

MiniSKiiP® 3

3-phase bridge inverter

SKiiP 39AC066V4

Features

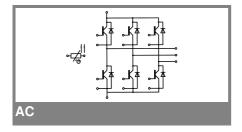
- Trench IGBTs
- · Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

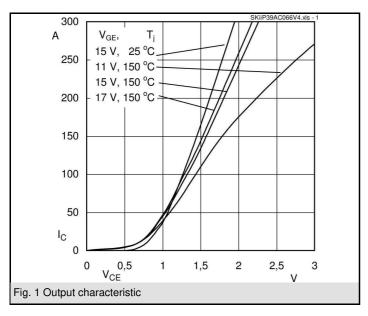
Remarks

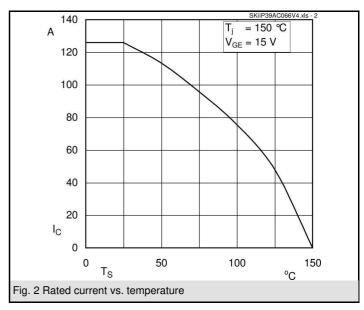
- Case temperature limited to
- T_C = 125°C
 Product reliability results are valid for $T_i = 150$ °C
- SC data: $t_p \le 6 \mu s$; $V_{GE} \le 15 V$; $T_j = 150^{\circ}C$, $V_{CC} = 360 V$ V_{CEsat} , $V_F = chip level value$

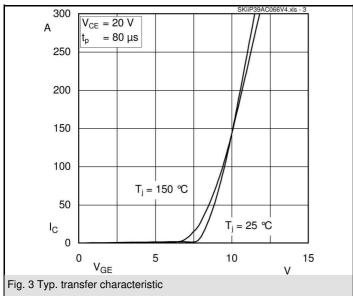
Absolute	Maximum Ratings	$_{\rm S}$ = 25 °C, unless otherwise specified						
Symbol	Conditions	Values	Units					
IGBT - Inverter								
V_{CES}		600	V					
I _C	$T_s = 25 (70) ^{\circ}C, T_j = 150 ^{\circ}C$	131 (87)	Α					
I _C	$T_s = 25 (70) ^{\circ}C, T_j = 175 ^{\circ}C$	146 (107)	Α					
I _{CRM}	t _p = 1 ms	300	Α					
V_{GES}		±20	V					
T _j		-40+175	°C					
Diode - Inverter								
I _F	$T_s = 25 (70) ^{\circ}C, T_i = 150 ^{\circ}C$	151 (98)	Α					
I _F	$T_s = 25 (70) ^{\circ}C, T_i = 175 ^{\circ}C$	164 (119)	Α					
I _{FRM}	t _p = 1 ms	300	Α					
T_j		-40+175	°C					
I _{tRMS}	per power terminal (20 A / spring)	160	Α					
T _{stg}	$T_{op} \le T_{stg}$	-40+125	°C					
V _{isol}	AC, 1 min.	2500	V					

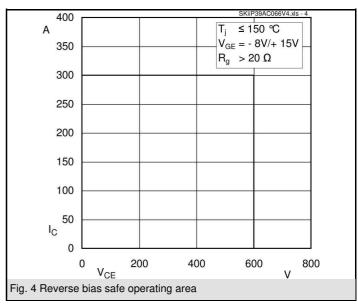
Characteristics T _S = 25 °C, unless otherwise specifi								
Symbol	Conditions	min.	typ.	max.	Units			
IGBT - Inverter								
V_{CEsat}	I_{Cnom} = 150 A , T_j = 25 (150) °C	1,05	1,45 (1,65)	1,85 (2,05)	V			
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 3 \text{ mA}$		5,8		V			
V _{CE(TO)}	T _j = 25 (150) °C		0,85 (0,7)	,	V			
r _T	$T_j = 25 (150) ^{\circ}C$		4 (6,3)	5 (7)	mΩ			
C _{ies}	$V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$		9		nF			
C _{oes}	$V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$		1,7		nF			
C _{res}	$V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$		1,4		nF			
R _{CC'+EE'}	spring contact-chip T _s = 25 (150)°C				mΩ			
$R_{th(j-s)}$	per IGBT		0,5		K/W			
t _{d(on)}	under following conditions		135		ns			
t _r `´	$V_{CC} = 300 \text{ V}, V_{GE} = -8\text{V}/+15\text{V}$		55		ns			
t _{d(off)}	I _{Cnom} = 150 A, T _j = 150 °C		450		ns			
t _f	$R_{Gon} = R_{Goff} = 4.3 \Omega$		50		ns			
$E_{on}(E_{off})$	inductive load		7,9 (5,6)		mJ			
Diode - Inverter								
$V_F = V_{EC}$	I _{Fnom} = 150 A ,T _i = 25 (150) °C		1,3 (1,3)	1,5 (1,5)	V			
V _(TO)	T _i = 25 (150) °C		0,9 (0,8)	1 (0,9)	V			
r _T	T _j = 25 (150) °C		2,7 (3,3)	3,3 (4)	mΩ			
$R_{th(j-s)}$	per diode		0,55		K/W			
I _{RRM}	under following conditions		150		Α			
Q_{rr}	I _{Fnom} = 150 A, V _R = 300 V		17		μC			
E _{rr}	V _{GE} = 0 V, T _j = 150 °C		3,5		mJ			
	di _F /dt = 3000 A/μs							
Temperature Sensor								
R _{ts}	3 %, T _r = 25 (100) °C		1000(1670)		Ω			
Mechanic	al Data							
m			97		g			
M_s	Mounting torque	2		2,5	Nm			

