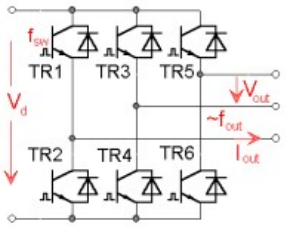
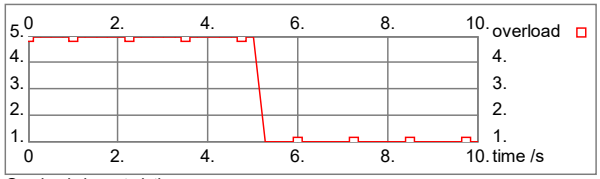
Project :

Topology :	DC/AC
Circuit :	B6I
User	Somebody



Circuit :

V_d	800 V		
V_{out}	415 V	f_{out}	50 Hz
I_{out}	32 A	Cos phi	0.90
P_{out}	21.00 kW	f_{sw}	3.0 kHz
Overload Factor	5.00	Overload Duration	5 s
$f_{min\ out}$	47.00 Hz	$V_{min\ out}$	393 V



Overload characteristic

Device :

Product Line	SEMITRANS
Name	SKM400GB176D
Max. Junction Temperature	150 °C
Use Maximum Values	No

	Transistor		Diode	
	E_{tr}	288.00 mJ (@1200V)	E_d	78.00 mJ
	$V_{CE0.125}$	0.90 V	$V_{T0.125}$	0.90 V
	$r_{c.125}$	5.13 mOhm	$r_{T.125}$	3.00 mOhm
	$V_{ce.sat}$	2.44 V	V_f	1.80 V
	I_c	300.00 A	I_f	300.00 A
	$R_{th(j-c)}$	0.075 K/W	$R_{th(j-c)}$	0.125 K/W
	$R_{th(c-s)}$	0.038 K/W		
Data set from	2007/09/28			

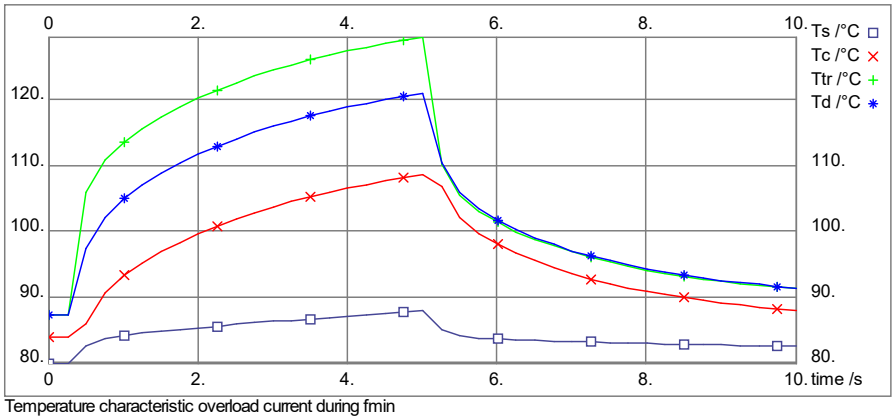
Cooling :

Ambient Temperature	70 °C
Number of switches per heat sink	6
Number of parallel devices on the same heat sink	1
Additional power source at this heat sink	0 W
Semikron - Heat sink	P16_300_16B
Correction Factor	1.00
Cooling Method	Forced Air Cooling
Flow rate	295 m^3/h
$R_{th\ (s-a)}$	0.031 K/W

Losses and Temperatures:

	Rated Current	Overload	Min. Frequency and Overload
$P_{cond\ tr}$	13 W	106 W	104 W
$P_{sw\ tr}$	21 W	120 W	120 W
P_{tr}	34 W	226 W	224 W
$P_{cond\ d}$	3.16 W	20 W	22 W
$P_{sw\ d}$	17 W	54 W	54 W
P_d	20 W	74 W	76 W
P_{tot}	322 W	1802 W	1801 W
	Average Values	Average Values	Maximum Values
T_s	80 °C	88 °C	88 °C
T_c	84 °C	109 °C	109 °C

T_{tr}	87 °C	126 °C	130 °C
T_d	87 °C	118 °C	121 °C



Temperature characteristic overload current during fmin

Evaluation:

Recommendation by SEMIKRON: Do not use SEMIKRON devices over 125 °C

Driver :

Name	$I_{out(av)}$ /mA	$\hat{I}_{out}$ /A	V_{isol} /kV	$V_{ce\ max}$ /V	R_{gmin} / Ohm	Channels
3x SKHI22A R or SKHI22B R (1	40	8	2.5	1200	3.0	2
3x SKHI23/12 R	50	8	2.5	1200	2.7	2
3x SKYPER 32 R or SKYPER 32PRO R (2	50	15	4.0	1200	1.5	2

Notes

1) A: 15V - Vin; B: 5V - Vin
2) SKYPER 32 R with external boost capacitors