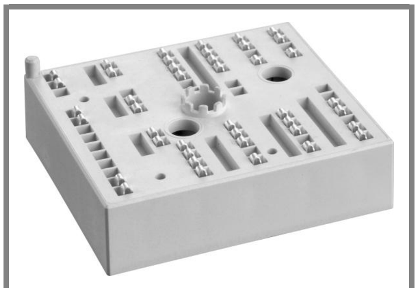
SKiiP 23AC126V1



MiniSKiiP®2

3-phase bridge inverter

SKiiP 23AC126V1

Preliminary Data

Features

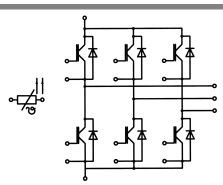
- Fast Trench IGBTs
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

Typical Applications

- Inverter up to 16 kVA
- Typical motor power 7,5 kW

Remarks

- V_{CEsat} , V_F = chip level value



AC

Absolute Maximum Ratings		T_S = 25 °C, unless otherwise specified	
Symbol	**Conditions**	**Values**	**Units**
IGBT - Inverter			
V_{CES}		1200	V
I_C	T_s = 25 (70) °C	41 (31)	A
I_{CRM}	$t_p \leq$ 1 ms	50	A
V_{GES}		± 20	V
T_j		-40...+150	°C
Diode - Inverter			
I_F	T_s = 25 (70) °C	30 (22)	A
I_{FRM}	$t_p \leq$ 1 ms	50	A
T_j		-40...+150	°C
I_{tRMS}	per power terminal (20 A / spring)	100	A
T_{stg}	$T_{op} \leq T_{stg}$	-40...+125	°C
V_{isol}	AC, 1 min.	2500	V

Characteristics			T_S = 25 °C, unless otherwise specified		
Symbol	**Conditions**	**min.**	**typ.**	**max.**	**Units**
IGBT - Inverter					
V_{CEsat}	I_{Cnom} = 25 A, T_j = 25 (125) °C		1,7 (2)	2,1 (2,4)	V
$V_{GE(th)}$	$V_{GE} = V_{CE}$, I_C = 1 mA	5	5,8	6,5	V
$V_{CE(TO)}$	T_j = 25 (125) °C		1 (0,9)	1,2 (1,1)	V
r_T	T_j = 25 (125) °C		28 (44)	36 (52)	mΩ
C_{ies}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		1,8		nF
C_{oes}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		0,3		nF
C_{res}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		0,2		nF
$R_{th(j-s)}$	per IGBT		0,9		K/W
$t_{d(on)}$	under following conditions		80		ns
t_r	V_{CC} = 600 V, V_{GE} = ± 15 V		30		ns
$t_{d(off)}$	I_{Cnom} = 25 A, T_j = 125 °C		480		ns
t_f	$R_{Gon} = R_{Goff}$ = 30 Ω		85		ns
E_{on}	inductive load		3,7		mJ
E_{off}			3,1		mJ
Diode - Inverter					
$V_F = V_{EC}$	I_{Fnom} = 25 A, T_j = 25 (125) °C		1,8 (1,8)	2,1 (2,2)	V
$V_{(TO)}$	T_j = 25 (125) °C		1 (0,8)	1,1 (0,9)	V
r_T	T_j = 25 (125) °C		32 (40)	40 (52)	mΩ
$R_{th(j-s)}$	per diode		1,7		K/W
I_{RRM}	under following conditions		35		A
Q_{rr}	I_{Fnom} = 25 A, V_R = 600 V		6		µC
E_{rr}	V_{GE} = 0 V, T_j = 125 °C		2,6		mJ
	di_F/dt = 1000 A/µs				
Temperature Sensor					
R_{ts}	3 %, T_r = 25 (100) °C		1000(1670)		Ω
Mechanical Data					
m			65		g
M_s	Mounting torque	2		2,5	Nm

