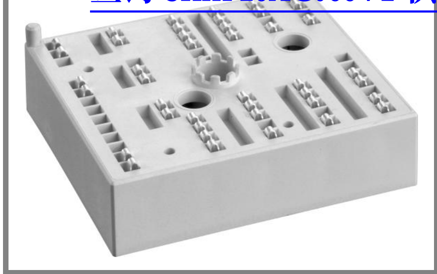


MiniSKiiP®2

3-phase bridge inverter

SKiiP 26AC066V1

Features

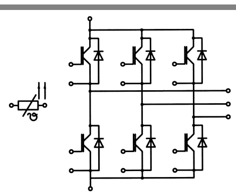
- Trench IGBTs
- Robust and soft freewheeling diode in CAL technology
- Highly reliable spring contacts for electrical connection
- UL recognised file no. E63532

Typical Applications

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

Remarks

- Case temperature limited to T_C=125°C
- Product reliability results are valid for T_j=150°C
- SC data: $t_p \leq 6$ µs; $V_{GE} \leq 15$ V; T_j = 150°C; V_{CC} = 360 V
- 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}		600	V
I_C	T_s = 25 (70) °C ,T_j = 150 °C	59 (40)	A
I_C	T_s = 25 (70) °C ,T_j = 175 °C	65 (49)	A
I_{CRM}	t_p = 1 ms	100	A
V_{GES}		±20	V
T_j		-40...+175	°C
Diode - Inverter			
I_F	T_s = 25 (70) °C ,T_j = 150 °C	47 (31)	A
I_F	T_s = 25 (70) °C ,T_j = 175 °C	56 (40)	A
I_{FRM}	t_p = 1 ms	100	A
T_j		-40...+175	°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} = 50 A ,T_j = 25 (150) °C	1,05	1,45 (1,65)	1,85 (2,05)	V
$V_{GE(th)}$	V_{GE} = V_{CE}, I_C = 1 mA		5,8		V
$V_{CE(TO)}$	T_j = 25 (150) °C		0,9 (0,8)	1,1 (1)	V
r_T	T_j = 25 (150) °C		11 (17)	15 (21)	mΩ
C_{ies}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		2,87		nF
C_{oes}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		0,6		nF
C_{res}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		0,46		nF
$R_{CC'+EE'}$	spring contact-chip T_s = 25 (150)°C				mΩ
$R_{th(j-s)}$	per IGBT		0,95		K/W
$t_{d(on)}$	under following conditions		25		ns
t_r	V_{CC} = 300 V, V_{GE} = -8V/+15V		30		ns
$t_{d(off)}$	I_{Cnom} = 50 A, T_j = 150 °C		285		ns
t_f	R_{Gon} = R_{Goff} = 12 Ω		55		ns
$E_{on}(E_{off})$	inductive load		1,6 (1,6)		mJ
Diode - Inverter					
$V_F = V_{EC}$	I_{Fnom} = 50 A ,T_j = 25 (150) °C		1,5 (1,5)	1,7 (1,7)	V
$V_{(TO)}$	T_j = 25 (150) °C		1 (0,9)	1,1 (1)	V
r_T	T_j = 25 (150) °C		10 (12)	12 (14)	mΩ
$R_{th(j-s)}$	per diode		1,6		K/W
I_{RRM}	under following conditions		59		A
Q_{rr}	I_{Fnom} = 50 A, V_R = 300 V		6		µC
E_{rr}	V_{GE} = 0 V, T_j = 150 °C		1,3		mJ
	di_F/dt = 2100 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

