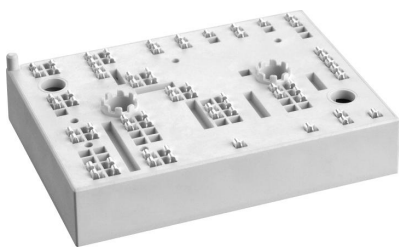


SKiiP 37AC125V20



MiniSKiiP® 3

3-phase bridge inverter

SKiiP 37AC125V20

Preliminary Data

Features

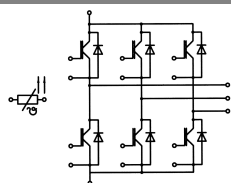
- Ultrafast NPT IGBTs
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

Typical Applications

- Inverter up to 30 kVA
- Typical motor power 18,5 kW

Absolute Maximum Ratings		$T_s = 25\text{ °C}$, unless otherwise specified	
Symbol	Conditions	Values	Units
IGBT - Inverter			
V_{CES}		1200	V
I_C	$T_s = 25\text{ (70) °C}$	70 (52)	A
I_{CRM}	$T_s = 25\text{ (70) °C}$, $t_p \leq 1\text{ ms}$	140 (104)	A
V_{GES}		± 20	V
T_j		- 40 ... + 150	°C
Diode - Inverter			
I_F	$T_s = 25\text{ (70) °C}$	91 (68)	A
I_{FRM}	$T_s = 25\text{ (70) °C}$, $t_p \leq 1\text{ ms}$	182 (136)	A
T_j		- 40 ... + 150	°C
I_{tRMS}	per power terminal (20 A / spring)	160	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
IGBT - Inverter					
V_{CEsat}	$I_C = 75\text{ A}$, $T_j = 25\text{ (125) °C}$		3,5 (4,1)	3,9 (4,5)	V
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 3\text{ mA}$	4,5	5,5	6,5	V
$V_{CE(TO)}$	$T_j = 25\text{ (125) °C}$		1,5 (1,8)	1,7 (2)	V
r_T	$T_j = 25\text{ (125) °C}$		40 (46)	44 (50)	mΩ
C_{ies}	$V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$		4,7		nF
C_{oes}	$V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$		0,6		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		0,4		K/W
$t_{d(on)}$	under following conditions		30		ns
t_r	$V_{CC} = 600\text{ V}$, $V_{GE} = \pm 15\text{ V}$		40		ns
$t_{d(off)}$	$I_C = 75\text{ A}$, $T_j = 125\text{ °C}$		250		ns
t_f	$R_{Gon} = R_{Goff} = 7,5\text{ Ω}$		30		ns
E_{on}	inductive load		9,2		mJ
E_{off}			3,3		mJ
Diode - Inverter					
$V_F = V_{EC}$	$I_F = 75\text{ A}$, $T_j = 25\text{ (125) °C}$		2 (1,8)	2,5 (2,3)	V
$V_{(TO)}$	$T_j = 25\text{ (125) °C}$		1,3 (1)	1,5 (1,2)	V
r_T	$T_j = 25\text{ (125) °C}$		14 (16)	20 (22)	mΩ
$R_{th(j-s)}$	per diode		0,55		K/W
I_{RRM}	under following conditions		94		A
Q_{rr}	$I_F = 75\text{ A}$, $V_R = 600\text{ V}$		11		μC
E_{rr}	$V_{GE} = 0\text{ V}$, $T_j = 125\text{ °C}$		3,8		mJ
	$di_F/dt = 2850\text{ A/μs}$				
Temperature Sensor					
R_{ts}	3 %, $T_r = 25\text{ (100) °C}$		1000(1670)		Ω
Mechanical Data					
m			95		g
M_s	Mounting torque	2		2,5	Nm



