

1-phase bridge rectifier + brake chopper + 3-phase bridge inverter SKiiP 03NEC066V3

Features

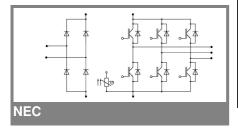
- Trench IGBTs
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

Typical Applications*

- Inverter up to 5,6 kVA
- Typical motor power 3,0 kW

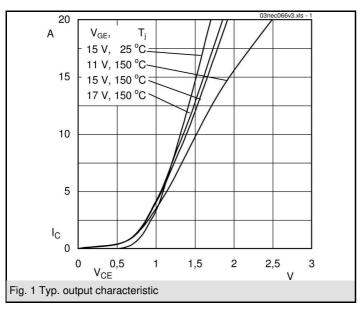
Remarks

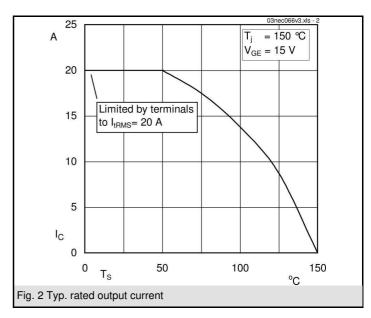
- · Case temperature limited to $T_C = 125^{\circ}C$ max.
- Product reliability results are valid for T_i=150°C
- SC data: $t_p \le 6 \mu s$; $V_{GE} \le 15 V$; $T_j = 150 ^{\circ} C$; $V_{CC} = 360 V$ V_{CEsat} , $V_F = chip level value$

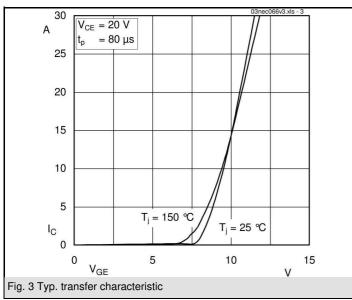


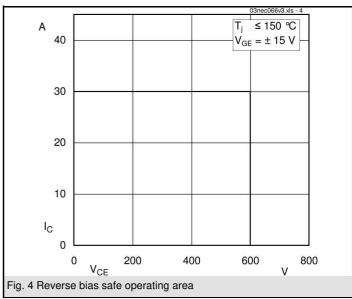
Absolute Maximum Ratings $T_s = 25 ^{\circ}\text{C}$, unless otherwise specified								
Symbol	Conditions	Values	Units					
IGBT - Inverter, Chopper								
V_{CES}		600	V					
I _C	$T_s = 25 (70) ^{\circ}C, T_j = 150 ^{\circ}C$	25 (17)	Α					
I _C	$T_s = 25 (70) ^{\circ}C, T_j = 175 ^{\circ}C$	27 (21)	Α					
I _{CRM}	$t_p = 1 \text{ ms}$	30	Α					
V_{GES}		± 20	V					
Diode - Inverter, Chopper								
I _F	$T_s = 25 (70) ^{\circ}C, T_i = 150 ^{\circ}C$	24 (16)	Α					
I _F	$T_s = 25 (70) ^{\circ}C, T_j = 175 ^{\circ}C$	28 (21)	Α					
I _{FRM}	t _p = 1 ms	30	Α					
Diode - Rectifier								
V_{RRM}		800	V					
I _F	T _s = 70 °C	35	Α					
I _{FSM}	$t_p = 10 \text{ ms, sin } 180 ^\circ, T_j = 25 ^\circ\text{C}$	220	Α					
i²t	$t_p = 10 \text{ ms, sin } 180 ^\circ, T_j = 25 ^\circ\text{C}$	240	A²s					
I _{tRMS}	per power terminal (20 A / spring)	20	Α					
T _i	IGBT, Diode	-40+175	°C					
T _{stg}		-40+125	°C					
V _{isol}	AC, 1 min.	2500	V					

