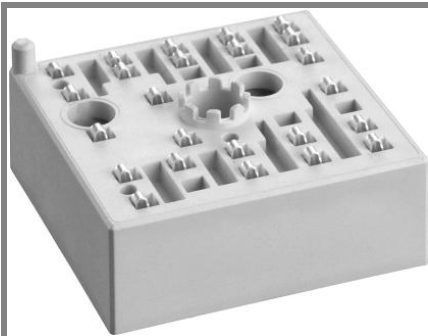


SKiiP 11AC12T4V1



MiniSKiiP®1

3-phase bridge inverter

SKiiP 11AC12T4V1

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*

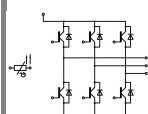
- Inverter up to 8 kVA
- Typical motor power 4 kW

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. $T_{op} = -40 \dots +150^\circ\text{C}$)

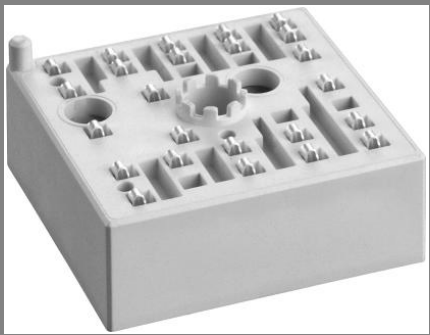
Absolute Maximum Ratings			$T_c = 25\text{ }^{\circ}\text{C}$, unless otherwise specified	
Symbol	Conditions		Values	Units
IGBT				
V_{CES}	$T_j = 25\text{ }^{\circ}\text{C}$		1200	V
I_C	$T_j = 175\text{ }^{\circ}\text{C}$	$T_c = 25\text{ }^{\circ}\text{C}$	12	A
		$T_c = 70\text{ }^{\circ}\text{C}$	12	A
I_{CRM}	$I_{CRM} = 3 \times I_{Cnom}$		24	A
V_{GES}			± 20	V
t_{psc}	$V_{CC} = 800\text{ V}$; $V_{GE} \leq 15\text{ V}$; $T_j = 150\text{ }^{\circ}\text{C}$ $V_{CES} < 1200\text{ V}$		10	μs
Inverse Diode				
I_F	$T_j = 175\text{ }^{\circ}\text{C}$	$T_c = 25\text{ }^{\circ}\text{C}$	15	A
		$T_c = 70\text{ }^{\circ}\text{C}$	12	A
I_{FRM}	$I_{CRM} = 3 \times I_{Cnom}$		24	A
I_{FSM}	$t_p = 10\text{ ms}$; sin.	$T_j = 150\text{ }^{\circ}\text{C}$	36	A
Module				
$I_{t(RMS)}$			20	A
T_{vj}			$-40 \dots +175$	$^{\circ}\text{C}$
T_{stg}			$-40 \dots +125$	$^{\circ}\text{C}$
V_{isol}	AC, 1 min.		2500	V

Characteristics			T _c = 25 °C, unless otherwise specified			
Symbol	Conditions		min.	typ.	max.	Units
IGBT						
V _{GE(th)}	V _{GE} = V _{CE} , I _C = 1 mA		5	5,8	6,5	V
I _{CES}	V _{GE} = 0 V, V _{CE} = V _{CES}	T _j = 25 °C			0,3	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		131	144	mΩ
		T _j = 150°C		194	206	mΩ
V _{CE(sat)}	I _{Cnom} = 8 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		0,49		nF
C _{oes}				0,05		nF
C _{res}				0,03		nF
Q _G	V _{GE} = -8 .. +15V			45		nC
R _{Gint}	T _j = 25 °C			0		Ω
t _{d(on)}	R _{Gon} = 56 Ω di/dt = 280 A/μs	V _{CC} = 600V I _C = 8A		32		ns
t _r				28		ns
E _{on}				0,87		mJ
t _{d(off)}	R _{Goff} = 56 Ω di/dt = 90 A/μs	T _j = 150 °C V _{GE} = ±15V		300		ns
t _f				65		ns
E _{off}				0,75		mJ
R _{th(i-s)}	per IGBT			1,84		K/W



