

SKiiP 29ANB08V1



MiniSKiiP® 2

3-phase bridge rectifier +
brake chopper

SKiiP 29ANB08V1

Features

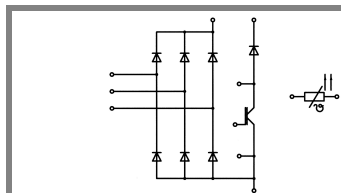
- Ultrafast NPT IGBTs
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

Typical Applications

- Input bridge for Inverter up to 30 kVA

Remarks

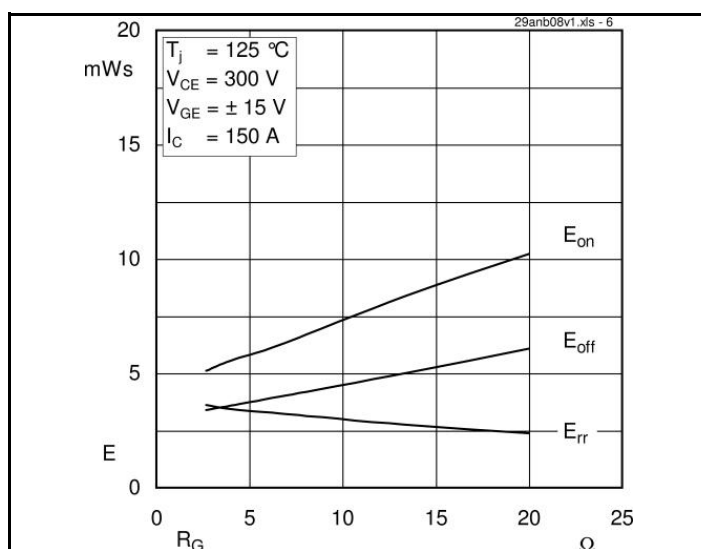
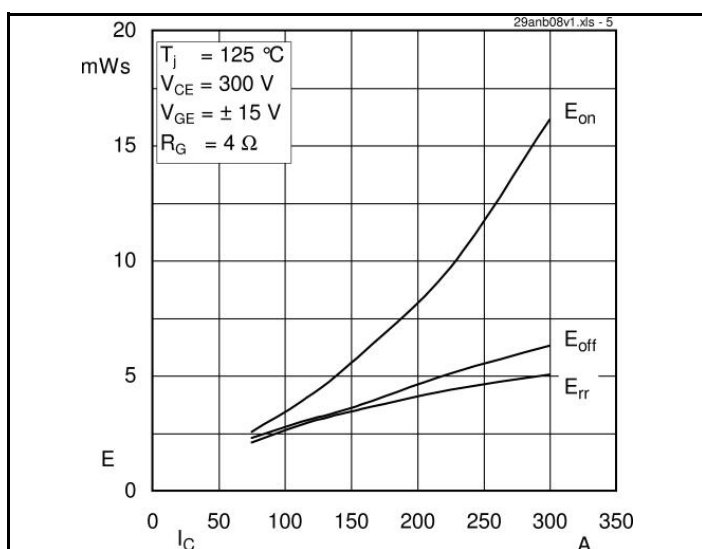
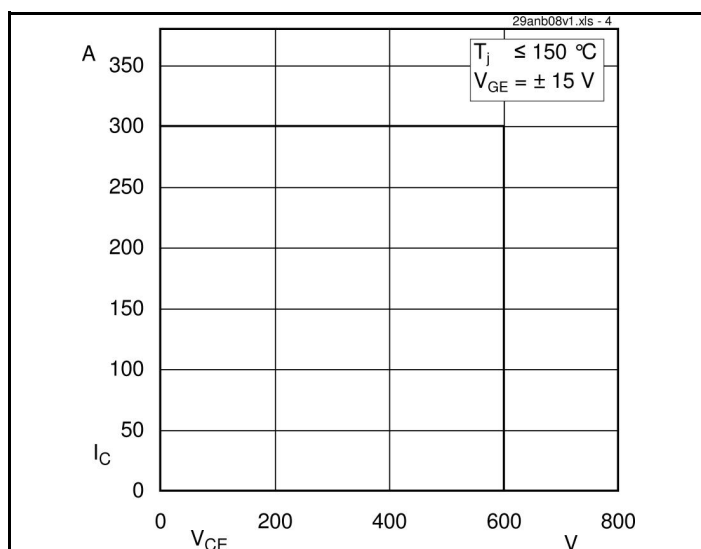
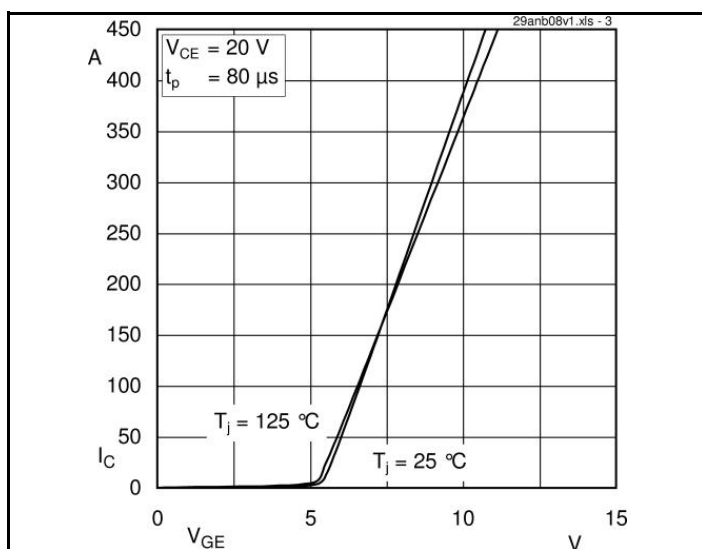
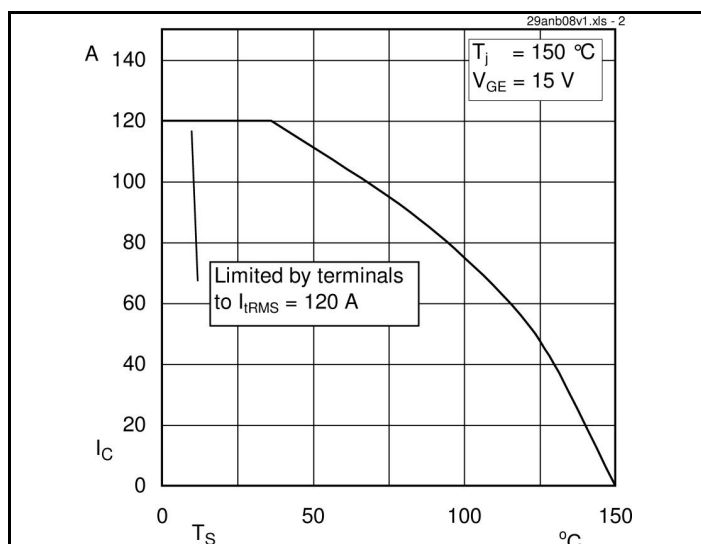
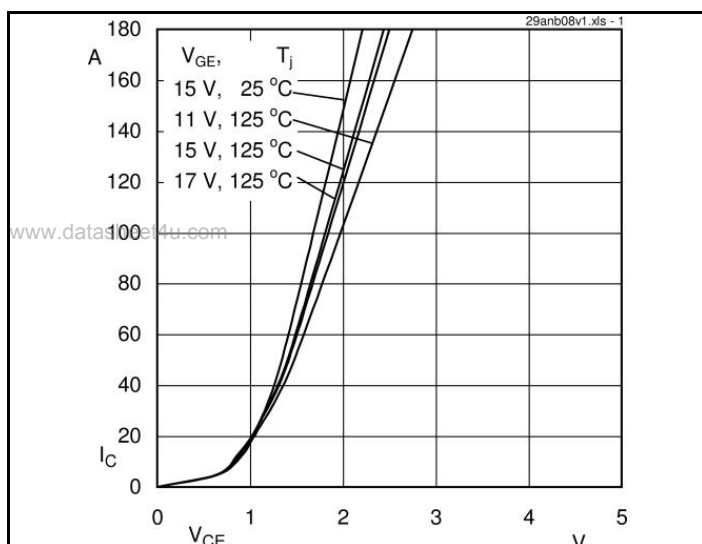
- V_{CEsat} , V_F = chip level value

