SKiiP 01NAC066V1



MiniSKiiP[®] 1

3-phase bridge rectifier + brake chopper + 3-phase bridge inverter SKIIP 01NAC066V1

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

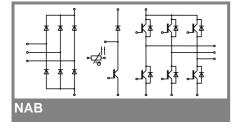
Typical Applications

- Inverter up to 3,5 kVA
- Typical motor power 1,5 kW

Absolute	Maximum Ratings	T_s = 25 °C, unless otherwise	specified	
Symbol	Conditions	Values Uni		
IGBT - In	verter, Chopper			
V_{CES}		600	V	
I _C	T _s = 25 (70) °C		Α	
I _{CRM}	$T_s = 25 (70) ^{\circ}C, t_p \le 1 \text{ms}$		Α	
V_{GES}		± 20	V	
T_j		- 40 + 150	°C	
Diode - Ir	verter, Chopper			
I _F	T _s = 25 (70) °C		Α	
I _{FRM}	$T_s = 25 (70) ^{\circ}C, t_p \le 1 \text{ms}$		Α	
T _j		- 40 + 150	°C	
Diode - R	ectifier	·		
V_{RRM}		800	V	
I _F	T _s = 70 °C	35	Α	
I _{FSM}	$t_p = 10 \text{ ms, sin } 180 ^\circ, T_j = 25 ^\circ\text{C}$	220	Α	
i²t	$t_p = 10 \text{ ms, sin } 180 ^{\circ}, T_j = 25 ^{\circ}\text{C}$	240	A²s	
T _j		- 40 + 150	°C	
I _{tRMS}	per power terminal (20 A / spring)	20	Α	
T_{stg}	$T_{op} \leq T_{stg}$	- 40 + 125	°C	
V _{isol}	AC, 1 min.	2500	V	
		l		

