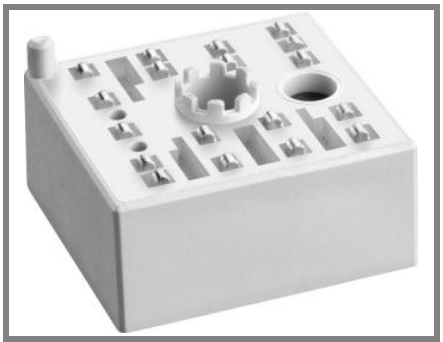
SKiiP 02NEC066V20



MiniSKiiP® 0

1-phase bridge rectifier + 3-phase bridge inverter

SKiiP 02NEC066V20

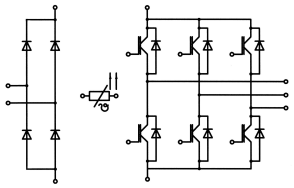
Target Data

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 4,8 kVA
- Typical motor power 2,2 kW



NEC

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	15 (12)	A
I_{CRM}	T_s = 25 (70) °C, $t_p \leq$ 1 ms	30 (24)	A
V_{GES}		± 20	V
T_j		- 40 ... + 150	°C
Diode - Inverter			
I_F	T_s = 25 (70) °C	21 (16)	A
I_{FRM}	T_s = 25 (70) °C, $t_p \leq$ 1 ms	42 (32)	A
T_j		- 40 ... + 150	°C
Diode - Rectifier			
V_{RRM}		800	V
I_F	T_s = 70 °C	20	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
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 °C, unless otherwise specified			
Symbol	**Conditions**	**min.**	**typ.**	**max.**	**Units**
IGBT - Inverter					
V_{CEsat}	I_C = 10 A, T_j = 25 (125) °C		1,75 (2)	2,25 (2,5)	V
$V_{GE(th)}$	$V_{GE} = V_{CE}$, I_C = mA				V
$V_{CE(TO)}$	T_j = 25 (125) °C		0,9 (0,8)	1 (0,9)	V
r_T	T_j = 25 (125) °C		85 (120)	125 (160)	mΩ
C_{ies}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		0,61		nF
C_{oes}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		0,19		nF
C_{res}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		0,05		nF
$R_{th(j-s)}$	per IGBT		2,4		K/W
$t_{d(on)}$	under following conditions		13		ns
t_r	V_{CC} = 300 V, V_{GE} = ± 15 V		17		ns
$t_{d(off)}$	I_C = 10 A, T_j = 125 °C		150		ns
t_f	$R_{Gon} = R_{Goff}$ = 23 Ω		45		ns
E_{on}	inductive load		0,32		mJ
E_{off}			0,33		mJ
Diode - Inverter					
$V_F = V_{EC}$	I_F = 10 A, T_j = 25 (125) °C		1,4 (1,4)	1,7 (1,7)	V
$V_{(TO)}$	T_j = 25 (125) °C		1 (0,9)	1,1 (1)	V
r_T	T_j = 25 (125) °C		45 (50)	60 (70)	mΩ
$R_{th(j-s)}$	per diode		2,4		K/W
I_{RRM}	under following conditions		11		A
Q_{rr}	I_F = 10 A, V_R = 300 V		1,1		µC
E_{rr}	V_{GE} = 0 V, T_j = 125 °C		0,18		mJ
	di_F/dt = 1050 A/µs				
Diode - Rectifier					
V_F	I_F = 15 A, T_j = 25 °C		1,15		V
$V_{(TO)}$	T_j = 150 °C		0,8		V
r_T	T_j = 150 °C		20		mΩ
$R_{th(j-s)}$	per diode		1,8		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

