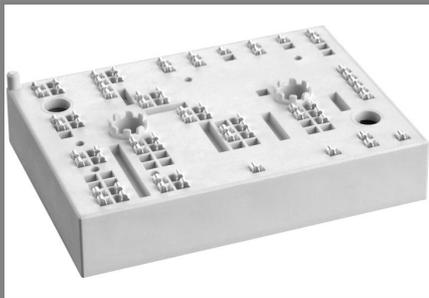


SKiiP 39AC12T4V1



MiniSKiiP^{®3}

3-phase bridge inverter

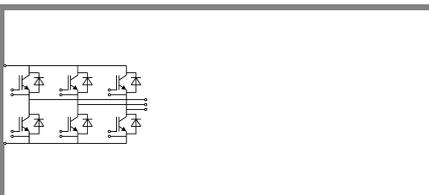
SKiiP 39AC12T4V1

Target Data

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

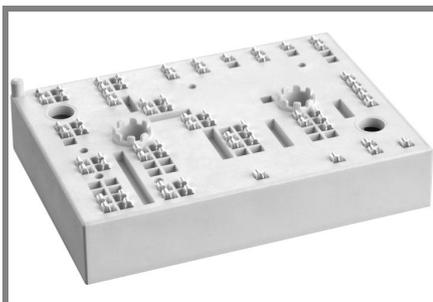


AC

Absolute Maximum Ratings		$T_s = 25\text{ }^\circ\text{C}$, unless otherwise specified		
Symbol	Conditions	Values		Units
IGBT				
V_{CES}	$T_j = 25\text{ }^\circ\text{C}$	1200		V
I_C	$T_j = 175\text{ }^\circ\text{C}$	$T_c = 25\text{ }^\circ\text{C}$	171	A
		$T_c = 70\text{ }^\circ\text{C}$	135	A
I_{CRM}	$I_{CRM} = 3 \times I_{Cnom}$	450		A
V_{GES}		± 20		V
t_{psc}	$V_{CC} = 600\text{ V}$; $V_{GE} \leq 20\text{ V}$; $T_j = 150\text{ }^\circ\text{C}$ $V_{CES} < 1200\text{ V}$	10		μs
Inverse Diode				
I_F	$T_j = 175\text{ }^\circ\text{C}$	$T_c = 25\text{ }^\circ\text{C}$	144	A
		$T_c = 70\text{ }^\circ\text{C}$	128	A
I_{FRM}	$I_{CRM} = 3 \times I_{Cnom}$	450		A
I_{FSM}	$t_p = 10\text{ ms}$; sin	$T_j = 150\text{ }^\circ\text{C}$	900	A
Module				
$I_{t(RMS)}$		160		A
T_{vj}		-40...+175		$^\circ\text{C}$
T_{stg}		-40...+125		$^\circ\text{C}$
V_{isol}	AC, 1 min.	2500		V

Characteristics		$T_s = 25\text{ }^\circ\text{C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 6\text{ mA}$	5	5,8	6,5	V
I_{CES}	$V_{GE} = V$, $V_{CE} = V_{CES}$				$T_j = \text{ }^\circ\text{C}$ mA
V_{CE0}		$T_j = 25\text{ }^\circ\text{C}$	1,1	1,3	V
		$T_j = 150\text{ }^\circ\text{C}$	1	1,2	V
r_{CE}	$V_{GE} = 15\text{ V}$	$T_j = 25\text{ }^\circ\text{C}$	5	5	$\text{m}\Omega$
		$T_j = 150\text{ }^\circ\text{C}$	8,3	8,3	$\text{m}\Omega$
$V_{CE(sat)}$	$I_{Cnom} = 150\text{ A}$, $V_{GE} = 15\text{ V}$	$T_j = 25\text{ }^\circ\text{C}_{chiplev.}$	1,8	2	V
		$T_j = 150\text{ }^\circ\text{C}_{chiplev.}$	2,2	2,4	V
C_{res}	$V_{CE} = 25$, $V_{GE} = 0\text{ V}$	$f = 1\text{ MHz}$			nF
C_{oes}					nF
C_{res}					nF
R_{Gint}	$T_j = 25\text{ }^\circ\text{C}$		5		Ω
$t_{d(on)}$	$R_{Gon} =$	$V_{CC} = V$ $I_{Cnom} = A$ $T_j = \text{ }^\circ\text{C}$	9		ns
t_r					ns
E_{on}	$R_{Goff} =$	$V_{GE} = \pm 15\text{ V}$	21		mJ
$t_{d(off)}$					ns
t_f					ns
E_{off}					mJ
$R_{th(j-s)}$	per IGBT		0,33		K/W

SKiiP 39AC12T4V1



MiniSKiiP[®]3

3-phase bridge inverter

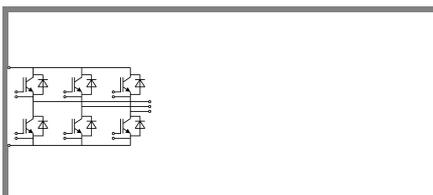
SKiiP 39AC12T4V1

Target Data

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



AC

Characteristics		min.	typ.	max.	Units
Symbol	Conditions				
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 150 \text{ A}; V_{GE} = 15 \text{ V}$		2,15	2,45	V
			2,05	2,4	V
					V
V_{F0}			1,3	1,5	V
			0,9	1,1	V
r_F			5,7	6,3	mΩ
			7,7	8,6	mΩ
I_{RRM}	$I_{Fnom} = 150 \text{ A}$				A
Q_{rr}					μC
E_{rr}	$V_{GE} = \pm 15 \text{ V}$		11,3		mJ
$R_{th(j-s)}$	per diode		0,4		K/W
M_s	to heat sink	2		2,5	Nm
w			95		g
Temperature sensor					
R_{ts}	3%, $T_r = 25^\circ \text{C}$		1000		Ω
R_{ts}	3%, $T_r = 100^\circ \text{C}$		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.

