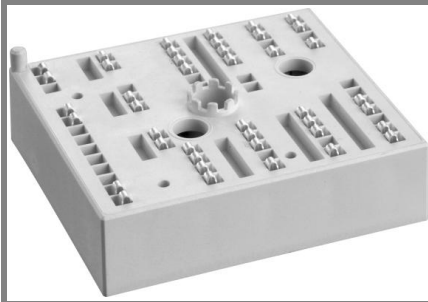


# SKiiP 26AC12T4V1



MiniSKiiP<sup>®</sup>2

## 3-phase bridge inverter

### SKiiP 26AC12T4V1

#### Features

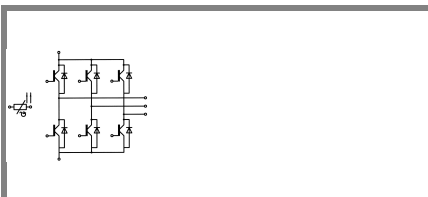
- Trench 4 IGBT's
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

#### Typical Applications\*

- Inverter up to 29 kVA
- Typical motor power 18,5 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.  $T_{op} = -40 \dots +150^\circ\text{C}$ )

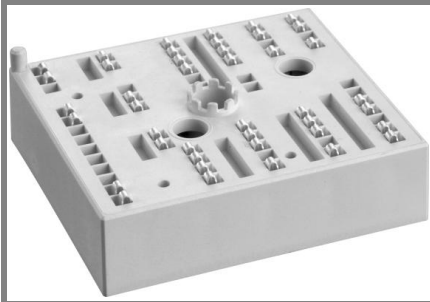


AC

Absolute Maximum Ratings		$T_C = 25^\circ\text{C}$ , unless otherwise specified		
Symbol	Conditions	Values		Units
<b>IGBT</b>				
$V_{CES}$	$T_j = 25^\circ\text{C}$	1200		V
$I_C$	$T_j = 175^\circ\text{C}$	$T_c = 25^\circ\text{C}$	90	A
		$T_c = 70^\circ\text{C}$	73	A
$I_{CRM}$	$I_{CRM} = 3 \times I_{Cnom}$	210		A
$V_{GES}$		$\pm 20$		V
$t_{psc}$	$V_{CC} = 800\text{ V}; V_{GE} \leq 15\text{ V}; T_j = 150^\circ\text{C}$ $V_{CES} < 1200\text{ V}$	10		$\mu\text{s}$
<b>Inverse Diode</b>				
$I_F$	$T_j = 175^\circ\text{C}$	$T_c = 25^\circ\text{C}$	82	A
		$T_c = 70^\circ\text{C}$	66	A
$I_{FRM}$	$I_{CRM} = 3 \times I_{Cnom}$	225		A
$I_{FSM}$	$t_p = 10\text{ ms}; \text{sin.}$	$T_j = 150^\circ\text{C}$	429	A
<b>Module</b>				
$I_t(\text{RMS})$		100		A
$T_{vj}$		-40...+175		$^\circ\text{C}$
$T_{stg}$		-40...+125		$^\circ\text{C}$
$V_{isol}$	AC, 1 min.	2500		V

Characteristics		$T_C = 25^\circ\text{C}$ , unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
<b>IGBT</b>					
$V_{GE(th)}$	$V_{GE} = V_{CE}, I_C = 2\text{ mA}$	5	5,8	6,5	V
$I_{CES}$	$V_{GE} = 0\text{ V}, V_{CE} = V_{CES}$	$T_j = 25^\circ\text{C}$	0,3		mA
		$T_j = 150^\circ\text{C}$	0,7	0,8	V
$r_{CE}$	$V_{GE} = 15\text{ V}$	$T_j = 25^\circ\text{C}$	15	16,5	$\text{m}\Omega$
		$T_j = 150^\circ\text{C}$	22	23,5	$\text{m}\Omega$
$V_{CE(sat)}$	$I_{Cnom} = 70\text{ A}, V_{GE} = 15\text{ V}$	$T_j = 25^\circ\text{C}_{chiplev.}$	1,85	2,05	V
		$T_j = 150^\circ\text{C}_{chiplev.}$	2,25	2,45	V
$C_{ies}$	$V_{CE} = 25, V_{GE} = 0\text{ V}$	$f = 1\text{ MHz}$	3,9		nF
$C_{oes}$			0,31		nF
$C_{res}$			0,23		nF
$Q_G$	$V_{GE} = -8\text{ V} \dots +15\text{ V}$	400		nC	
$R_{Gint}$	$T_j = 25^\circ\text{C}$	0		$\Omega$	
$t_{d(on)}$	$R_{Gon} = 9,1\ \Omega$ $di/dt = 1820\text{ A}/\mu\text{s}$	$V_{CC} = 600\text{ V}$ $I_C = 75\text{ A}$	26		ns
$t_r$			36		ns
$E_{on}$			9,5		mJ
$t_{d(off)}$	$R_{Goff} = 9,1\ \Omega$ $di/dt = 900\text{ A}/\mu\text{s}$	$T_j = 150^\circ\text{C}$ $V_{GE} = \pm 15\text{ V}$	320		ns
$t_f$			175		ns
$E_{off}$			7,1		mJ
$R_{th(j-s)}$	per IGBT	0,55		K/W	