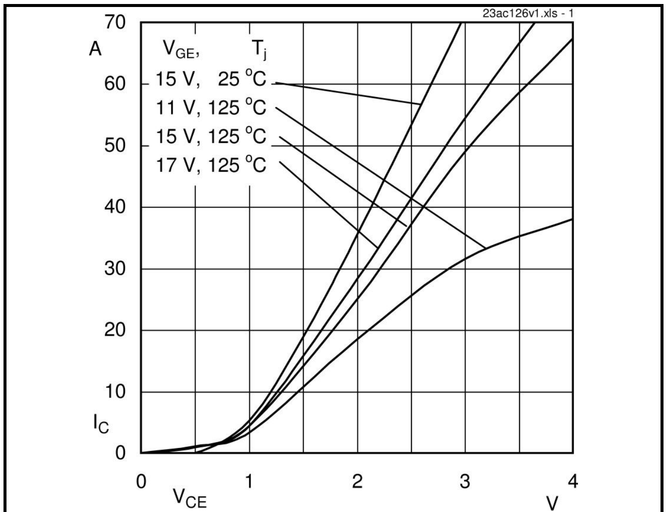


Fig. 1 Typ. output characteristic

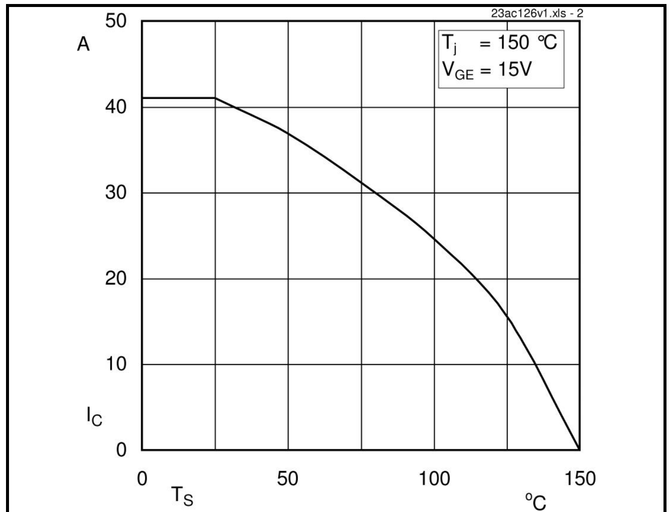


Fig. 2 Typ. rated current vs. temperature

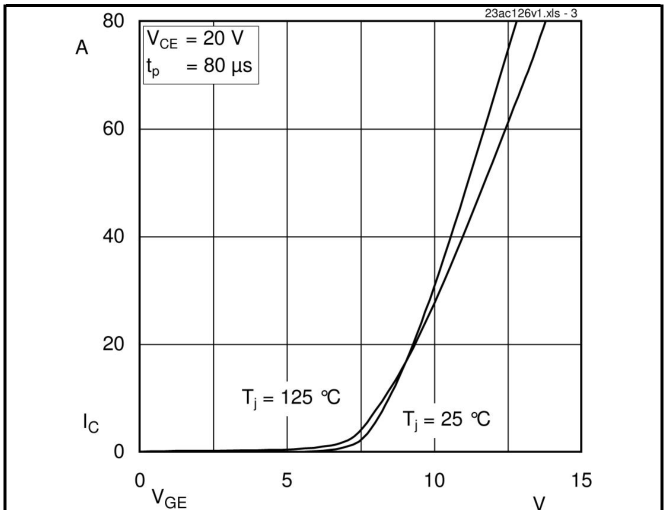


Fig. 3 Typ. transfer characteristic

