

IGDD6-2-326-D1616-E1F12-DH-FA



IGBT Module Stack

Three-phase inverter + input rectifier

SEMIKUBE - Size 1

IGDD6-2-326-D1616-E1F12-DH-FA

Preliminary Data

Features

- Highly compact
- Integrated current, voltage and temperature sensors
- Easy maintenance
- Easy mounting and dismounting
- Very high Life-Time Expectancy
- Very low inductive DC bus

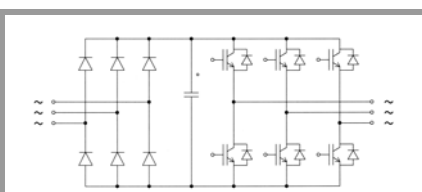
Typical Applications

- Industrial
- AC motor control
- UPS
- Solar inverter
- Oil and gas pumps

No. 08800980

Footnotes

Electrical parameters to be derated for $T_{amb} > 40^{\circ}\text{C}$



B6U + B6C1

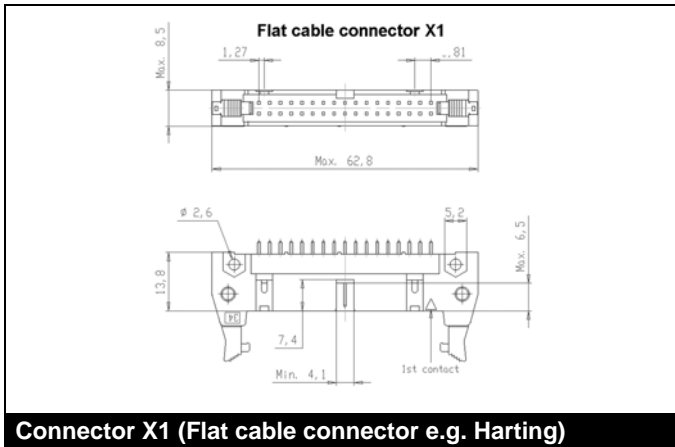
Characteristics					
Symbol	Conditions	min.	typ.	max.	Unit
Electrical Data					
I_{rms}	$T_{amb}=40^{\circ}\text{C}$, 3kHz, 650V _{dc} , 400V _{ac} , cos=0,85	no overload		280	A
		110% overload, 60s every 10min	270	300	A
		150% overload, 60s every 10min	220	330	A
V_{CES}				1200	V
f_{sw}	max. switching frequency			16.6	kHz
V_{DC}	DC voltage applied to the capacitor bank			750	V
V_{AC}	network voltage (line side), -20% / +15%			460	V
V_{isol}	50Hz / 1min			2500	V
P_{tot}	$T_{amb}=40^{\circ}\text{C}$		2790		W
T_j	T_{vj} for continuous operation	-40		125	$^{\circ}\text{C}$
Capacitor Data					
C_{DC}	SKG4M7-40A1		14.1		mF
C			Electrolyt		
LTE	expected lifetime calculated, forced air cooling	60			kHrs
		30			kHrs
Controller Interface Data					
V_S	supply voltage primary side	21.6	24	26.4	V
I_{SO}	supply current primary side (+ external current sensors)	360		1500	mA
V_{IT+}	Input threshold voltage (HIGH)			$0,7 \cdot V_S$	V
V_{IT-}	Input threshold voltage (LOW)	$0,3 \cdot V_S$			V
R_{IN}	Input resistance		17		k Ω
I_{TRIPSC}	Over current trip level		900		A _{PEAK}
T_{tp}	Over temperature protection level		100		$^{\circ}\text{C}$
Mechanical Data					
dv/dt_{AIR}	required airflow per fan	620			m ³ /h
w	approx. total weight		36		kg
Size	Width x Depth x Height (with fan)	541	755	372	mm
T_{stg}	w/o need of reforming the caps	-20		40	$^{\circ}\text{C}$
T_{amb}		-20		55	$^{\circ}\text{C}$
T_{hs}					$^{\circ}\text{C}$
Alltitude	installation height w/o derating			1000	m
Protection			IP00		
Pollution	EN 50178		2		
Fan Data					
Fan	included in the stack (NO)				
Type	(SKF 16 O-230-01)				
V_{Fan}	Fan voltage		230		V
f_{FAN}	Fan frequency		50		Hz
I_{FAN}	Fan current		1.3		A
P_{FAN}	Fan power		300		W