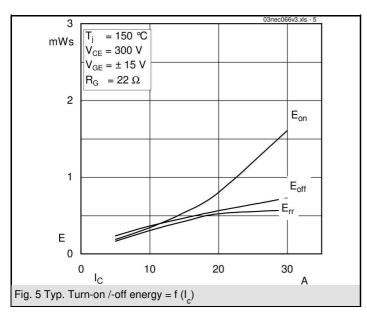
Characteristics $T_s = 25 ^{\circ}\text{C}$, unless otherwise specified									
	Conditions	min.	typ.	max.	Units				
IGBT - Inverter, Chopper									
V _{CE(sat)}	I _{Cnom} = 15 A, T _i = 25 (150) °C		1,45 (1,65)	1,85 (2,05)	V				
V _{GE(th)}	$V_{GE} = V_{CE}$, $I_C = 1 \text{ mA}$		5,8	, , ,	V				
V _{CE(TO)}	T _i = 25 (150) °C		0,9 (0,85)	1 (0,9)	V				
r _{CE}	T _i = 25 (150) °C		40 (57)	60 (80)	mΩ				
C _{ies}	$V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$		0,86		nF				
C _{oes}	$V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$		0,18		nF				
C _{res}	$V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$		0,12		nF				
R _{CC'+EE'}	spring contact-chip T _s = 25 (150)°C				mΩ				
R _{th(j-s)}	per IGBT		1,8		K/W				
t _{d(on)}	under following conditions		20		ns				
t _r	$V_{CC} = 300 \text{ V}, V_{GE} = \pm 15 \text{V}$		30		ns				
t _{d(off)}	I _{Cnom} = 15 A, T _j = 150 °C		155		ns				
t _f	$R_{Gon} = R_{Goff} = 22 \Omega$		45		ns				
$E_{on} \left(E_{off} \right)$	inductive load		0,6 (0,5)		mJ				
Diode - Inverter, Chopper									
$V_F = V_{EC}$	I _F = 15 A, T _i = 25 (150) °C		1,4 (1,4)	1,7 (1,7)	V				
V _(TO)	T _i = 25 (150) °C		1 (0,9)	1,1 (1)	V				
r _T	T _i = 25 (150) °C		27 (34)	40 (47)	mΩ				
$R_{th(j-s)}$	per diode		2,5		K/W				
I _{RRM}	under following conditions		19,8		Α				
Q_{rr}	I _{Fnom} = 15 A, V _R = 300 V		1,9		μC				
E _{rr}	$V_{GE} = 0 \text{ V}, T_{j} = 150^{\circ}\text{C}$		0,5		mJ				
	$di_F/dt = 930 \text{ A/}\mu\text{s}$								
Diode - Rectifier									
V_{F}	I _{Fnom} = 15 A, T _j = 25 °C		1,1		V				
V _(TO)	T _i = 150 °C		0,8		V				
r _T	$T_{j} = 150 ^{\circ}\text{C}$		20		mΩ				
$R_{th(j-s)}$	per diode		1,5		K/W				
Temperature Sensor									
R _{ts}	3 %, T _r = 25 (100) °C		1000(1670)		Ω				
Mechanic	al Data	1			•				
w			21,5		g				
M _s	Mounting torque	2		2,5	Nm				

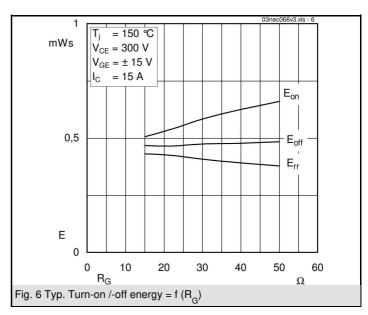


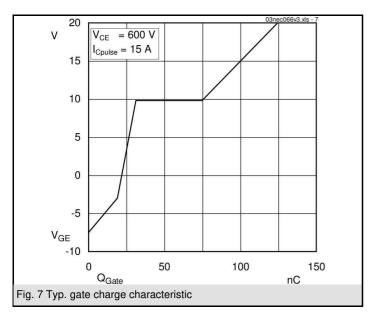


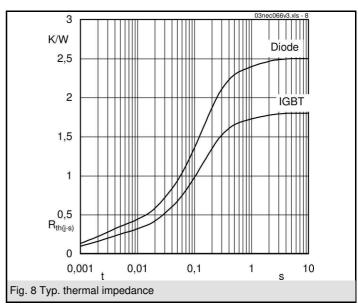


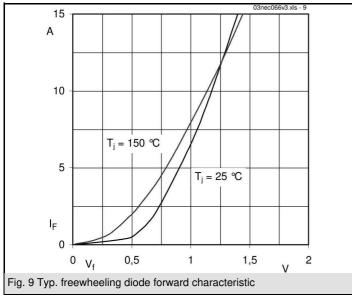


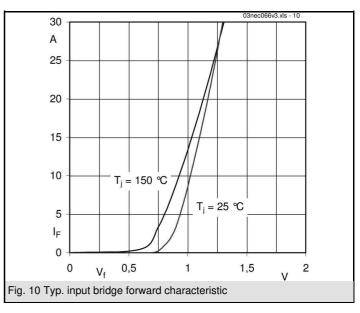


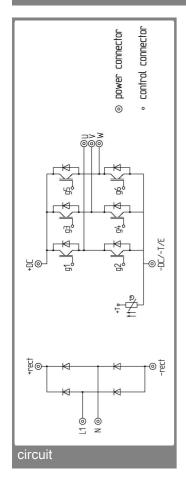


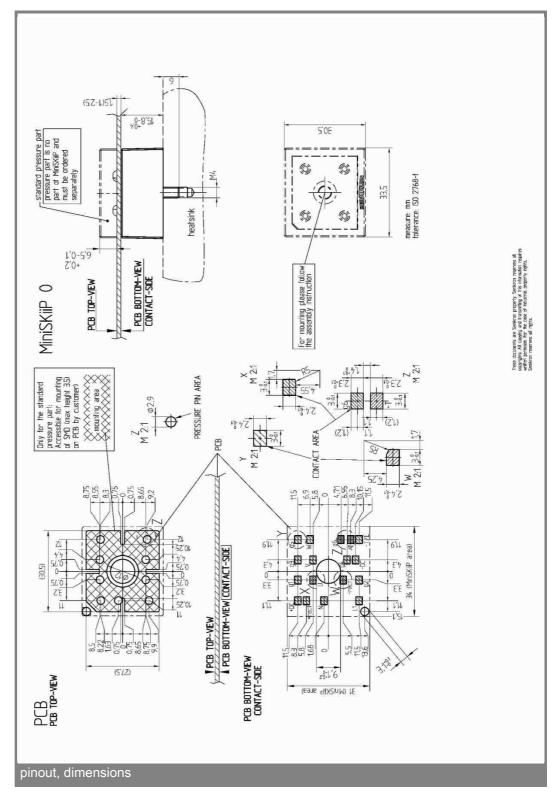












This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

^{*} 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.