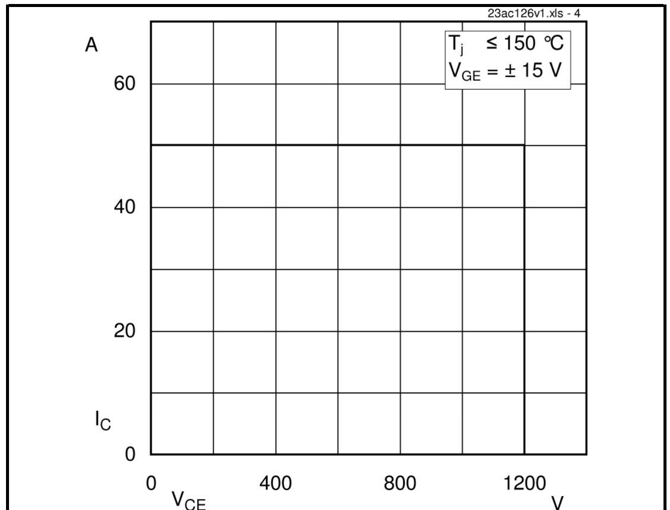


Fig. 4 Reverse bias safe operating area

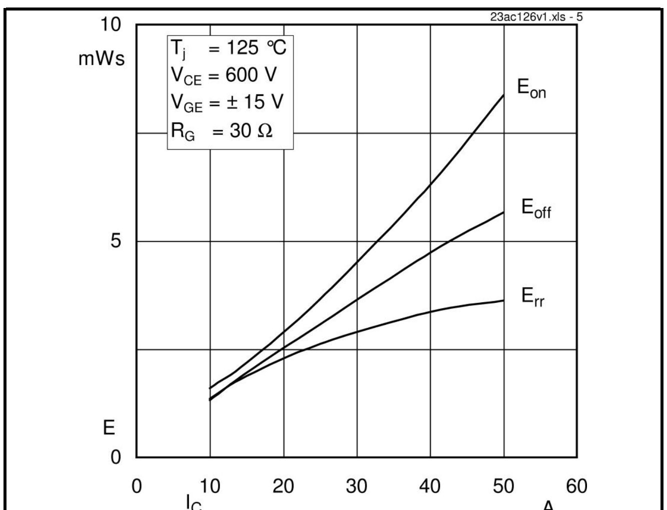


Fig. 5 Turn-on /-off energy = f (I_C)

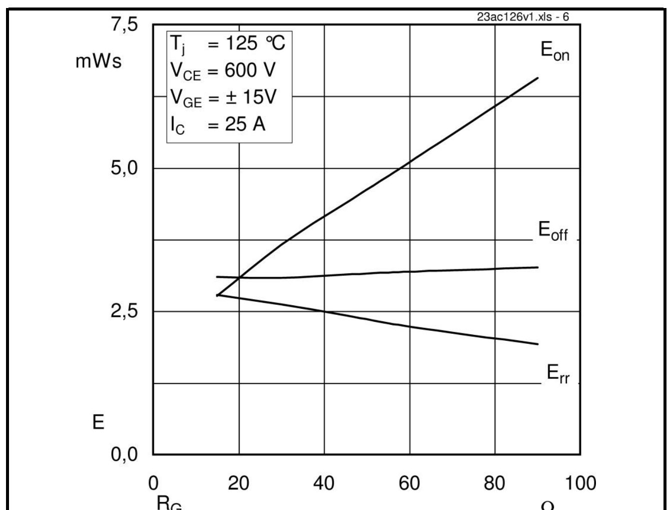


Fig. 6 Turn-on /-off energy = f (R_G)

