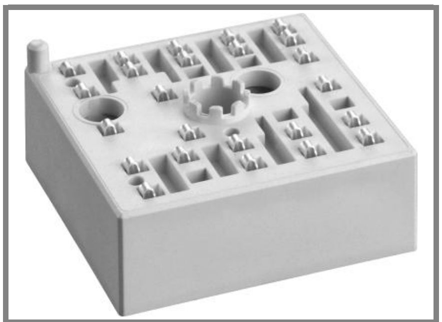
SKiiP 11NAB12T4V1



MiniSKiiP® 1

3-phase bridge rectifier + brake chopper + 3-phase bridge inverter

SKiiP 11NAB12T4V1

Target Data

Features

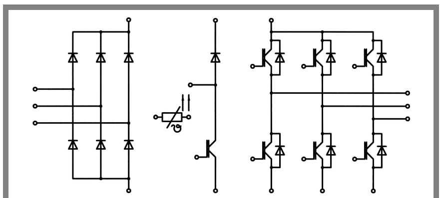
- Latest Trench IGBTs
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

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 °C, unless otherwise specified	
Symbol	**Conditions**	**Values**	**Units**
IGBT - Inverter, Chopper			
V_{CES}		1200	V
I_C	T_s = 25 (70) °C	12 (12)	A
I_{CRM}	$t_p \le$ 1 ms	24	A
V_{GES}		± 20	V
T_j		- 40 ... + 175	°C
Diode - Inverter, Chopper			
I_F	T_s = 25 (70) °C	15 (13)	A
I_{FRM}	$t_p \le$ 1 ms	24	A
T_j		- 40 ... + 175	°C
Diode - Rectifier			
V_{RRM}		1600	V
I_F	T_s = 70 °C	35	A
I_{FSM}	t_p = 10 ms, sin 180 °, T_j = 25 °C	220	A
i²t	t_p = 10 ms, sin 180 °, T_j = 25 °C	240	A²s
T_j		- 40 ... + 150	°C
I_{tRMS}	per power terminal (20 A / spring)	20	A
T_{stg}	$T_{op} \le T_{stg}$	- 40 ... + 125	°C
V_{isol}	AC, 1 min.	2500	V

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

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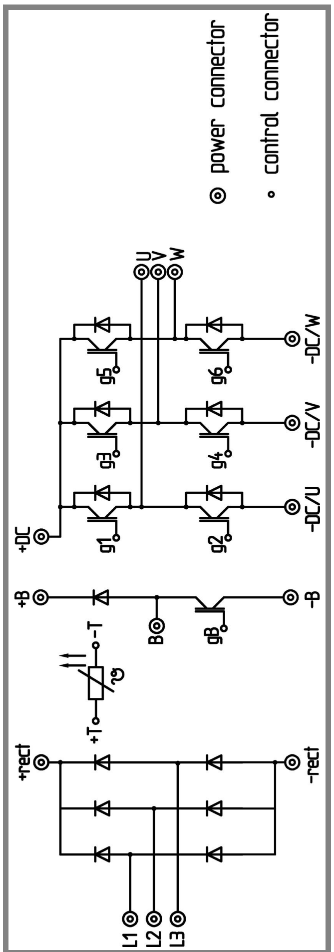
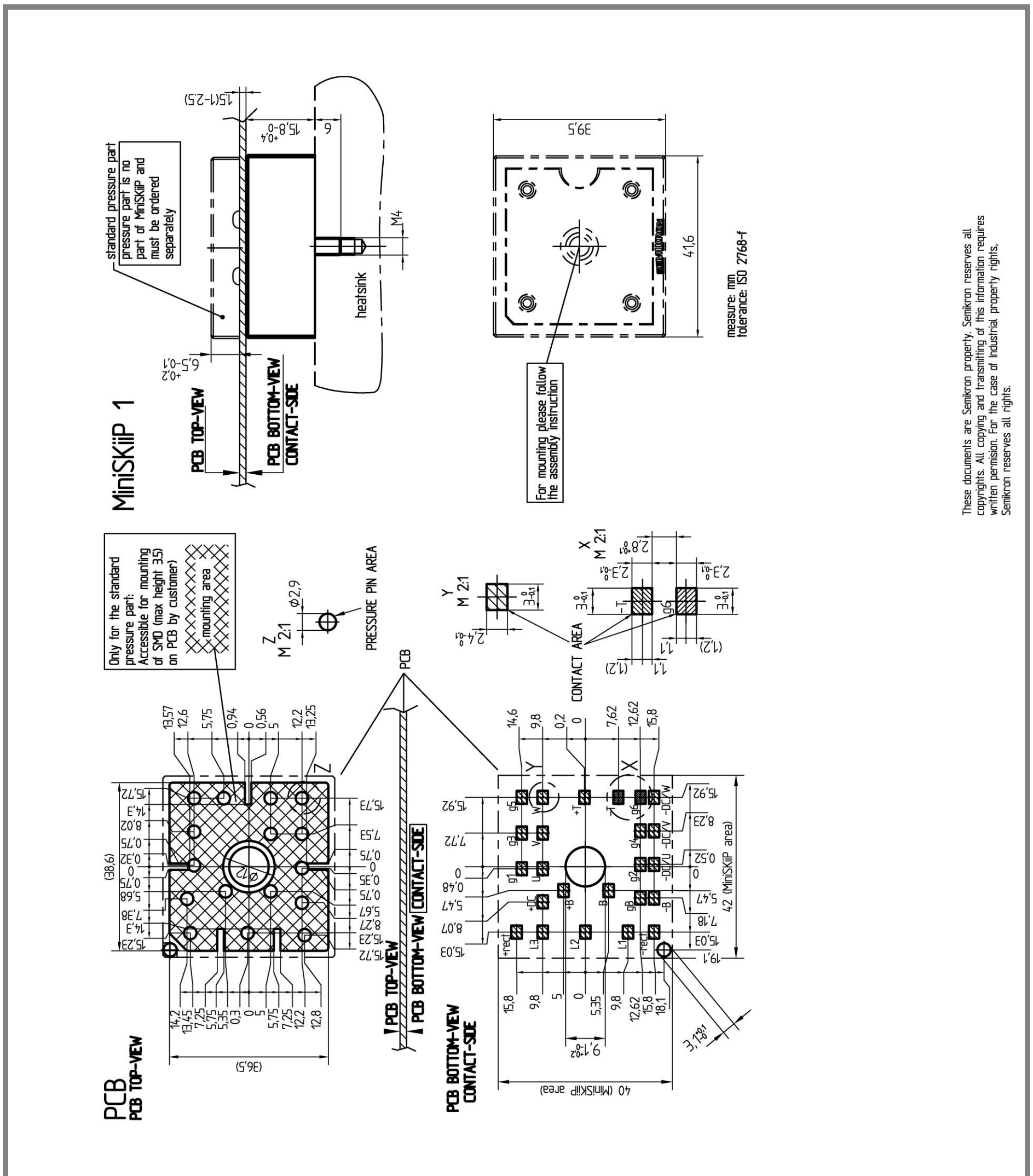


circuit



pinout, dimensions

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

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