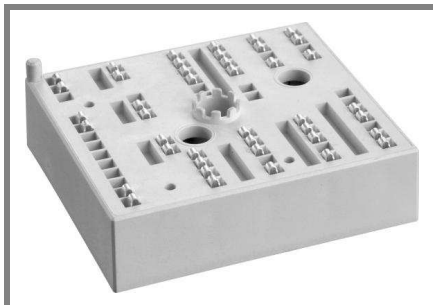


# SKiiP 26NAB065V1



MiniSKiiP<sup>®</sup> 2

3-phase bridge rectifier +  
brake chopper + 3-phase  
bridge inverter  
SKiiP 26NAB065V1

## Features

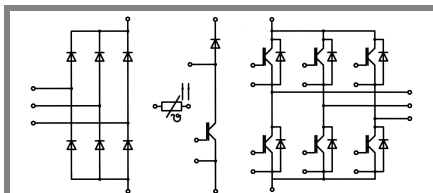
- Ultrafast NPT IGBTs
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

## Typical Applications\*

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

## Remarks

- $V_{CEsat}$ ,  $V_F$  = chip level value



NAB

Absolute Maximum Ratings		$T_C = 25\text{ }^\circ\text{C}$ , unless otherwise specified		
Symbol	Conditions	Values	Units	
<b>IGBT - Inverter, Chopper</b>				
$V_{CES}$	$T_s = 25\text{ (70) }^\circ\text{C}$	600	V	
$I_C$		56 (42)	A	
$I_{CRM}$		100	A	
$V_{GES}$		$\pm 20$	V	
$T_j$		- 40 ... + 150	$^\circ\text{C}$	
<b>Diode - Inverter, Chopper</b>				
$I_F$	$T_s = 25\text{ (70) }^\circ\text{C}$	40 (30)	A	
$I_{FRM}$		100	A	
$T_j$		- 40 ... + 150	$^\circ\text{C}$	
<b>Diode - Rectifier</b>				
$V_{RRM}$	$T_s = 70\text{ }^\circ\text{C}$	800	V	
$I_F$		61	A	
$I_{FSM}$		$t_p = 10\text{ ms, sin } 180^\circ, T_j = 25\text{ }^\circ\text{C}$	700	A
$i^2t$		$t_p = 10\text{ ms, sin } 180^\circ, T_j = 25\text{ }^\circ\text{C}$	2400	$\text{A}^2\text{s}$
$T_j$		- 40 ... + 150	$^\circ\text{C}$	
<b>Module</b>				
$I_{tRMS}$	per power terminal (20 A / spring)	60	A	
$T_{stg}$		- 40 ... + 125	$^\circ\text{C}$	
$V_{isol}$	AC, 1 min.	2500	V	