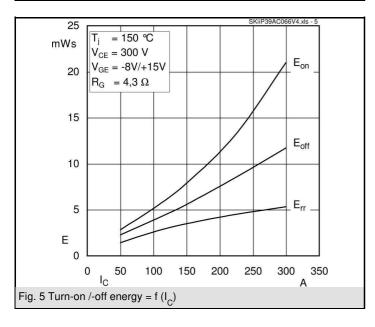


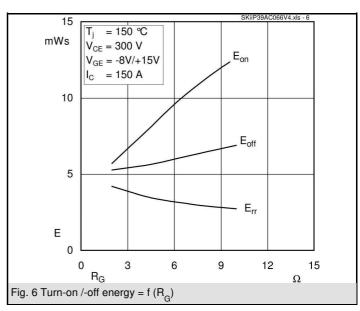


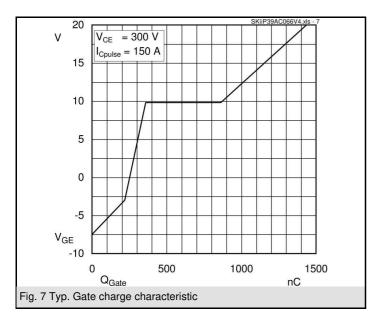


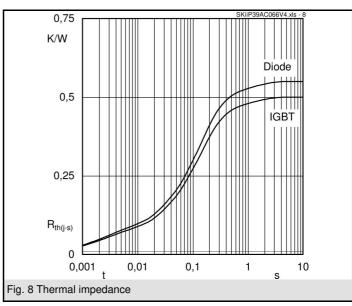


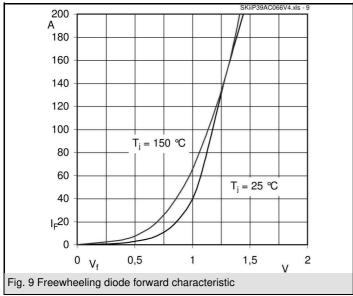


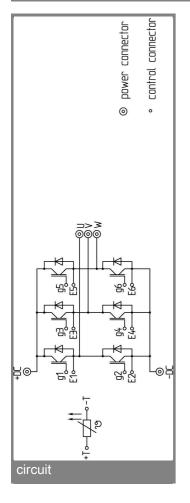


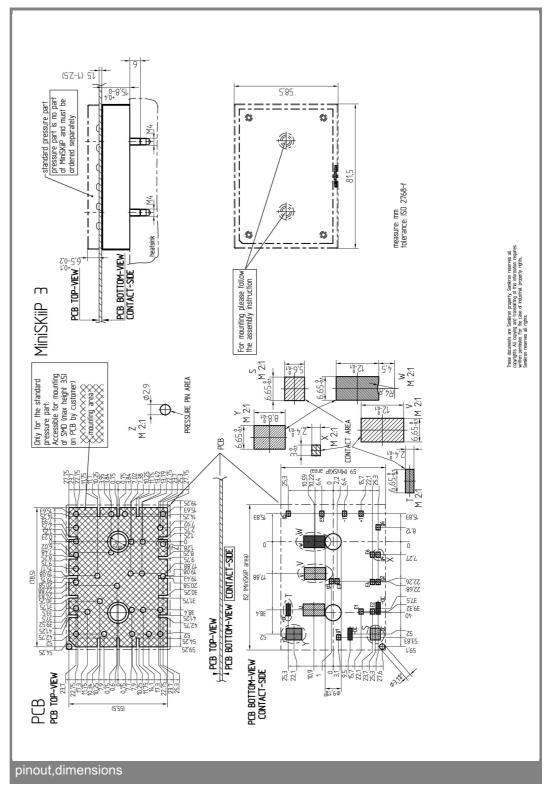












This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

^{*} 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 personal.