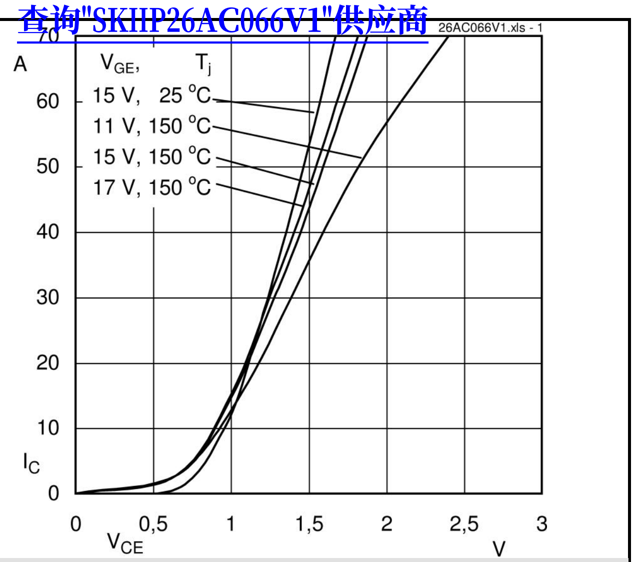


Fig. 1 Typ. output characteristic

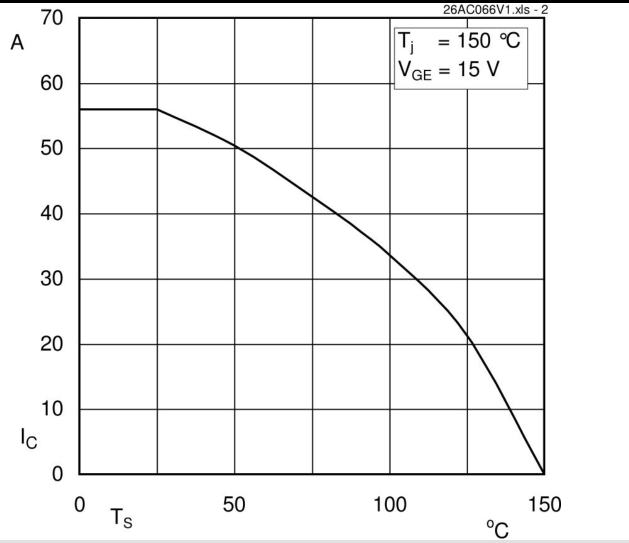


Fig. 2 Typ. rated current vs. temperature

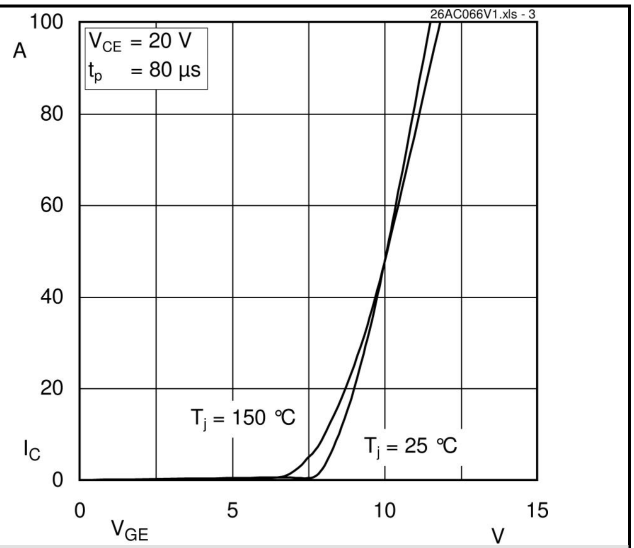


Fig. 3 Typ. transfer characteristic

