}$	$R_{Gon} =$	$V_{CC} = 600\text{ V}$ $I_{Cnom} = 15\text{ A}$ $T_j = 150\text{ °C}$	1,8		ns
$t_r$					ns
$E_{on}$	$R_{Goff} =$	$V_{GE} = \pm 15\text{ V}$	1,2		mJ
$t_{d(off)}$					ns
$t_f$					ns
$E_{off}$					mJ
$R_{th(j-s)}$	per IGBT		1,22		K/W

# SKiiP 12AC12T4V1



MiniSKiiP<sup>®</sup>1

## 3-phase bridge inverter

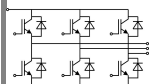
### SKiiP 12AC12T4V1

#### 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

Characteristics			min.	typ.	max.	Units
<b>Symbol</b>	<b>Conditions</b>					
<b>Inverse Diode</b>						
$V_F = V_{EC}$	$I_{Fnom} = 15 \text{ A}; V_{GE} = 0 \text{ V}$	$T_j = 25 \text{ }^\circ\text{C}_{\text{chiplev.}}$		2,4	2,75	V
		$T_j = 150 \text{ }^\circ\text{C}_{\text{chiplev.}}$		2,45	2,8	V
$V_{F0}$		$T_j = 25 \text{ }^\circ\text{C}$		1,3	1,5	V
		$T_j = 150 \text{ }^\circ\text{C}$		0,9	1,1	V
$r_F$		$T_j = 25 \text{ }^\circ\text{C}$		73	83	mΩ
		$T_j = 150 \text{ }^\circ\text{C}$		103	113	mΩ
$I_{RRM}$	$I_{Fnom} = 15 \text{ A}$	$T_j = 150 \text{ }^\circ\text{C}$				A
$Q_{rr}$						μC
$E_{rr}$	$V_{GE} = \pm 15 \text{ V}$			1,13		mJ
$R_{th(j-s)}$	per diode			2,02		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.

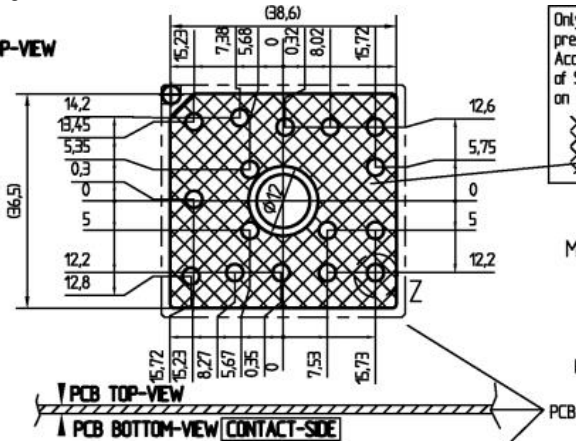
This technical information specifies semiconductor devices but promises no characteristics. No warranty or guarantee expressed or implied is made regarding delivery, performance or suitability.

# SKiiP 12AC12T4V1

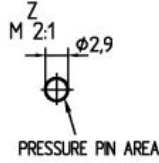
UL recognized file

no. E 63 532

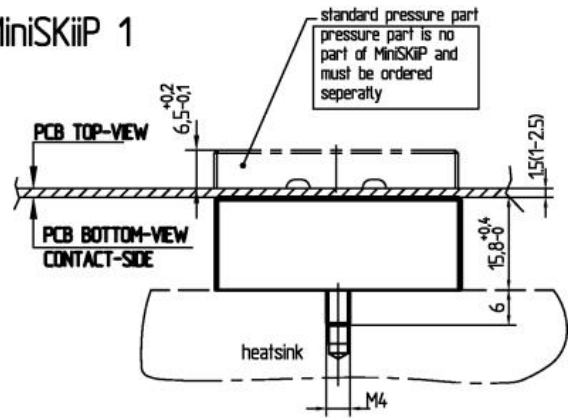
## PCB PCB TOP-VIEW



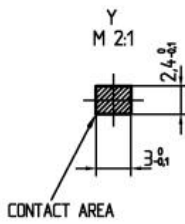
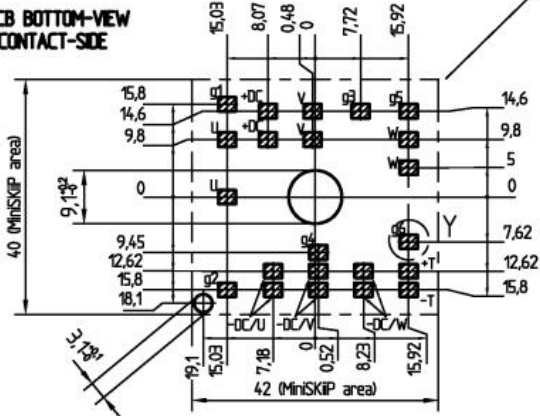
Only for the standard pressure part:  
Accessible for mounting of SMD (max height 3.5) on PCB by customer



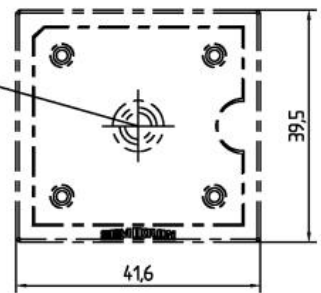
## MiniSKiiP 1



## PCB BOTTOM-VIEW CONTACT-SIDE

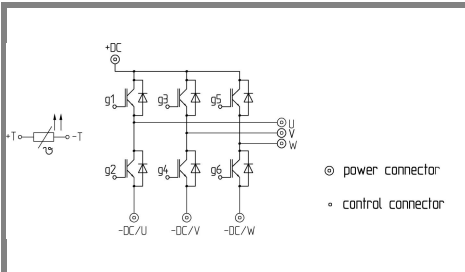


For mounting please follow the assembly instruction



measure: mm  
tolerance: ISO 2768-f

case



pinout