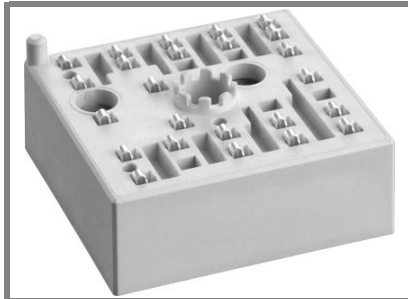


SKiiP 12NAB12T4V1



MiniSKiiP® 1

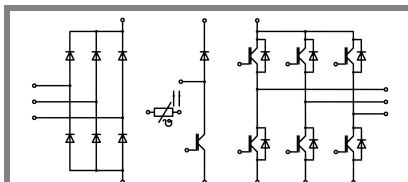
3-phase bridge rectifier +
brake chopper + 3-phase
bridge inverter
SKiiP 12NAB12T4V1

Features

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

Remarks

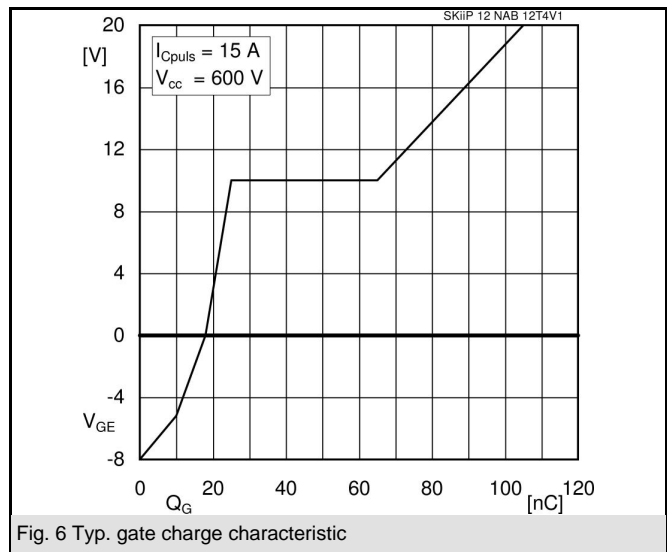