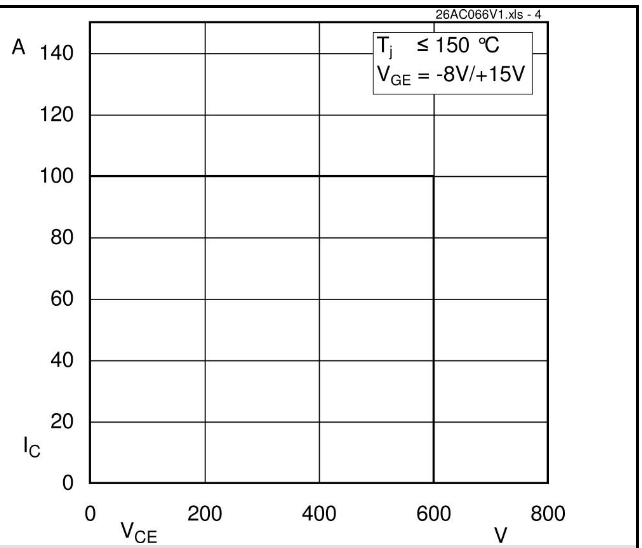


Fig. 4 Reverse bias safe operating area

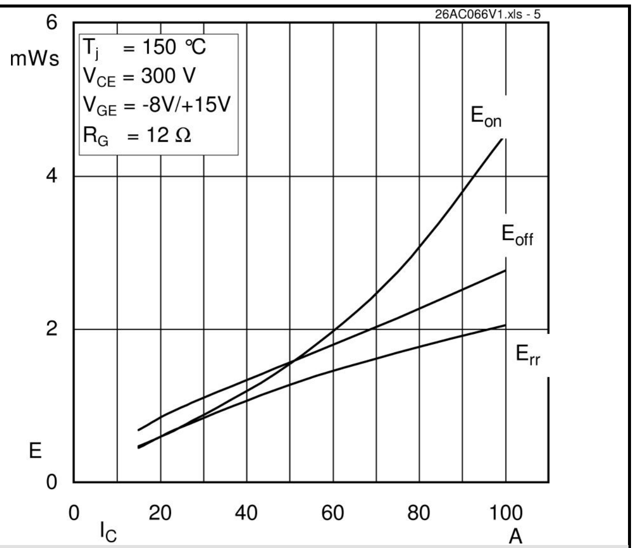


Fig. 5 Typ. turn-on /-off energy = f (I_C)

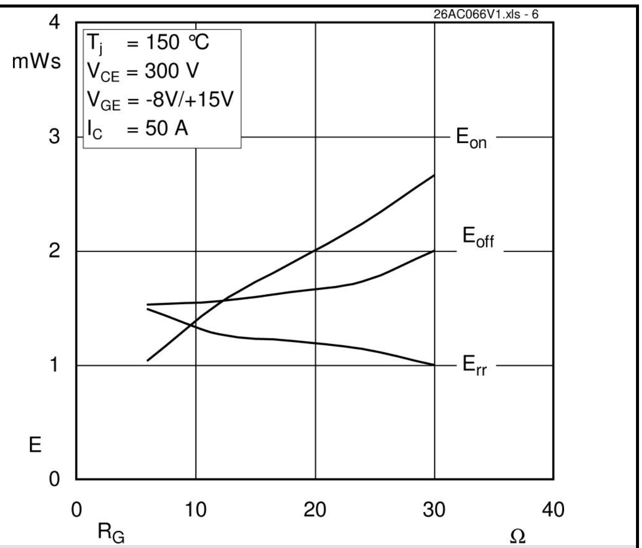


Fig. 6 Typ. turn-on /-off energy = f (R_G)