PIN Array X1

PIN	Signal	Function	Specifications
X1:01	IF_PWR_VP	Power Supply	Supply voltage +24V _{DC} (±10%) IN
X1:02	IF_PWR_GND	GND_for_IF_PWR_VP	
X1:03	IF_PWR_VP	Power Supply	Supply voltage +24V _{DC} (±10%) IN
X1:04	IF_PWR_GND	GND_for_IF_PWR_VP	
X1:05	IF_PWR_VP	Power Supply	Supply voltage +24V _{DC} (±10%) IN
X1:06	IF_PWR_GND	GND_for_IF_PWR_VP	
X1:07	IF_CMN_rsvd	Reserved	
X1:08	IF_CMN_GND	GND for IF_CMN_nHALT, IF_CMNrsrvd	
X1:09	IF_CMN_nHALT	Status signal	Digital IF_PWR_VP logic LOW (dominant) = not ready to operate HIGH (recessive) = ready to operate
X1:10	IF_CMN_rsvd	Reserved [dominant recessive]	
X1:11	IF_CMN_ANLG0	Temperature analog out	Max. output current: 5mA Turns ratio: 100mV/°C Max. voltage range: +15V Nominal voltage range: 0...10V
X1:12	IF_CMN_AGND0	GND for IF_CMN_ANLG0	
X1:13	IF_CMN_ANLG1	U _{DC} analog out	Max. output current: 5mA Turns ratio: 10mV/V Max. voltage range: +15V Nominal voltage range: 0...10V
X1:14	IF_CMN_AGND1	GND for IF_CMN_ANLG1	
X1:15	IF_HB1_TOP	Switching signal input (HB1 TOP switch)	Digital IF_PWR_VP logic LOW = TOP switch off HIGH = TOP switch on
X1:16	IF_HB1_BOT	Switching signal input (HB1 BOT switch)	Digital IF_PWR_VP logic LOW = BOT switch off HIGH = BOT switch on
X1:17	IF_HB1_rsvd	Reserved	
X1:18	IF_HB1_GND	GND for IF_HB1_TOP, IF_HB1_BOT, IF_HB1_rsvd	
X1:19	IF_HB1_ANLG	I analog out HB1	Max. output current: 5mA Turns ratio: 12 / 24mV/A Max. voltage range: ±15V Nominal voltage range: 0...10V
X1:20	IF_HB1_AGND	GND for IF_HB1_ANLG	
X1:21	IF_HB2_TOP	Switching signal input (HB2 TOP switch) [push pull]	Digital IF_PWR_VP logic LOW = TOP switch off HIGH = TOP switch on
X1:22	IF_HB2_BOT	Switching signal input (HB2 BOT switch) [push pull]	Digital IF_PWR_VP logic LOW = BOT switch off HIGH = BOT switch on
X1:23	IF_HB2_rsvd	Reserved [dominant recessive]	

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PIN	Signal	Function	Specifications
X1:24	IF_HB2_GND	GND for IF_HB2_TOP, IF_HB2_BOT, IF_HB2_rsvd	
X1:25	IF_HB2_ANLG	I analog out HB2	Max. output current: 5mA Turns ratio: 12 / 24mV/A Max. voltage range: ±15V Nominal voltage range: 0 ... 10V
X1:26	IF_HB2_AGND	GND for IF_HB2_ANLG	
X1:27	IF_HB3_TOP	Switching signal input (HB3 TOP switch) [push pull]	Digital IF_PWR_VP logic LOW = TOP switch off HIGH = TOP switch on
X1:28	IF_HB3_BOT	Switching signal input (HB3 BOT switch) [push pull]	Digital IF_PWR_VP logic LOW = BOT switch off HIGH = BOT switch on
X1:29	IF_HB3_rsvd	Reserved [dominant recessive]	
X1:30	IF_HB3_GND	GND for IF_HB3_TOP, IF_HB3_BOT, IF_HB3_rsvd	
X1:31	IF_HB3_ANLG	I analog out HB3	Max. output current: 5mA Turns ratio: 12 / 24mV/A Max. voltage range: ±15V Nominal voltage range: 0 ... 10V
X1:32	IF_HB3_AGND	GND for IF_HB3_ANLG	
X1:33	IF_rsvd	Reserved	
X1:34	IF_GND_rsvd	Reserved	