# SKiiP 26AC12T4V1



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## 3-phase bridge inverter

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#### Features

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- Typical motor power 18,5 kW

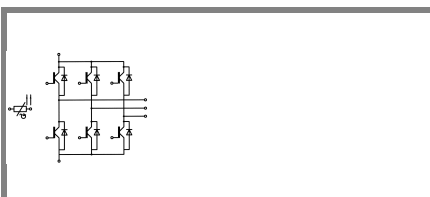
#### Remarks

- $V_{CEsat}$ ,  $V_F$  = chip level value
- Case temp. limited to  $T_C = 125^\circ\text{C}$  max. (for baseplateless modules  $T_C = T_S$ )
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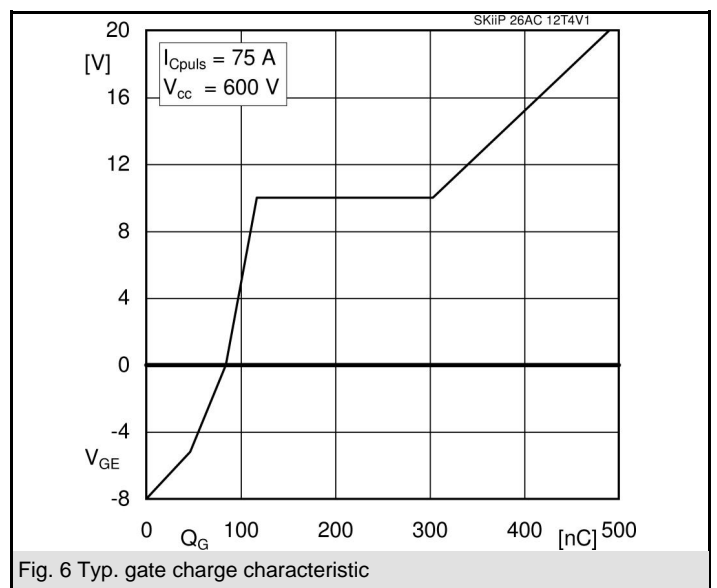
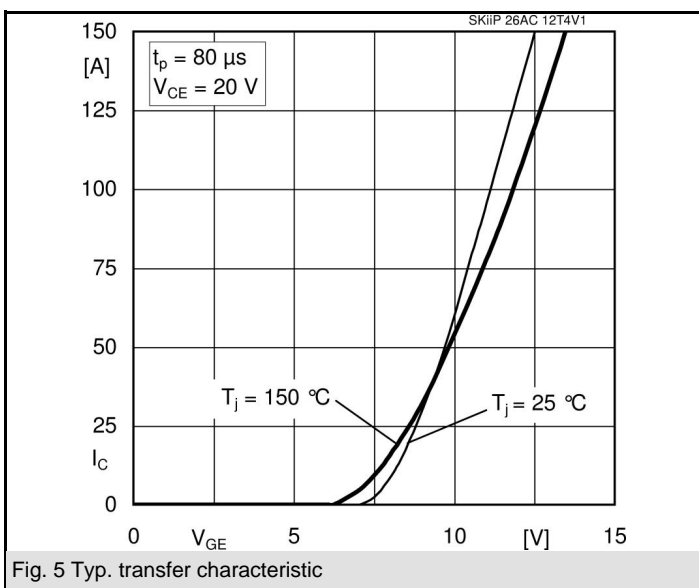
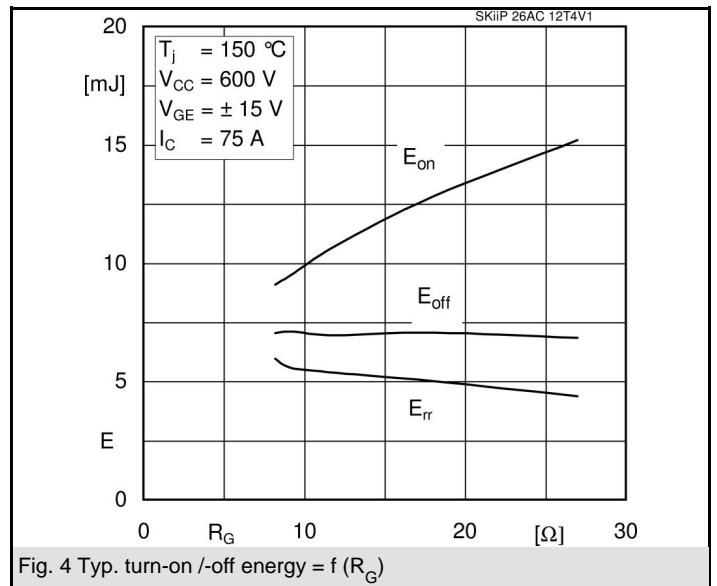
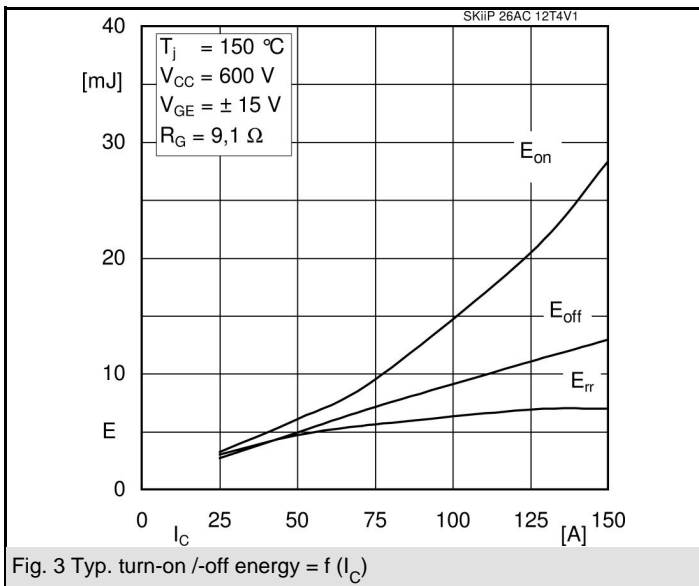