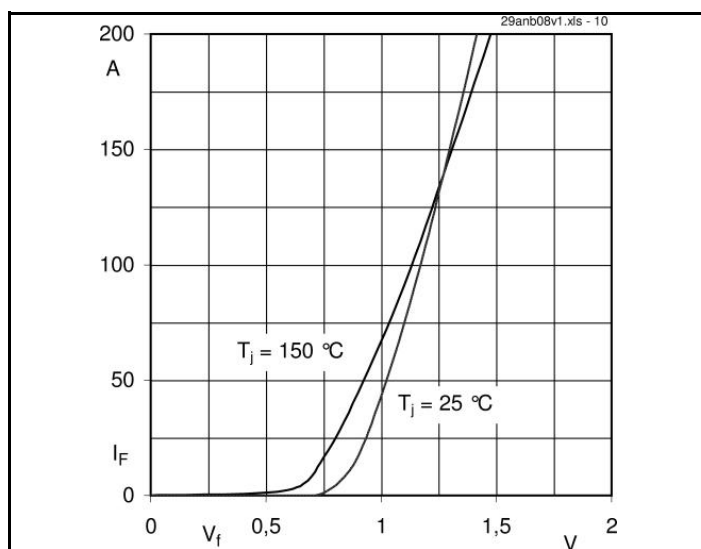
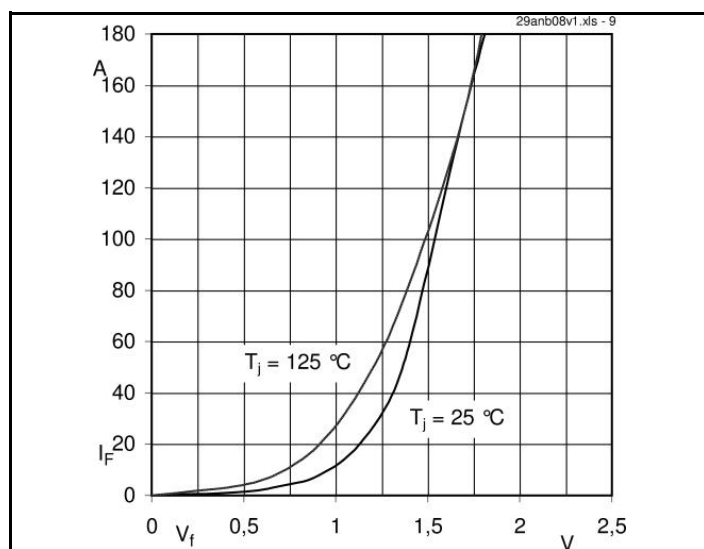
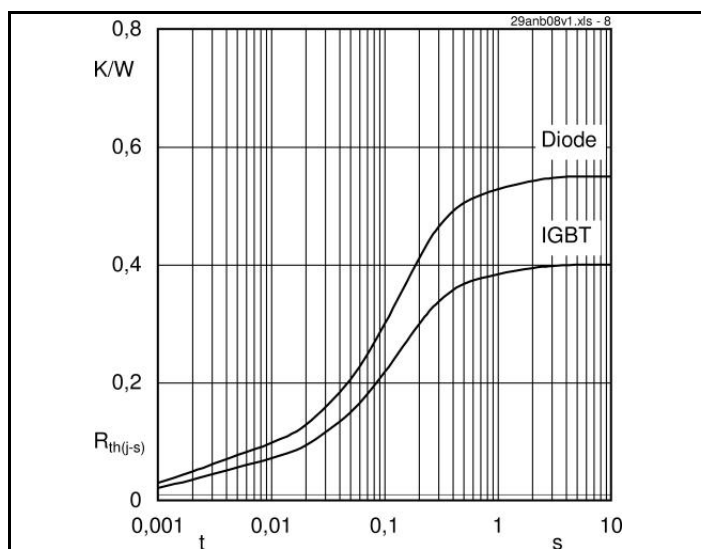
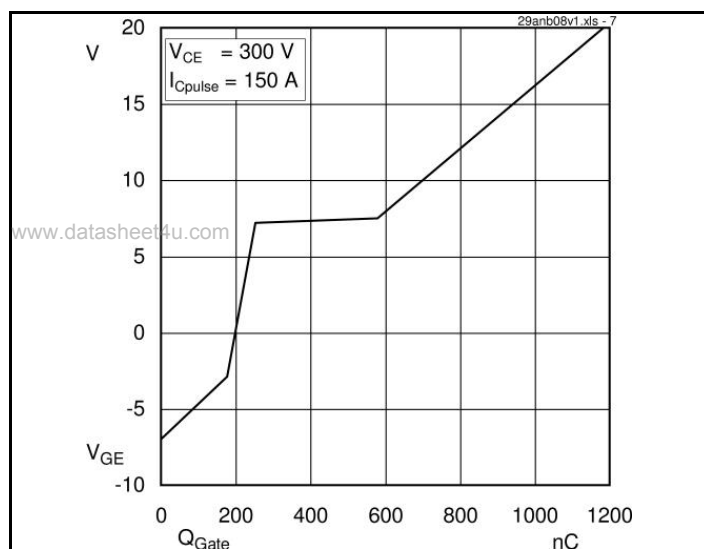