Characteristics		$T_C = 25\text{ }^\circ\text{C}$ , unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
<b>IGBT - Inverter, Chopper</b>					
$V_{CEsat}$	$I_{Cnom} = 50\text{ A, } T_j = 25\text{ (125) }^\circ\text{C}$		2 (2,2)	2,5 (2,7)	V
$V_{GE(th)}$	$V_{GE} = V_{CE}, I_C = 1\text{ mA}$	3	4	5	V
$V_{CE(TO)}$	$T_j = 25\text{ (125) }^\circ\text{C}$		1,2 (1,1)	1,3 (1,2)	V
$r_T$	$T_j = 25\text{ (125) }^\circ\text{C}$		16 (22)	24 (30)	m $\Omega$
$C_{ies}$	$V_{CE} = 25\text{ V, } V_{GE} = 0\text{ V, } f = 1\text{ MHz}$		2,7		nF
$C_{oes}$	$V_{CE} = 25\text{ V, } V_{GE} = 0\text{ V, } f = 1\text{ MHz}$		0,8		nF
$C_{res}$	$V_{CE} = 25\text{ V, } V_{GE} = 0\text{ V, } f = 1\text{ MHz}$		0,6		nF
$R_{th(j-s)}$	per IGBT		0,75		K/W
$t_{d(on)}$	under following conditions		35		ns
$t_r$	$V_{CC} = 300\text{ V, } V_{GE} = \pm 15\text{ V}$		35		ns
$t_{d(off)}$	$I_{Cnom} = 50\text{ A, } T_j = 125\text{ }^\circ\text{C}$		240		ns
$t_f$	$R_{Gon} = R_{Goff} = 15\text{ }\Omega$		25		ns
$E_{on}$	inductive load		1,3		mJ
$E_{off}$			0,9		mJ
<b>Diode - Inverter, Chopper</b>					
$V_F = V_{EC}$	$I_{Fnom} = 50\text{ A, } T_j = 25\text{ (125) }^\circ\text{C}$		1,9 (1,9)	2,3 (2,4)	V
$V_{(TO)}$	$T_j = 25\text{ (125) }^\circ\text{C}$		1 (0,9)	1,1 (1)	V
$r_T$	$T_j = 25\text{ (125) }^\circ\text{C}$		18 (20)	24 (28)	m $\Omega$
$R_{th(j-s)}$	per diode		1,5		K/W
$I_{RRM}$	under following conditions		42		A
$Q_{rr}$	$I_{Fnom} = 50\text{ A, } V_R = 300\text{ V}$		3,6		$\mu\text{C}$
$E_{rr}$	$V_{GE} = 0\text{ V, } T_j = 125\text{ }^\circ\text{C}$		0,8		mJ
	$di_F/dt = 1500\text{ A}/\mu\text{s}$				
<b>Diode - Rectifier</b>					
$V_F$	$I_{Fnom} = 35\text{ A, } T_j = 25\text{ }^\circ\text{C}$		1,1		V
$V_{(TO)}$	$T_j = 150\text{ }^\circ\text{C}$		0,8		V
$r_T$	$T_j = 150\text{ }^\circ\text{C}$		11		m $\Omega$
$R_{th(j-s)}$	per diode		0,9		K/W
<b>Temperature Sensor</b>					
$R_{ts}$	3 %, $T_r = 25\text{ (100) }^\circ\text{C}$		1000(1670)		$\Omega$
<b>Mechanical Data</b>					
w			65		g
$M_s$	Mounting torque	2		2,5	Nm

