preliminary data

Driver logic input/output, protection and sensors (on X2)			min	typ	max	
Digital input (IGBT turn-on/off and RESET)	High level voltage	U_{IN_H}	3,5		5,5	V
	Low level voltage	U_{IN_L}	-0,3		1,5	V
	Input current per input	I_{IN}		100	400	µA
	Minimum pulse width on /RST for ENABLE/SHUTDOWN	$t_{min\ RST1}$		40		ns
	Minimum pulse width on /RST for resetting $/FLT_{BOT}$, $/FLT_{TOP}$	$t_{min\ RST2}$		500		ns
Digital output level	Open drain, internally pulled up, max. 10 mA	U_{RDYT}, U_{RDYB}, U_{FLTT}, U_{FLTB}, U_{TMP}	0		U_{LS}	V
Digital temperature output	Frequency depends on measured temperature	f_{TMP}	0,2		18	kHz
	Pulses counted in 100ms	N	20		1800	
Minimum pulse width	IGBT-turn-on signal (=high) on each channel @ $U_{DC\ max}$	t_{PW_min}	1			µs
Minimum dead time	Between TOP IGBT and BOT IGBT	t_{dead}	1			µs
Switching frequency	Each driver channel	f_{sw}	0		20	kHz
Short circuit protection	Desaturation threshold. Shutdown when exceeded. Each channel	U_{CE_desat}	8,5	9	9,5	V
	Reaction time. Shutdown after short circuit was detected. Each channel	t_{desat}			8	µs
Propagation delay	Each channel	t_{prop_delay}		320		ns
Propagation delay deviation	Between two channels	$t_{prop\ delay\ dev}$			15	ns

Isolation Management			min	typ	max	
Isolation management designed for		U_{Line}		480		V_{RMS}
Isolation test voltage	Logic to power side f=50Hz, t=1s	V_{isol}		2,5		kV_{RMS}
	Life parts to base plate F=50Hz, 1=1min	V_{isol}		2,5		kV_{RMS}
Comparative tracking index		CTI		225		
Clearance distance, including internal clearance DIN7984 with flat head, SKS-5 spring washer, DIN125 flat washer,	terminal – terminal (AC-DC, AC-AC, DC-DC)	l_{cl1}		11		mm
	power side – heat sink	l_{cl2}		11		mm
	Logic side - heatsink	l_{cl3}		4,5		mm
	Logic side - power side	l_{cl4}		8		mm
Creepage distance Under usage of screws according DIN7984 with flat head, SKS-5 spring washer, DIN125 flat washer	terminal – terminal (AC-DC, AC-AC, DC-DC)	l_{cr1}		25		mm
	terminal – heat sink	l_{cr2}		20		mm
	Logic side - heatsink	l_{cr3}		8,5		mm
	Logic side - power side	l_{cr4}		8		mm

preliminary data

Environmental conditions			min	typ	max	
Storage temperature		T_{stg}	-40		+125	°C
Operating ambient temperature	f_{SW} ≤ 20kHz		-40		+65	°C
Humidity	no condensation	Rel. H.	5		85	%
Installation height					1000	m
Vibration	according to IEC60721				12	g
Shock	according to IEC60721				10	g
Protection degree			IP00			
Pollution degree			2			
Terminal connection torque	Screw M6	M_{M6}	3,0		6,0	Nm
Mounting torque	Screw M5	M_{M5}	3,0		6,0	Nm
Dimensions	length x width x height		130 x 103 x 28,5			mm^3
Weight				419		g

Thermal data			min	typ	max	
Thermal resistance junction to case	Each IGBT	R_{thjc_IGBT}			0,15	K/W
Thermal resistance junction to case	Each Diode	R_{thjc_FWD}			0,28	K/W
Thermal resistance case to heatsink	Complete module	R_{thch_Module}			0,009	K/W

Module			min	typ	max	
Stray inductance module		L_{sCE}		20		nH
Material of module baseplate			Cu			