

SKiiP 11NAB12T4V1

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MiniSKiiP® 1

3-phase bridge rectifier +
brake chopper + 3-phase
bridge inverter
SKiiP 11NAB12T4V1

Target Data

Features

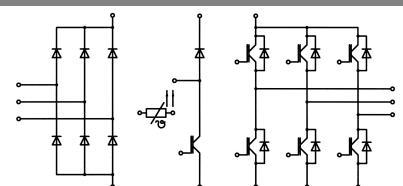
- Latest Trench IGBTs
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

Typical Applications

- Inverter up to 8 kVA
- Typical motor power 4 kW

Remarks

- V_{CEsat} , V_F = chip level value

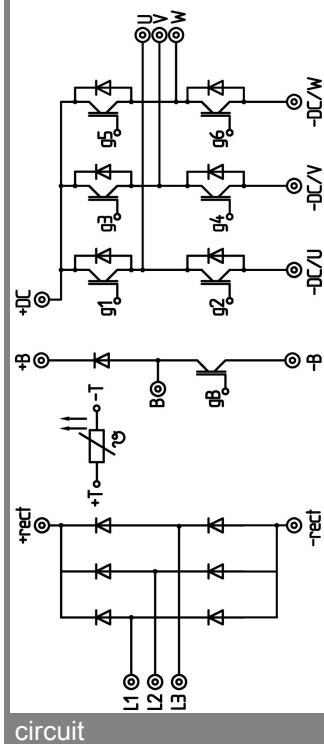


NAB

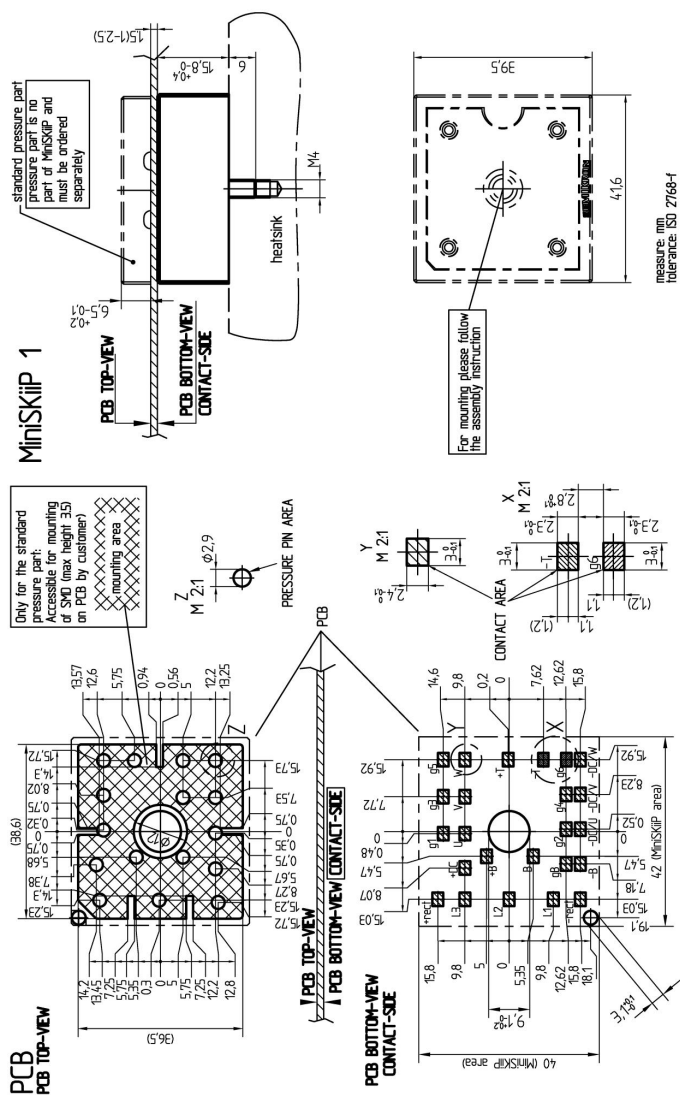
Absolute Maximum Ratings		$T_s = 25\text{ °C}$, unless otherwise specified	
Symbol	Conditions	Values	Units
IGBT - Inverter, Chopper			
V_{CES}	$T_s = 25\text{ (70) °C}$	1200	V
I_C	$t_p \leq 1\text{ ms}$	12 (12)	A
I_{CRM}		24	A
V_{GES}		± 20	V
T_j		- 40 ... + 175	°C
Diode - Inverter, Chopper			
I_F	$T_s = 25\text{ (70) °C}$	15 (13)	A
I_{FRM}	$t_p \leq 1\text{ ms}$	24	A
T_j		- 40 ... + 175	°C
Diode - Rectifier			
V_{RRM}	$T_s = 70\text{ °C}$	1600	V
I_F		35	A
I_{FSM}	$t_p = 10\text{ ms}$, $\sin 180^\circ$, $T_j = 25\text{ °C}$	220	A
i^2t	$t_p = 10\text{ ms}$, $\sin 180^\circ$, $T_j = 25\text{ °C}$	240	A ² s
T_j		- 40 ... + 150	°C
I_{tRMS}	per power terminal (20 A / spring)	20	A
T_{stg}	$T_{op} \leq T_{stg}$	- 40 ... + 125	°C
V_{isol}	AC, 1 min.	2500	V