AC

SKiiP 11AC12T4V1



MiniSKiiP®1

3-phase bridge inverter

SKiiP 11AC12T4V1

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Typical Applications*

- Inverter up to 8 kVA
- Typical motor power 4 kW

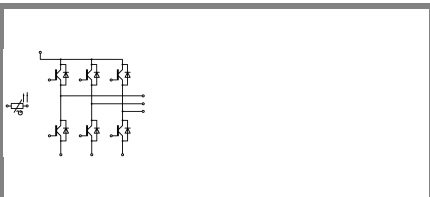
Remarks

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- Case temp. limited to $T_C = 125^{\circ}C$ max. (for baseplateless modules $T_C = T_S$)
- product rel. results valid for $T_j \leq 150$ (recomm. $T_{op} = -40 \dots +150^{\circ}C$)

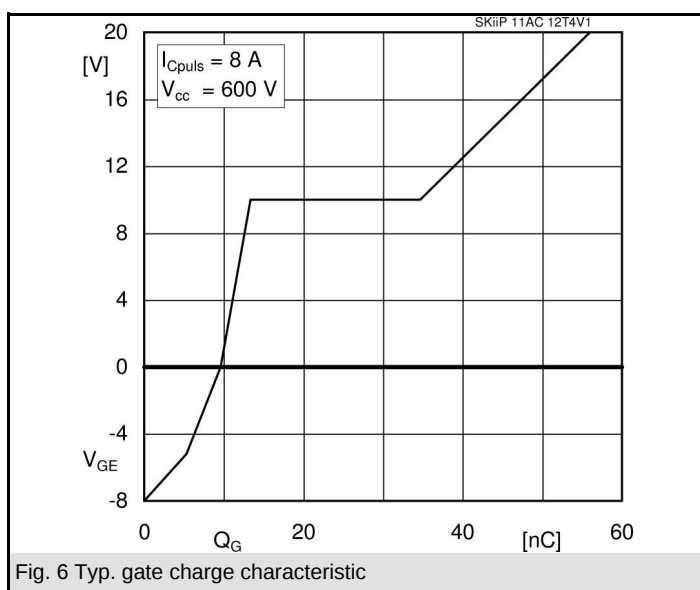
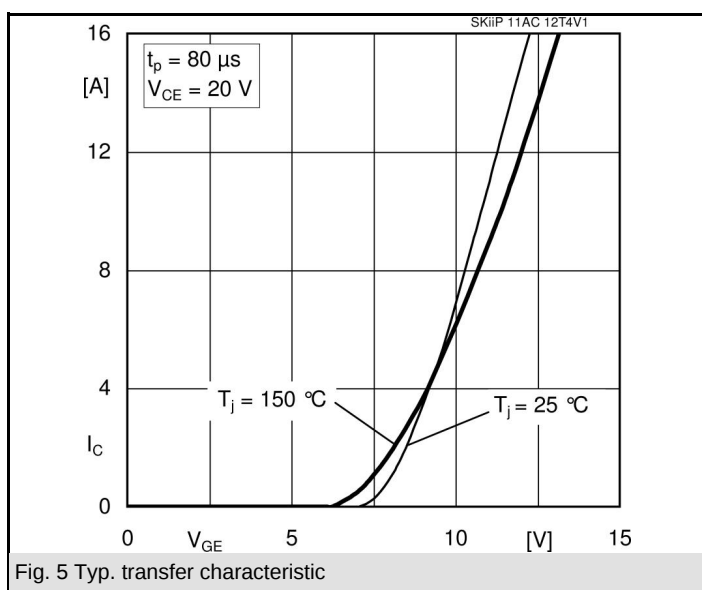
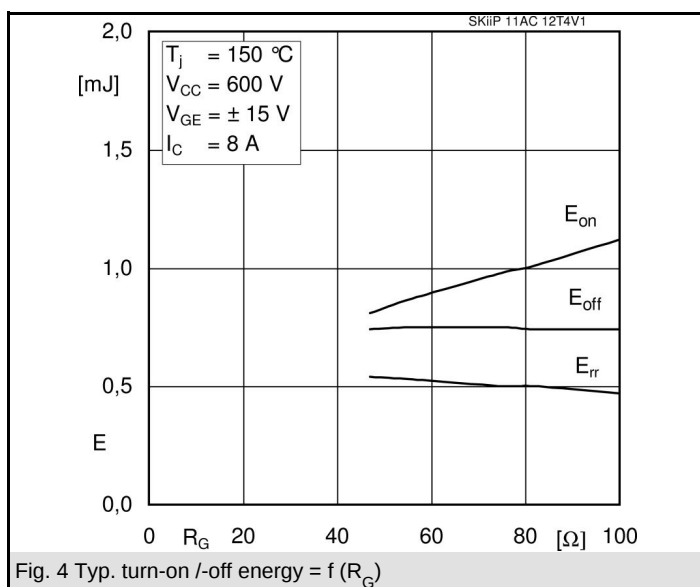
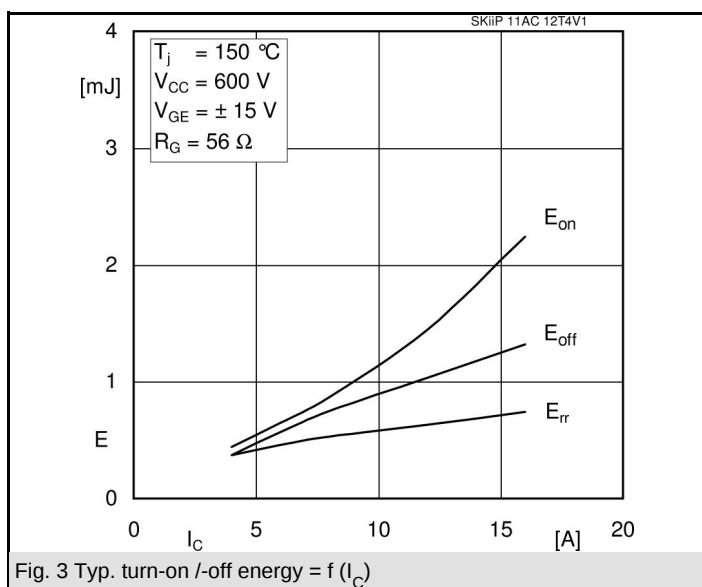
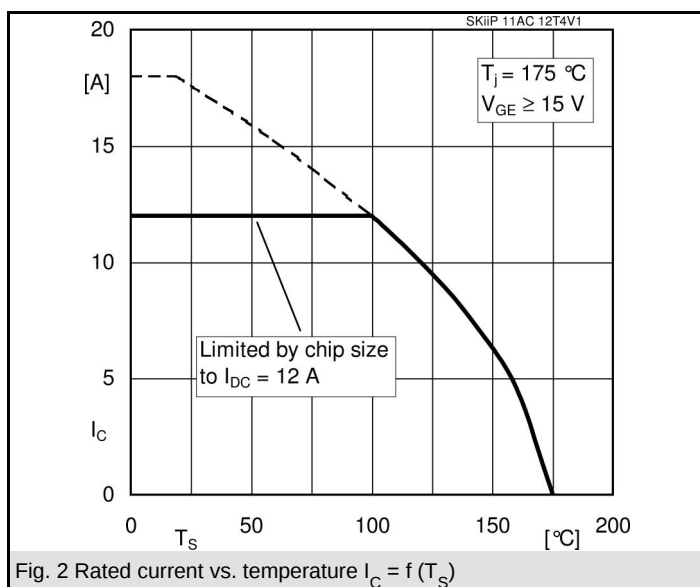
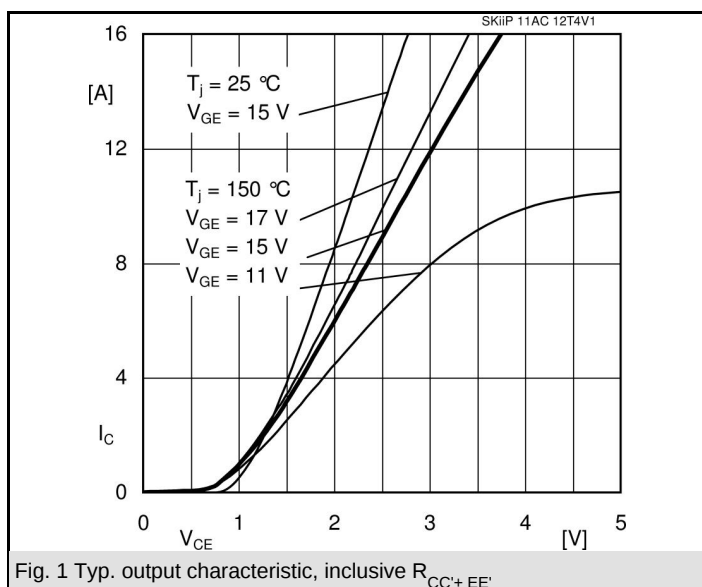
Characteristics						
Symbol	Conditions		min.	typ.	max.	Units
Inverse Diode						
V _F = V _{EC}	I _{Fnom} = 8 A; V _{GE} = 15 V	T _j = 25 °C _{chiplev.}		2,4	2,75	V
		T _j = 150 °C _{chiplev.}		2,45	2,8	V
V _{F0}		T _j = 25 °C		1,3	1,5	V
		T _j = 150 °C		0,9	1,1	V
r _F		T _j = 25 °C		138	156	mΩ
		T _j = 150 °C		194	213	mΩ
I _{RRM}	I _F = 8 A di/dt = 350 A/μs	T _j = 150 °C		7,7		A
Q _{rr}				1,3		μC
E _{rr}	V _{GE} = ±15V			0,53		mJ
R _{th(j-s)}	per diode			2,53		K/W
M _s	to heat sink		2		2,5	Nm
w				35		g
Temperature sensor						
R _{ts}	3%, Tr=25°C			1000		Ω
R _{ts}	3%, Tr=100°C			1670		Ω

