

## Maximum Ratings

Symbol	Conditions	Values	Units
$V_{CEV_{sus}}$	$I_C = 1 \text{ A}$ , $V_{BE} = -2 \text{ V}$	1200	V
$V_{CEV}$	$V_{BE} = -2 \text{ V}$	1200	V
$V_{CBO}$	$I_E = 0$	1200	V
$V_{EBO}$	$I_C = 0$	7	V
$I_C$	D. C.	150	A
$I_{CM}$	$t_p = 1 \text{ ms}$	300	A
$I_F = -I_C$		150	A
$I_B$		8	A
$P_{tot}$	$T_{case} = 25 \text{ }^\circ\text{C}$ ; per darlington	1000	W
$T_{vj}$		-40 ... +150	$^\circ\text{C}$
$T_{stg}$		-40 ... +125	$^\circ\text{C}$
$V_{isol}$	a. c. 50 Hz, r.m.s.	2500-	V

## Thermal Characteristics

$R_{thjc}$	per darlington/per module	0,125/0,063	$^\circ\text{C/W}$
$R_{thjc}$	per diode/per module	0,6/0,3	$^\circ\text{C/W}$
$R_{thch}$	per 1/2 module/per module	0,075/0,037	$^\circ\text{C/W}$

## Electrical Characteristics<sup>1)</sup>

		min.	typ.	max.	
$I_{CEV}$	$V_{CE} = V_{CEV}$ , $V_{BE} = -2 \text{ V}$			2	mA
$I_{EBO}$	$I_C = 0$ , $V_{BE} = -7 \text{ V}$			200	mA
$V_{CEsat}^{2)}$	$I_C = 150 \text{ A}$ , $I_B = 3 \text{ A}$			3	V
$V_{BEsat}^{2)}$	$I_C = 150 \text{ A}$ , $I_B = 3 \text{ A}$			3,5	V
$h_{21E}^{2)}$	$I_C = 150 \text{ A}$ ; $V_{CE} = 5 \text{ V}$	75			

## Switching Characteristics for Resistive Load<sup>1)</sup>

$t_{on}$	$I_C = 150 \text{ A}$ $I_{B1} = -I_{B2} = 3 \text{ A}$ $V_{CC} = 600 \text{ V}$		3	$\mu\text{s}$
$t_s$			15	$\mu\text{s}$
$t_f$			3	$\mu\text{s}$

## Inverse Diode Characteristics<sup>1)</sup>

$V_F = -V_{CE}$	$I_F = -I_C = 150 \text{ A}$		1,8	V
$I_{FSM} = -I_{Cp}$	$\sin 180^\circ$ , 10 ms	1500		A
$I_{RM}$	$I_F = -I_C = 150 \text{ A}$ , $-di_F/dt = 100 \text{ A}/\mu\text{s}$ $V_{BE} = -3 \text{ V}$ , $V_R = V_{CE} = 400 \text{ V}$ , $T_{vj} = 125 \text{ }^\circ\text{C}$		45	A
$Q_{rr}$			22	$\mu\text{C}$

## Mechanical Data

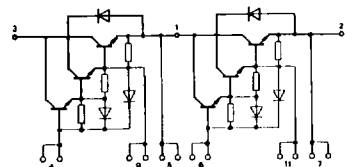
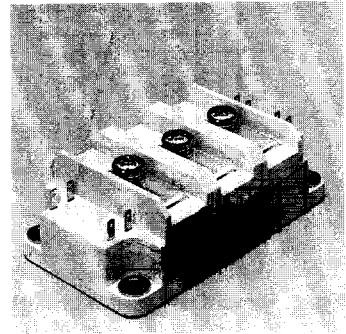
		SI units			
$M_1$	Case to heatsink	SI units	3	6	Nm
		US units	27	53	lb. in.
$M_2$	Busbars to terminals	SI units	2,5	5	Nm
		US units	22	44	lb. in.
$w$			420		g
Case	DB		D 14		
	DAL		D 39		