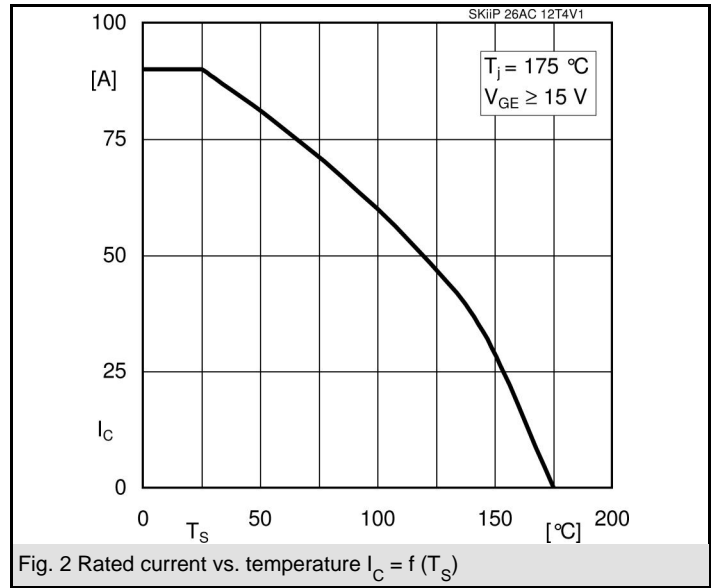
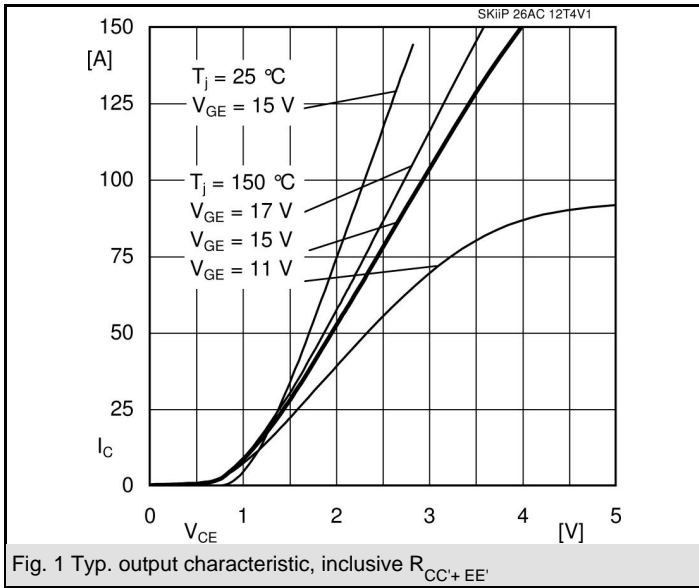
Characteristics		min.	typ.	max.	Units
Symbol	Conditions				
<b>Inverse Diode</b>					
$V_F = V_{EC}$	$I_{Fnom} = 75 \text{ A}; V_{GE} = V$		2,2	2,5	V
			2,1	2,45	V
					V
$V_{F0}$			1,3	1,5	V
			0,9	1,1	V
$r_F$			12	13	mΩ
			16	18	mΩ
$I_{RRM}$	$I_F = 75 \text{ A}$		80		A
$Q_{rr}$	$di/dt = 2120 \text{ A}/\mu\text{s}$		13,3		μC
$E_{rr}$	$V_{GE} = \pm 15 \text{ V}$		5,6		mJ
$R_{th(j-s)}$	per diode		0,75		K/W
$M_s$	to heat sink				Nm
$M_t$	to terminals	2		2,5	Nm
w			65		g
<b>Temperature sensor</b>					
$R_{ts}$	3%, $T_r = 25^\circ\text{C}$		1000		Ω
$R_{ts}$	3%, $T_r = 100^\circ\text{C}$		1670		Ω