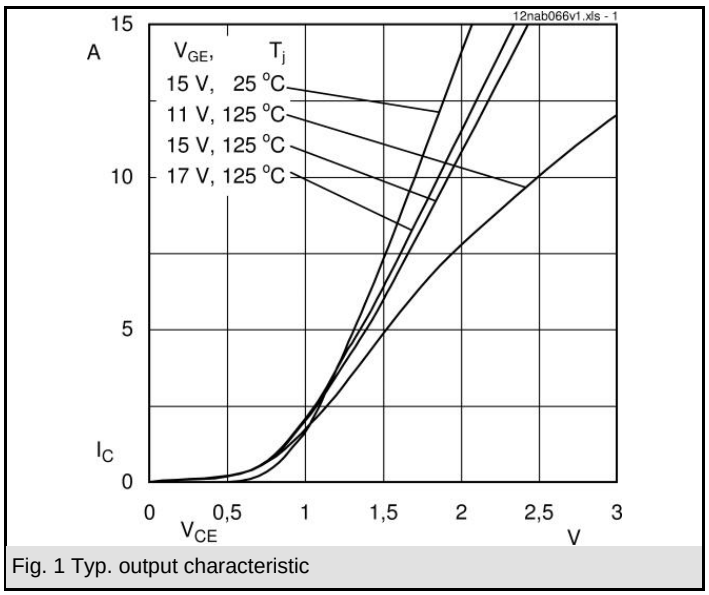


Fig. 1 Typ. output characteristic

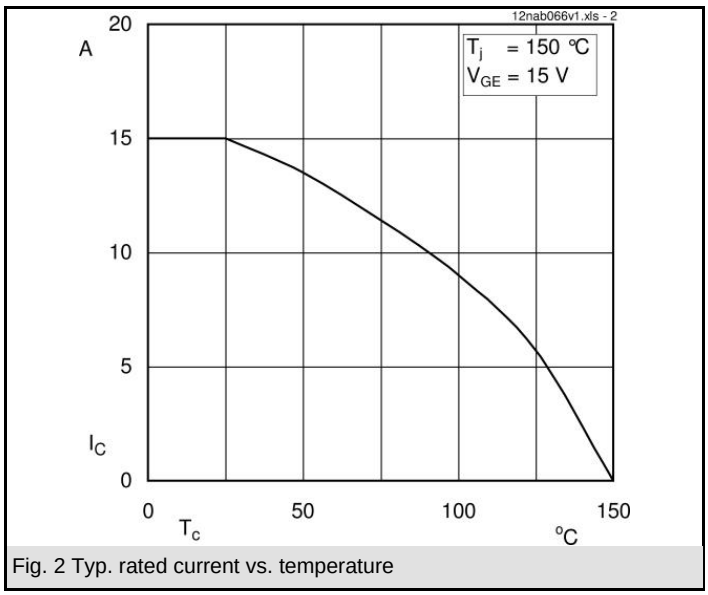


Fig. 2 Typ. rated current vs. temperature

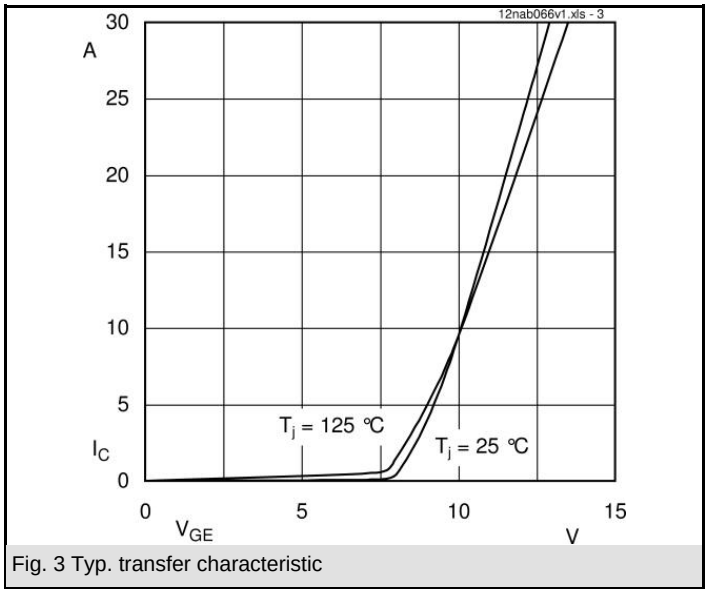


Fig. 3 Typ. transfer characteristic

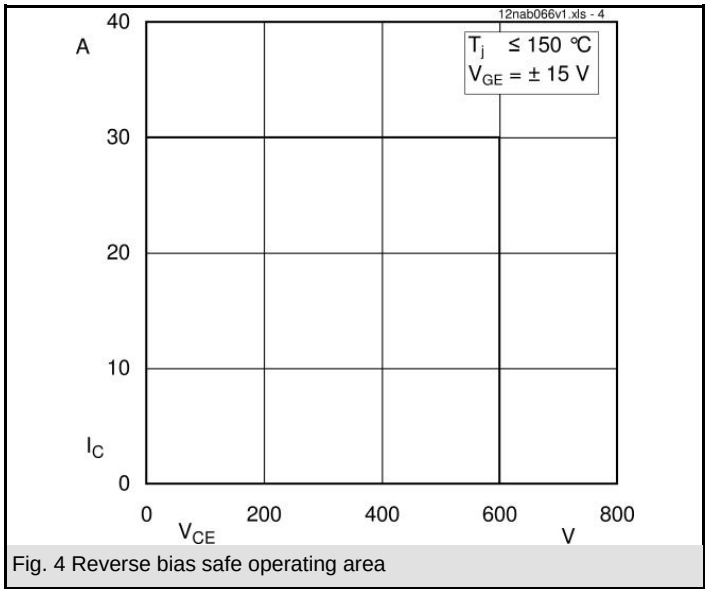


