

# SKiiP 22NAB126V10



## MiniSKiiP<sup>®</sup> 2

3-phase bridge rectifier +  
brake chopper + 3-phase  
bridge inverter  
**SKiiP 22NAB126V10**

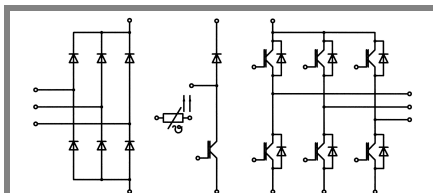
Preliminary Data

### Features

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

### Typical Applications

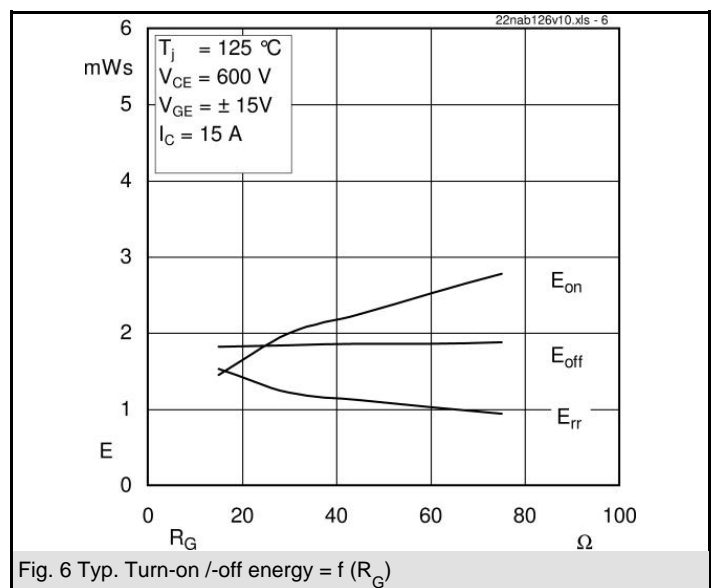
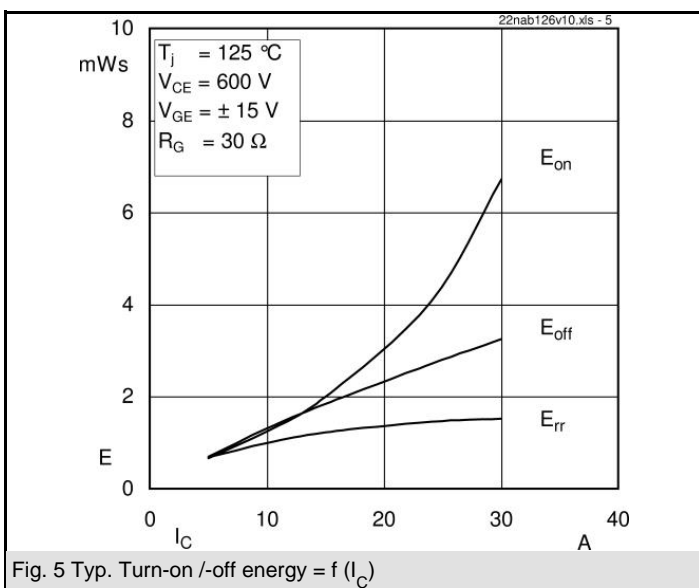
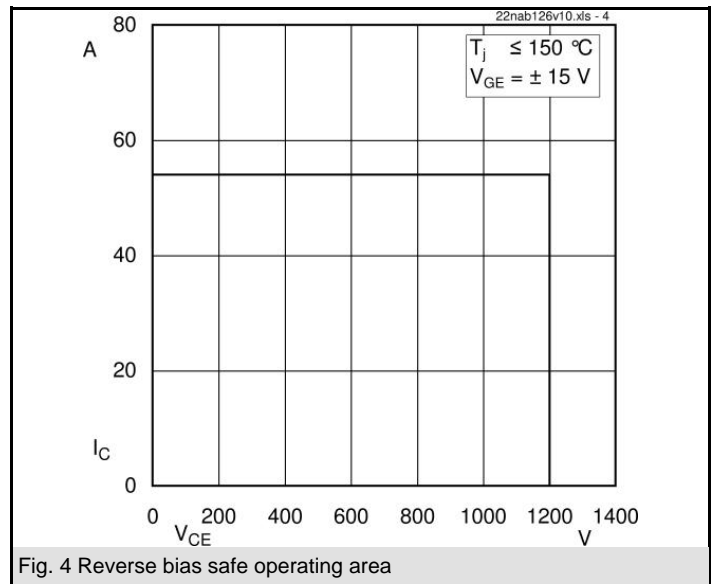
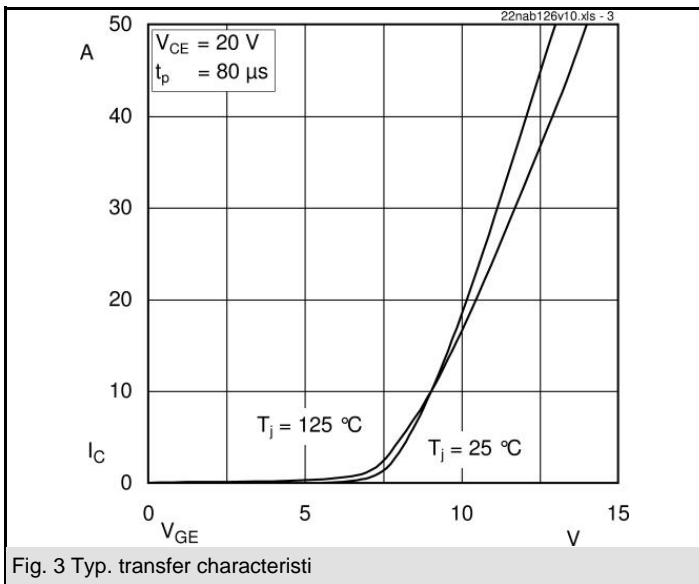
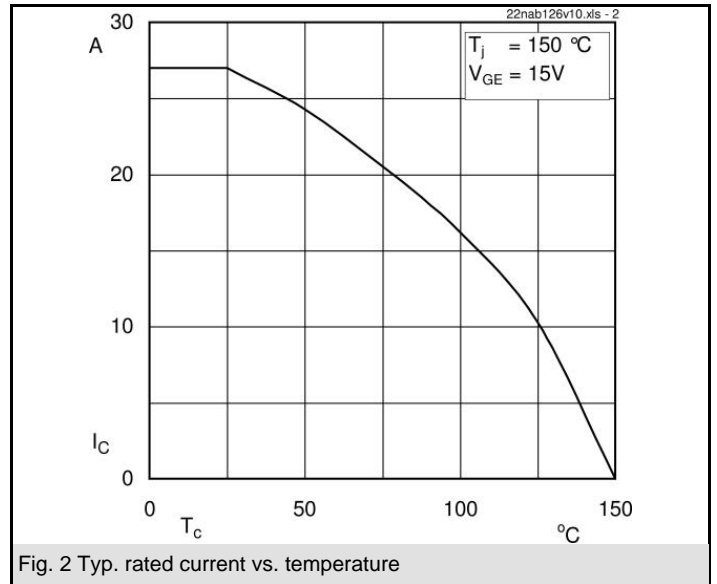
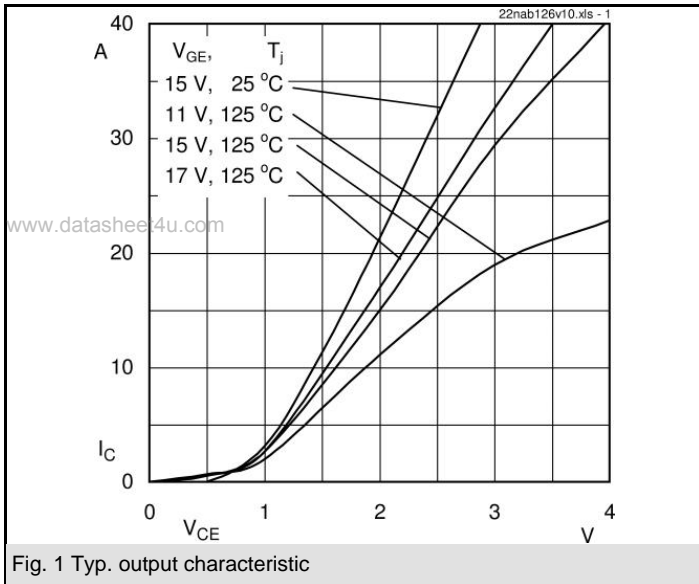
- Inverter up to 10 kVA
- Typical motor power 5,5 kW