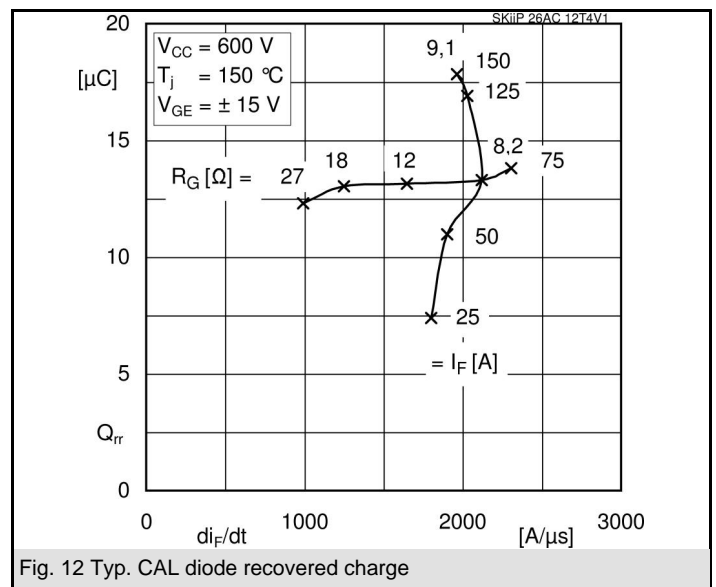
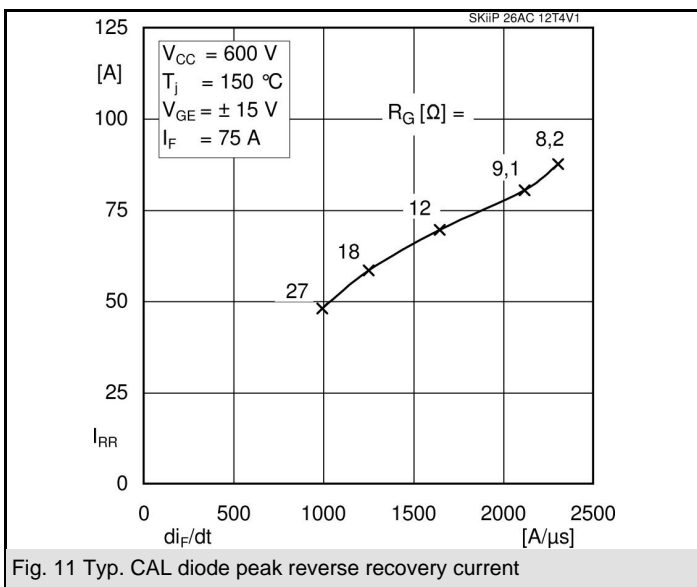
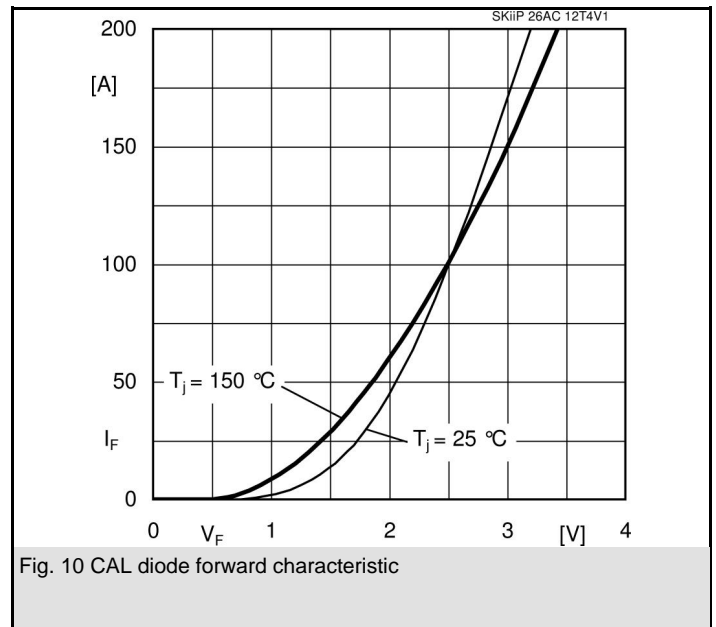
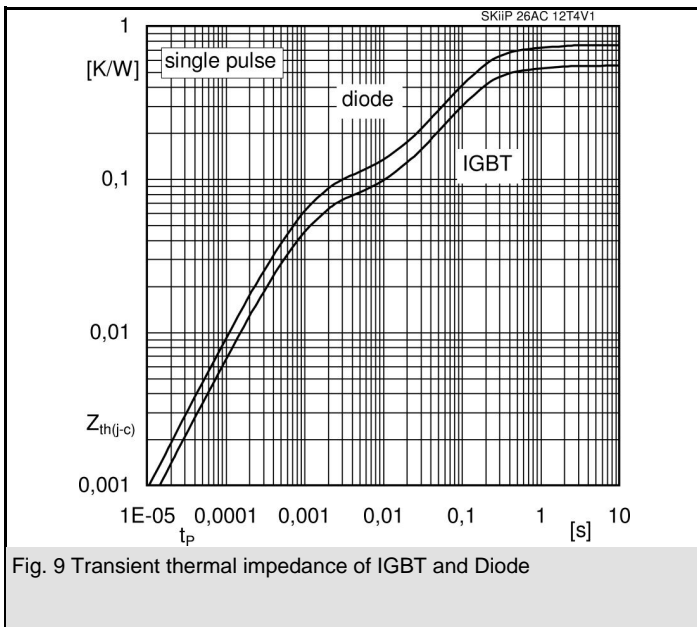