Product information of suitable female connectors and distributor contact information is available at e.g. <http://www.harting.com> (part number 09 18 520 7 813 – female connector with strain relief clamp).

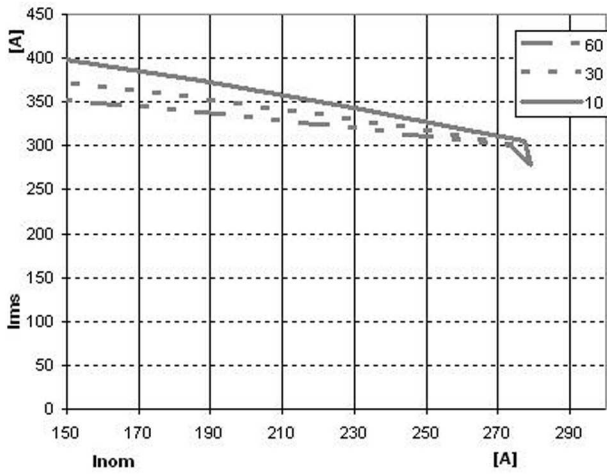


Fig. 1 Maximum overload current, $T_{amb} = 40\text{ }^{\circ}\text{C}$

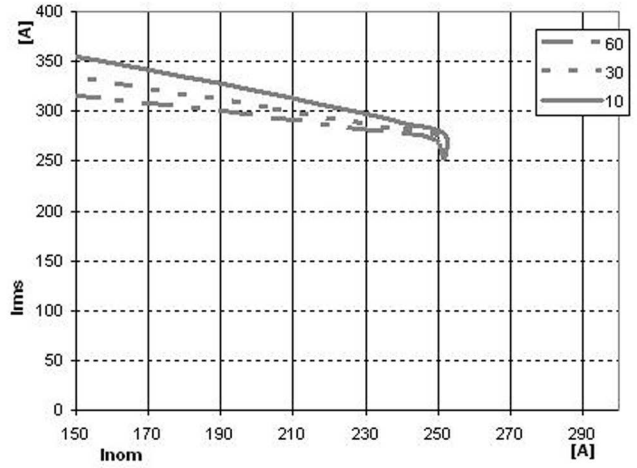


Fig. 2 Maximum overload current, $T_{amb} = 50\text{ }^{\circ}\text{C}$

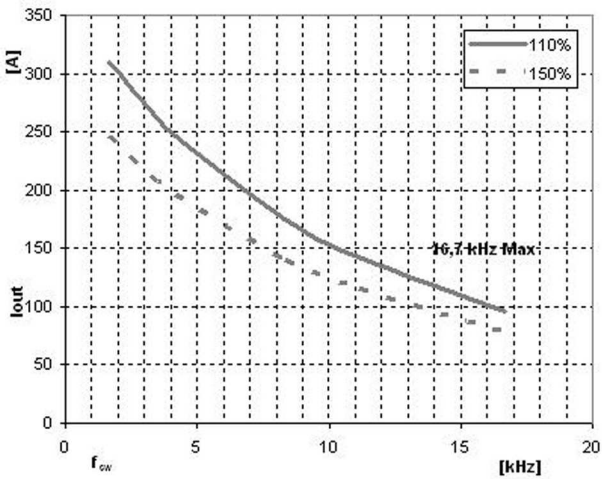


Fig. 3 Max permanent inverter curr. vs. f_{sw} , $T_{amb}=40\text{ }^{\circ}\text{C}$

