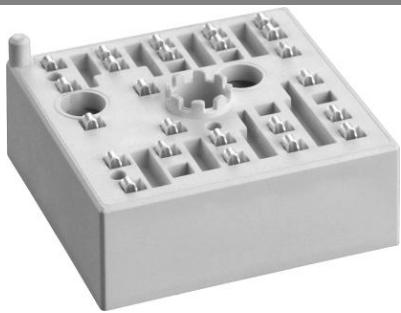


SKiiP 13AC126V20



MiniSKiiP[®] 1

3-phase bridge inverter

SKiiP 13AC126V20

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*

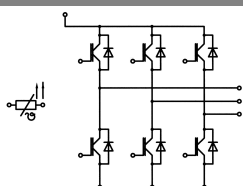
- Inverter up to 16kVA
- Typical motor power 7,5 kW

Remarks

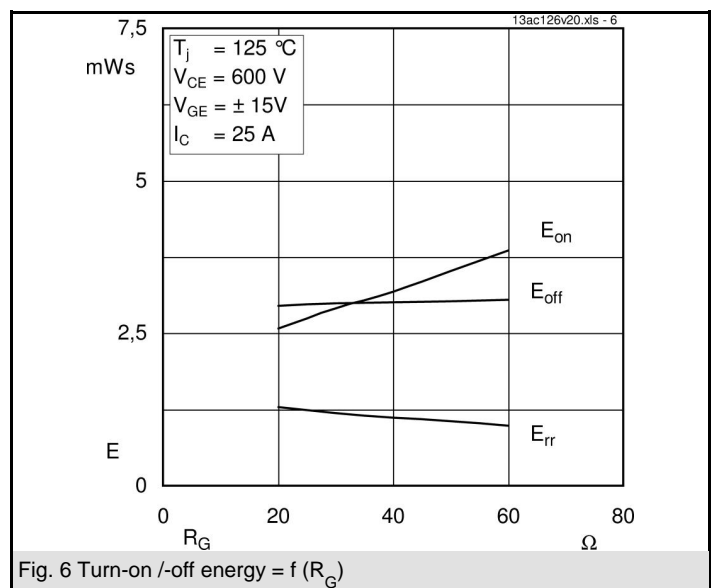
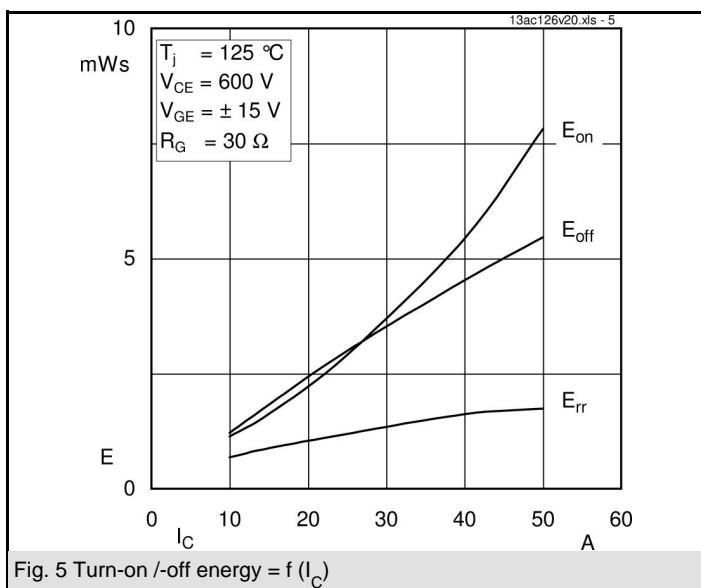
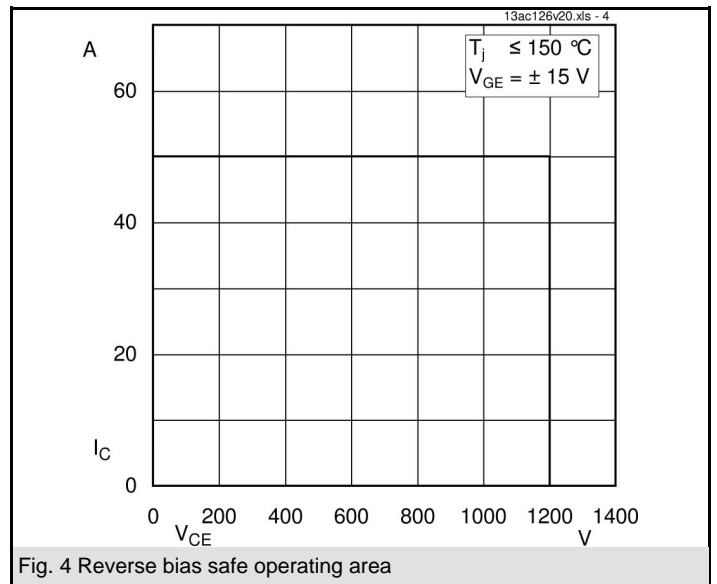
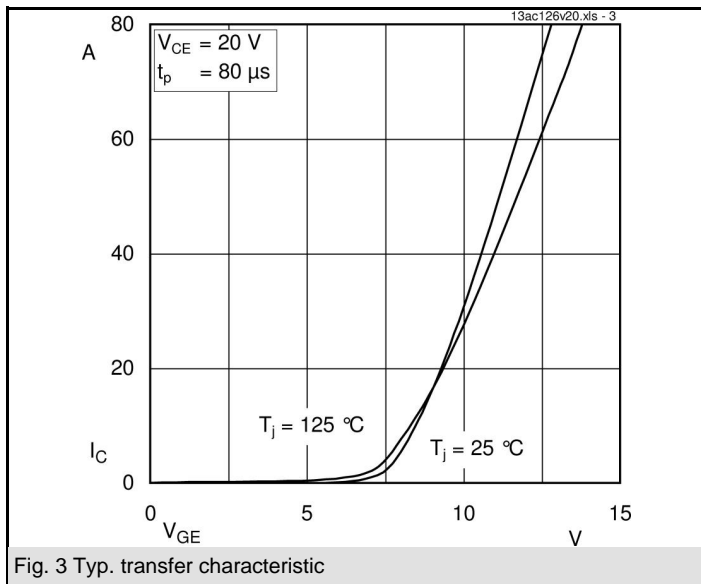
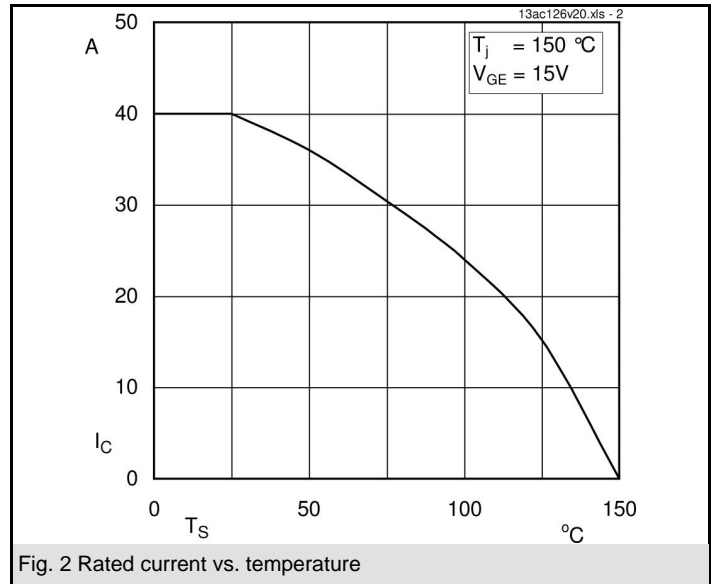
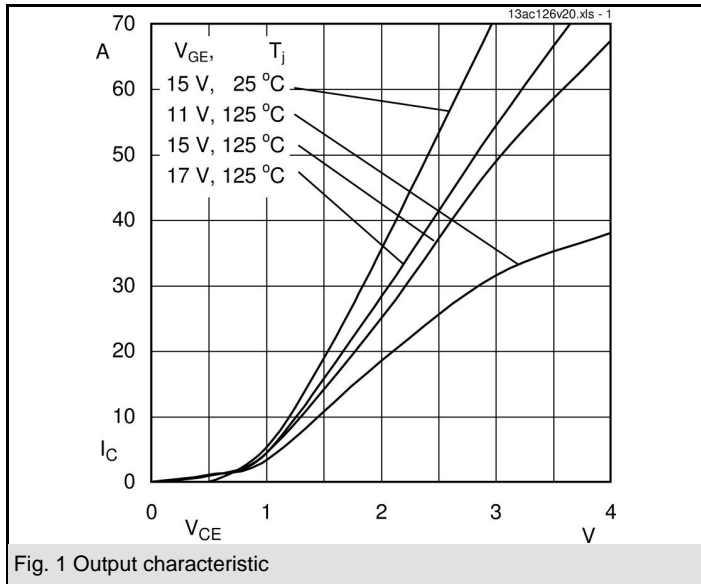
- V_{CEsat} , V_F = chip level value