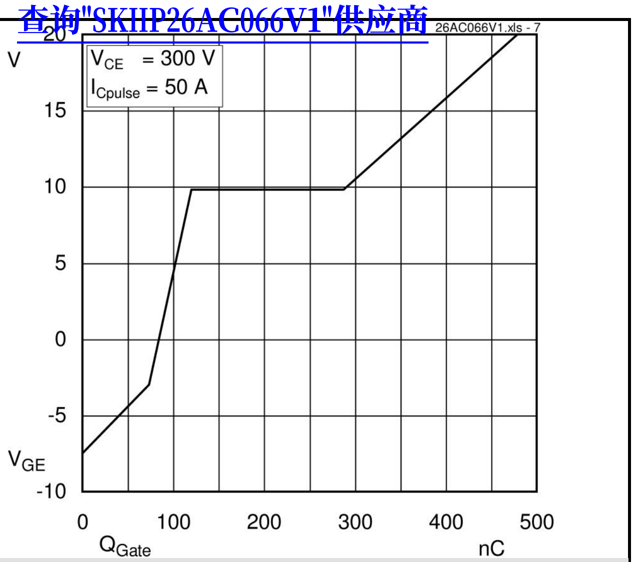


Fig. 7 Typ. gate charge characteristic

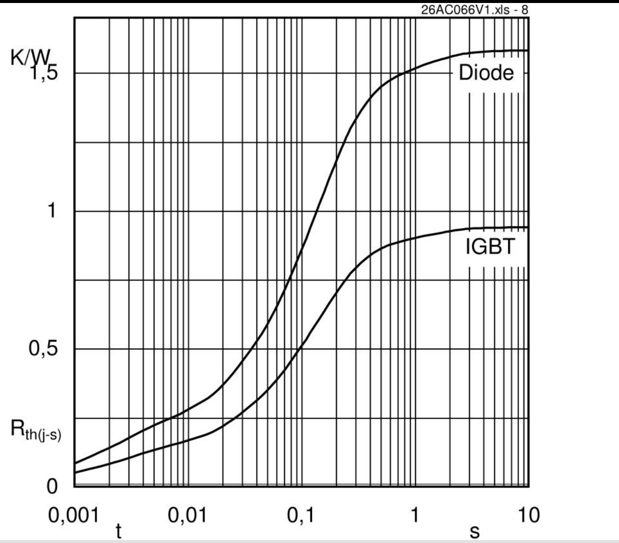


Fig. 8 Typ. thermal impedance

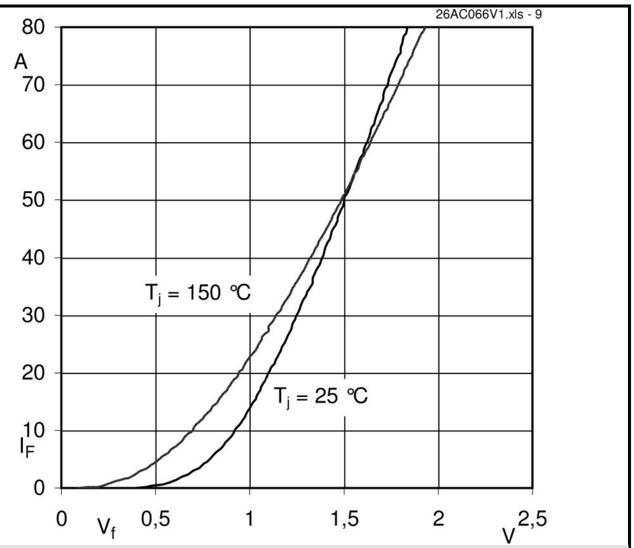
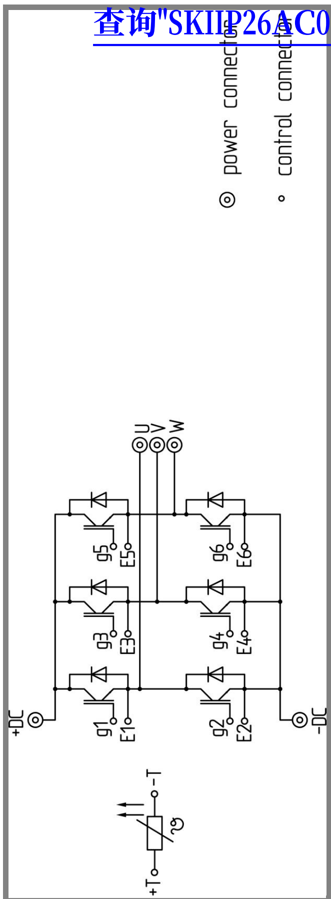
