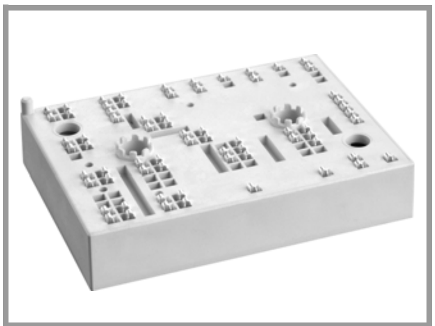


MiniSKiiP® 3

Twin 6-pack

SKiiP 35ACC12T4V10

Target Data

Features

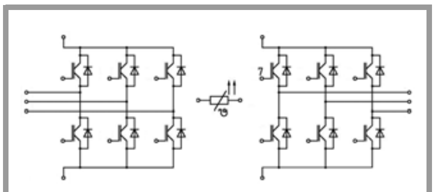
- Trench 4 IGBTs
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised: File no. E63532

Typical Applications*

- 4Q inverters
- Double axis inverters

Remarks

- Max. case temperature limited to T_C= 125°C
- Product reliability results valid for T_j≤150°C (recommended $T_{j,op}$=-40...+150°C)



ACC

Absolute Maximum Ratings				
Symbol	**Conditions**		**Values**	**Unit**
IGBT 1 - 6				
V_{CES}	T_j = 25 °C		1200	V
I_C	T_j = 150 °C	T_s = 25 °C	62	A
		T_s = 70 °C	47	A
I_C	T_j = 175 °C	T_s = 25 °C	69	A
		T_s = 70 °C	56	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} ≤ 15 V V_{CES} ≤ 1200 V	T_j = 150 °C	10	µs
T_j			-40 ... 175	°C
IGBT 7 - 12				
V_{CES}	T_j = 25 °C		1200	V
I_C	T_j = 150 °C	T_s = 25 °C	62	A
		T_s = 70 °C	47	A
I_C	T_j = 175 °C	T_s = 25 °C	69	A
		T_s = 70 °C	56	A
I_{Cnom}			50	A
I_{CRM}	I_{CRM} = 3 x I_{Cnom}		150	A
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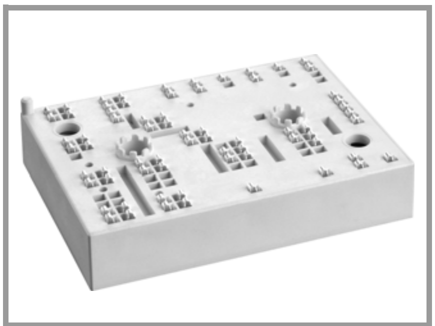
T_j			-40 ... 175	°C
Diode 1 - 6				
V_{RRM}	T_j = 25 °C		1200	V
I_F	T_j = 150 °C	T_s = 25 °C	52	A
		T_s = 70 °C	39	A
I_F	T_j = 175 °C	T_s = 25 °C	60	A
		T_s = 70 °C	48	A
I_{Fnom}			50	A
I_{FRM}	I_{FRM} = 3xI_{Fnom}		150	A
I_{FSM}	10 ms, sin 180°, T_j = 150 °C		270	A
T_j			-40 ... 175	°C
Diode 7 - 12				
V_{RRM}	T_j = 25 °C		1200	V
I_F	T_j = 150 °C	T_s = 25 °C	54	A
		T_s = 70 °C	41	A
I_F	T_j = 175 °C	T_s = 25 °C	60	A
		T_s = 70 °C	48	A
I_{Fnom}			50	A
I_{FRM}	I_{FRM} = 3 x I_{Fnom}		150	A
I_{FSM}	10 ms, sin 180°, T_j = 150 °C		270	A
T_j			-40 ... 175	°C
Module				
$I_{t(RMS)}$	20 A per spring		60	A
T_{stg}			-40 ... 125	°C
V_{isol}	AC sinus 50 Hz, 1 min		2500	V



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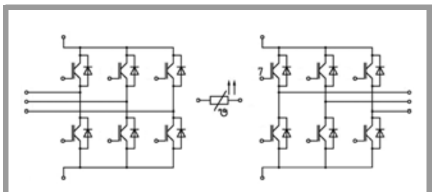
Characteristics