<sup>1)</sup>  $T_{case} = 25 \text{ }^\circ\text{C}$  unless otherwise stated

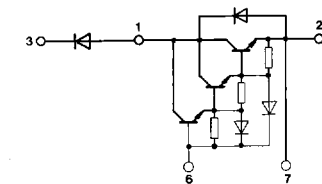
<sup>2)</sup>  $t_p \leq 300 \mu\text{s}$ ,  $D \leq 1,5 \%$

## SEMITRANS® 3 NPN Power Darlington Modules 150 A, 1200 V

**SK 150 DB 120 D**  
**SK 150 DAL 120 D**



**DB**



**DAL**

## Features

- Isolated baseplate (ease of mounting of one or several modules on one heatsink)
- All electrical connections on top (ease of interconnecting of modules with busbars)
- Large clearances and creepage distances
- Parallel connected fast recovery inverse diode
- UL recognized, file no. 63 532

## Typical Applications

- Uninterruptible power supplies (UPS)
- DC drives
- AC motor controls
- Brake choppers (DAL)

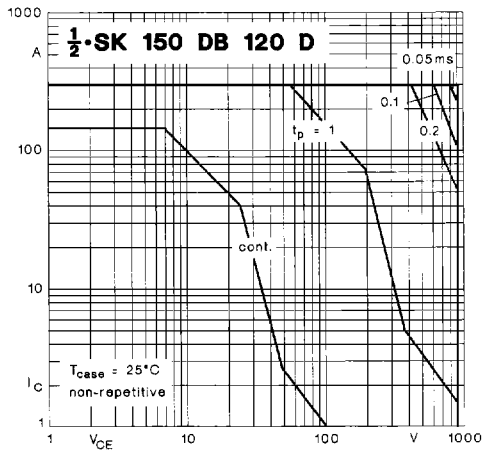


Fig. 1 Forward biased safe operating area (FBSOA)

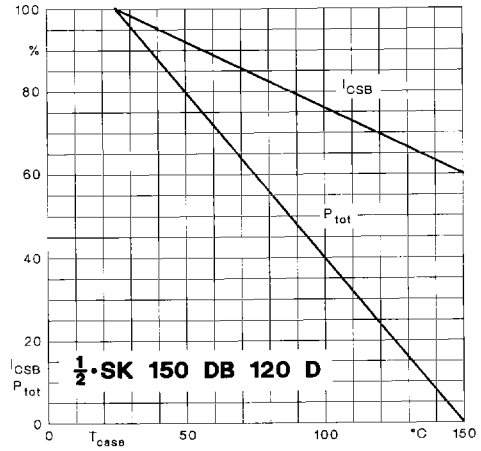


Fig. 2 Shifting the limits of the FBSOA with temperature

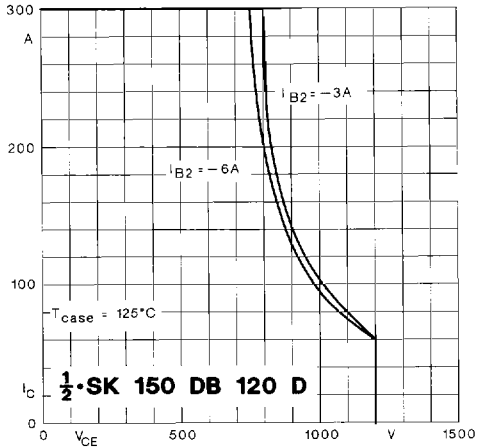


Fig. 3 Reverse biased safe operating area (RBSOA)