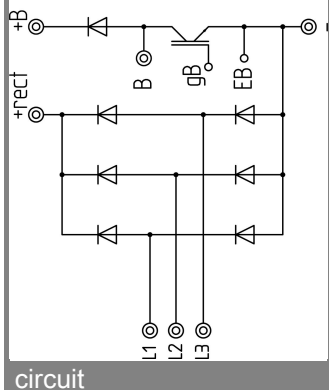
ANB

Absolute Maximum Ratings		T _s = 25 °C, unless otherwise specified	
Symbol	Conditions	Values	Units
IGBT - Chopper			
V _{CES}	T _s = 25 (70) °C t _p ≤ 1 ms	600	V
I _C		125 (93)	A
I _{CRM}		300	A
V _{GES}		± 15	V
T _j		- 40 ... + 150	°C
Diode - Chopper			
I _F	T _s = 25 (70) °C t _p ≤ 1 ms	120 (89)	A
I _{FRM}		300	A
T _j		- 40 ... + 150	°C
Diode - Rectifier			
V _{RRM}	T _s = 70 °C t _p = 10 ms, sin 180 °, T _j = 25 °C t _p = 10 ms, sin 180 °, T _j = 25 °C	800	V
I _F		83	A
I _{FSM}		1000	A
i ² t		6600	A ² s
T _j		- 40 ... + 150	°C
I _{tRMS}	per power terminal (20 A / spring)	120	A
T _{stg}	T _{op} ≤ 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
IGBT - Chopper					
V_{CEsat}	$I_{Cnom} = 150\text{ A, } T_j = 25\text{ (125) °C}$		2 (2,2)	2,5 (2,7)	V
$V_{GE(th)}$	$V_{GE} = V_{CE}, I_C = 1,5\text{ mA}$	3	4	5	V
$V_{CE(TO)}$	$T_j = 25\text{ (125) °C}$		1,2 (1,1)	1,3 (1,2)	V
r_T	$T_j = 25\text{ (125) °C}$		5,3 (7,3)	8 (10)	mΩ
C_{ies}	$V_{CE} = 25\text{ V, } V_{GE} = 0\text{ V, } f = 1\text{ MHz}$		9		nF
C_{oes}	$V_{CE} = 25\text{ V, } V_{GE} = 0\text{ V, } f = 1\text{ MHz}$		1,7		nF
C_{res}	$V_{CE} = 25\text{ V, } V_{GE} = 0\text{ V, } f = 1\text{ MHz}$		2,1		nF
$R_{th(j-s)}$	per IGBT		0,4		K/W
$t_{d(on)}$	under following conditions		20		ns
t_r	$V_{CC} = 300\text{ V, } V_{GE} = \pm 15\text{ V}$		25		ns
$t_{d(off)}$	$I_{Cnom} = 150\text{ A, } T_j = 125\text{ °C}$		185		ns
t_f	$R_{Gon} = R_{Goff} = 4\text{ Ω}$		15		ns
E_{on}	inductive load		5,7		mJ
E_{off}			3,7		mJ
Diode - Chopper					
$V_F = V_{EC}$	$I_{Fnom} = 150\text{ A, } T_j = 25\text{ (125) °C}$		1,7 (1,7)	2,1 (2,1)	V
$V_{(TO)}$	$T_j = 25\text{ (125) °C}$		1 (0,9)	1,1 (1)	V
r_T	$T_j = 25\text{ (125) °C}$		4,7 (5,3)	6,7 (7,3)	mΩ
$R_{th(j-s)}$	per diode		0,55		K/W
I_{RRM}	under following conditions		270		A
Q_{rr}	$I_{Fnom} = 150\text{ A, } V_R = 300\text{ V}$		18		μC
E_{rr}	$V_{GE} = 0\text{ V, } T_j = 125\text{ °C}$ $di_F/dt = 13700\text{ A/μs}$		3,5		mJ
Diode - Rectifier					
V_F	$I_{Fnom} = 75\text{ A, } T_j = 25\text{ °C}$		1,2		V
$V_{(TO)}$	$T_j = 150\text{ °C}$		0,8		V
r_T	$T_j = 150\text{ °C}$		7		mΩ
$R_{th(j-s)}$	per diode		0,7		K/W
Temperature Sensor					
R_{ts}	3 %, $T_r = 25\text{ (100) °C}$		1000(1670)		Ω
Mechanical Data					
w			65		g
M_s	Mounting torque	2		2,5	Nm







The diagram shows a 3-phase rectifier circuit. On the left, three input lines labeled L1, L2, and L3 are connected to a bridge rectifier consisting of six diodes. The positive output of the rectifier is labeled +rect and is connected to the B terminal of a center-tapped transformer. The other two terminals of the transformer are labeled gB and EB. The EB terminal is connected to the emitter of a thyristor. The gate (g) and anode (A) of the thyristor are connected to the gB terminal. The cathode (C) of the thyristor is connected to the positive output of the inverter, which is labeled +B. A feedback loop is shown with a capacitor and a resistor connected between the +B output and the gate terminal. The thyristor is represented by a circle with a diagonal line and an arrow pointing towards the cathode, with labels A, g, and C.

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