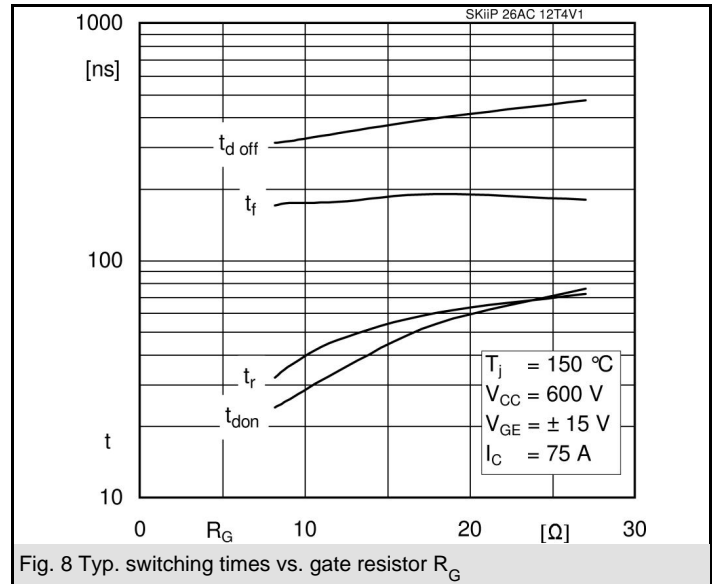
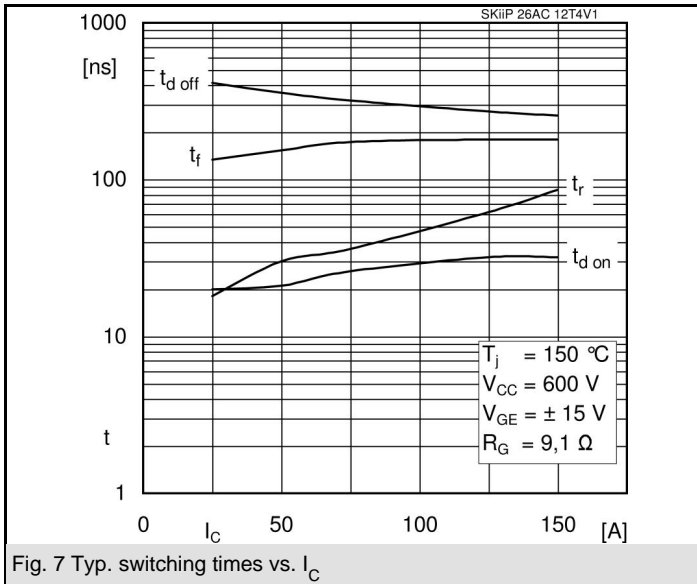
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