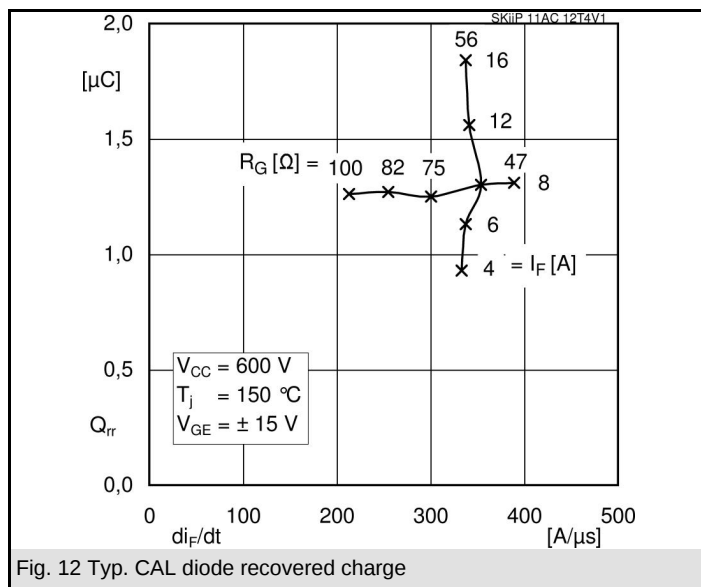
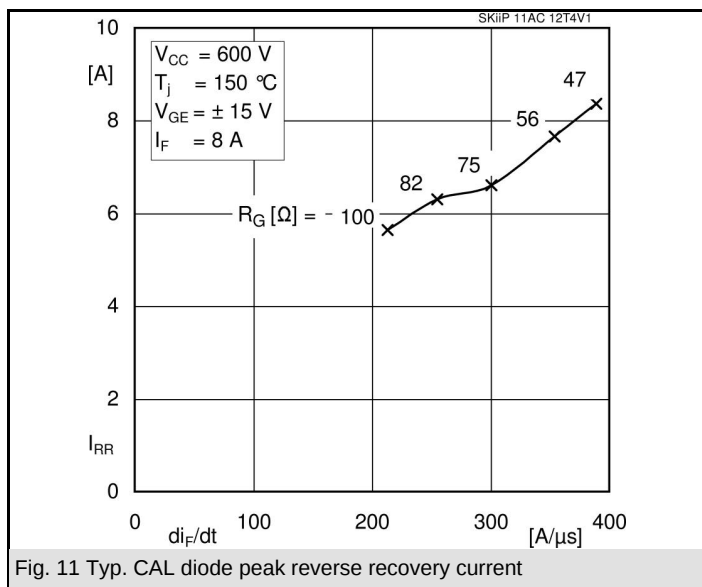
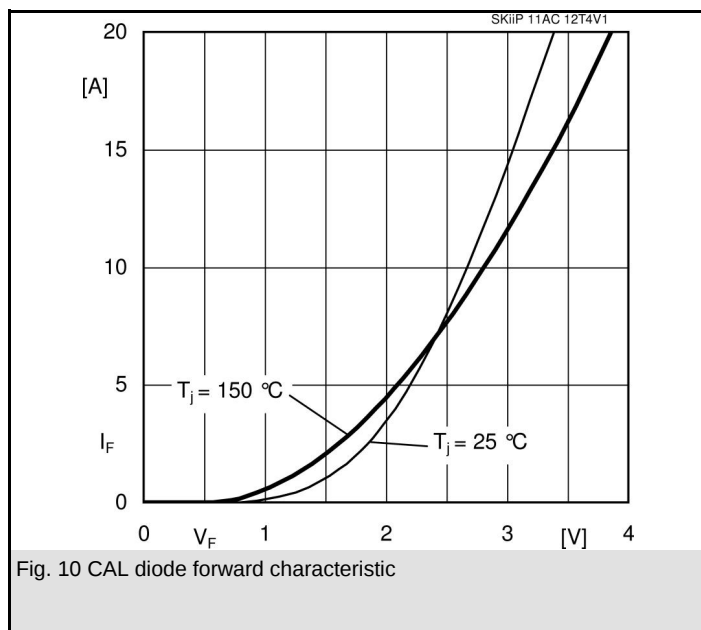
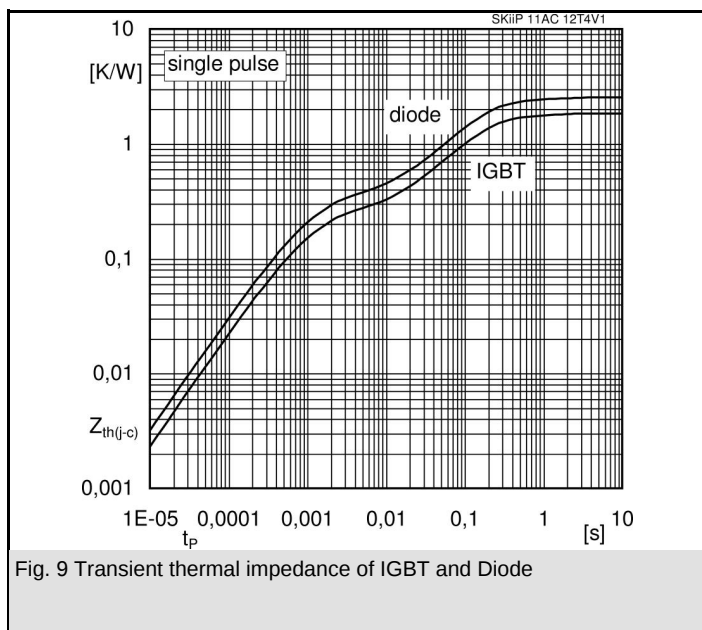