AC

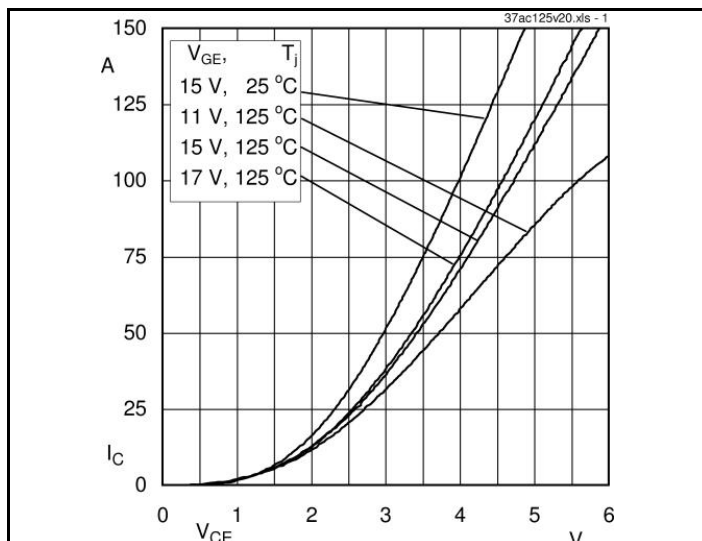


Fig. 1 Output characteristic

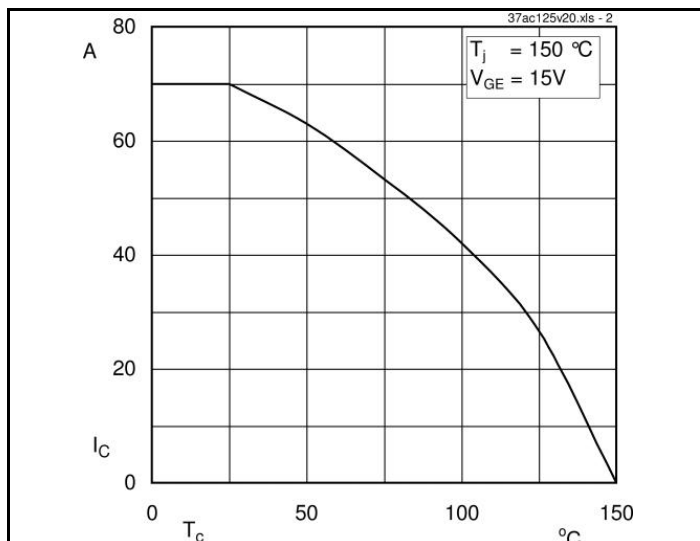


Fig. 2 Rated current vs. temperature

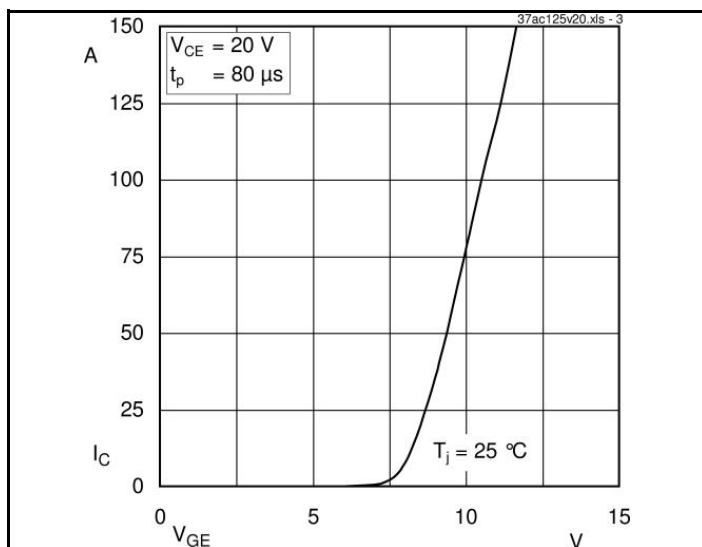