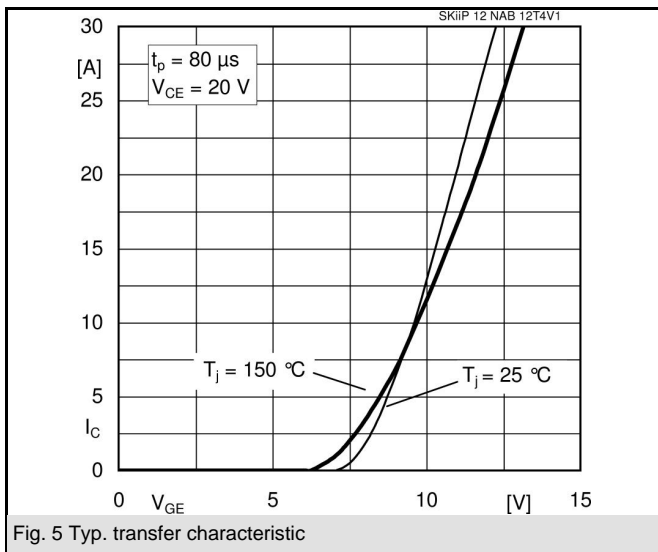
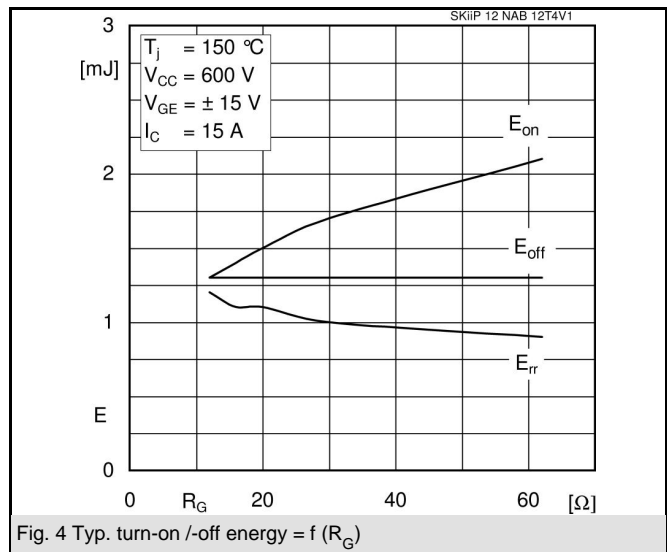
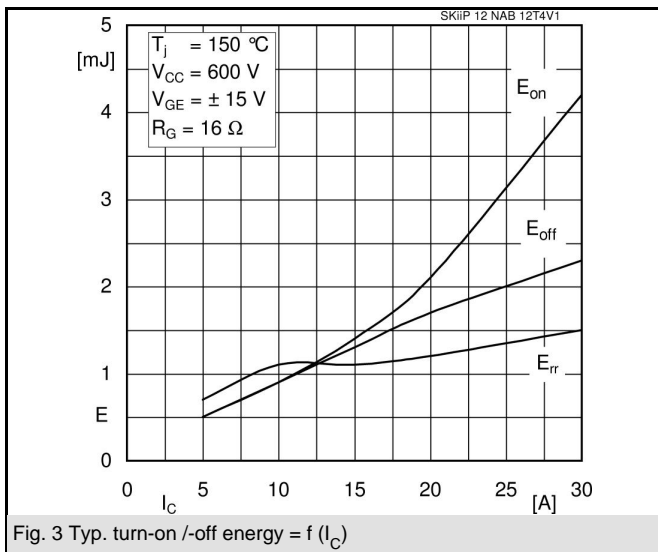
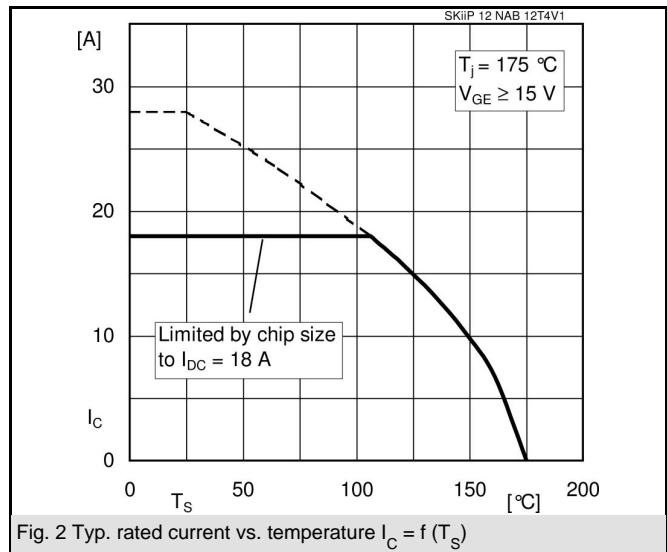
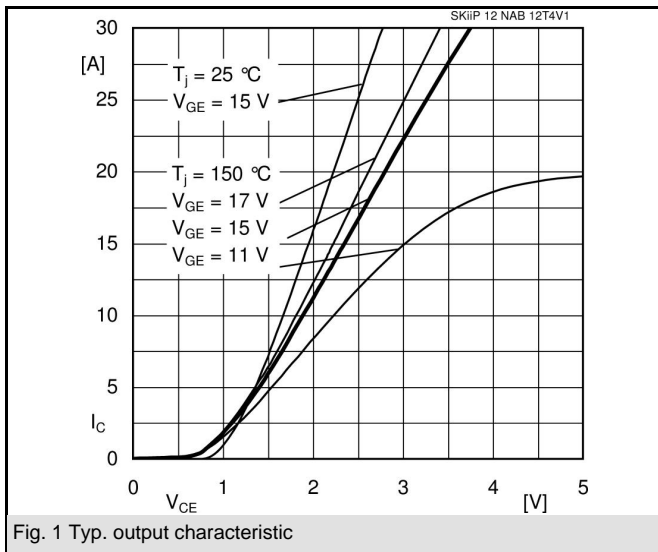
- V_{CEsat} , V_F = chip level value
- product rel. results valid for $T_j \leq 150$
- I_C limited by chip size to $I_C = 18$ A

