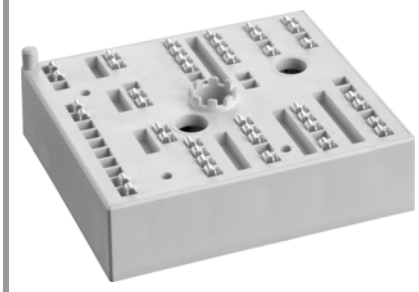
SKiiP25AC12F4V19



MiniSKiiP® 2

Evaluation Sample

SKiiP25AC12F4V19

Target Data

Features

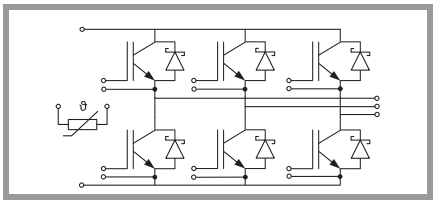
- Fast switching Trench 4 IGBT
- SiC Schottky Diode
- Highly reliable spring contacts for electrical connections

Typical Applications*

- High frequency inverters
- Power supplies
- High efficiency inverters
- Solar inverters

Remarks

Max. case temperature limited to T_C= 125°C
Recommended $T_{j,op}$=-40...+150°C



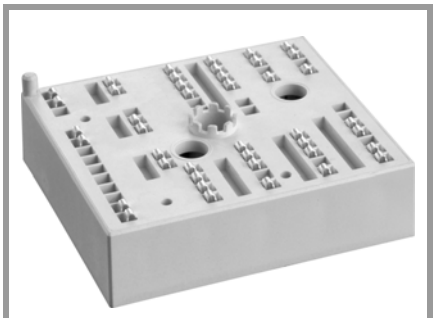
AC

Absolute Maximum Ratings

Symbol	Conditions		Values	Unit
Inverter - IGBT				
V_{CES}	T_j = 25 °C		1200	V
I_C	λ_{paste}=0.8 W/(mK)	T_s = 25 °C	62	A
	T_j = 175 °C	T_s = 70 °C	51	A
I_C	λ_{paste}=2.5 W/(mK)	T_s = 25 °C	72	A
	T_j = 175 °C	T_s = 70 °C	59	A
I_{Cnom}			50	A
I_{CRM}	I_{CRM} = 3 x I_{Cnom}		150	A
V_{GES}			-20 ... 20	V
t_{psc}	V_{CC} = 800 V $V_{GE} \leq$ 15 V $V_{CES} \leq$ 1200 V	T_j = 150 °C	10	µs
T_j			-40 ... 175	°C
Inverse - Diode				
I_F	λ_{paste}=0.8 W/(mK)	T_s = 25 °C	45	A
	T_j = 175 °C	T_s = 70 °C	36	A
I_F	λ_{paste}=2.5 W/(mK)	T_s = 25 °C	49	A
	T_j = 175 °C	T_s = 70 °C	40	A
I_{Fnom}			30	A
I_{FRM}				A
I_{FSM}	8.3 ms, sin 180°, T_j = 150 °C		96	A
T_j			-40 ... 175	°C
Module				
$I_{t(RMS)}$	$T_{terminal}$ = 80 °C, 20 A per spring		t.b.d.	A
T_{stg}			-40 ... 125	°C
V_{isol}	AC sinus 50 Hz, t = 1 min		2500	V

Characteristics

Symbol	Conditions		min.	typ.	max.	Unit
Inverter - IGBT						
$V_{CE(sat)}$	I_C = 50 A V_{GE} = 15 V chiplevel	T_j = 25 °C		2.05	2.40	V
		T_j = 150 °C		2.50	2.85	V
V_{CE0}	chiplevel	T_j = 25 °C		0.80	0.90	V
		T_j = 150 °C		0.70	0.80	V
r_{CE}	V_{GE} = 15 V chiplevel	T_j = 25 °C		25	30	mΩ
		T_j = 150 °C		36	41	mΩ
$V_{GE(th)}$	V_{GE} = V_{CE}, I_C = 1.7 mA		5.2	5.8	6.4	V
I_{CES}	V_{GE} = 0 V, V_{CE} = 1200 V, T_j = 25 °C			0.1	0.3	mA
C_{ies}	V_{CE} = 25 V V_{GE} = 0 V	f = 1 MHz		2.77		nF
C_{oes}		f = 1 MHz				nF
C_{res}		f = 1 MHz		0.16		nF
Q_G	- 8 V...+ 15 V			315		nC
R_{Gint}	T_j = 25 °C			4.0		Ω
$t_{d(on)}$	V_{CC} = 600 V I_C = 50 A	T_j = 150 °C				ns
t_r		T_j = 150 °C				ns
E_{on}		T_j = 150 °C		2.2		mJ
$t_{d(off)}$		T_j = 150 °C				ns
t_f		T_j = 150 °C				ns
E_{off}	V_{GE} = +15/-15 V	T_j = 150 °C		2.8		mJ
$R_{th(j-s)}$	per IGBT, λ_{paste}=0.8 W/(mK)			0.7		K/W
$R_{th(j-s)}$	per IGBT, λ_{paste}=2.5 W/(mK)			0.53		K/W



