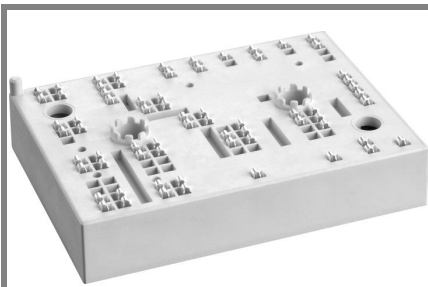


SKiiP 39AC12T4V1



MiniSKiiP®3

3-phase bridge inverter

SKiiP 39AC12T4V1

Features

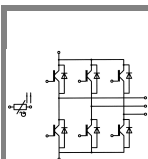
- Trench 4 IGBT's
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

Typical Applications

- Inverter up to 50 kVA
- Typical motor power 30 kW

Remarks

- V_{CEsat} , V_F = chip level value
- Case temp. limited to $T_C = 125^\circ\text{C}$ max. (for baseplateless modules $T_C = T_S$)
- product rel. results valid for $T_j \leq 150$ (recomm. $T_{op} = -40 \dots +150^\circ\text{C}$)
- For short circuit: Soft R_{Goff} recommended

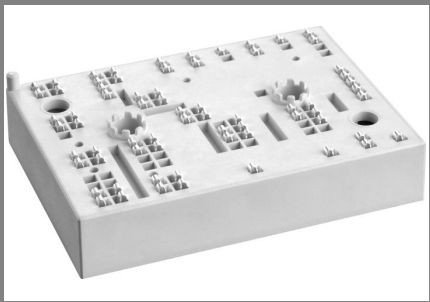


AC

Absolute Maximum Ratings		T _s = 25 °C, unless otherwise specified		
Symbol	Conditions		Values	Units
IGBT				
V _{CES}	T _j = 25 °C		1200	V
I _C	T _j = 175 °C	T _c = 25 °C	167	A
		T _c = 70 °C	135	A
I _{CRM}	I _{CRM} = 3xI _{Cnom}		450	A
V _{GES}			±20	V
t _{psc}	V _{CC} = 800 V; V _{GE} ≤ 15 V; T _j = 150 °C V _{CES} < 1200 V		10	μs
Inverse Diode				
I _F	T _j = 175 °C	T _c = 25 °C	136	A
		T _c = 70 °C	107	A
I _{FRM}	I _{FRM} = 3xI _{Fnom}		450	A
I _{FSM}	t _p = 10 ms; sin	T _j = 150 °C	900	A
Module				
I _{t(RMS)}			160	A
T _{vj}			-40...+175	°C
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						
V _{GE(th)}	V _{GE} = V _{CE} , I _C = 6 mA		5	5,8	6,5	V
I _{CES}	V _{GE} = V, V _{CE} = V _{CES}	T _j = °C				mA
V _{CE0}		T _j = 25 °C		0,8	0,9	V
		T _j = 150 °C		0,7	0,8	V
r _{CE}	V _{GE} = 15 V	T _j = 25°C		6,7	7,3	mΩ
		T _j = 150°C		10	10,7	mΩ
V _{CE(sat)}	I _{Cnom} = 150 A, V _{GE} = 15 V	T _j = 25°C _{chiplev.}		1,85	2,05	V
		T _j = 150°C _{chiplev.}		2,25	2,45	V
C _{ies}	V _{CE} = 25, V _{GE} = 0 V	f = 1 MHz		8,8		nF
C _{oes}				0,58		nF
C _{res}				0,47		nF
Q _G	V _{GE} = -8 ... +15V			850		nC
R _{Gint}	T _j = 25 °C			5		Ω
t _{d(on)}	R _{Gon} = 1 Ω di/dt = 2840 A/μs	V _{CC} = 600V I _C = 150A T _j = 150 °C V _{GE} = ±15V		165		ns
t _r				50		ns
E _{on}				22,5		mJ
t _{d(off)}	R _{Goff} = 1 Ω			390		ns
t _f	di/dt = 1880 A/μs			80		ns
E _{off}				14		mJ
R _{th(j-s)}	per IGBT			0,33		K/W

SKiiP 39AC12T4V1



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Typical Applications

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- Typical motor power 30 kW

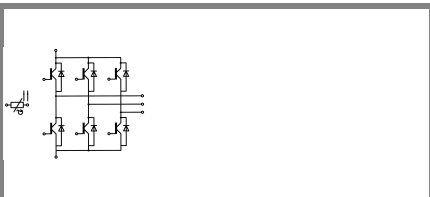
Remarks

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- Case temp. limited to $T_C = 125^{\circ}C$ max. (for baseplateless modules $T_C = T_S$)
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- For short circuit: Soft R_{Goff} recommended

Characteristics						
Symbol	Conditions		min.	typ.	max.	Units
Inverse Diode						
V _F = V _{EC}	I _{Fnom} = 150 A; V _{GE} = 15 V	T _j = 25 °C _{chiplev.}		2,15	2,45	V
		T _j = 150 °C _{chiplev.}		2,05	2,4	V
V _{F0}		T _j = 25 °C		1,3	1,5	V
		T _j = 150 °C		0,9	1,1	V
r _F		T _j = 25 °C		5,7	6,3	mΩ
		T _j = 150 °C		7,7	8,7	mΩ
I _{RRM}	I _F = 150 A di/dt = 4020 A/μs V _{GE} = ±15V	T _j = 150 °C		188		A
Q _{rr}				27		μC
E _{rr}				11,4		mJ
R _{th(j-s)}	per diode			0,52		K/W
M _s	to heat sink		2		2,5	Nm
w				97		g
Temperature sensor						
R _{ts}	3%, Tr = 25°C			1000		Ω
R _{ts}	3%, Tr = 100°C			1670		Ω

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

This technical information specifies semiconductor devices but promises no characteristics. No warranty or guarantee expressed or implied is made regarding delivery, performance or suitability.



AC