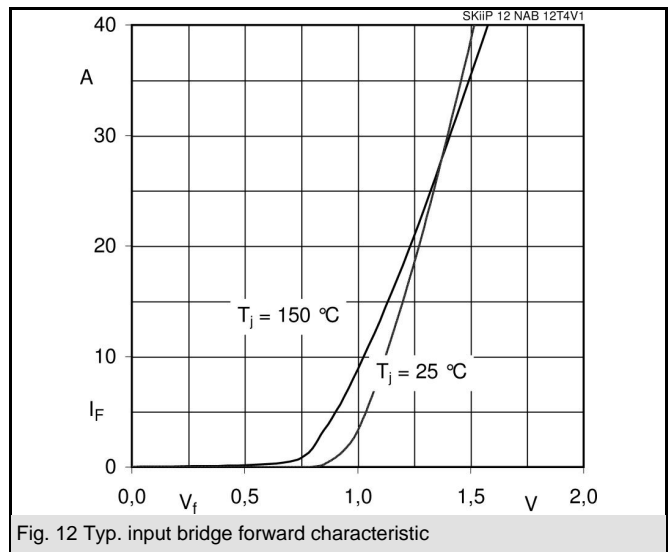
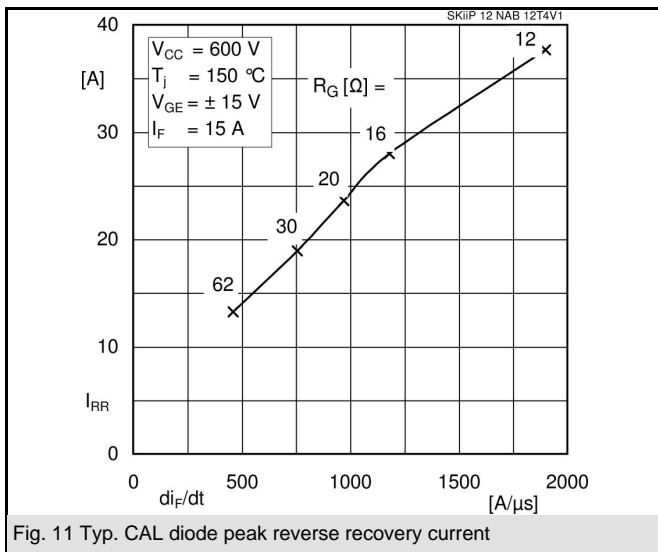
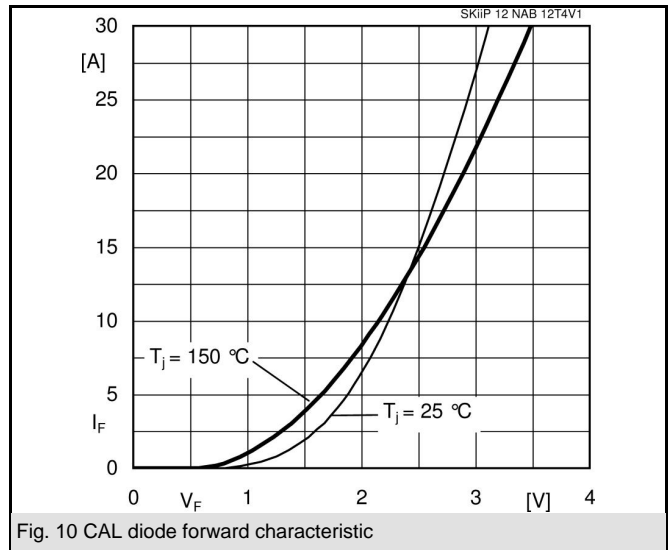
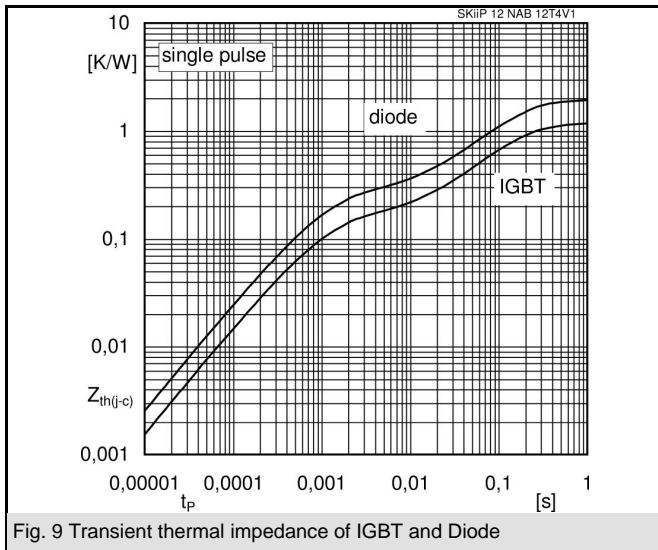
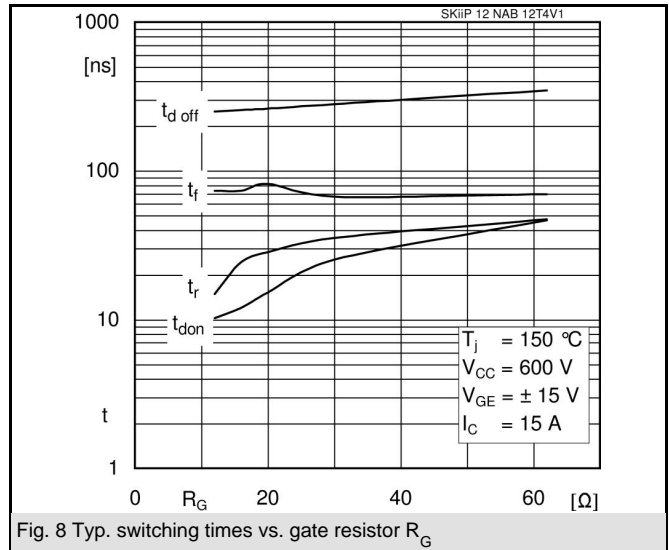
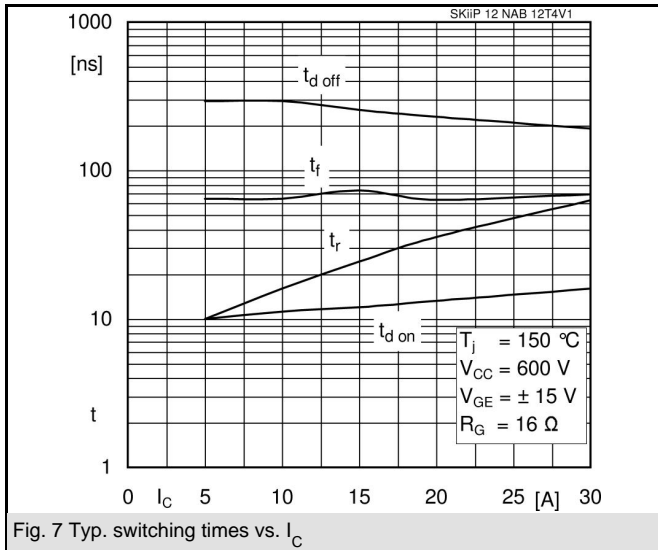


