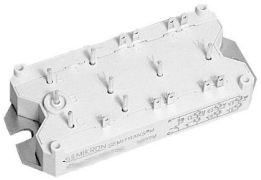
Absolute Maximum Ratings		Values			
Symbol	Conditions [1]				Units
V_{CES}		1200			V
V_{CGR}	R_{GE} = 20 kΩ	1200			V
I_C	T_{case} = 25/80 °C	75 / 50			A
I_{CM}	T_{case} = 25/80 °C; t_p = 1 ms	140 / 100			A
V_{GES}		± 20			V
P_{tot}	per IGBT/D1/D8, T_{case}=25 °C	350 / 125 / 125			W
T_j, (T_{stg})		-- 40 . . .+150 (125)			°C
V_{isol}	AC, 1 min.	2 500			V
humidity	DIN 40 040	Class F			
climate	DIN IEC 68 T.1	55/150/56			
Diodes [9]		D1-4	D7	D8	
I_F	T_{case} = 80 °C	9)	15	50	A
I_{FM}= -- I_{CM}	T_{case} = 80 °C; t_p = 1 ms		30	100	A
I_{FSM}	t_p = 10 ms; sin.; T_j = 150 °C	600	200	550	A
I^2t	t_p = 10 ms; T_j = 150 °C	1800	200	1500	A^2s

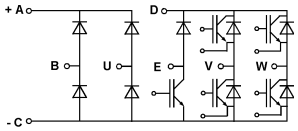
Characteristics					
Symbol	Conditions [1]	min.	typ.	max.	Units
$V_{(BR)CES}$	V_{GE} = 0, I_C = 1 mA	≥ V_{CES}	–	–	V
$V_{GE(th)}$	V_{GE} = V_{CE}, I_C = 2 mA	4,5	5,5	6,5	V
I_{CES}	V_{GE} = 0, T_j = 25 °C	–	0,8	1	mA
	V_{CE} = V_{CES}, T_j = 125 °C	–	3,5	–	mA
I_{GES}	V_{GE} = 20 V, V_{CE} = 0	–	–	200	nA
V_{CEsat}	I_C = 50 A; V_{GE} = 15 V; T_j = 25 (125) °C	–	2,5(3,1)	3(3,7)	V
V_{CEsat}	I_C = 75 A; T_j = 25 (125) °C	–	3(3,8)	--	V
g_{fs}	V_{CE} = 20 V, I_C = 50 A	23	40	–	S
C_{CHC}	per IGBT	–	--	350	pF
C_{ies}	V_{GE} = 0	–	3300	4300	pF
C_{oes}	V_{CE} = 25 V	–	500	650	pF
C_{res}	f = 1 MHz	–	220	300	pF
L_{CE}				60	nH
$t_{d(on)}$	V_{CC} = 600 V	–	44	100	ns
t_r	V_{GE} = + 15 V / - 15 V [3]	–	56	100	ns
$t_{d(off)}$	I_C = 50 A, ind. load	–	380	500	ns
t_f	R_{Gon} = R_{Goff} = 22 Ω	–	70	100	ns
E_{on}	T_j = 125 °C	–	8	–	mWs
E_{off}		–	5	–	mWs
Inverse Diode D7 [8] (protection) of brake chopper					
V_F = V_{EC}	I_F = 15 A; V_{GE} = 0 V; T_j = 25 (125) °C	–	2,0(1,8)	2,5	V
V_F = V_{EC}	I_F = 25 A; T_j = 25 (125) °C	–	2,3(2,1)	–	V
V_{TO}	T_j = 125 °C	–	1,1	1,2	V
r_T	T_j = 125 °C	–	45	70	mΩ
I_{RRM}	I_F = 15 A; T_j = 25 (125) °C [2]	–	12(16)	--	A
Q_{rr}	I_F = 15 A; T_j = 25 (125) °C [2]	–	1(2,7)	–	µC
FWD D8 of brake chopper [8] and inverter					
V_F = V_{EC}	I_F = 50 A; V_{GE} = 0 V; T_j = 25 (125) °C	–	2,0 (1,8)	2,5	V
V_F = V_{EC}	I_F = 75 A; T_j = 25 (125) °C	–	2,3 (2,1)	–	V
V_{TO}	T_j = 125 °C	–	1,1	1,2	V
r_T	T_j = 125 °C	–	18	22	mΩ
I_{RRM}	I_F = 50 A; T_j = 25 (125) °C [2]	–	23(35)	--	A
Q_{rr}	I_F = 50 A; T_j = 25 (125) °C [2]	–	2,3(7)	--	µC
Err	I_F = 50 A; T_j = 125 °C [2]			2	mJ
Thermal Characteristics					
R_{thjc}	per IGBT / diode D1..4 [9]	–	--	0,35 / 1,0	°C/W
R_{thjc}	per diode D7 / D8...D12	–	--	1,5 / 0,6	°C/W
R_{thch}	per module	–	--	0,05	°C/W