Symbol	Conditions		min.	typ.	max.	Unit
IGBT 1 - 6						
$V_{CE(sat)}$	I_C = 50 A, V_{GE} = 15 V, chiplevel	T_j = 25 °C		1.85	2.10	V
		T_j = 150 °C		2.25	2.40	V
V_{CE0}	chiplevel	T_j = 25 °C		0.8	0.9	V
		T_j = 150 °C		0.7	0.8	V
r_{CE}	V_{GE} = 15 V, chiplevel	T_j = 25 °C		21	24	mΩ
		T_j = 150 °C		31	32	mΩ
$V_{GE(th)}$	V_{GE} = V_{CE} V, I_C = 1.7 mA		5	5.8	6.5	V
I_{CES}	V_{GE} = 0 V, V_{CE} = 1200 V	T_j = 25 °C		0.1	0.3	mA
						mA
C_{ies}	V_{CE} = 25 V, V_{GE} = 0 V	f = 1 MHz		2.77		nF
C_{oes}		f = 1 MHz		0.21		nF
C_{res}		f = 1 MHz		0.16		nF
Q_G	V_{GE} = - 8 V...+ 15 V			280		nC
R_{Gint}	T_j = 25 °C			4		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				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				mJ
$R_{th(j-s)}$	per IGBT, λ_{paste}=0.8 W/K*m			0.71		K/W
IGBT 7 - 12						
$V_{CE(sat)}$	I_C = 50 A, V_{GE} = 15 V, chiplevel	T_j = 25 °C		1.85	2.10	V
		T_j = 150 °C		2.20	2.40	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		21	24	mΩ
		T_j = 150 °C		30	32	mΩ
$V_{GE(th)}$	V_{GE} = V_{CE} V, I_C = 1.7 mA		5	5.8	6.5	V
I_{CES}	V_{GE} = 0 V, V_{CE} = 1200 V	T_j = 25 °C				mA
						mA
C_{ies}	V_{CE} = 25 V, V_{GE} = 0 V	f = 1 MHz		2.77		nF
C_{oes}		f = 1 MHz		0.21		nF
C_{res}		f = 1 MHz		0.16		nF
Q_G	V_{GE} = - 8 V...+ 15 V			280		nC
R_{Gint}	T_j = 25 °C			4		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				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				mJ
$R_{th(j-s)}$	per IGBT, λ_{paste}=0.8 W/K*m			0.71		K/W



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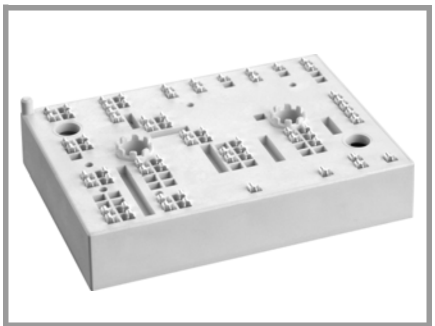

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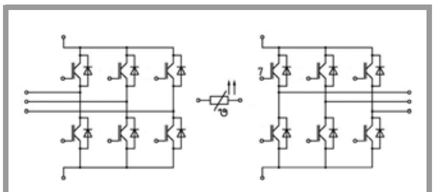
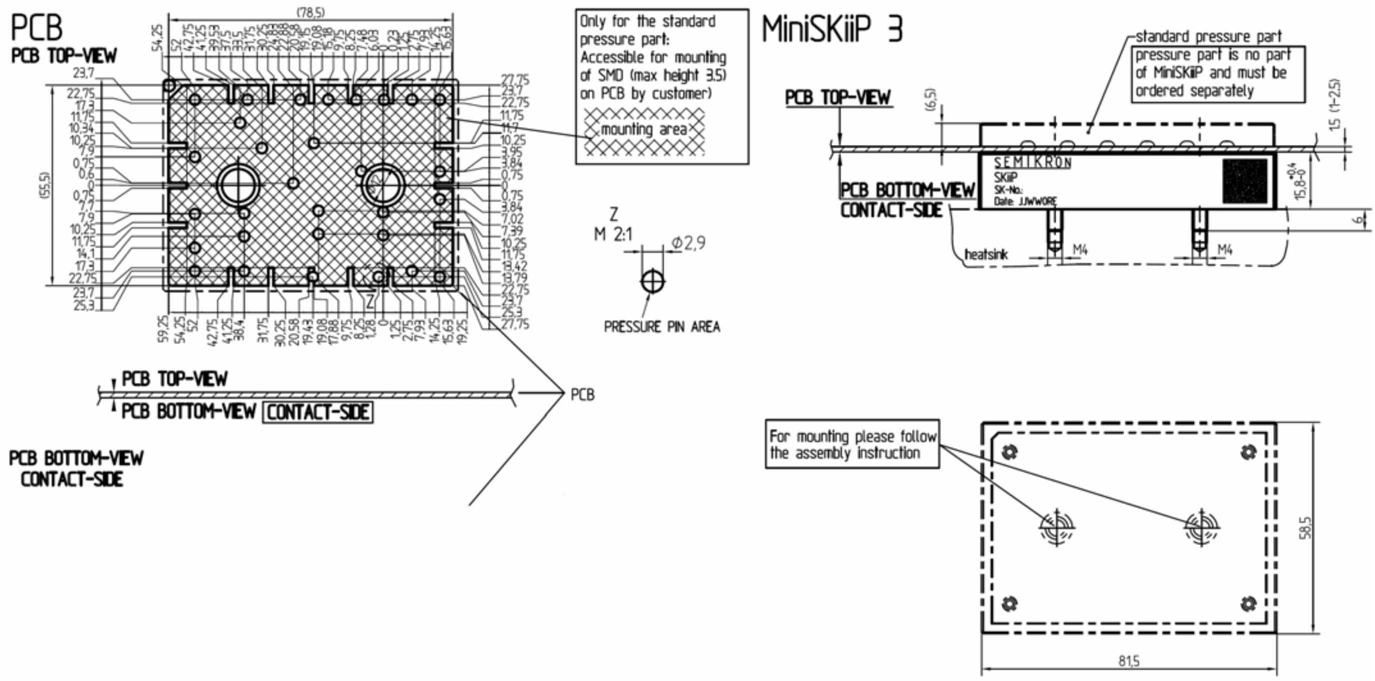