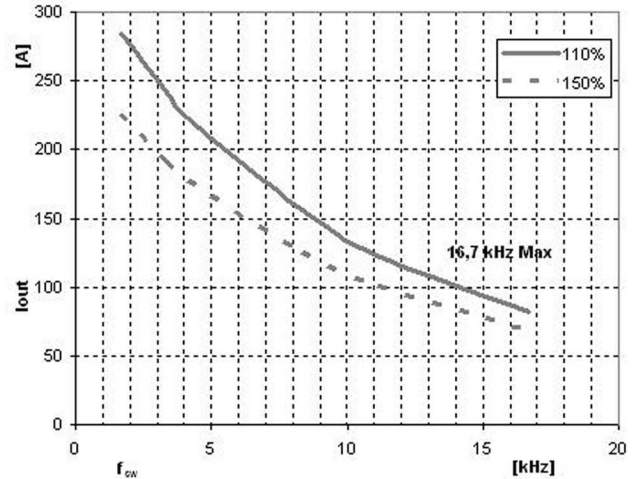


Fig. 4 Max. permanent inverter curr. vs. f_{sw} , $T_{amb}=50\text{ }^{\circ}\text{C}$

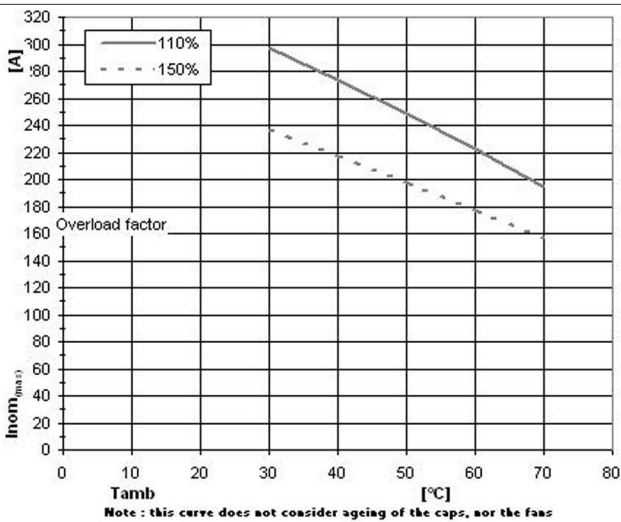


Fig. 5 Max. nominal curr. vs. ambient temperature

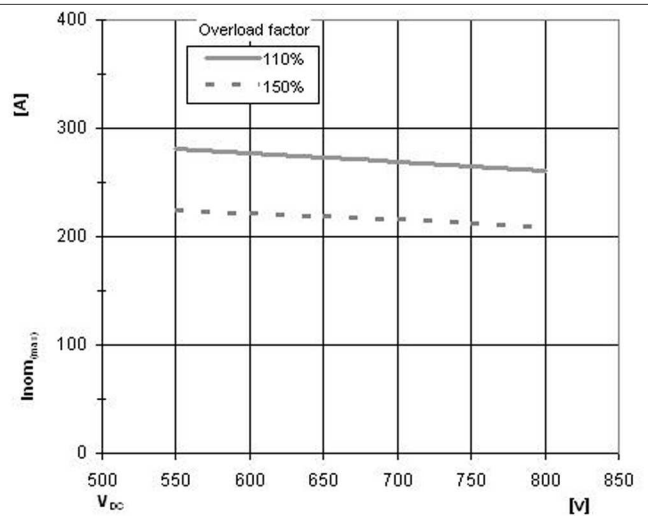