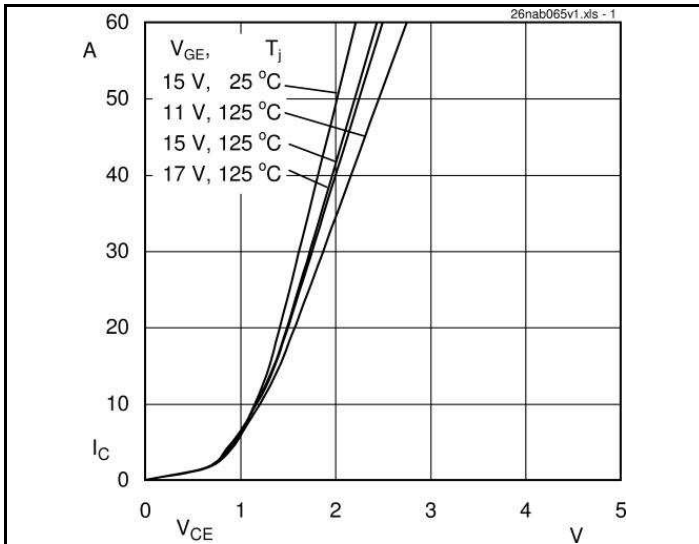


Fig. 1 Typ. output characteristic

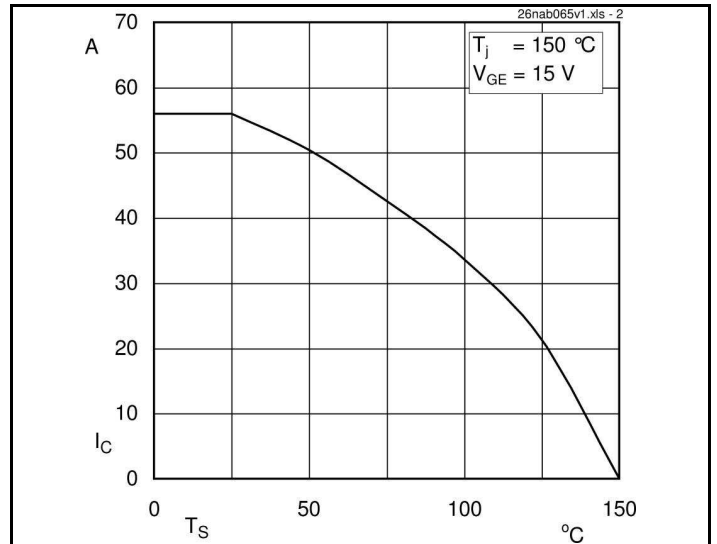


Fig. 2 Typ. rated current vs. temperature

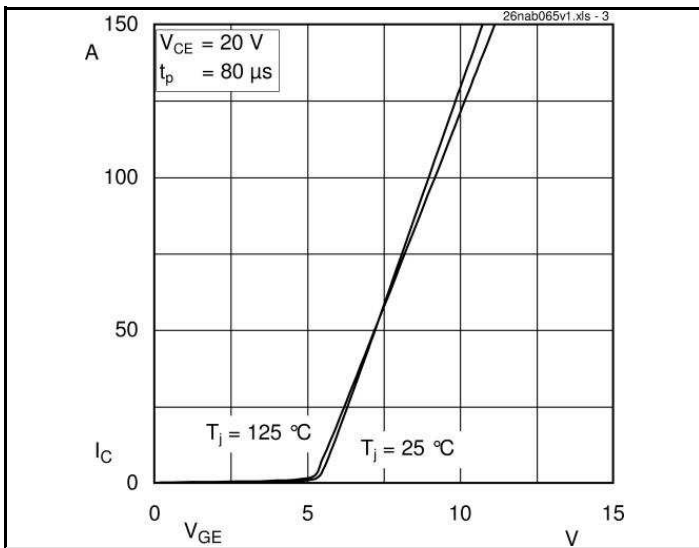


Fig. 3 Typ. transfer characteristic

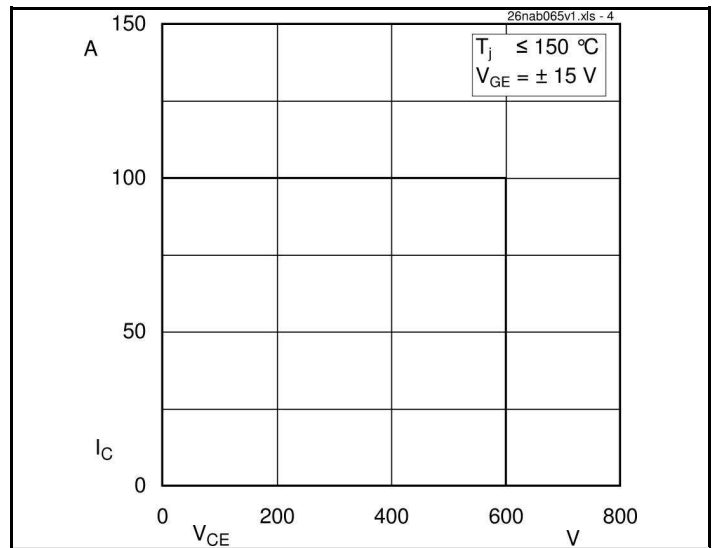