NAB

Absolute Maximum Ratings		$T_s = 25\text{ °C}$ , unless otherwise specified	
Symbol	Conditions	Values	Units
<b>IGBT - Inverter, Chopper</b>			
$V_{CES}$		1200	V
$I_C$	$T_s = 25\text{ (70) °C}$	28 (22)	A
$I_{CRM}$	$T_s = 25\text{ (70) °C}$ , $t_p \leq 1\text{ ms}$	56 (44)	A
$V_{GES}$		$\pm 20$	V
$T_j$		- 40 ... + 150	°C
<b>Diode - Inverter, Chopper</b>			
$I_F$	$T_s = 25\text{ (70) °C}$	26 (20)	A
$I_{FRM}$	$T_s = 25\text{ (70) °C}$ , $t_p \leq 1\text{ ms}$	52 (40)	A
$T_j$		- 40 ... + 150	°C
<b>Diode - Rectifier</b>			
$V_{RRM}$		1600	V
$I_F$	$T_s = 70\text{ °C}$	61	A
$I_{FSM}$	$t_p = 10\text{ ms}$ , $\sin 180\text{ °}$ , $T_j = 25\text{ °C}$	700	A
$i^2t$	$t_p = 10\text{ ms}$ , $\sin 180\text{ °}$ , $T_j = 25\text{ °C}$	2400	A <sup>2</sup> s
$T_j$		- 40 ... + 150	°C
$I_{tRMS}$	per power terminal (20 A / spring)	40	A
$T_{stg}$	$T_{op} \leq T_{stg}$	- 40 ... + 125	°C
$V_{isol}$	AC, 1 min.	2500	V

Characteristics		$T_s = 25\text{ °C}$ , unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
<b>IGBT - Inverter, Chopper</b>					
$V_{CEsat}$	$I_C = 15\text{ A}$ , $T_j = 25\text{ (125) °C}$		1,7 (2)	2,1 (2,4)	V
$V_{GE(th)}$	$V_{GE} = V_{CE}$ , $I_C = 0,6\text{ mA}$	5	5,8	6,5	V
$V_{CE(TO)}$	$T_j = 25\text{ (125) °C}$		1 (0,9)	1,2 (1,1)	V
$r_T$	$T_j = 25\text{ (125) °C}$		47 (73)	60 (87)	mΩ
$C_{ies}$	$V_{CE} = 25\text{ V}$ , $V_{GE} = 0\text{ V}$ , $f = 1\text{ MHz}$		1		nF
$C_{oes}$	$V_{CE} = 25\text{ V}$ , $V_{GE} = 0\text{ V}$ , $f = 1\text{ MHz}$		0,1		nF
$C_{res}$	$V_{CE} = 25\text{ V}$ , $V_{GE} = 0\text{ V}$ , $f = 1\text{ MHz}$		0,1		nF
$R_{th(j-s)}$	per IGBT		1,15		K/W
$t_{d(on)}$	under following conditions		25		ns
$t_r$	$V_{CC} = 600\text{ V}$ , $V_{GE} = \pm 15\text{ V}$		25		ns
$t_{d(off)}$	$I_C = 15\text{ A}$ , $T_j = 125\text{ °C}$		385		ns
$t_f$	$R_{Gon} = R_{Goff} = 30\text{ Ω}$		90		ns
$E_{on}$	inductive load		2		mJ
$E_{off}$			1,85		mJ
<b>Diode - Inverter, Chopper</b>					
$V_F = V_{EC}$	$I_F = 15\text{ A}$ , $T_j = 25\text{ (125) °C}$		1,6 (1,6)	1,8 (1,8)	V
$V_{(TO)}$	$T_j = 25\text{ (125) °C}$		1 (0,8)	1,1 (0,9)	V
$r_T$	$T_j = 25\text{ (125) °C}$		40 (53)	47 (60)	mΩ
$R_{th(j-s)}$	per diode		1,95		K/W
$I_{RRM}$	under following conditions		25		A
$Q_{rr}$	$I_F = 15\text{ A}$ , $V_R = 600\text{ V}$		3		μC
$E_{rr}$	$V_{GE} = 0\text{ V}$ , $T_j = 125\text{ °C}$		1,1		mJ
	$di_F/dt = 900\text{ A/μs}$				
<b>Diode - Rectifier</b>					
$V_F$	$I_F = 35\text{ A}$ , $T_j = 25\text{ °C}$		1,1		V
$V_{(TO)}$	$T_j = 150\text{ °C}$		0,8		V
$r_T$	$T_j = 150\text{ °C}$		11		mΩ
$R_{th(j-s)}$	per diode		0,9		K/W
<b>Temperature Sensor</b>					
$R_{ts}$	3 %, $T_r = 25\text{ (100) °C}$		1000(1670)		Ω
<b>Mechanical Data</b>					
w			95		g
$M_s$	Mounting torque	2		2,5	Nm