Absolute Maximum Ratings		$T_S = 25\text{ °C}$, unless otherwise specified	
Symbol	Conditions	Values	Units
IGBT - Inverter			
V_{CES}	$T_S = 25\text{ (70) °C}$ $t_p \leq 1\text{ ms}$	1200	V
I_C		41 (31)	A
I_{CRM}		50	A
V_{GES}		± 20	V
T_j		-40...+150	°C
Diode - Inverter			
I_F	$T_S = 25\text{ (70) °C}$ $t_p \leq 1\text{ ms}$	27 (21)	A
I_{FRM}		50	A
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
IGBT - Inverter					
V_{CEsat}	$I_{Cnom} = 25\text{ A}$, $T_j = 25\text{ (125) °C}$		1,7 (2)	2,1 (2,4)	V
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 1\text{ mA}$	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	$T_j = 25\text{ (125) °C}$		28 (44)	36 (52)	mΩ
C_{ies}	$V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$		1,8		nF
C_{oes}	$V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$		0,3		nF
C_{res}	$V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$		0,2		nF
$R_{th(j-s)}$	per IGBT		0,9		K/W
$t_{d(on)}$	under following conditions		75		ns
t_r	$V_{CC} = 600\text{ V}$, $V_{GE} = \pm 15\text{ V}$		30		ns
$t_{d(off)}$	$I_{Cnom} = 25\text{ A}$, $T_j = 125\text{ °C}$		475		ns
t_f	$R_{Gon} = R_{Goff} = 30\text{ Ω}$		85		ns
E_{on}	inductive load		2,9		mJ
E_{off}			3		mJ
Diode - Inverter					
$V_F = V_{EC}$	$I_{Fnom} = 25\text{ A}$, $T_j = 25\text{ (125) °C}$		2,4 (2,2)	2,9 (2,7)	V
$V_{(TO)}$	$T_j = 25\text{ (125) °C}$		0,9 (0,6)	1,1 (0,8)	V
r_T	$T_j = 25\text{ (125) °C}$		60 (64)	72 (76)	mΩ
$R_{th(j-s)}$	per diode		1,5		K/W
I_{RRM}	under following conditions		25		A
Q_{rr}	$I_{Fnom} = 25\text{ A}$, $V_R = 600\text{ V}$		3,2		μC
E_{rr}	$V_{GE} = 0\text{ V}$, $T_j = 125\text{ °C}$		1,2		mJ
	$di_F/dt = 1050\text{ A/μs}$				
Temperature Sensor					
R_{ts}	3 %, $T_r = 25\text{ (100) °C}$		1000(1670)		Ω
Mechanical Data					
m			35		g
M_s	Mounting torque	2		2,5	Nm



