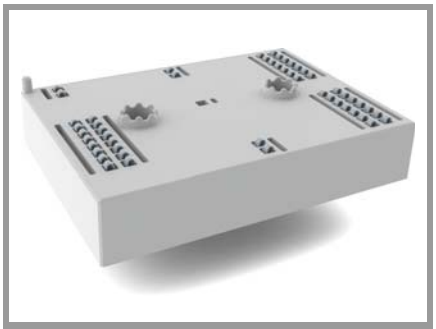
SKiiP 38GB12F4V19



MiniSKiiP® 3 Dual

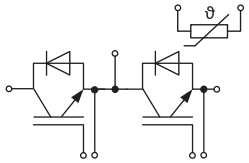
IGBT module

SKiiP 38GB12F4V19

Target Data

Features

- Fast Trench 4 IGBTs
- SiC Diodes
- Highly reliable spring contacts for electrical connections
- UL recognised: File no. E63532



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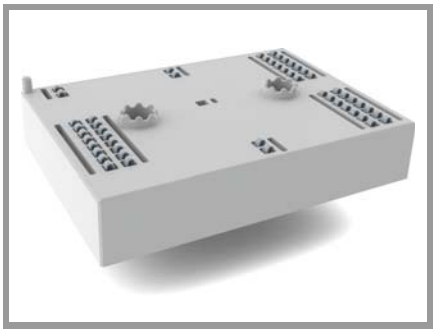
Absolute Maximum Ratings

Symbol	Conditions		Values	Unit
Inverter - IGBT				
V_{CES}	T_j = 25 °C		1200	V
I_C	λ_{paste}=0.8 W/(mK) T_j = 175 °C	T_s = 25 °C	303	A
		T_s = 70 °C	243	A
I_C	λ_{paste}=2.5 W/(mK) T_j = 175 °C	T_s = 25 °C	361	A
		T_s = 70 °C	291	A
I_{Cnom}			300	A
I_{CRM}	I_{CRM} = 3 x I_{Cnom}		900	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_j = 175 °C	T_s = 25 °C	133	A
		T_s = 70 °C	108	A
I_F	λ_{paste}=2.5 W/(mK) T_j = 175 °C	T_s = 25 °C	148	A
		T_s = 70 °C	120	A
I_{Fnom}			80	A
I_{FRM}			224	A
I_{FSM}	10 ms, sin 180°, T_j = 150 °C		212	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 = 300 A V_{GE} = 15 V chiplevel	T_j = 25 °C		2.05	2.42	V
		T_j = 150 °C		2.59	2.96	V
V_{CE0}	chiplevel	T_j = 25 °C		1.10	1.28	V
		T_j = 150 °C		0.95	1.13	V
r_{CE}	V_{GE} = 15 V chiplevel	T_j = 25 °C		3.2	3.8	mΩ
		T_j = 150 °C		5.5	6.1	mΩ
$V_{GE(th)}$	V_{GE} = V_{CE}, I_C = 10.4 mA		5.2	5.8	6.4	V
I_{CES}	V_{GE} = 0 V, V_{CE} = 1200 V, T_j = 25 °C			0.1	1.6	mA
C_{ies}	V_{CE} = 25 V V_{GE} = 0 V	f = 1 MHz		17.60		nF
C_{oes}		f = 1 MHz		1.16		nF
C_{res}		f = 1 MHz		0.94		nF
Q_G	- 8 V...+ 15 V			1700		nC
R_{Gint}	T_j = 25 °C			0		Ω
$t_{d(on)}$	V_{CC} = 600 V I_C = 300 A	T_j = 150 °C				ns
t_r		T_j = 150 °C				ns
E_{on}		T_j = 150 °C		10		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		22		mJ
$R_{th(j-s)}$	per IGBT, λ_{paste}=0.8 W/(mK)			0.16		K/W
$R_{th(j-s)}$	per IGBT, λ_{paste}=2.5 W/(mK)			0.12		K/W



MiniSKiiP® 3 Dual

IGBT module

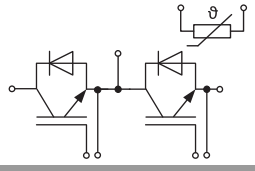
SKiiP 38GB12F4V19

Target Data

Features

- Fast Trench 4 IGBTs
- SiC Diodes
- Highly reliable spring contacts for electrical connections
- UL recognised: File no. E63532

Characteristics						
Symbol	**Conditions**		**min.**	**typ.**	**max.**	**Unit**
Inverse - Diode						
$V_F = V_{EC}$	I_F = 80 A V_{GE} = 0 V chiplevel	T_j = 25 °C		1.40	1.60	V
		T_j = 150 °C		1.80	2.10	V
V_{F0}	chiplevel	T_j = 25 °C		0.95	1.05	V
		T_j = 150 °C		0.83	0.90	V
r_F	chiplevel	T_j = 25 °C		5.6	6.9	mΩ
		T_j = 150 °C		12	15	mΩ
I_{RRM}	I_F = 80 A di/dt_{off} = 500 A/µs V_{GE} = -15 V V_{CC} = 600 V	T_j = 150 °C		-		A
Q_{rr}		T_j = 150 °C		-		µC
E_{rr}		T_j = 150 °C		-		mJ
$R_{th(j-s)}$	per Diode, λ_{paste}=0.8 W/(mK)			0.36		K/W
$R_{th(j-s)}$	per Diode, λ_{paste}=2.5 W/(mK)			0.3		K/W
Module						
L_{CE}				15		nH
M_s	to heat sink		2		2.5	Nm
w				76		g
Temperature Sensor						
R_{100}	T_c=100°C (R_{25}=5 kΩ)			493 ± 5%		Ω
$B_{25/85}$	$R_{(T)}=R_{25}*\exp[B_{25/85}*(1/T-1/298)]$, [T]=K			3420		K