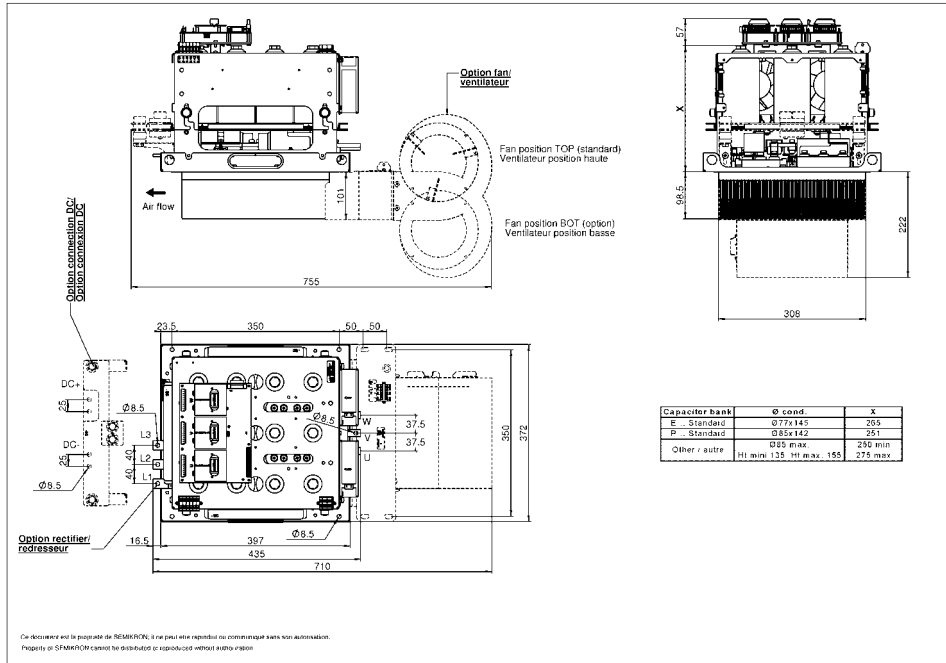
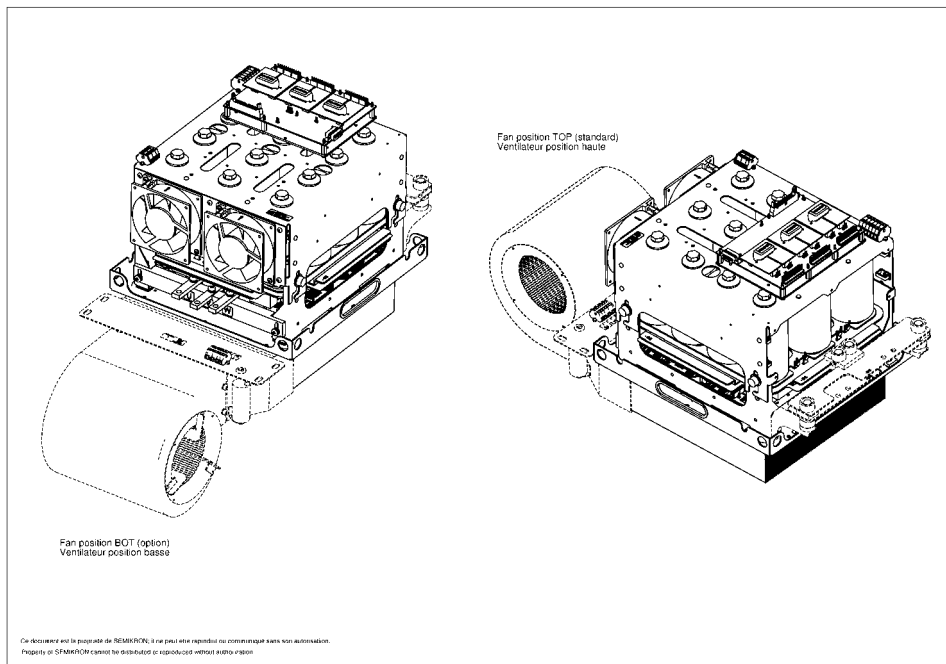


Fig. 6 Maximum nominal current vs. DC Link voltage

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SEMIKUBE GDD6-2A, Px308/308



3D view of the SEMIKUBE Size '1'

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