Characteristics		$T_s = 25\text{ °C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT - Inverter, Chopper					
V_{CEsat}	$I_{Cnom} = 8\text{ A}$, $T_j = 25\text{ (150) °C}$		1,85 (2,25)	2,05 (2,45)	V
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = \text{mA}$	5	5,8	6,5	V
$V_{CE(TO)}$	$T_j = 25\text{ (150) °C}$		1,1 (1)	1,3 (1,2)	V
r_T	$T_j = 25\text{ (150) °C}$		94 (156)	94 (156)	mΩ
C_{ies}	$V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$		-	-	nF
C_{oes}	$V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$		-	-	nF
C_{res}	$V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$		-	-	nF
$R_{th(j-s)}$	per IGBT		1,55		K/W
$t_{d(on)}$	under following conditions		-		ns
t_r	$V_{CC} = 600\text{ V}$, $V_{GE} = \pm 15\text{ V}$		-		ns
$t_{d(off)}$	$I_{Cnom} = 8\text{ A}$, $T_j = 150\text{ °C}$		-		ns
t_f	$R_{Gon} = R_{Goff} = 51\text{ Ω}$		-		ns
E_{on}	inductive load		0,66		mJ
E_{off}			0,66		mJ
Diode - Inverter, Chopper					
$V_F = V_{EC}$	$I_{Fnom} = 8\text{ A}$, $T_j = 25\text{ (150) °C}$		2,4 (2,45)	2,75 (2,8)	V
$V_{(TO)}$	$T_j = 25\text{ (150) °C}$		1,3 (0,9)	1,5 (1,1)	V
r_T	$T_j = 25\text{ (150) °C}$		138 (194)	156 (213)	mΩ
$R_{th(j-s)}$	per diode		2,33		K/W
I_{RRM}	under following conditions		-		A
Q_{rr}	$I_{Fnom} = 8\text{ A}$, $V_R = 600\text{ V}$		-		μC
E_{rr}	$V_{GE} = 0\text{ V}$, $T_j = 150\text{ °C}$		0,36		mJ
	$di_F/dt = -\text{A}/\mu\text{s}$				
Diode - Rectifier					
V_F	$I_{Fnom} = 15\text{ A}$, $T_j = 25\text{ °C}$		1,1		V
$V_{(TO)}$	$T_j = 150\text{ °C}$		0,8		V
r_T	$T_j = 150\text{ °C}$		20		mΩ
$R_{th(j-s)}$	per diode		1,5		K/W
Temperature Sensor					
R_{ts}	3 %, $T_r = 25\text{ (100) °C}$		1000(1670)		Ω
Mechanical Data					
w			35		g
M_s	Mounting torque	2		2,5	Nm

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circuit



pinout, dimensions

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