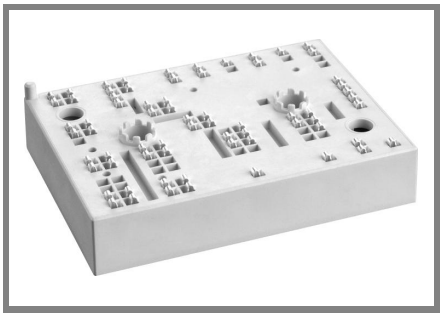
SKiiP 37NAB066V1



MiniSKiiP®3

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

SKiiP 37NAB066V1

Target Data

Features

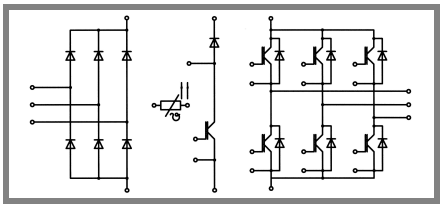
- Trench IGBT
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

Typical Applications

- Inverter up to 18 kVA
- Typical motor power 7,5 kW

Remarks

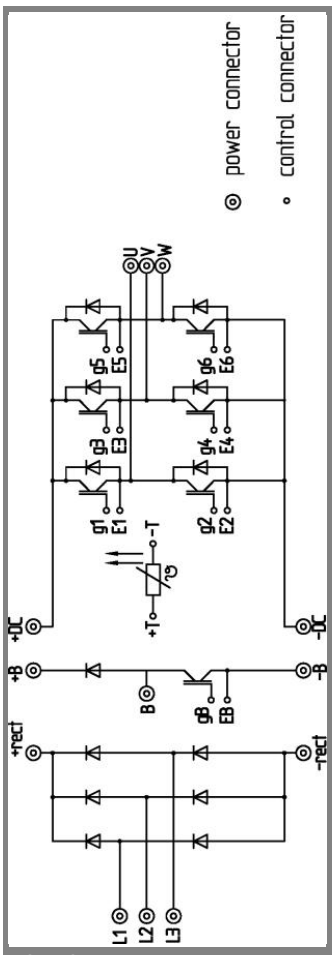
- Case temperature limited to T_C = 125°C
- Product reliability results are valid for T_j = 150°C
- SC data: $t_p \leq 6$ µs; $V_{GE} \leq 15$ V; T_j = 150°C, V_{CC} = 360 V
- V_{CEsat}, V_F = chip level value