AC



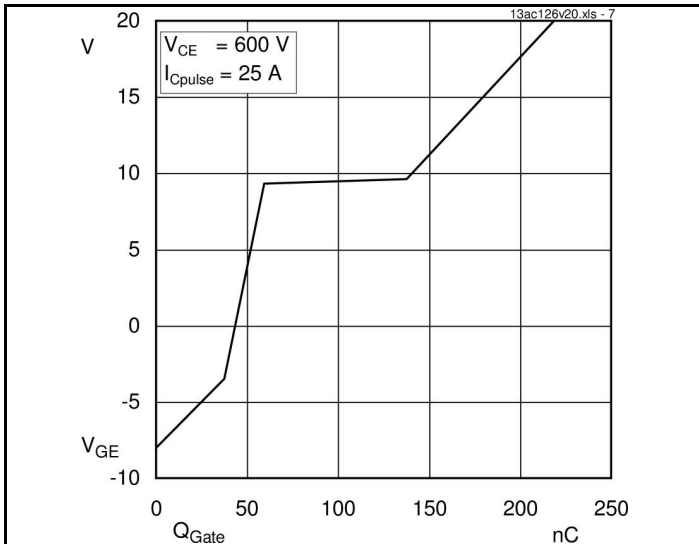


Fig. 7 Typ. Gate charge characteristic

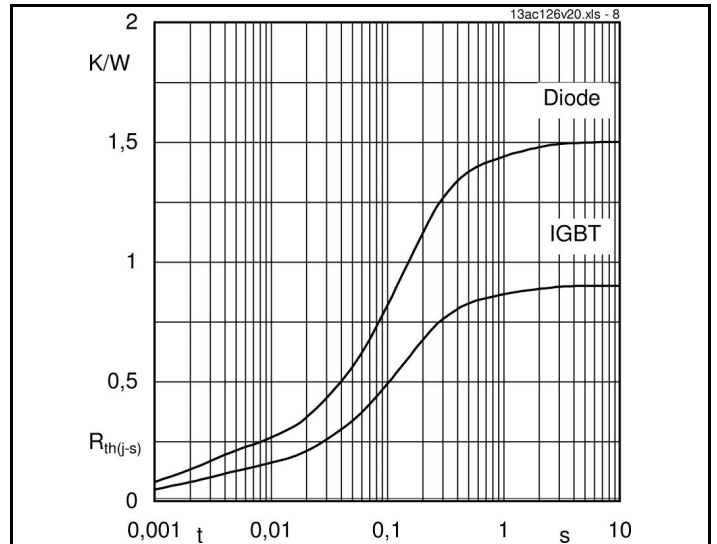


Fig. 8 Thermal impedance

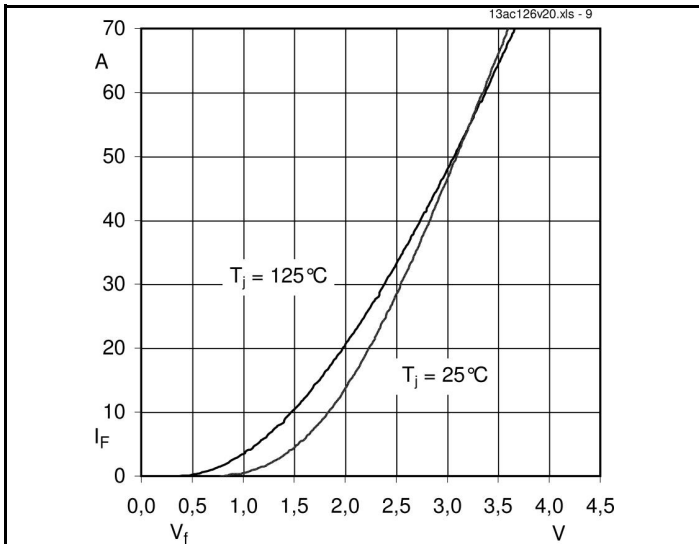


Fig. 9 Freewheeling diode forward characteristic