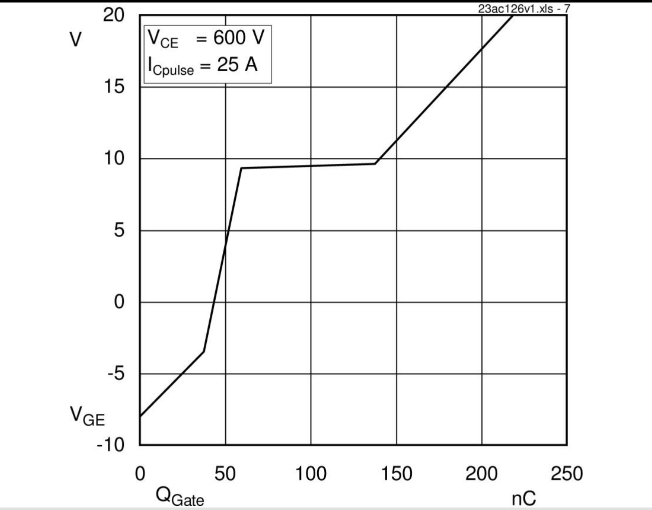


Fig. 7 Typ. gate charge characteristic

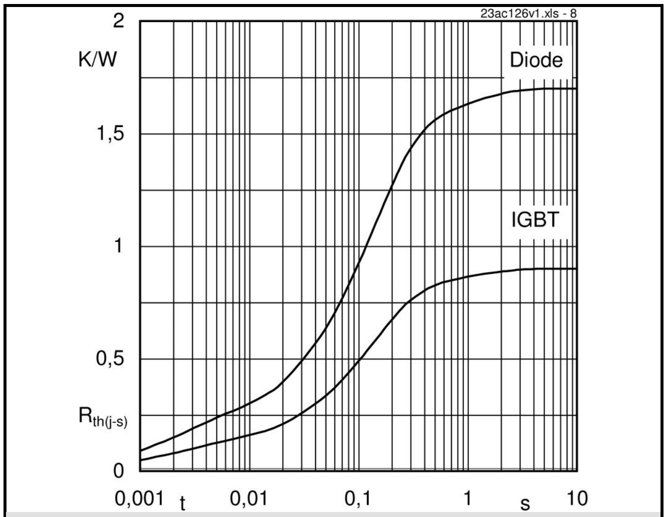


Fig. 8 Typ. thermal impedance

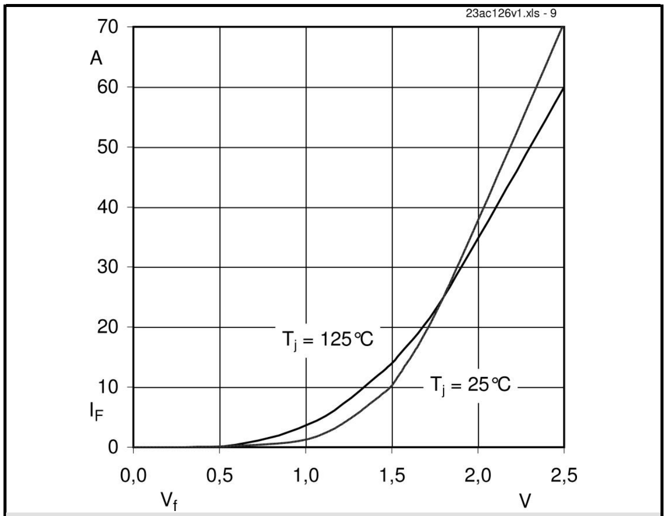
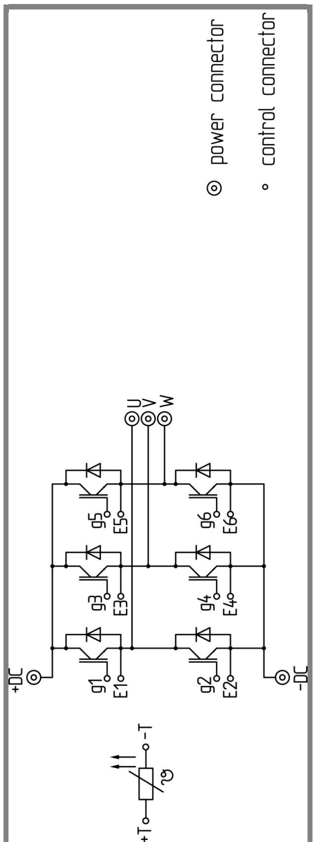
