

MiniSKiiP[®] 1

3-phase bridge rectifier + brake chopper + 3-phase bridge inverter SKIIP 12NAB12T4V1

Features

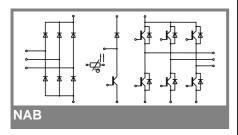
- Trench 4 IGBT's
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

Typical Applications*

- Inverter up to 12 kVA
- Typical motor power 5,5 kW

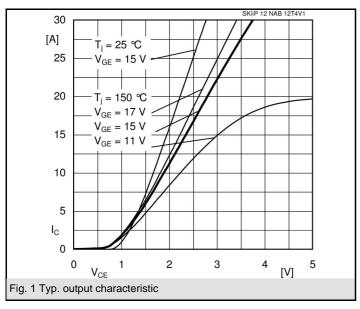
Remarks

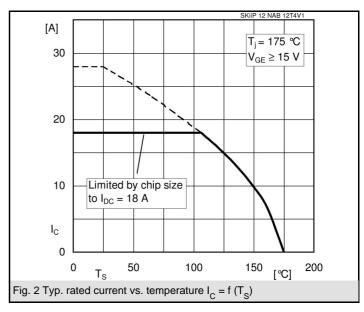
- V_{CEsat}, V_F= chip level value
- Case temp. limited to T_C = 125°C max. (for baseplateless modules T_C = T_S)
- product rel. results valid for T_j≤150 (recomm. T_{op} = -40 ... +150°C)

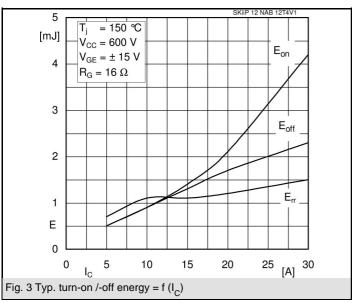


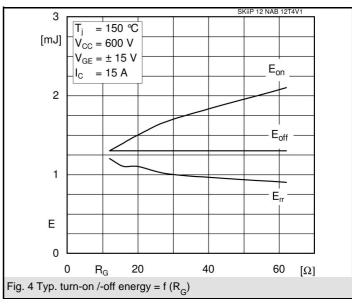
Absolute Maximum Ratings T _s = 25 °C, unless otherwise specified							
Symbol	Conditions	Values	Units				
IGBT - Inverter, Chopper							
V_{CES}		1200	V				
I _C	T _s = 25 (70) °C	18 (18)	Α				
I _{CRM}		45	Α				
V_{GES}		± 20	V				
T _j		- 40 + 175	°C				
Diode - Inverter, Chopper							
I _F	T _s = 25 (70) °C	23 (18)	Α				
I _{FRM}		45	Α				
T _j		- 40 + 175	°C				
Diode - Rectifier							
V_{RRM}		1600	V				
I _F	T _s = 70 °C	35	Α				
I _{FSM}	$t_{\rm p}$ = 10 ms, sin 180 °, $T_{\rm i}$ = 25 °C	220	Α				
i²t	$t_{\rm p}^{\rm r}$ = 10 ms, sin 180 °, $T_{\rm i}$ = 25 °C	240	A²s				
T _j		- 40 + 150	°C				
Module							
I _{tRMS}	per power terminal (20 A / spring)	20	Α				
T _{stg}		- 40 + 125	°C				
V _{isol}	AC, 1 min.	2500	V				

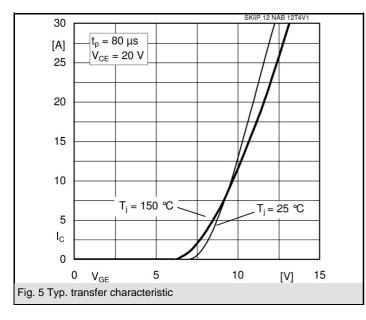
Characte	ristics	T _s = 25 °C, unless otherwise specified						
Symbol	Conditions	min.	typ.	max.	Units			
IGBT - Inverter, Chopper								
V _{CEsat}	I _{Cnom} = 15 A, T _i = 25 (150) °C		1,85 (2,25)	2,1 (2,5)	V			
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 1 \text{ mA}$	5	5,8	6,5	V			
V _{CE(TO)}	$T_j = 25 (150) ^{\circ}C$		0,8 (0,7)	,	V			
r _T	T _j = 25 (150) °C		70 (103)	80 (113)	mΩ			
C _{ies}	$V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$		0,9		nF			
C _{oes}	$V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$		0,08		nF			
C _{res}	$V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$		0,055		nF			
$R_{th(j-s)}$	per IGBT		1,3		K/W			
t _{d(on)}	under following conditions		15		ns			
t _r	$V_{CC} = 600 \text{ V}, V_{GE} = \pm 15 \text{ V}$		25		ns			
t _{d(off)}	$I_{Cnom} = 15 \text{ A}, T_j = 150^{\circ}\text{C}$		260		ns			
t _f	$R_{Gon} = R_{Goff} = 16 \Omega$		75		ns			
E _{on}	inductive load		1,4		mJ			
E _{off}			1,3		mJ			
Diode - Inverter, Chopper								
$V_F = V_{EC}$	I _{Fnom} = 15 A, T _i = 25 (150) °C		2,4 (2,45)	2,75 (2,8)	V			
$V_{(TO)}$	$T_j = 25 (150) ^{\circ}C$		1,3 (0,9)	1,5 (1,1)	V			
r _T	$T_j = 25 (150) ^{\circ}C$		73 (103)	83 (113)	mΩ			
$R_{th(j-s)}$	per diode		1,92		K/W			
I _{RRM}	under following conditions		28		Α			
Q_{rr}	$I_{Fnom} = 15 \text{ A}, V_{R} = 600 \text{ V}$		2,6		μC			
E _{rr}	$V_{GE} = 0 \text{ V}, T_j = 150 \text{ °C}$		1,1		mJ			
	di _F /dt = 1180 A/μs							
Diode - R	ectifier							
V_{F}	I _{Fnom} = 15 A, T _i = 25 °C		1,1		V			
$V_{(TO)}$	T _i = 150 °C		0,8		V			
r _T	T _i = 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			
Mechanic	al Data							
w			35		g			
M _s	Mounting torque	2		2,5	Nm			