Fig. 3 Typ. transfer characteristic

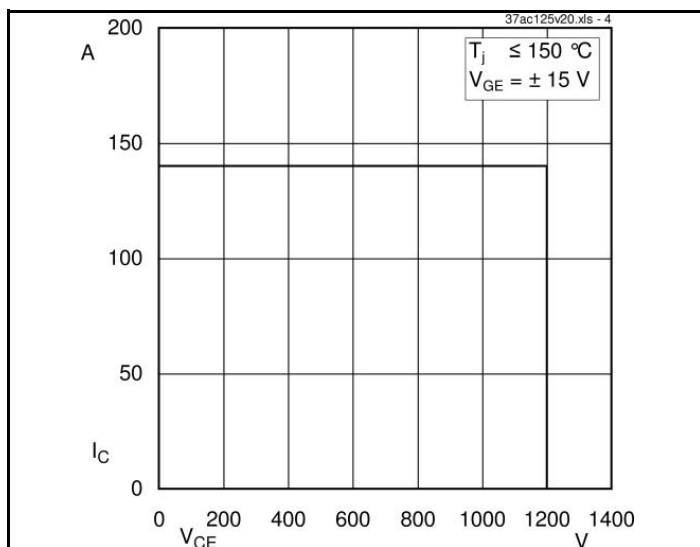


Fig. 4 Reverse bias safe operating area

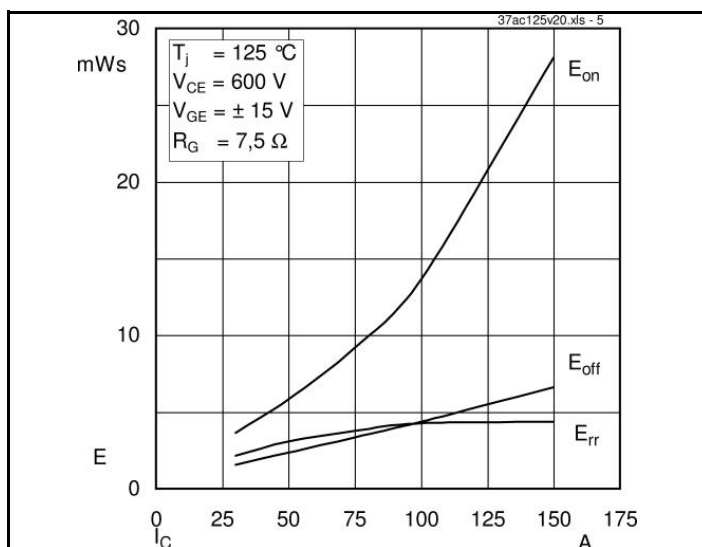