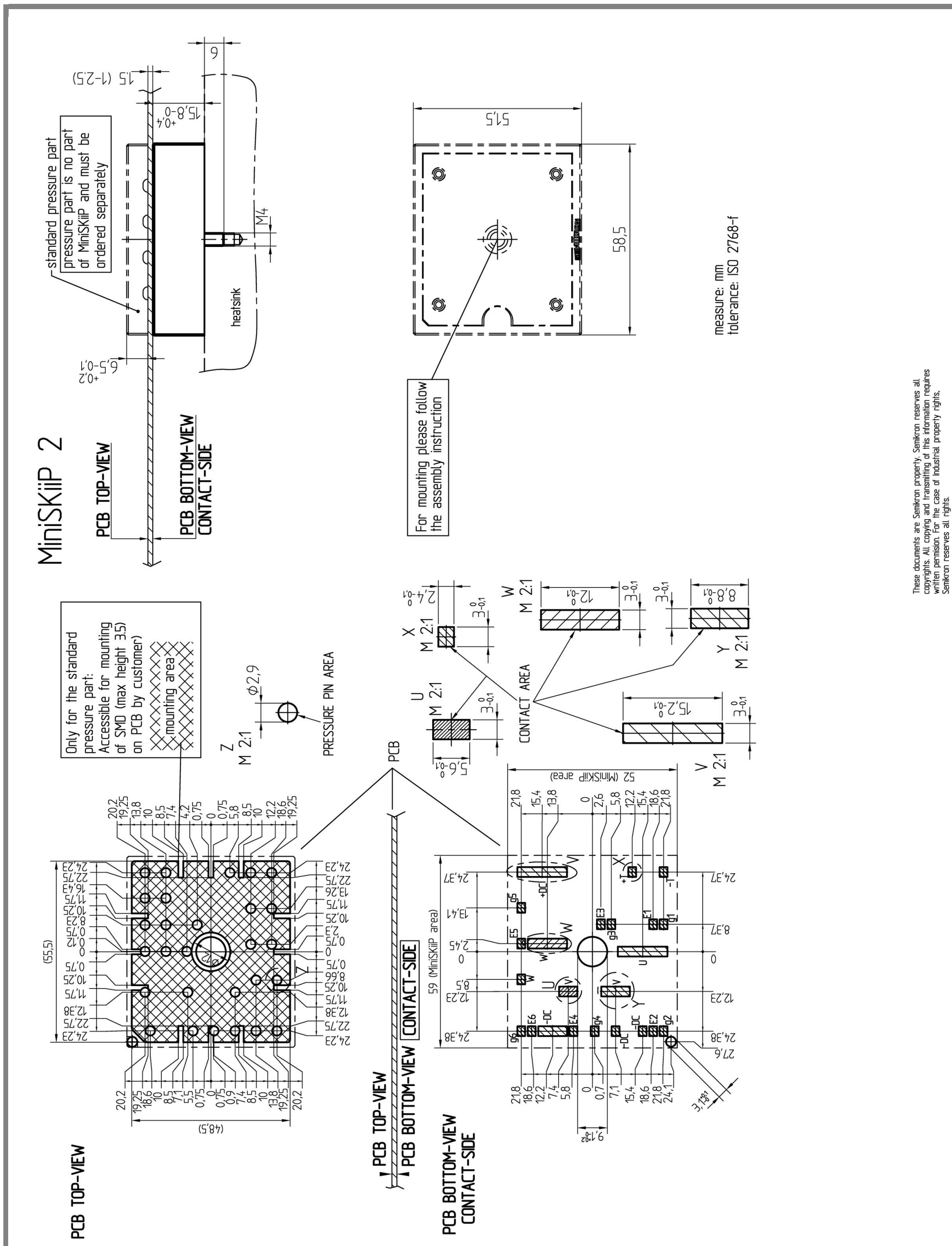


Fig. 9 Typ. freewheeling diode forward characteristic



circuit



pinout, dimensions

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

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