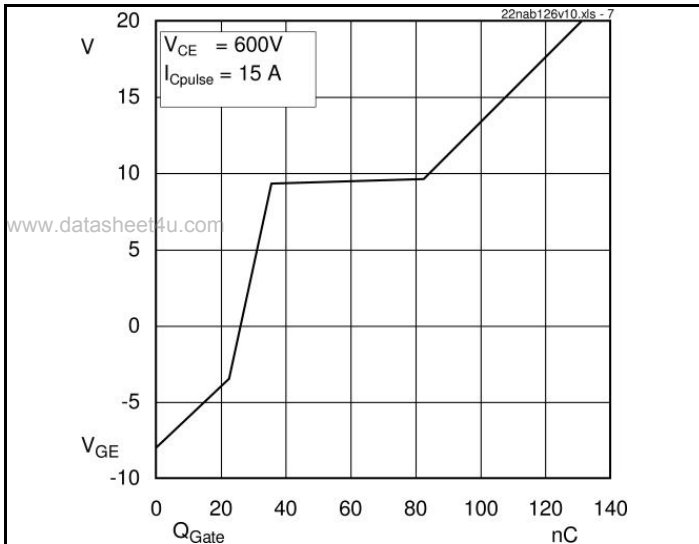


Fig. 7 Typ. gate charge characteristic

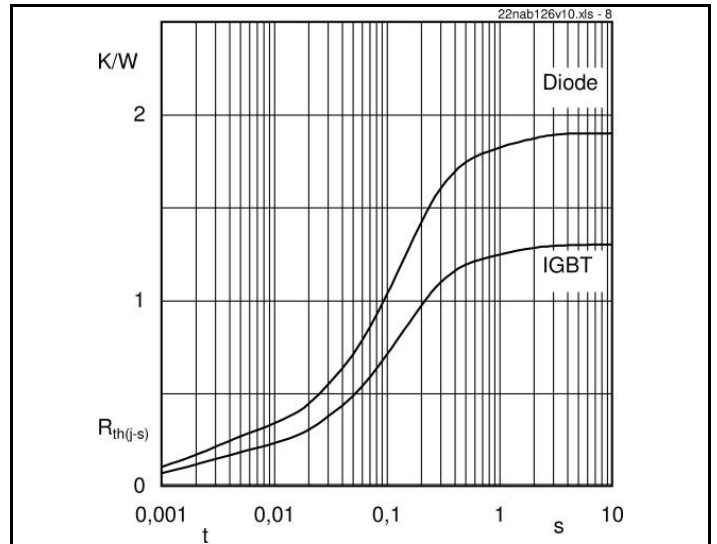


Fig. 8 Typ. thermal impedance

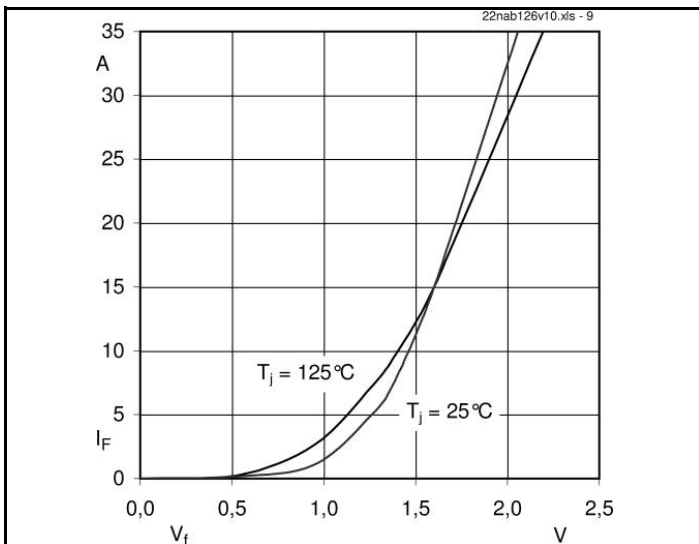


Fig. 9 Typ. freewheeling diode forward characteristic

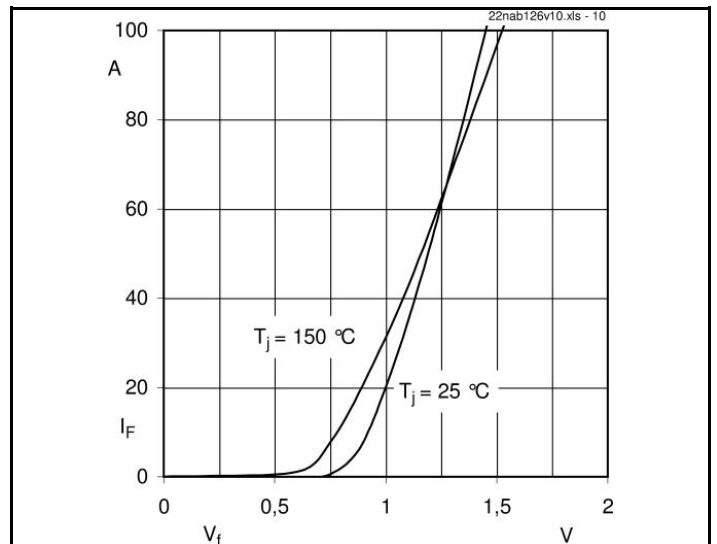


Fig. 10 Typ. input bridge forward characteristic