Fig. 4 Reverse bias safe operating area

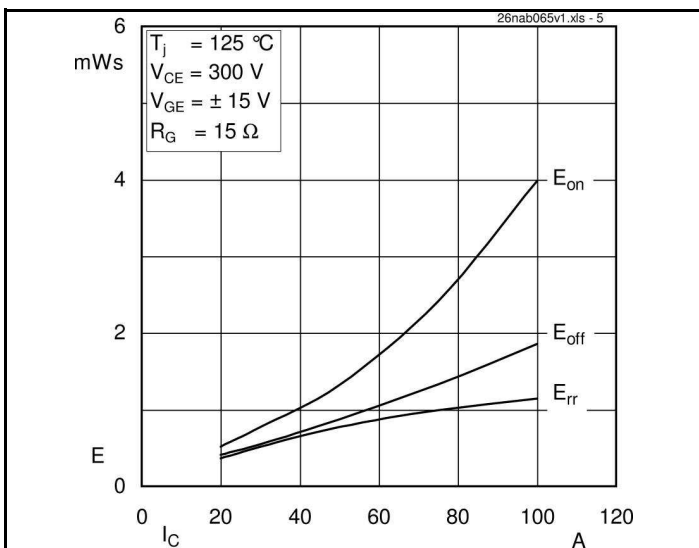


Fig. 5 Typ. Turn-on /-off energy =  $f(I_C)$

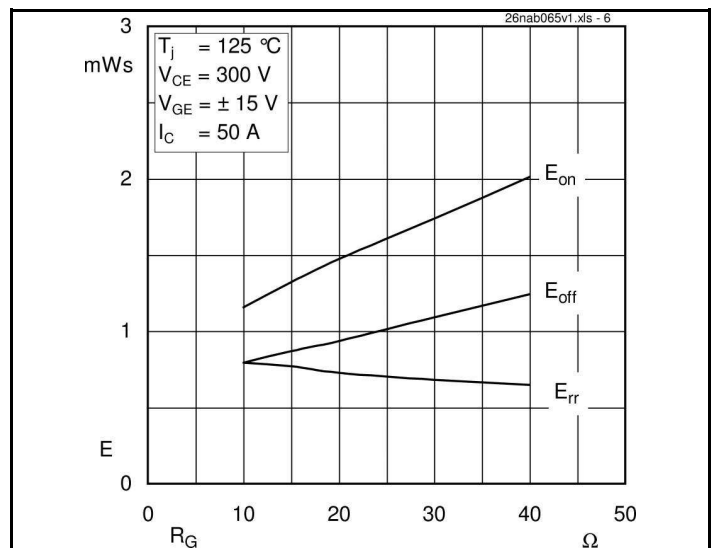


Fig. 6 Typ. Turn-on /-off energy =  $f(R_G)$

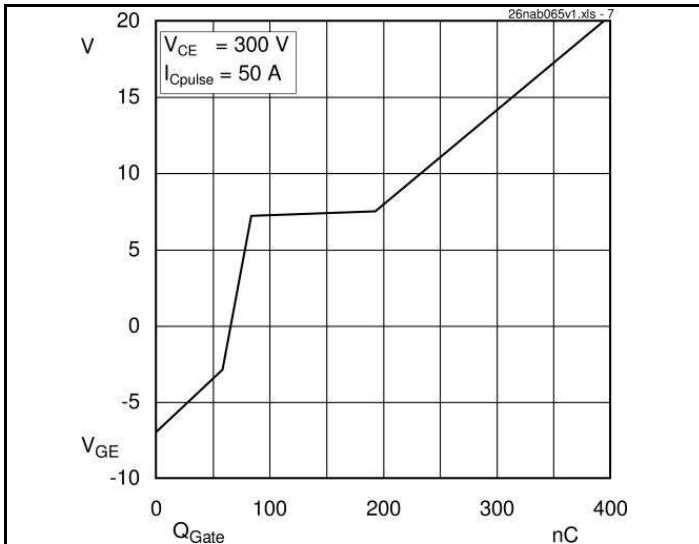


Fig. 7 Typ. gate charge characteristic