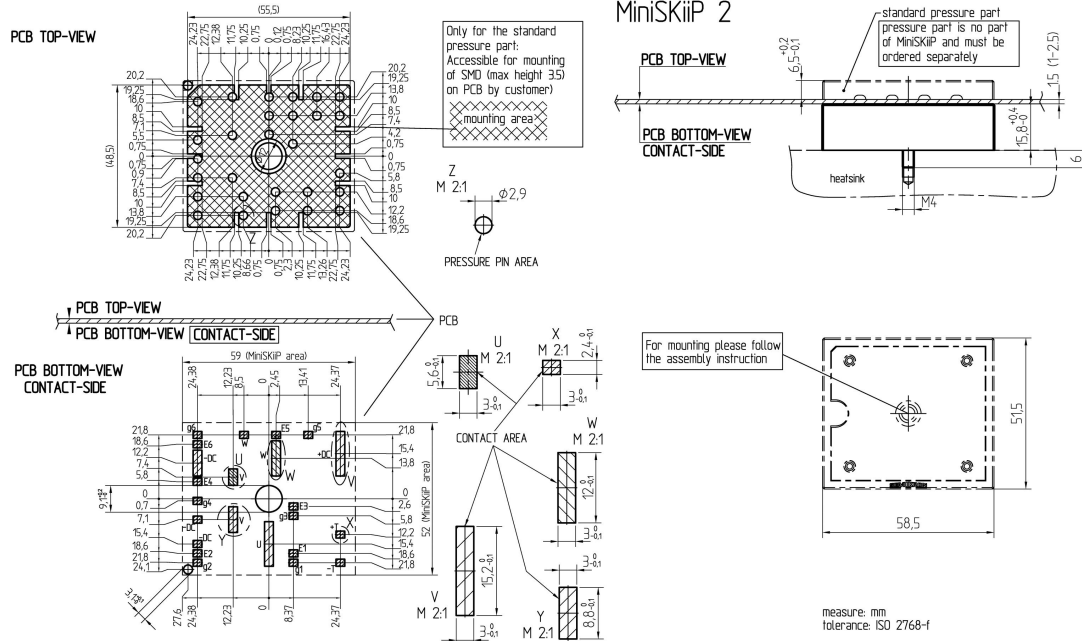
\* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our personal.



AC

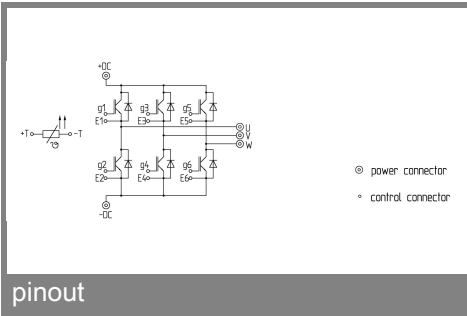






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## case



## pinout