Fig. 4 Reverse bias safe operating area

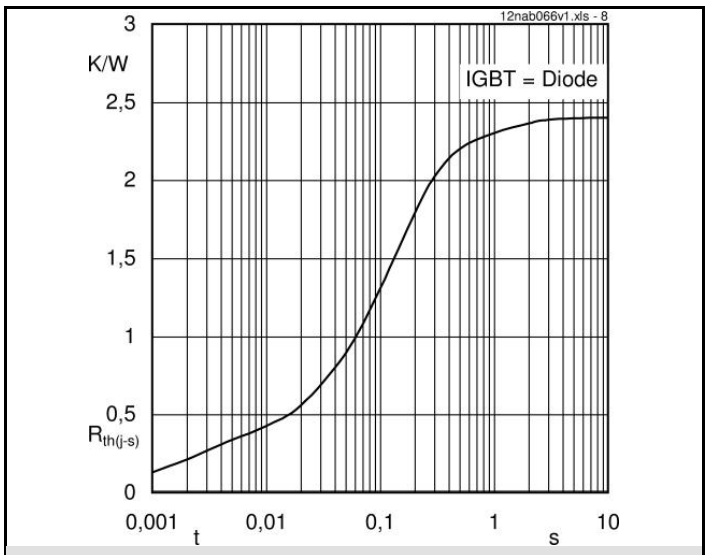


Fig. 8 Typ. thermal impedance

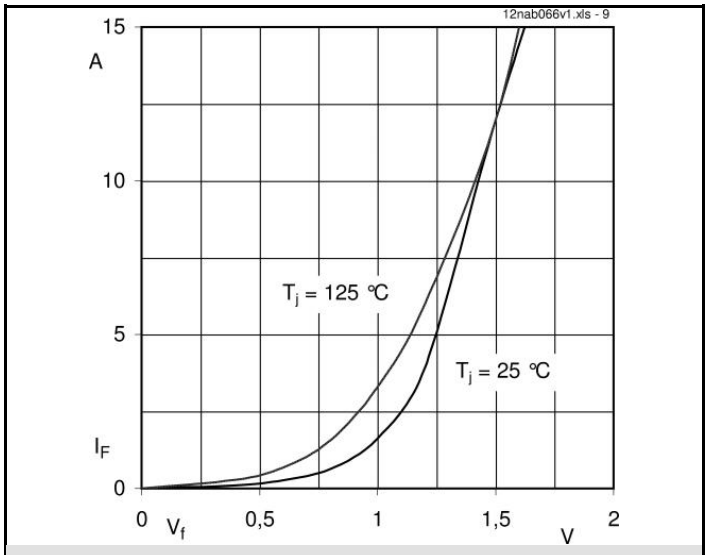


Fig. 9 Typ. freewheeling diode forward characteristic

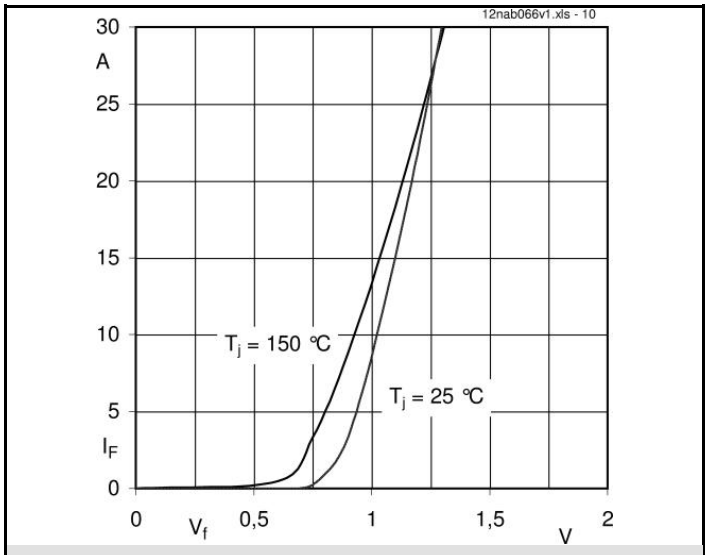


Fig. 10 Typ. input bridge forward characteristic