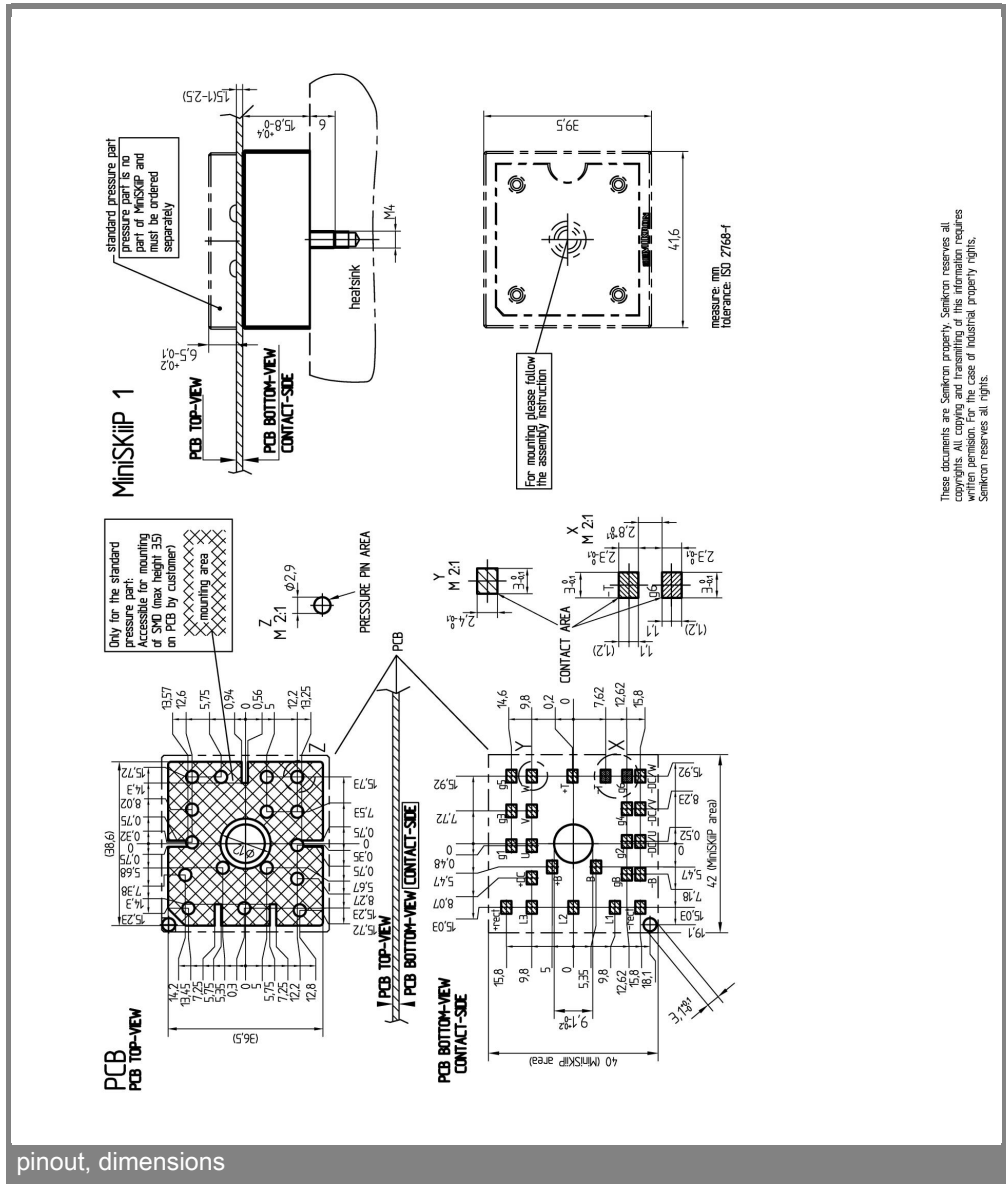
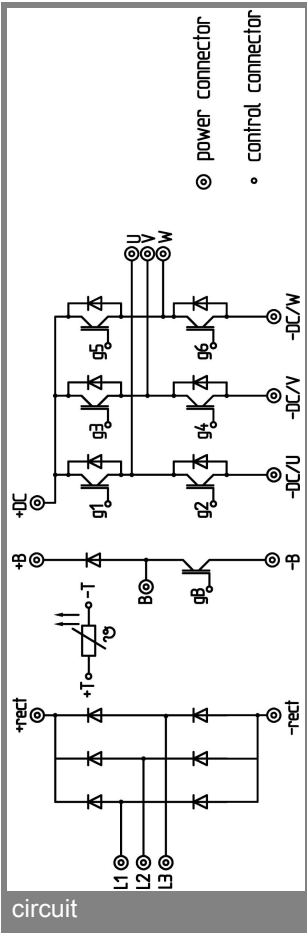
NAB

