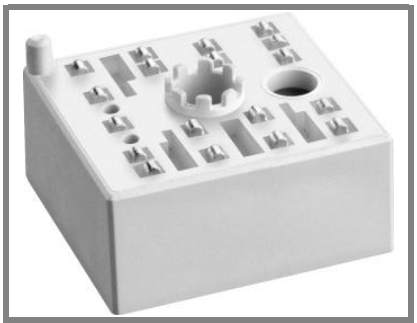
SKiiP 03NEB066V1



MiniSKiiP® 0

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

SKiiP 03NEB066V1

Target Data

Features

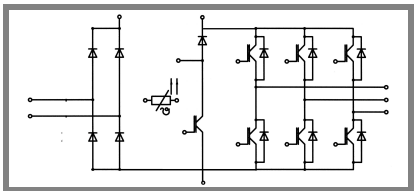
- Trench IGBTs
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

Typical Applications

- Inverter up to 5,6 kVA
- Typical motor power 3,0 kW

Remarks

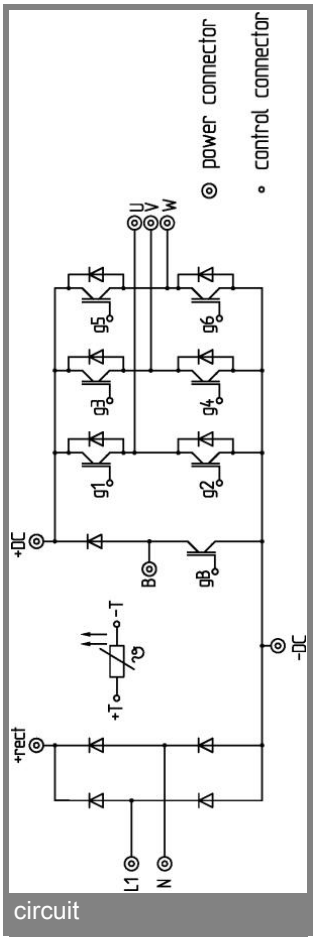
- Case temperature limited to T_C = 125°C max.
- Product reliability results are valid for T_j=150°C
- SC data: $t_p \leq 6$ µs; $V_{GE} \leq 15$ V; T_j = 150°C; V_{CC} = 360 V
- V_{CEsat}, V_F = chip level value



