

IGD-8-426-E1F12-BH-FA



IGBT Module Stack

Three-phase inverter

SEMIKUBE - Size 3H

IGD-8-426-E1F12-BH-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

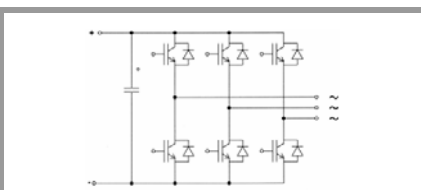
Typical Applications

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

No. 08800900

Footnotes

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

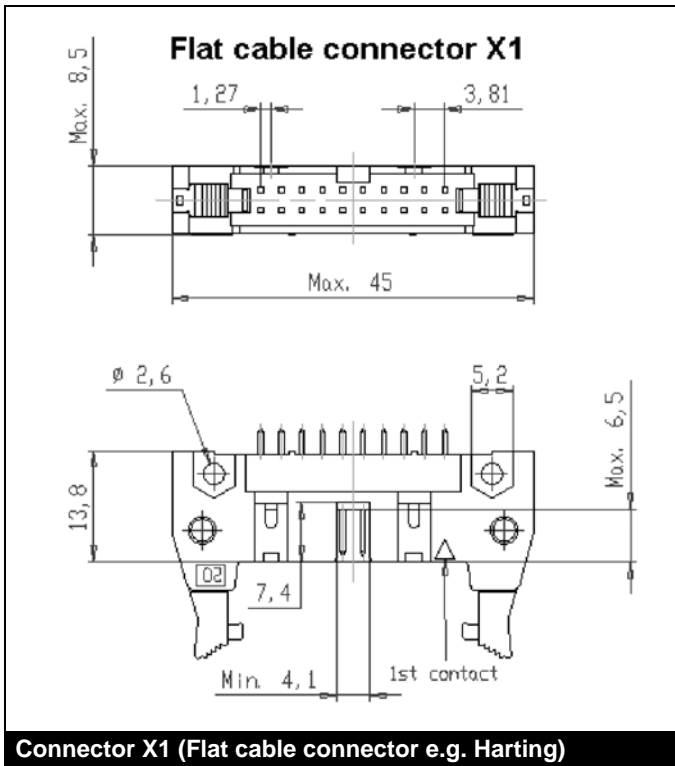


B6CI

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		1490	A	
		110% overload, 60s every 10min		1460	1600	A
		150% overload, 60s every 10min		1140	1700	A
V_{CES}				1200	V	
f_{sw}	max. switching frequency			15.6	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}	$T_{amb}=40^{\circ}\text{C}$			11720	W	
T_j	T_{vj} for continuous operation	-40		125	$^{\circ}\text{C}$	
Capacitor Data						
C_{DC}	SKC4M7-40A1		42.3		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)		270	1200	mA	
V_{IT+}	Input threshold voltage (HIGH)			0,7*Vs	V	
V_{IT-}	Input threshold voltage (LOW)	0.3*Vs			V	
R_{IN}	Input resistance		10		k Ω	
I_{TRIPSC}	Over current trip level		3600		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		110		kg	
Size	Width x Depth x Height (with fan)	1122	752	544	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	IF_HB	
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_CMN_rsvd	
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_GPIO	General purpose IO	Inverted IF_CMN_nHALT signal Signal propagation time to IF_CMN_nHALT signal: 100µs (typ.)
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: 3mV/A Max. voltage range: ±15V Nominal voltage range: -10...10V
X1:20	IF_HB1_AGND	GND for IF_HB1_ANLG	



Connector X1 (Flat cable connector e.g. Harting)

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).