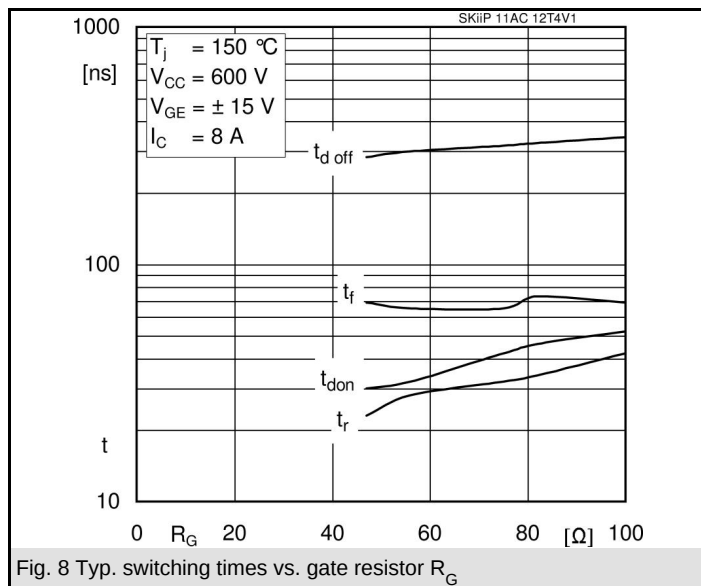
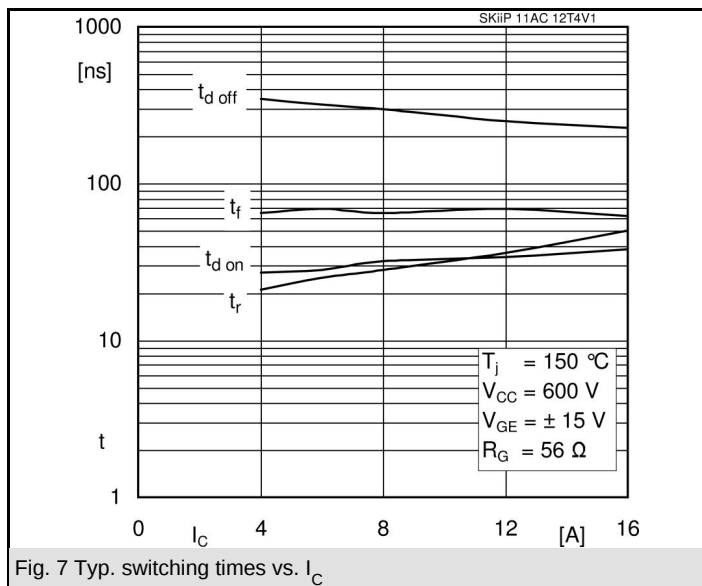
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