MiniSKiiP® 2

Evaluation Sample

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Remarks

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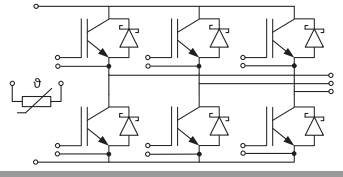
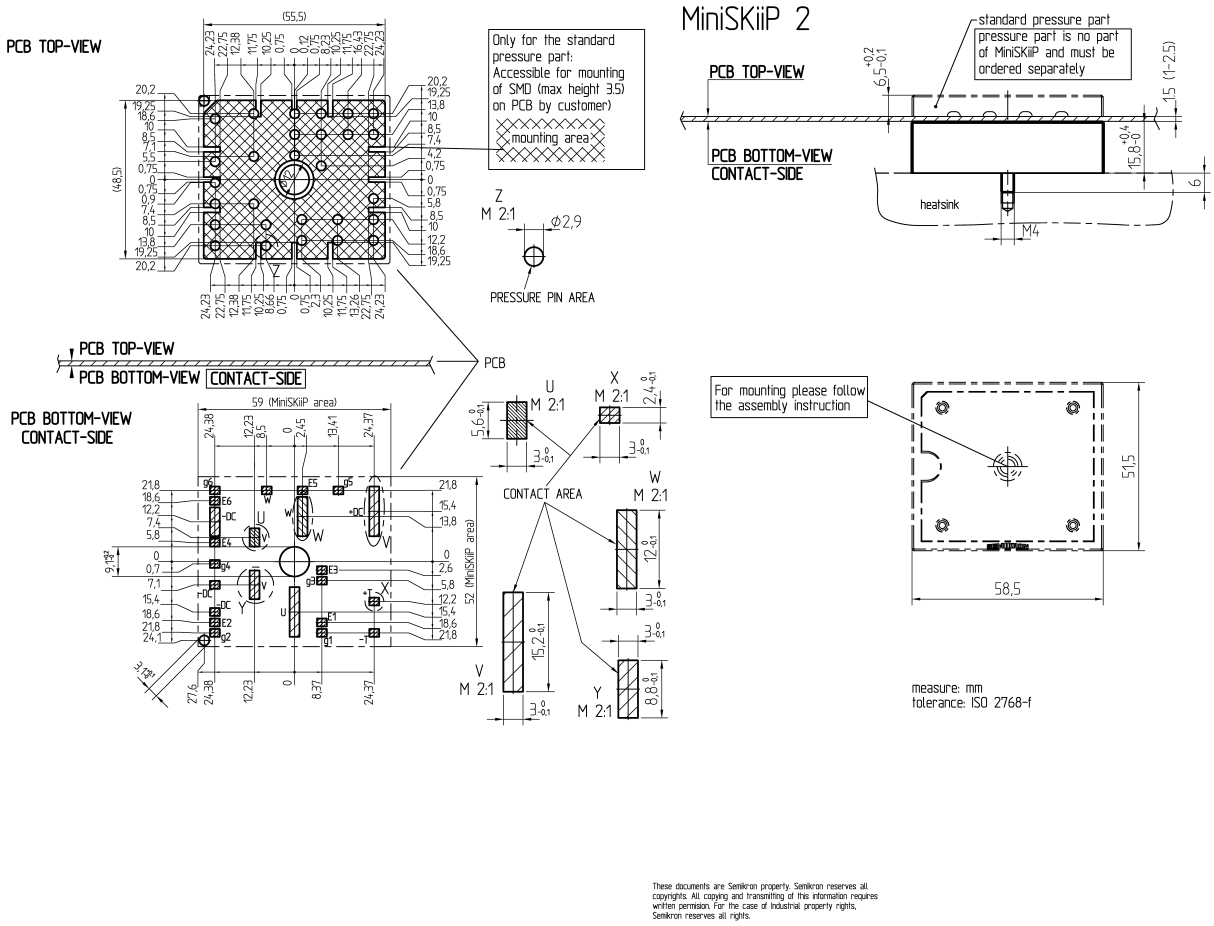
Characteristics

Symbol	Conditions		min.	typ.	max.	Unit
Inverse - Diode						
$V_F = V_{EC}$	I_F = 30 A V_{GE} = 0 V chiplevel	T_j = 25 °C		1.40	1.60	V
		T_j = 150 °C		1.80	2.12	V
V_{F0}	chiplevel	T_j = 25 °C		0.95	1.05	V
		T_j = 150 °C		0.80	0.90	V
r_F	chiplevel	T_j = 25 °C		15	18	mΩ
		T_j = 150 °C		33	41	mΩ
C_j	V_R = 800 V, f = 1 MHz, T_j = 25 °C			0.1		nF
Q_c	V_R = 800 V, di/dt_{off} = 500 A/µs, T_j = 25 °C			0.101		µC
$R_{th(j-s)}$	per Diode, λ_{paste}=0.8 W/(mK)			1.15		K/W
$R_{th(j-s)}$	per Diode, λ_{paste}=2.5 W/(mK)			0.98		K/W
Module						
L_{CE}				-		nH
M_s	to heat sink		2		2.5	Nm
w				55		g
Temperature Sensor						
R_{100}	T_r=100°C (R_{25}=1000Ω)			1670 ± 3%		Ω
R(T)	R(T)=1000Ω[1+A(T-25°C)+B(T-25°C)^2], A = 7.635*10^{-3} °C^{-1}, B = 1.731*10^{-5} °C^{-2}					



AC



pinout, dimensions

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

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