Absolute Maximum Ratings		$T_s = 25^\circ\text{C}$, unless otherwise specified		
Symbol	Conditions	Values	Units	
IGBT - Inverter, Chopper				
V_{CES}	$T_s = 25 (70)^\circ\text{C}$	1200	V	
I_C		18 (18)	A	
I_{CRM}		45	A	
V_{GES}		± 20	V	
T_j		- 40 ... + 175	$^\circ\text{C}$	
Diode - Inverter, Chopper				
I_F	$T_s = 25 (70)^\circ\text{C}$	23 (18)	A	
I_{FRM}		45	A	
T_j		- 40 ... + 175	$^\circ\text{C}$	
Diode - Rectifier				
V_{RRM}	$T_s = 70^\circ\text{C}$	1600	V	
I_F		35	A	
I_{FSM}		$t_p = 10$ ms, sin 180° , $T_j = 25^\circ\text{C}$	220	A
i^2t		$t_p = 10$ ms, sin 180° , $T_j = 25^\circ\text{C}$	240	A^2s
T_j		- 40 ... + 150	$^\circ\text{C}$	
Module				
I_{RMS}	per power terminal (20 A / spring)	20	A	
T_{stg}		- 40 ... + 125	$^\circ\text{C}$	
V_{isol}	AC, 1 min.	2500	V	