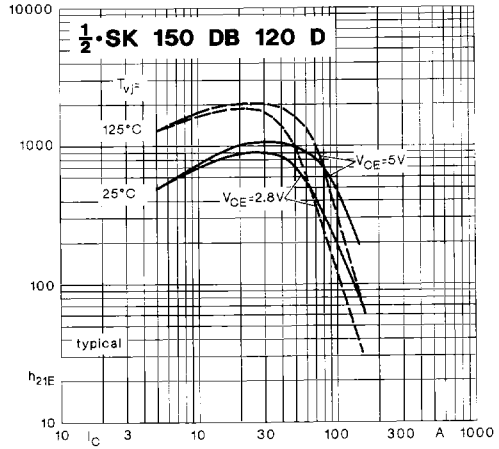


Fig. 4 Forward current transfer ratio vs. coll. current

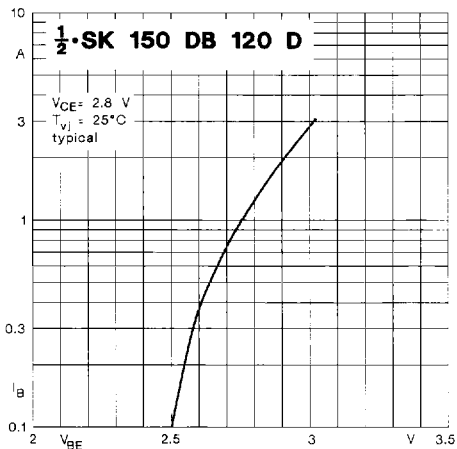


Fig. 5 Base current/voltage characteristic

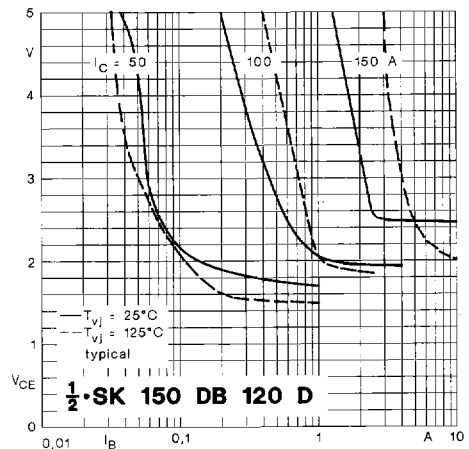


Fig. 6 Collector-emitter voltage vs. base current

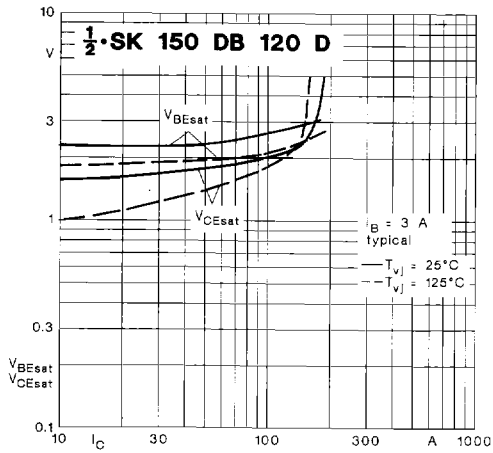


Fig. 7 Saturation voltages vs. collector current

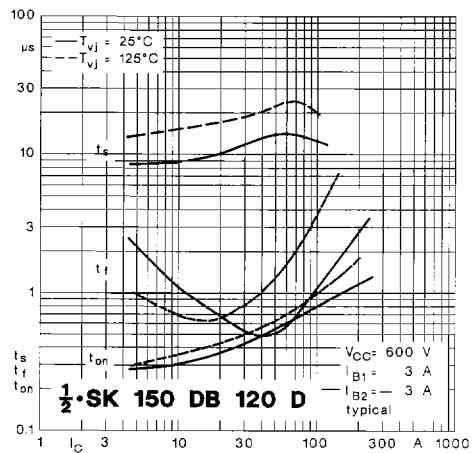


Fig. 8 Switching times vs. collector current

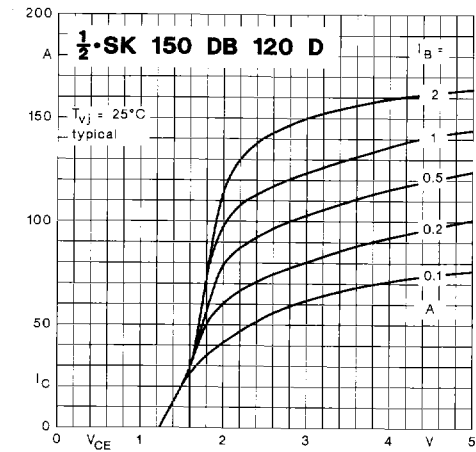


Fig. 9 Collector current/voltage characteristics