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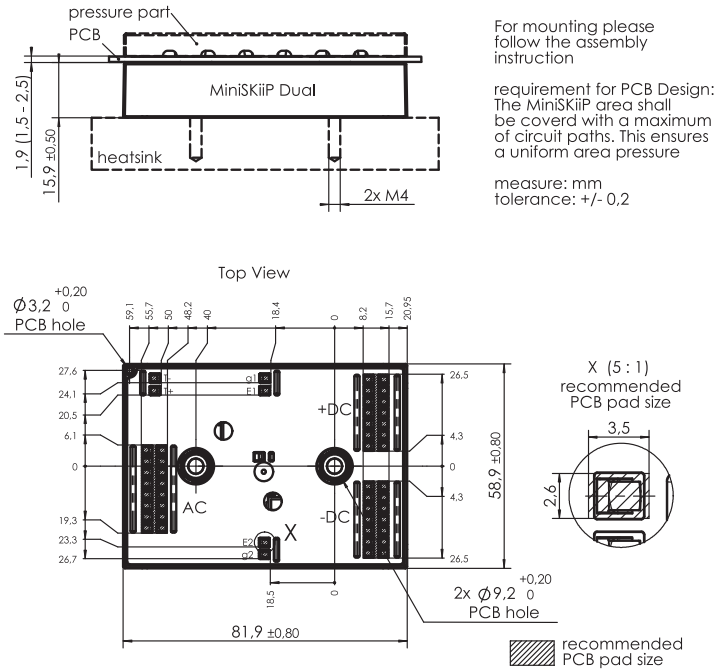
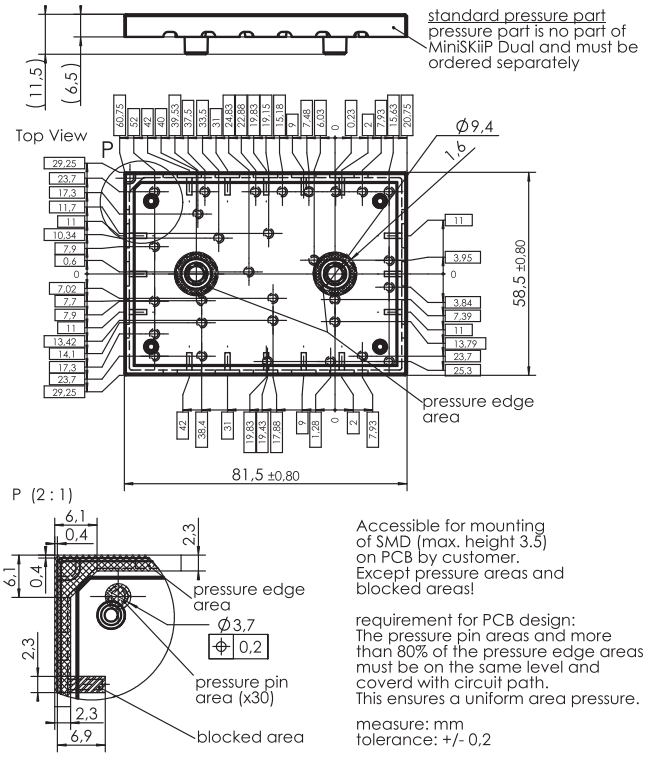
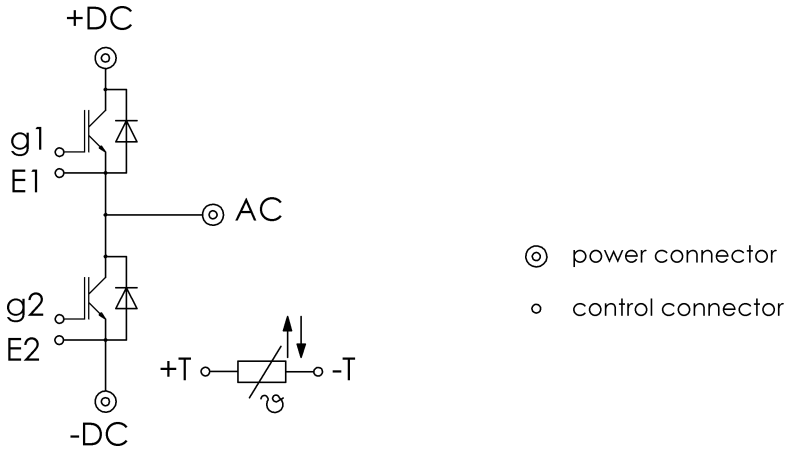




pinout, dimensions



pinout

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

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