* 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

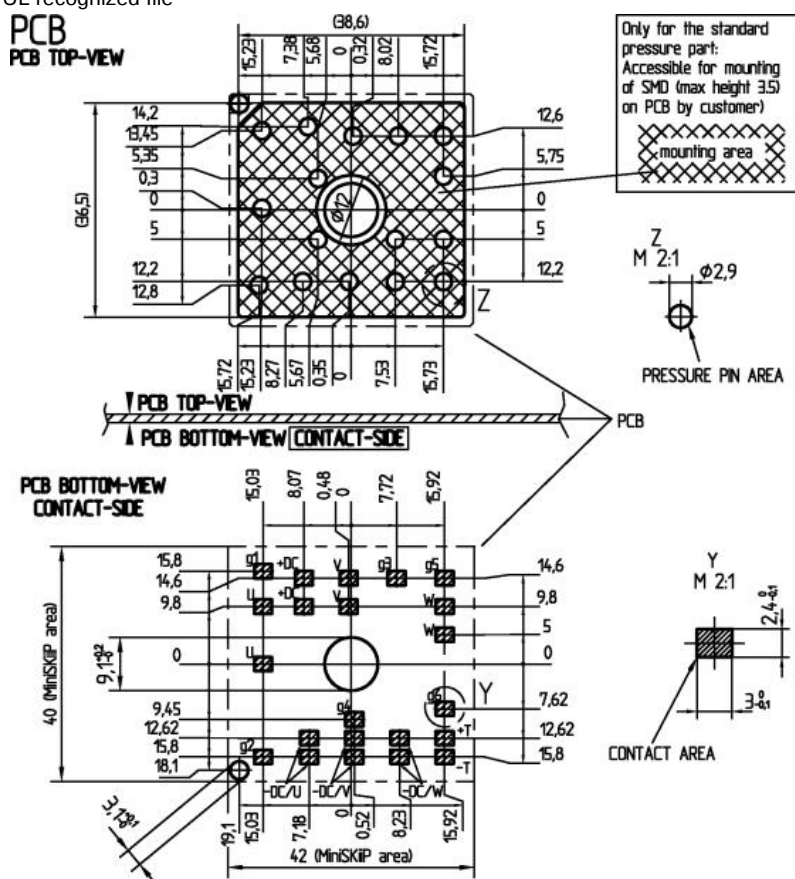




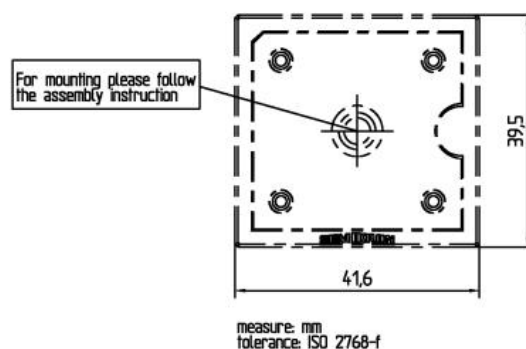
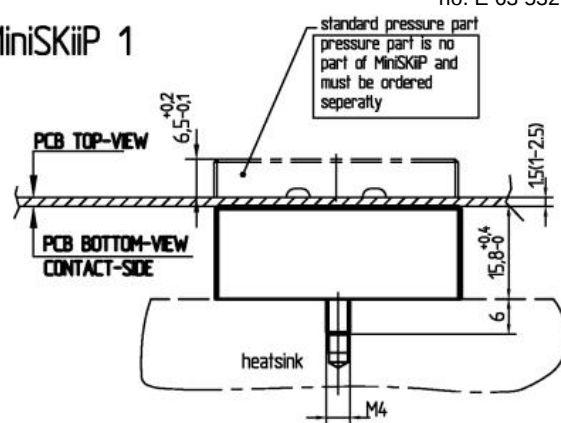
UL recognized file

no. E 63 532

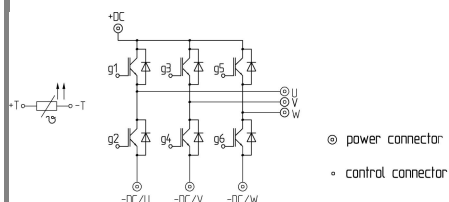
PCB
PCB TOP-VIEW



MiniSKiIP 1



case



pinout