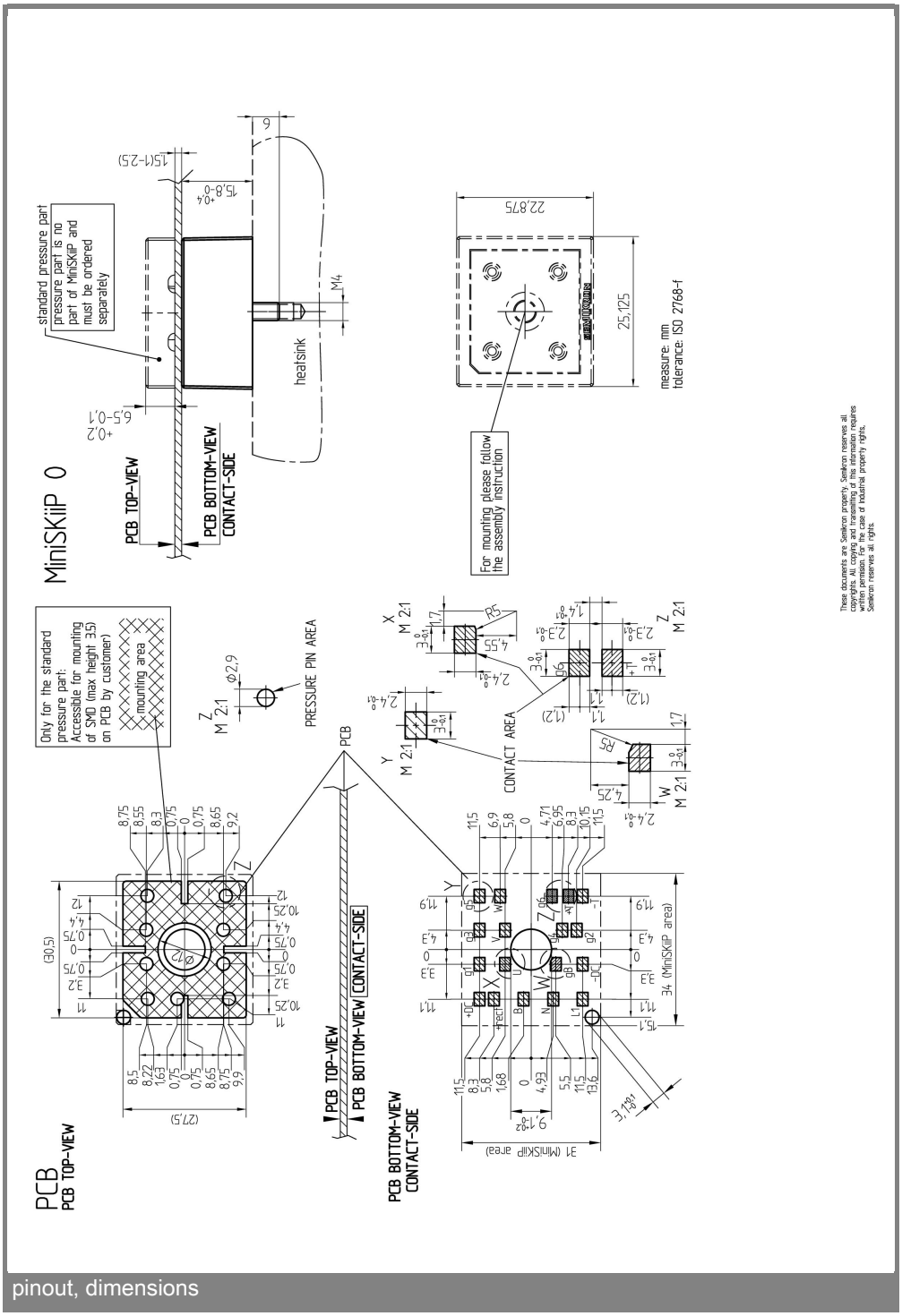
NEB

Absolute Maximum Ratings		T_s = 25 °C, unless otherwise specified	
Symbol	**Conditions**	**Values**	**Units**
IGBT - Inverter, Chopper			
V_{CES}		600	V
I_C	T_s = 25 (70) °C, T_j = 150 °C	22 (17)	A
I_C	T_s = 25 (70) °C, T_j = 175 °C	23 (19)	A
I_{CRM}	t_p = 1 ms	30	A
V_{GES}		± 20	V
Diode - Inverter, Chopper			
I_F	T_s = 25 (70) °C, T_j = 150 °C	20 (15)	A
I_F	T_s = 25 (70) °C, T_j = 175 °C	22 (18)	A
I_{FRM}	t_p = 1 ms	30	A
Diode - Rectifier			
V_{RRM}		800	V
I_F	T_s = 70 °C	35	A
I_{FSM}	t_p = 10 ms, sin 180 °, T_j = 25 °C	220	A
i^2t	t_p = 10 ms, sin 180 °, T_j = 25 °C	240	A^2s
I_{tRMS}	per power terminal (20 A / spring)	20	A
T_j	IGBT, Diode	-40...+175	°C
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					
$V_{CE(sat)}$	I_{Cnom} = 15 A, T_j = 25 (150) °C		1,45 (1,65)	1,85 (2,05)	V
$V_{GE(th)}$	V_{GE} = V_{CE}, I_C = 1 mA		5,8		V
$V_{CE(TO)}$	T_j = 25 (150) °C		0,9 (0,85)	1 (0,9)	V
r_{CE}	T_j = 25 (150) °C		40 (57)	60 (80)	mΩ
C_{ies}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		0,86		nF
C_{oes}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		0,18		nF
C_{res}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		0,12		nF
$R_{CC'+EE'}$	spring contact-chip T_s = 25 (150)°C				mΩ
$R_{th(j-s)}$	per IGBT		1,8		K/W
$t_{d(on)}$	under following conditions		20		ns
t_r	V_{CC} = 300 V, V_{GE} = ± 15V		30		ns
$t_{d(off)}$	I_{Cnom} = 15 A, T_j = 150 °C		155		ns
t_f	R_{Gon} = R_{Goff} = 22 Ω		45		ns
E_{on} (E_{off})	inductive load		0,6 (0,5)		mJ
Diode - Inverter, Chopper					
V_F = V_{EC}	I_F = 15 A, T_j = 25 (150) °C		1,4 (1,4)	1,7 (1,7)	V
$V_{(TO)}$	T_j = 25 (150) °C		1 (0,9)	1,1 (1)	V
r_T	T_j = 25 (150) °C		27 (34)	40 (47)	mΩ
$R_{th(j-s)}$	per diode		2,5		K/W
I_{RRM}	under following conditions		19,8		A
Q_{rr}	I_{Fnom} = 15 A, V_R = 300 V		1,9		µC
E_{rr}	V_{GE} = 0 V, T_j = 150°C		0,5		mJ
	di_F/dt = 930 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			21,5		g
M_s	Mounting torque	2		2,5	Nm



circuit



pinout, dimensions

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

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