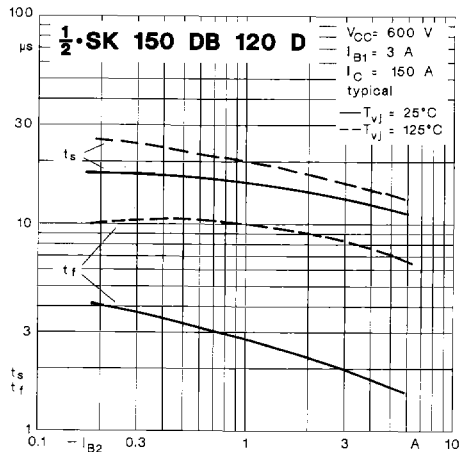


Fig. 10 Turn-off times vs. negative base current

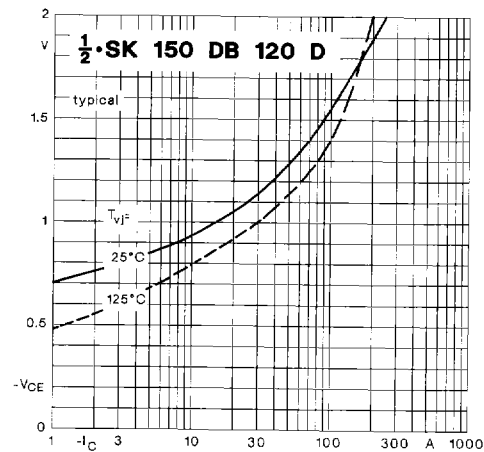


Fig. 11 Inverse diode forward characteristics

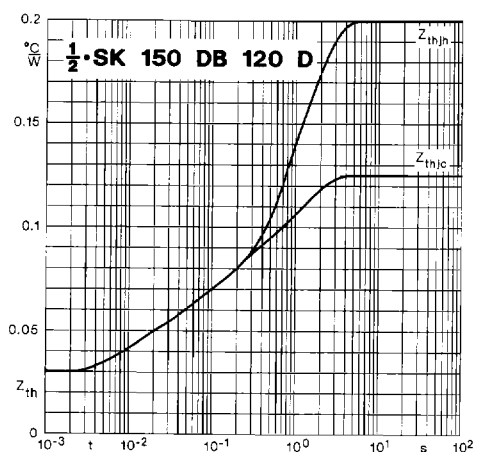


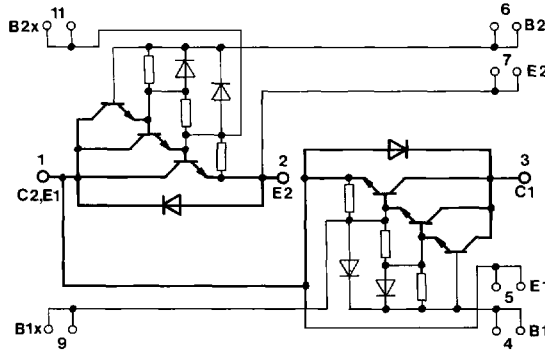
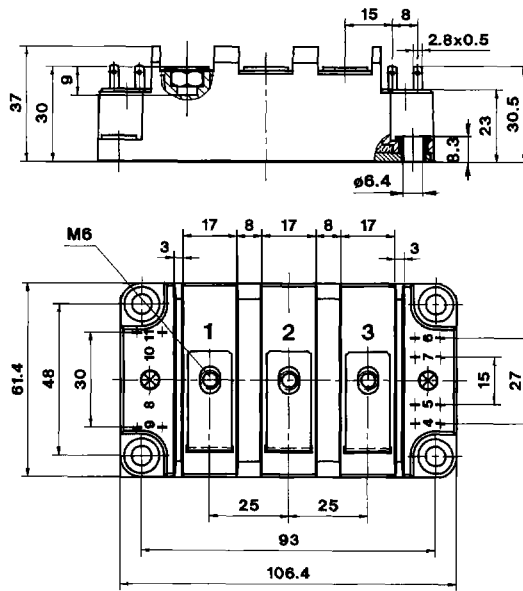
Fig. 12 Transient thermal impedance vs. time

**SK 150 DB 120 D**

Case D 14

SEMITRANS® 3

UL recognized,  
file no. 63 532



Dimensions in mm

**SK 150 DAL 120 D**

Case D 39

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