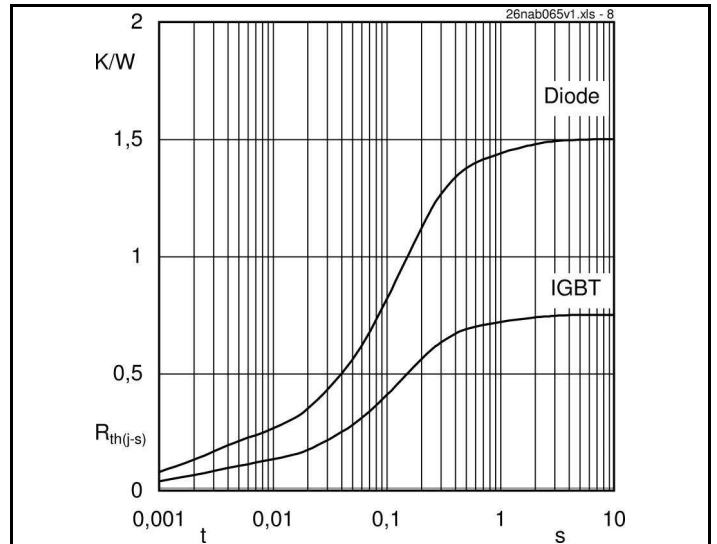


Fig. 8 Typ. thermal impedance

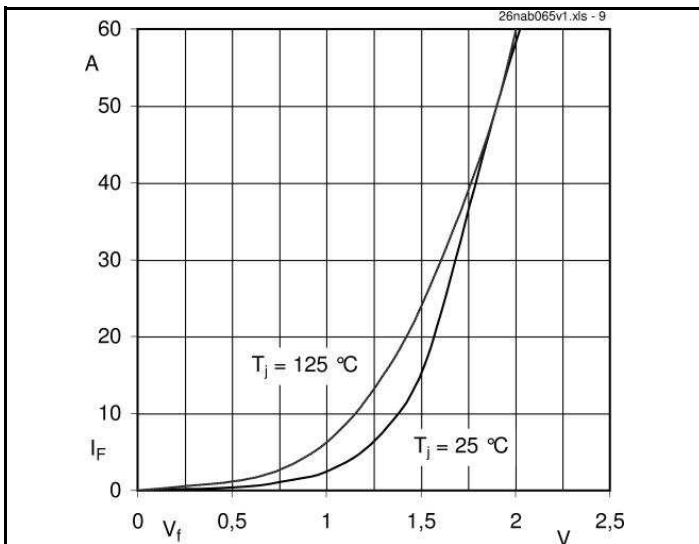


Fig. 9 Typ. freewheeling diode forward characteristic

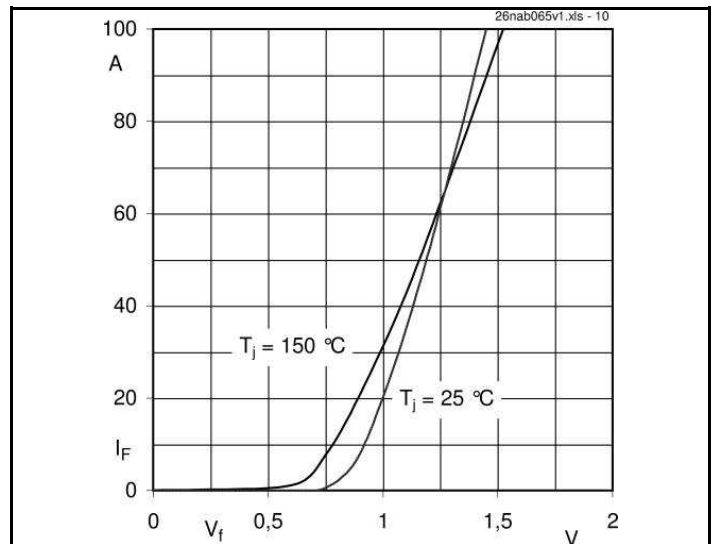


Fig. 10 Typ. input bridge forward characteristic