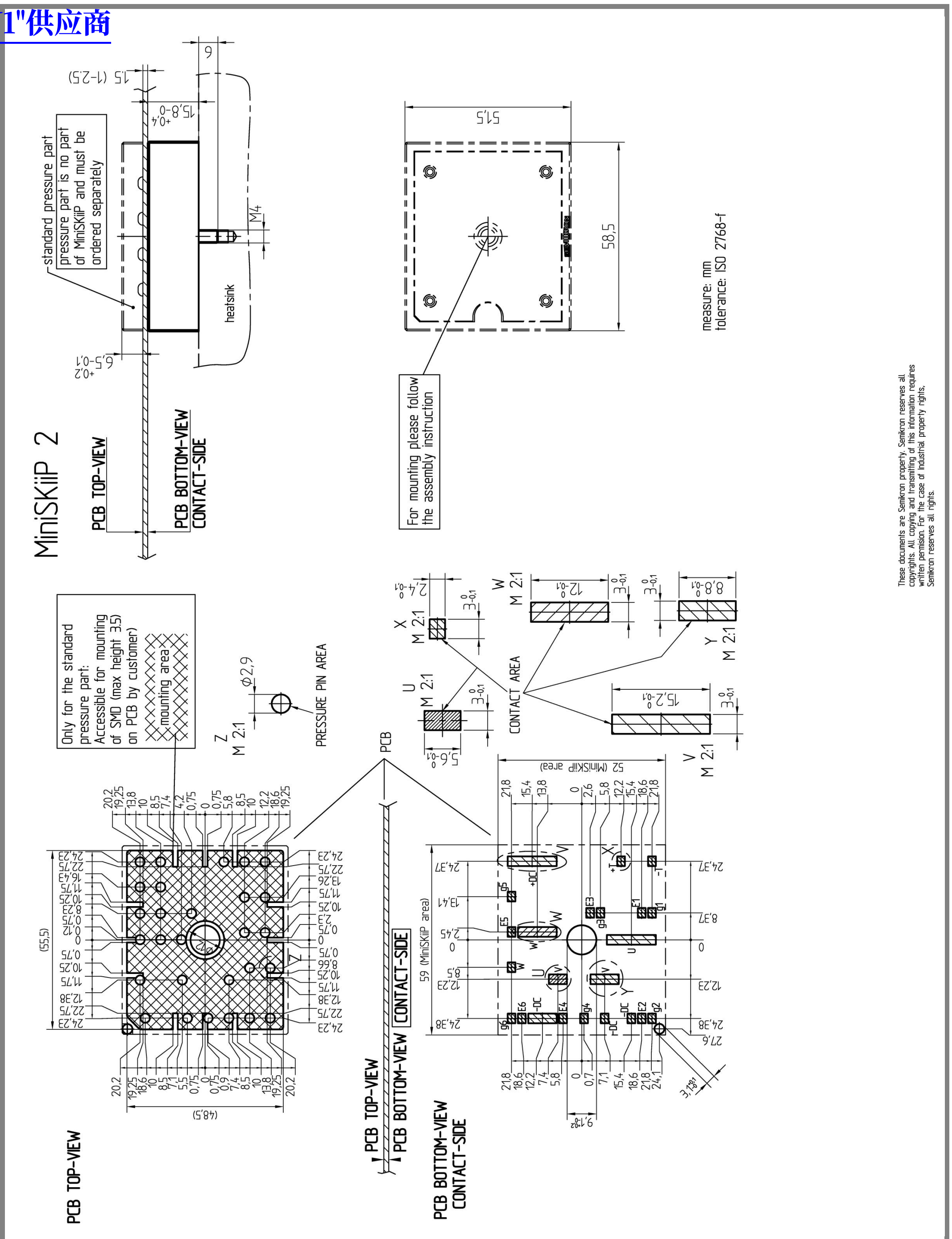


Fig. 9 Typ. freewheeling diode forward characteristic



circuit



pinout, dimensions

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

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