Fig. 5 Typ. Turn-on /-off energy = $f(I_C)$

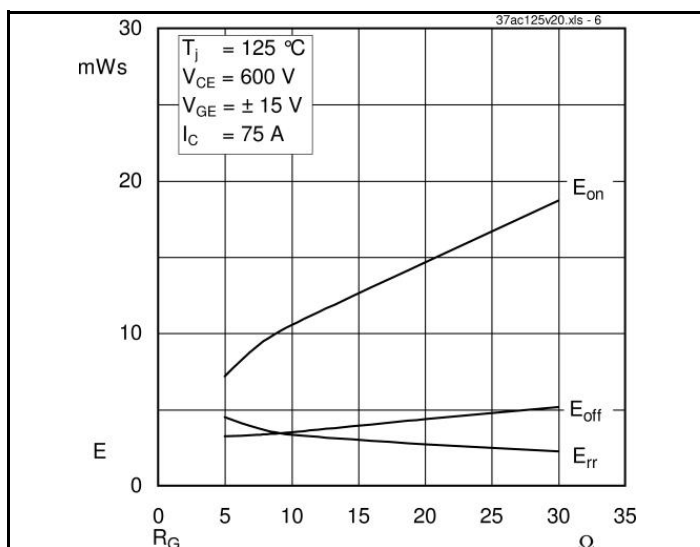
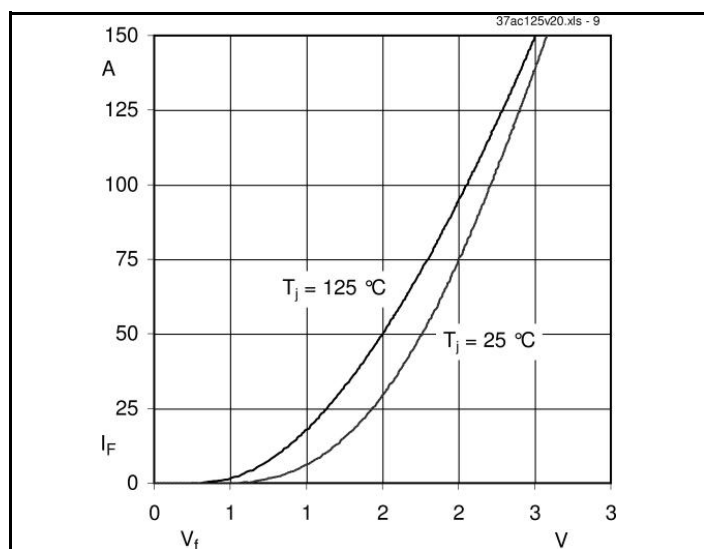
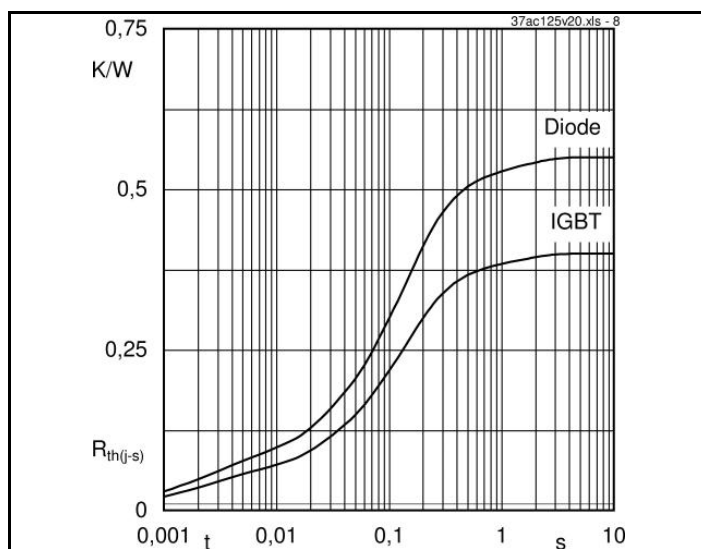
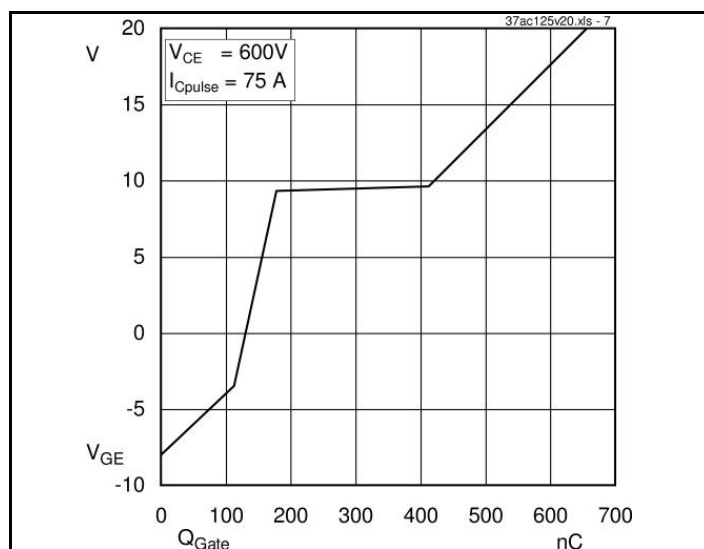