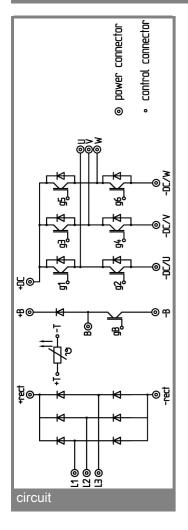
T_o = 25 °C, unless otherwise specified

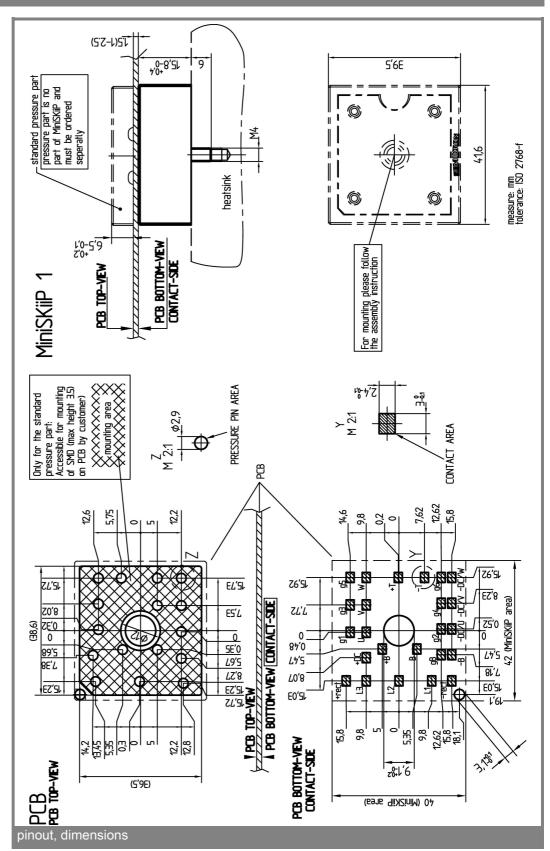
$ \begin{array}{ c c c c } \hline \textbf{IGBT - Inverter, Chopper} \\ V_{\text{CEsat}} & _{C} = 6 \text{ A, } T_{j} = 25 (125) ^{\circ}\text{C} \\ V_{\text{GE}(th)} & V_{\text{GE}} = V_{\text{CE}}, I_{\text{C}} = 0.5 \text{mA} \\ V_{\text{CE(TO)}} & T_{j} = 25 (125) ^{\circ}\text{C} \\ T_{j} = 25 (125) ^{\circ}\text{C} \\ C_{\text{ies}} & V_{\text{CE}} = 25 ^{\circ}\text{V, } V_{\text{GE}} = 0 ^{\circ}\text{V, f} = 1 \text{MHz} \\ C_{\text{oes}} & V_{\text{CE}} = 25 ^{\circ}\text{V, } V_{\text{GE}} = 0 ^{\circ}\text{V, f} = 1 \text{MHz} \\ C_{\text{oes}} & V_{\text{CE}} = 25 ^{\circ}\text{V, } V_{\text{GE}} = 0 ^{\circ}\text{V, f} = 1 \text{MHz} \\ C_{\text{oes}} & V_{\text{CE}} = 25 ^{\circ}\text{V, } V_{\text{GE}} = 0 ^{\circ}\text{V, f} = 1 \text{MHz} \\ C_{\text{oes}} & V_{\text{CE}} = 25 ^{\circ}\text{V, } V_{\text{GE}} = 0 ^{\circ}\text{V, f} = 1 \text{MHz} \\ C_{\text{oes}} & V_{\text{CE}} = 25 ^{\circ}\text{V, } V_{\text{GE}} = 0 ^{\circ}\text{V, f} = 1 \text{MHz} \\ C_{\text{oes}} & V_{\text{CE}} = 25 ^{\circ}\text{V, } V_{\text{GE}} = 0 ^{\circ}\text{V, f} = 1 \text{MHz} \\ C_{\text{oes}} & V_{\text{CE}} = 25 ^{\circ}\text{V, } V_{\text{GE}} = 0 ^{\circ}\text{V, f} = 1 \text{MHz} \\ C_{\text{oes}} & V_{\text{CE}} = 25 ^{\circ}\text{V, } V_{\text{GE}} = 0 ^{\circ}\text{V, f} = 1 \text{MHz} \\ C_{\text{oes}} & V_{\text{CE}} = 25 ^{\circ}\text{V, } V_{\text{GE}} = 0 ^{\circ}\text{V, f} = 1 \text{MHz} \\ C_{\text{oes}} & V_{\text{CE}} = 25 ^{\circ}\text{V, } V_{\text{GE}} = 0 ^{\circ}\text{V, f} = 1 \text{MHz} \\ C_{\text{oes}} & V_{\text{CE}} = 25 ^{\circ}\text{V, } V_{\text{GE}} = 0 ^{\circ}\text{V, f} = 1 \text{MHz} \\ C_{\text{oes}} & V_{\text{CE}} = 25 ^{\circ}\text{V, } V_{\text{GE}} = 0 ^{\circ}\text{V, f} = 1 \text{MHz} \\ C_{\text{oes}} & V_{\text{CE}} = 25 ^{\circ}\text{V, } V_{\text{GE}} = 15 ^{\circ}\text{V} \\ C_{\text{CE}} & 1.9 ^{\circ}\text{C} \\ C_{\text{CE}} & 1.9 ^{\circ}\text{C} \\ C_{\text{C}} & 1.1 ^{\circ}\text{C} \\ C_{\text{C}} & 1.1 $	ecinea	iei wise spi	, unless of	s - 25 C	cteristics
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Units	max.	typ.	min.	ol Conditions
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$					- Inverter, Chopper
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	V	2,5 (2,7)	2 (2,2)		I _C = 6 A, T _i = 25 (125) °C
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	V	-		3	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	V				
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	mΩ	200 (250)			
$\begin{array}{llllllllllllllllllllllllllllllllllll$	nF _		•		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	nF		•		
$\begin{array}{c} t_{d(on)} \\ t_{d(on)} \\ t_{r} \\ V_{CC} = 300 \text{ V, } V_{GE} = \pm 15 \text{ V} \\ t_{d(off)} \\ I_{C} = 6 \text{ A, } T_{j} = 125 ^{\circ}\text{C} \\ t_{t} \\ R_{Gon} = R_{Goff} = 120 \Omega \\ E_{on} \\ inductive load \\ \\ \hline \textbf{Diode - Inverter, Chopper} \\ V_{F} = V_{EC} \\ V_{(TO)} \\ T_{T} = 25 (125) ^{\circ}\text{C} \\ T_{T} = 25 (125) ^{\circ}\text{C} \\ R_{th(j-s)} \\ \hline \textbf{1}_{RRM} \\ Q_{rr} \\ H_{F} = 6 \text{ A, } V_{R} = 300 \text{ V} \\ V_{GE} = 0 \text{ V, } V_{T} = 125 ^{\circ}\text{C} \\ \text{1}_{A} & 0 \text{ 0, } 0 \\ \text{1}_{A} & 0 \text{ 0, } 0 \\ \text{2.5} \\ \hline \textbf{1}_{RRM} \\ Q_{rr} \\ V_{F} = 0 \text{ V, } V_{T} = 125 ^{\circ}\text{C} \\ \text{1}_{A} & 0 \text{ 0, } 0 \\ \text{1}_{C} & 0 \text{ 0, } 0 \\ \text{2.5} \\ \hline \textbf{1}_{C} & 0 \text{ 0, } 0 \\ \text{2.5} \\ \hline \textbf{1}_{C} & 0 \text{ 0, } 0 \\ \text{2.5} \\ \hline \textbf{1}_{C} & 0 \text{ 0, } 0 \\ \text{2.5} \\ \hline \textbf{1}_{C} & 0 \text{ 0, } 0 \\ \text{2.5} \\ \hline \textbf{1}_{C} & 0 \text{ 0, } 0 \\ \text{2.5} \\ \hline \textbf{1}_{C} & 0 \text{ 0, } 0 \\ \text{2.5} \\ \hline \textbf{1}_{C} & 0 \text{ 0, } 0 \\ \hline \textbf{1}_{C} & 0 $	nF				32 32