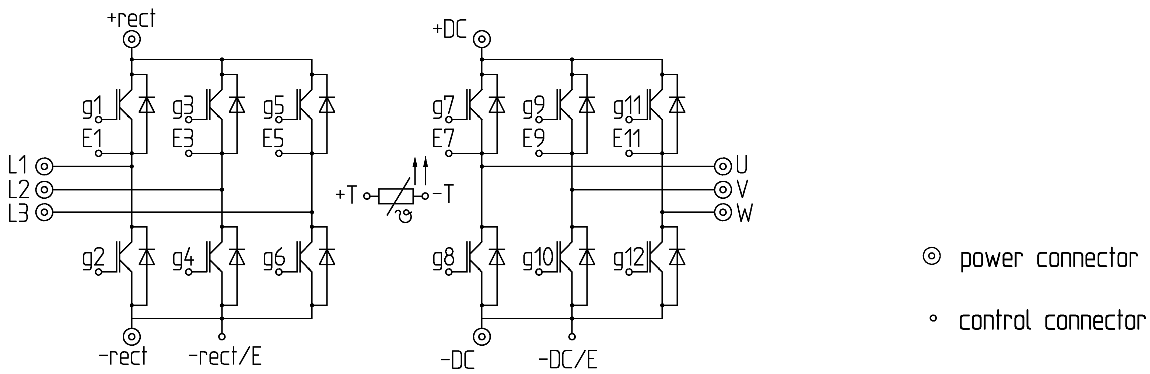
ACC

Characteristics

Symbol	Conditions		min.	typ.	max.	Unit
Diode 1 - 6						
$V_F = V_{EC}$	I_F = 50 A V_{GE} = 0 V chiplevel	T_j = 25 °C		2.2	2.7	V
		T_j = 150 °C		2.2	2.5	V
V_{F0}	chiplevel	T_j = 25 °C		1.3	1.5	V
		T_j = 150 °C		0.9	1.1	V
r_F	chiplevel	T_j = 25 °C		18	25	mΩ
		T_j = 150 °C		26	28	mΩ
I_{RRM}	I_F = 50 A	T_j = 150 °C				A
Q_{rr}	V_{GE} = -15 V V_R = 600 V	T_j = 150 °C				µC
E_{rr}		T_j = 150 °C				mJ
$R_{th(j-s)}$	per Diode, λ_{paste}=0.8 W/K*m			0.95		K/W
Diode 7 - 12						
$V_F = V_{EC}$	I_F = 50 A V_{GE} = 0 V chiplevel	T_j = 25 °C		2.2	2.5	V
		T_j = 150 °C		2.2	2.5	V
V_{F0}	chiplevel	T_j = 25 °C		1.3	1.5	V
		T_j = 150 °C		0.9	1.1	V
r_F	chiplevel	T_j = 25 °C		18	21	mΩ
		T_j = 150 °C		26	28	mΩ
I_{RRM}	I_F = 50 A	T_j = 150 °C				A
Q_{rr}	V_{GE} = -15 V V_{CC} = 600 V	T_j = 150 °C				µC
E_{rr}		T_j = 150 °C				mJ
$R_{th(j-s)}$	per Diode, λ_{paste}=0.8 W/K*m			0.95		K/W
Module						
M_s	to heat sink		2		2.5	Nm
w				82		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}					



pinout, dimensions



pinout

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

* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our staff.