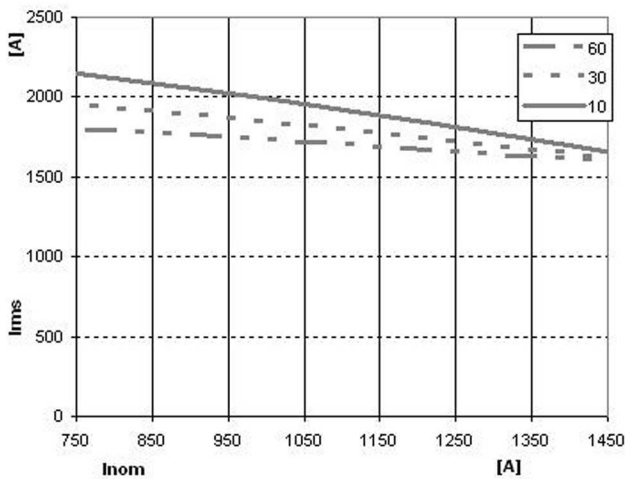


Fig. 1 Maximum overload current, $T_{amb} = 40\text{ }^{\circ}\text{C}$

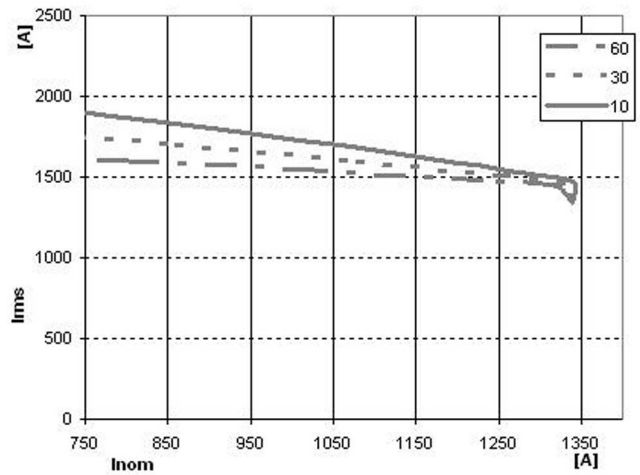


Fig. 2 Maximum overload current, $T_{amb} = 50\text{ }^{\circ}\text{C}$

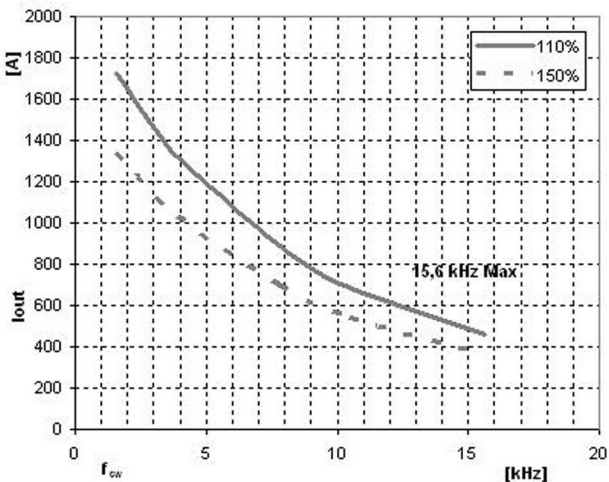


Fig. 3 Max permanent inverter curr. vs. f_{sw} , $T_{amb}=40\text{ }^{\circ}\text{C}$

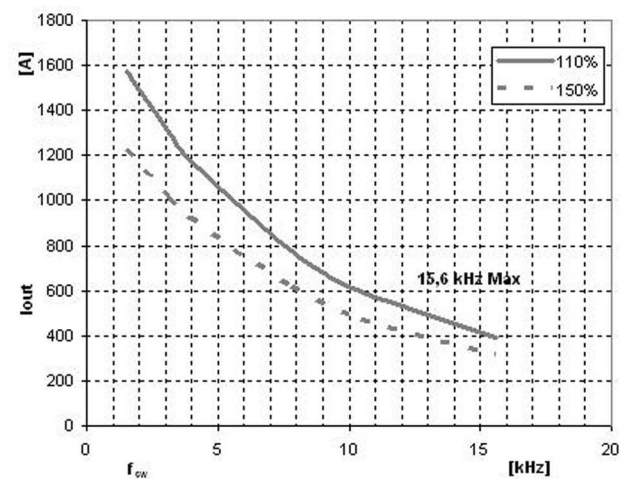


Fig. 4 Max. permanent inverter curr. vs. f_{sw} , $T_{amb}=50\text{ }^{\circ}\text{C}$

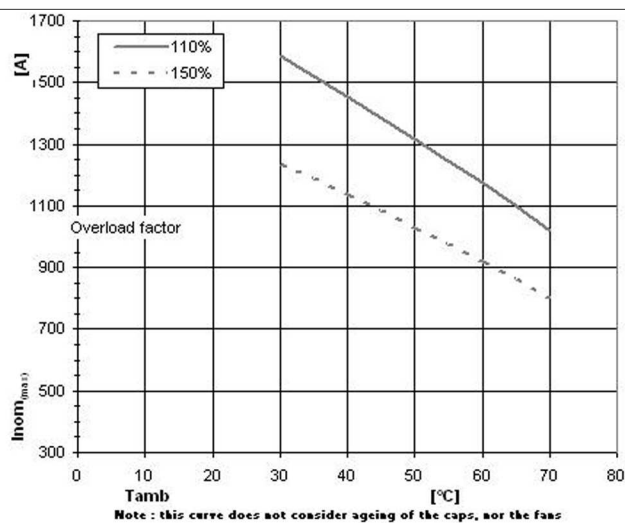


Fig. 5 Max. nominal curr. vs. ambient temperature

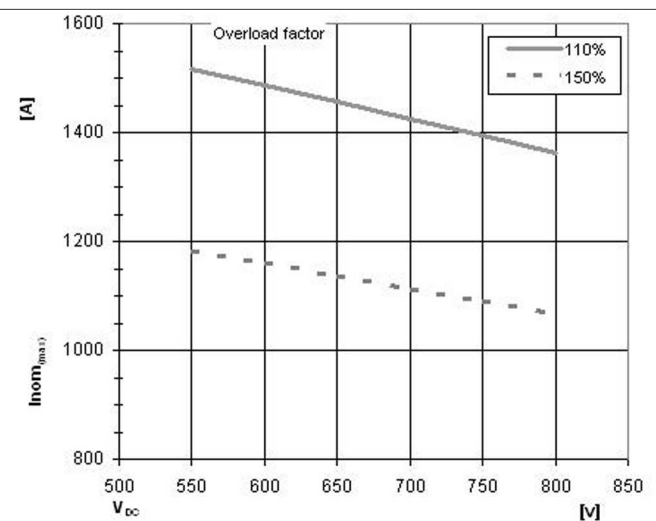


Fig. 6 Maximum nominal current vs. DC Link voltage