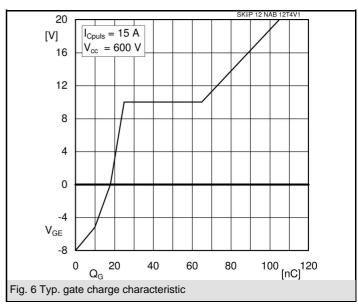


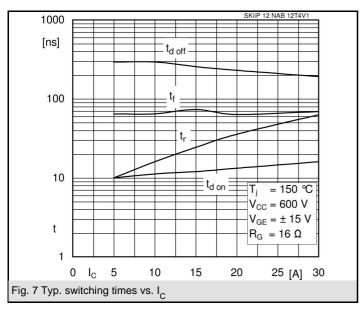


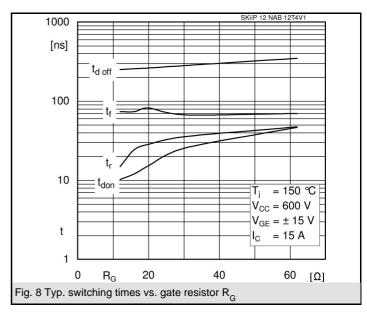


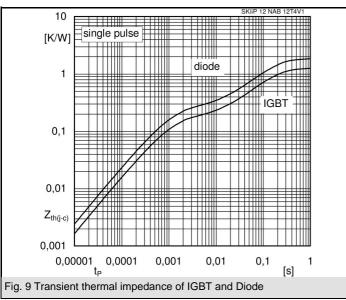


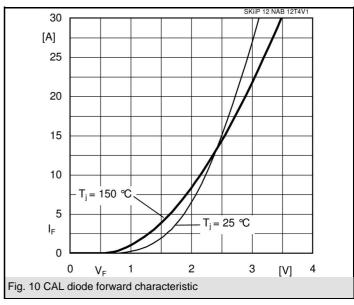


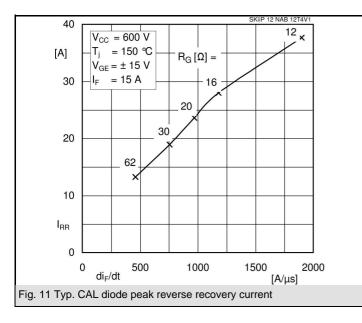


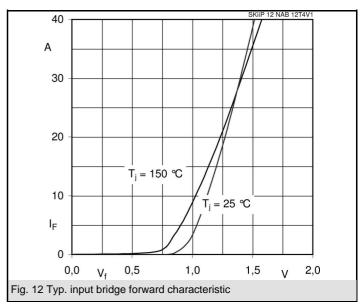


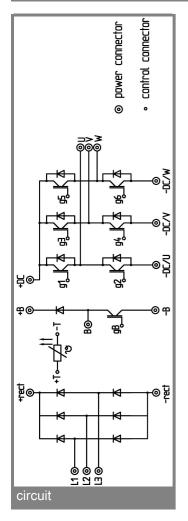


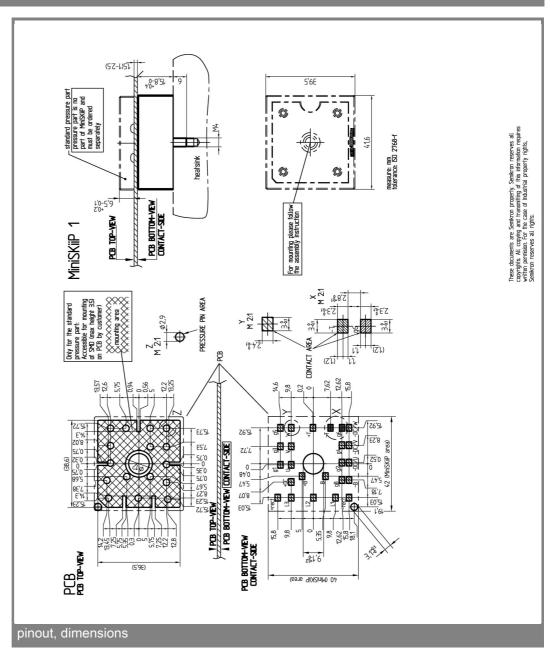












This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

4 29-10-2008 LAN © by SEMIKRON

^{*} The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our personal.