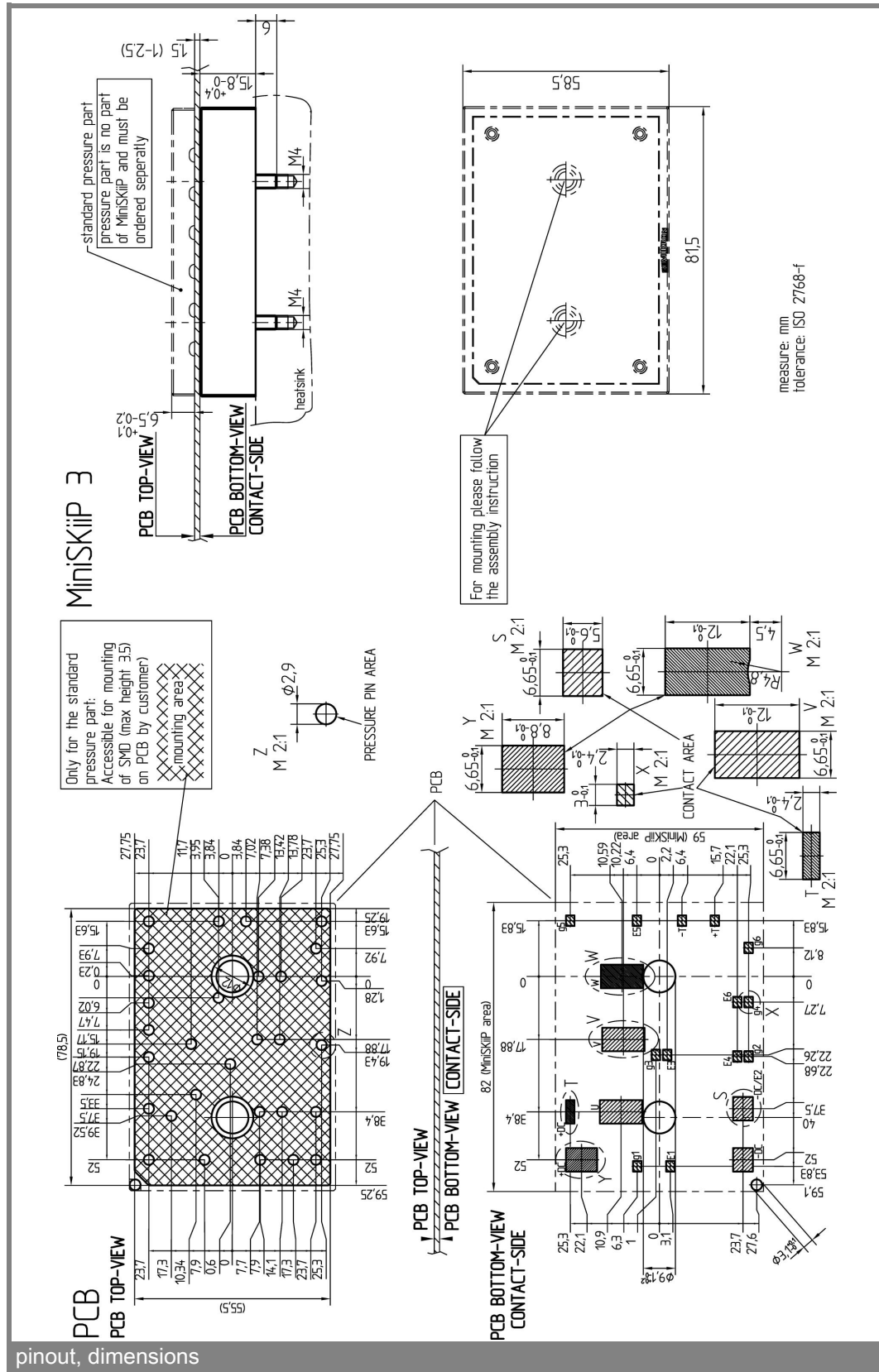
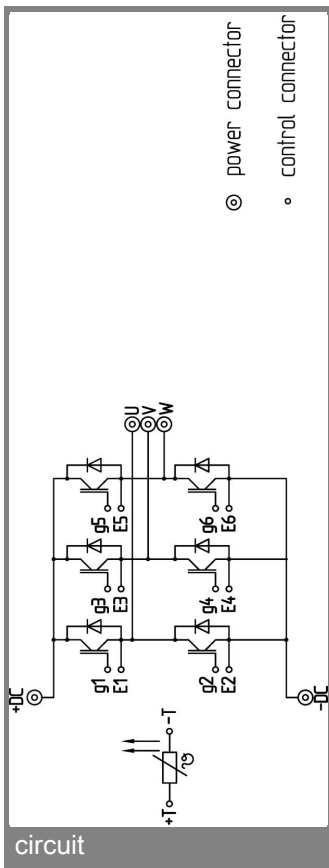


Fig. 6 Typ. Turn-on /-off energy = $f(R_G)$





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.