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	K/W				<u>'</u>
$ \begin{array}{c} t_{d(off)} \\ t_{f} \\ t_{f} \\ R_{Gon} = R_{Goff} = 120 \ \Omega \\ E_{on} \\ \hline \\ E_{off} \\ \hline \\ \end{array} $	ns				
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	ns				
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	ns				
$\begin{array}{ c c c } \hline \textbf{Diode - Inverter, Chopper} \\ \hline V_F = V_{EC} & I_F = 6 \text{ A, } T_j = 25 (125) ^{\circ}\text{C} & 1,3 (1,2) & 1,5 (1,4) \\ \hline V_{(TO)} & T_j = 25 (125) ^{\circ}\text{C} & 1 (0,9) & 1,1 (1) \\ \hline r_T & T_j = 25 (125) ^{\circ}\text{C} & 45 (50) & 60 (70) \\ \hline R_{th(j - s)} & \text{per diode} & 2,5 \\ \hline I_{RRM} & \text{under following conditions} & 8,3 \\ \hline Q_{rr} & I_F = 6 \text{ A, } V_R = 300 \text{ V} & 0,6 \\ \hline E_{rr} & V_{GE} = 0 \text{ V, } T_j = 125 ^{\circ}\text{C} & 0,11 \\ \hline di_F/dt = 430 \text{ A/}\mus & & & & & \\ \hline \hline \textbf{Diode - Rectifier} \\ \hline V_F & I_F = 15 \text{ A, } T_j = 25 ^{\circ}\text{C} & 0,8 \\ \hline r_T & T_j = 150 ^{\circ}\text{C} & 20 \\ \hline R_{th(j - s)} & \text{per diode} & 1,5 \\ \hline \textbf{Temperature Sensor} \\ \hline R_{ts} & 3 \%, T_r = 25 (100) ^{\circ}\text{C} & 1000(1670) \\ \hline \end{array}$	ns				
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	mJ				inductive load
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	mJ		0,12		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$					
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	V	1,5 (1,4)	1,3 (1,2)		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	V				
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	mΩ	60 (70)	45 (50)		T _j = 25 (125) °C
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	K/W		2,5		per diode
$\begin{array}{llllllllllllllllllllllllllllllllllll$	Α		8,3		-
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	μC				
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	mJ		0,11		V _{GE} = 0 V, T _j = 125 °C
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$					$di_F/dt = 430 \text{ A/}\mu\text{s}$
$\begin{array}{c cccc} V_{(TO)} & T_j = 150 ^{\circ}\text{C} & 0,8 \\ r_T & T_j = 150 ^{\circ}\text{C} & 20 \\ R_{th(j-s)} & \text{per diode} & 1,5 \\ \hline \textbf{Temperature Sensor} \\ R_{ts} & 3 \%, T_r = 25 (100) ^{\circ}\text{C} & 1000 (1670) \\ \end{array}$					- Rectifier
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	V		1,1		I _F = 15 A, T _i = 25 °C
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	V		0,8		
Temperature Sensor R _{ts} 3 %, T _r = 25 (100) °C 1000(1670)	mΩ		20		$T_{j} = 150 ^{\circ}\text{C}$
Temperature Sensor R _{ts} 3 %, T _r = 25 (100) °C 1000(1670)	K/W		1,5		per diode
					erature Sensor
	Ω		1000(1670)		3 %, T _r = 25 (100) °C
Mechanical Data				ı	anical Data
w 35	g	ļ	35		
M _s Mounting torque 2 2,5	Nm	2,5		2	Mounting torque



Characteristics

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

This technical information specifies semiconductor devices but promises no characteristics. No warranty or guarantee expressed or implied is made regarding delivery, performance or suitability.