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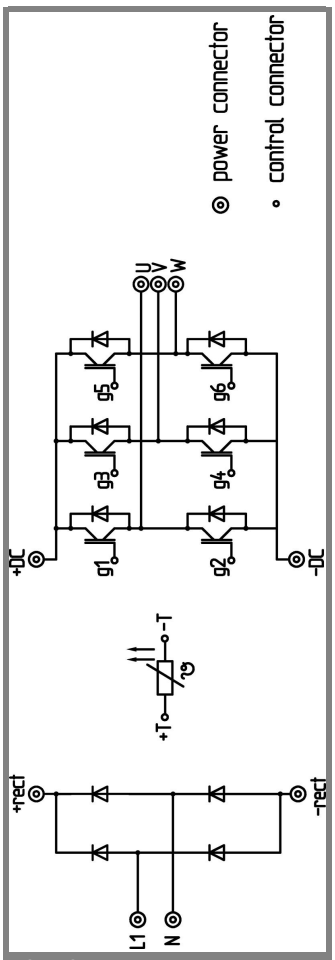
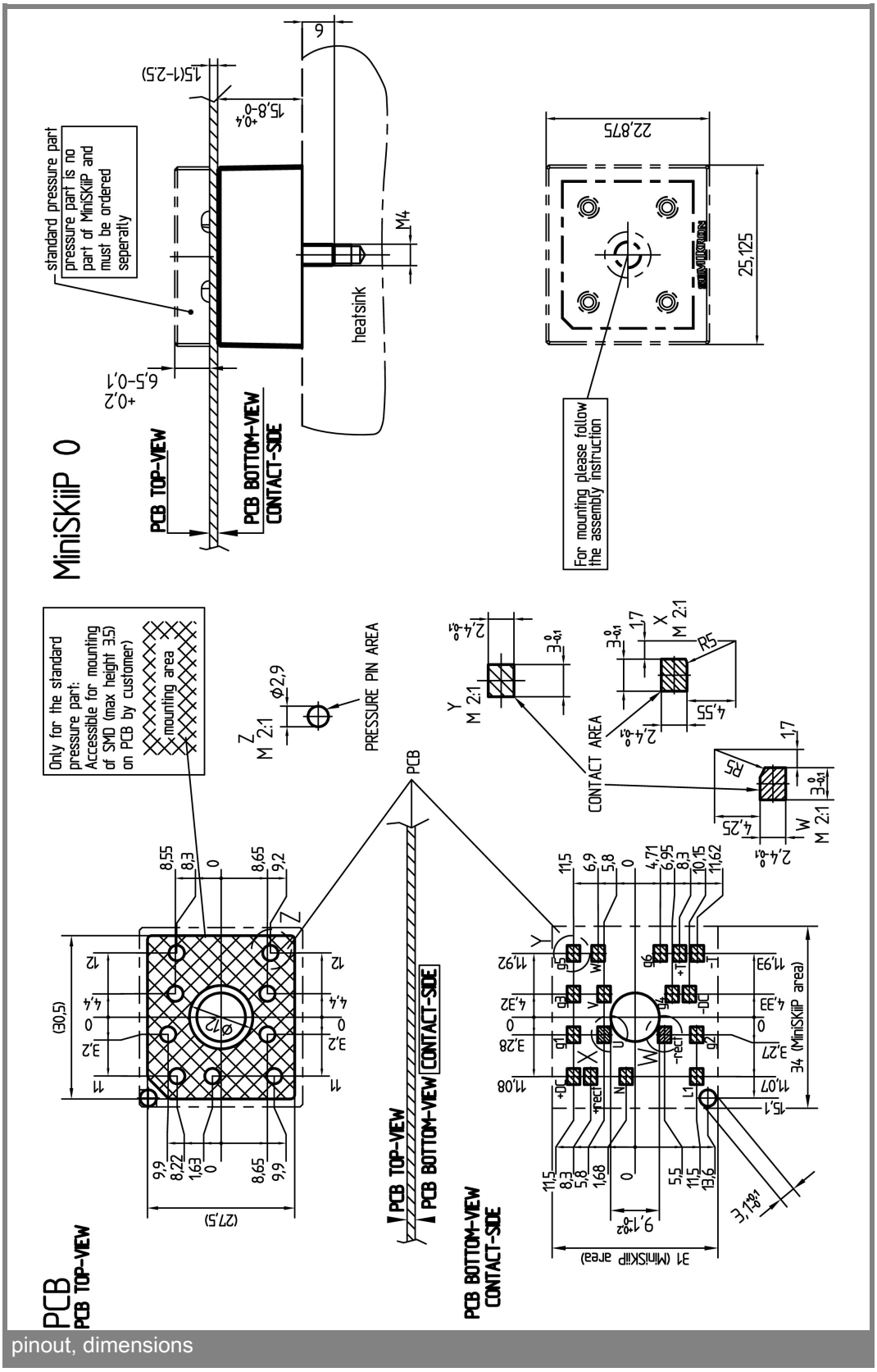


circuit



pinout, dimensions

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

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