SEMITRANS® TenPACK IGBT Modules SKB 75 GHL 123 D Input bridge B2U with brake chopper and 1-phase bridge inverter output

Preliminary Data



TenPack = 4 + 2 + 4 elements



SKB 75 GHL

Features

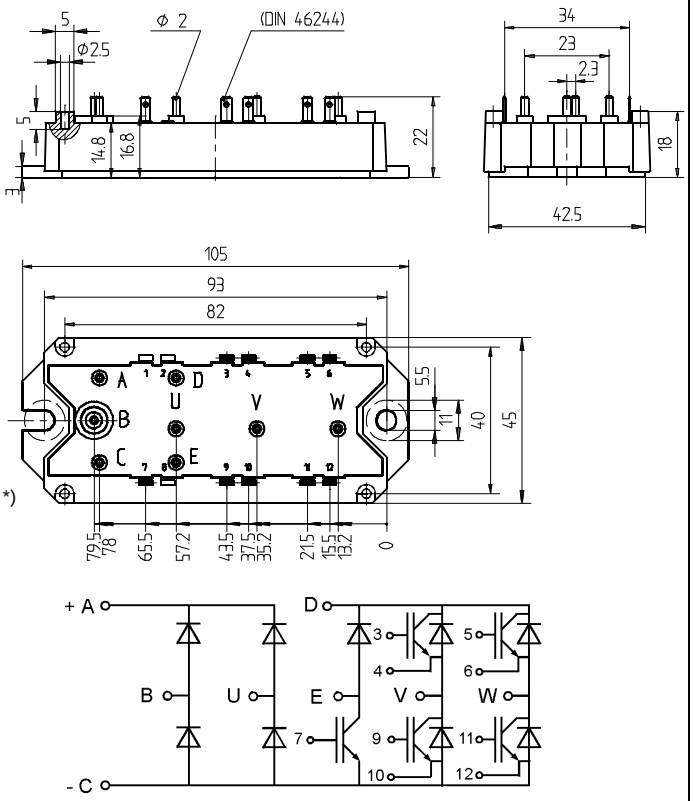
- Round main terminals (2 mm∅)
- Easy drilling of PCB
- Input diodes glass passivated
- 1400 V PIV
- High I^2t rating (inrush current)
- IGBT is latch-up free, homogeneous silicon-structure
- High short circuit capability, self limiting to 6 * I_{cnom}
- Fast & soft CAL diodes [8]
- Isolated copper baseplate using DCB Direct Copper Bonding Technology
- Large clearance (9 mm) and creepage distances (13 mm).

Typical Applications:

- UPS
- AC power-supplies
- Single phase drives

1) T_{case} = 25 °C, unless otherwise specified
2) I_F = -- I_C, V_R = 600 V, -- di_F/dt = 800 A/µs, V_{GE} = 0 V
3) Use V_{GEoff} = -5 ... - 15 V
8) CAL = Controlled Axial Lifetime Technology.
9) **Data D1 - D4, case and mech. data** → **page 2**

SEMITRANS TenPACK
(**Sixpack modified)**
Case D 78
UL recognition
File E63 532
applied for



*) Plastic collar around pin B for UL creepage distance of > 12,7 mm.

Dimensions in mm

Fig. 21 Case outline and circuit diagram

Characteristics					
Symbol	**Conditions** [1]	**Values**			**Units**
		min.	**typ.**	**max.**	
Input	Bridge Rectifier D1...D4				
V_{RRM}		1400	–	–	V
I_D	T_{case} = 80 °C;	–	–	70	A
V_F	T_{vj} = 25 °C; I_F = 75 A	–	–	1,45	V
V_{TO}	T_{vj} = 150 °C	–	0,75	0,8	V
r_T	T_{vj} = 150 °C	–	7	8,5	mΩ
R_{thjc}	D1...D4			1,0	K/W
T_{solder}	> 5 s max. 15 sec. (transfer)	–	180	250	°C
Mechanical Data					
M1	to heatsink, SI Units (M5)	4	–	5	Nm
	to heatsink, US Units	35	–	44	lb.in.
a		–	–	5x9,81	m/s^2
w		–	–	190	g

This is an electrostatic discharge sensitive device (ESD). Please observe the international standard IEC 747-1, Chapter IX.

Two devices are supplied in one SEMIBOX A.
Larger Packing units (10 and 20 pieces) are used if suitable.
SEMIBOX → SEMIKRON Book page C - 1.

For the IGBTs and diodes D8 to D12 use diagrams of type SKM 75GD123D

For the diodes D7 use diode diagrams of type SKM 22GD123D

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