Characteristics		$T_s = 25^\circ\text{C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT - Inverter, Chopper					
V_{CEsat}	$I_{Cnom} = 15$ A, $T_j = 25 (150)^\circ\text{C}$		1,85 (2,25)	2,1 (2,5)	V
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 1$ mA	5	5,8	6,5	V
$V_{CE(TO)}$	$T_j = 25 (150)^\circ\text{C}$		0,8 (0,7)	0,9 (0,8)	V
r_T	$T_j = 25 (150)^\circ\text{C}$		70 (103)	80 (113)	m Ω
C_{ies}	$V_{CE} = 25$ V, $V_{GE} = 0$ V, $f = 1$ MHz		0,9		nF
C_{oes}	$V_{CE} = 25$ V, $V_{GE} = 0$ V, $f = 1$ MHz		0,08		nF
C_{res}	$V_{CE} = 25$ V, $V_{GE} = 0$ V, $f = 1$ MHz		0,055		nF
$R_{th(j-s)}$	per IGBT		1,3		K/W
$t_{d(on)}$	under following conditions		15		ns
t_r	$V_{CC} = 600$ V, $V_{GE} = \pm 15$ V		25		ns
$t_{d(off)}$	$I_{Cnom} = 15$ 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, $T_j = 25 (150)^\circ\text{C}$		2,4 (2,45)	2,75 (2,8)	V
$V_{(TO)}$	$T_j = 25 (150)^\circ\text{C}$		1,3 (0,9)	1,5 (1,1)	V
r_T	$T_j = 25 (150)^\circ\text{C}$		73 (103)	83 (113)	m Ω
$R_{th(j-s)}$	per diode		1,92		K/W
I_{RRM}	under following conditions		28		A
Q_{rr}	$I_{Fnom} = 15$ A, $V_R = 600$ V		2,6		μC
E_{rr}	$V_{GE} = 0$ V, $T_j = 150^\circ\text{C}$		1,1		mJ
	$di_F/dt = 1180$ A/ μs				
Diode - Rectifier					
V_F	$I_{Fnom} = 15$ A, $T_j = 25^\circ\text{C}$		1,1		V
$V_{(TO)}$	$T_j = 150^\circ\text{C}$		0,8		V
r_T	$T_j = 150^\circ\text{C}$		20		m Ω
$R_{th(j-s)}$	per diode		1,5		K/W
Temperature Sensor					
R_{ts}	3 %, $T_r = 25 (100)^\circ\text{C}$		1000(1670)		Ω
Mechanical Data					
w			35		g
M_s	Mounting torque	2		2,5	Nm







These documents are Semikron property. Semikron reserves all copyrights. All copying and transmitting of this information requires the written permission of Semikron. Semikron reserves all rights.

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.