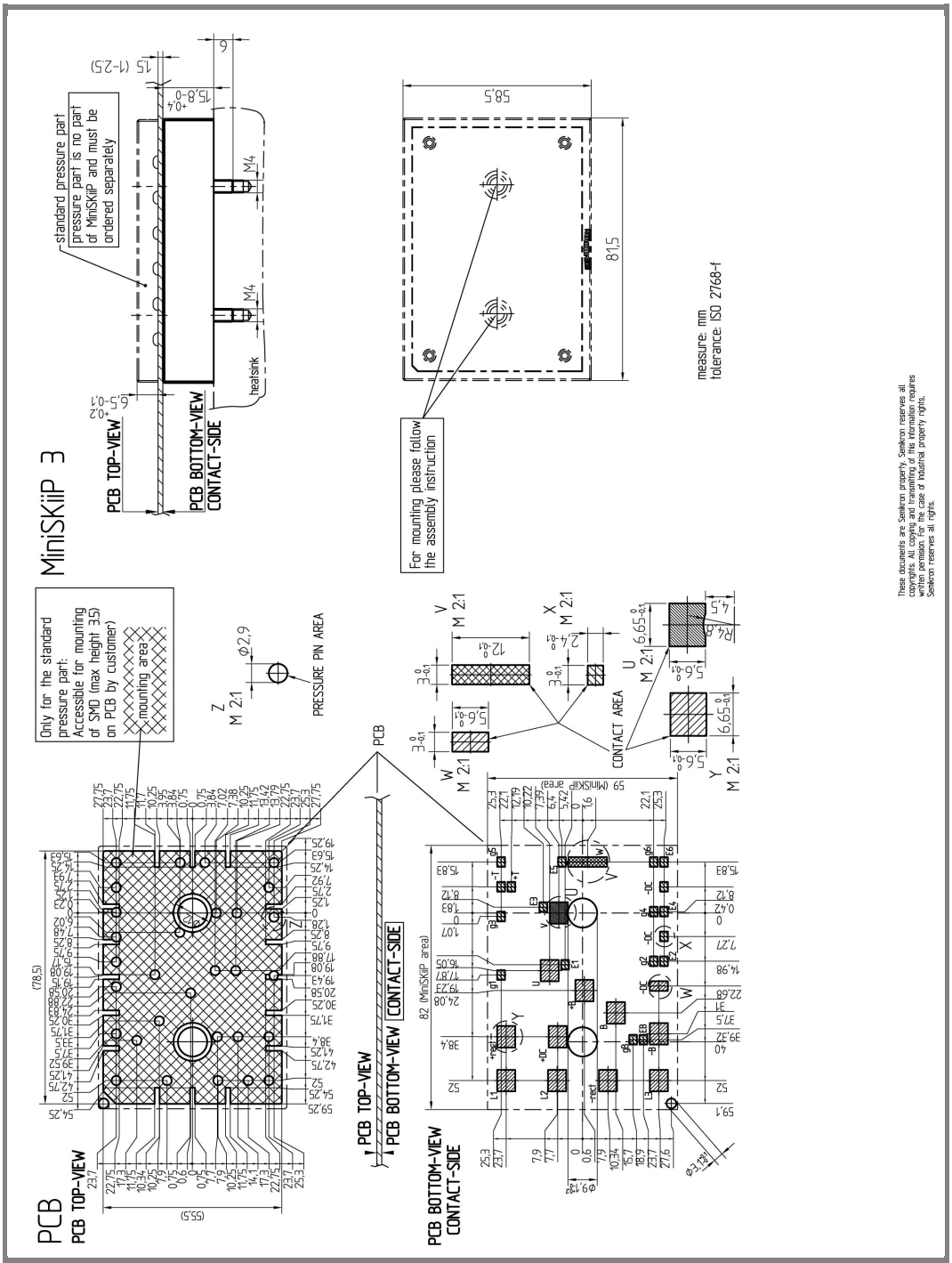
NAB

Absolute Maximum Ratings	T_S = 25 °C, unless otherwise specified		
Symbol	**Conditions**	**Values**	**Units**
IGBT - Inverter			
V_{CES}		600	V
I_C	T_s = 25 (70) °C, T_j = 150 °C	79 (53)	A
I_C	T_s = 25 (70) °C, T_j = 175 °C	88 (65)	A
I_{CRM}	t_p = 1 ms	150	A
V_{GES}		± 20	V
Diode - Inverter			
I_F	T_s = 25 (70) °C, T_j = 150 °C	65 (42)	A
I_F	T_s = 25 (70) °C, T_j = 175 °C	77 (56)	A
I_{FRM}	t_p = 1 ms	150	A
Diode - Rectifier			
V_{RRM}		800	V
I_F	T_s = 70 °C	61	A
I_{FSM}	t_p = 10 ms, sin 180 °, T_j = 25 °C	700	A
i^2t	t_p = 10 ms, sin 180 °, T_j = 25 °C	2400	A^2s
I_{tRMS}	per power terminal (20 A / spring)	80	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					
$V_{CE(sat)}$	I_{Cnom} = 75 A, T_j = 25 (150) °C	1,05	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		0,85 (0,7)	1,1 (1)	V
r_{CE}	T_j = 25 (150) °C		8 (12,7)	10 (14)	mΩ
C_{ies}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		4,4		nF
C_{oes}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		0,78		nF
C_{res}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		0,66		nF
$R_{CC'+EE'}$	spring contact-chip T_s = 25 (150)°C				mΩ
$R_{th(j-s)}$	per IGBT		0,75		K/W
$t_{d(on)}$	under following conditions		115		ns
t_r	V_{CC} = 300 V, V_{GE} = -8V/+15V		45		ns
$t_{d(off)}$	I_{Cnom} = 75 A, T_j = 150 °C		475		ns
t_f	$R_{Gon} = R_{Goff}$ = 8,2 Ω		60		ns
E_{on} (E_{off})	inductive load		2,7 (3)		mJ
Diode - Inverter					
$V_F = V_{EC}$	I_F = 75 A, T_j = 25 (150) °C		1,5 (1,5)	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		6,7 (8)	8 (9,3)	mΩ
$R_{th(j-s)}$	per diode		1,2		K/W
I_{RRM}	under following conditions		52		A
Q_{rr}	I_{Fnom} = 75 A, V_R = 300 V		8		µC
E_{rr}	V_{GE} = 0 V, T_j = 150°C		1,8		mJ
	di_F/dt = 1480 A/µs				
Diode - Rectifier					
V_F	I_{Fnom} = 35 A, T_j = 25 °C		1,1		V
$V_{(TO)}$	T_j = 150 °C		0,8		V
r_T	T_j = 150 °C		11		mΩ
$R_{th(j-s)}$	per diode		0,9		K/W
Temperature Sensor					
R_{ts}	3 %, T_r = 25 (100) °C		1000(1670)		Ω
Mechanical Data					
w			97		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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