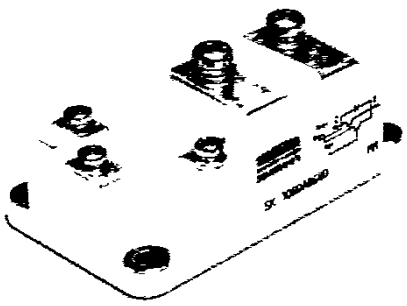
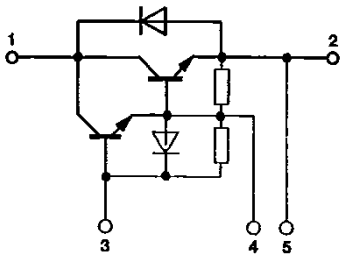
SEMITRANS® 4 NPN Power Darlington Modules 300 A, 600 V

SK 300 DA 060 D

T-33-35





Maximum Ratings

Symbol	Conditions	Values	Units
V_{CEVsus}	I_C = 1 A, V_{BE} = – 2 V	600	V
V_{CEV}	V_{BE} = – 2 V	600	V
V_{CBO}	I_E = 0	600	V
V_{EBO}	I_C = 0	7	V
I_C	D. C.	300	A
I_F = –I_C	D. C.	300	A
I_B		18	A
P_{tot}	T_{case} = 25 °C	1380	W
T_{vj}		– 40 . . . + 150	°C
T_{stg}		– 40 . . . + 125	°C
V_{isol}	a. c. 50 Hz, r.m.s.	2500~	V

Thermal Characteristics

R_{thjc}	darlington	0,09	°C/W
R_{thjc}	diode	0,3	°C/W
R_{thch}	module	0,04	°C/W

Electrical Characteristics[1)]

			min.	typ.	max.	
I_{CEV}	V_{CE} = V_{CEV}, V_{BE} = – 2 V				4	mA
I_{EBO}	I_C = 0, V_{BE} = – 7 V				800	mA
V_{CEsat}[2)]	I_C = 300 A, I_B = 4 A				2	V
V_{BEsat}[2)]	I_C = 300 A, I_B = 4 A				2,5	V
h_{21E}[2)]	I_C = 300 A	V_{CE} = 2 V	75			
		V_{CE} = 5 V	100			

Switching Characteristics for Resistive Load[1)]

t_{on}	I_C = 300 A			2,5	µs
t_s	I_{B1} = – I_{B2} = 6 A			12	µs
t_f	V_{CC} = 300 V			3	µs

Inverse Diode Characteristics[1)]

V_F = –V_{CE}	I_F = – I_C = 300 A			1,85	V
I_{FSM} = – I_{Cp}	sin 180°, 10 ms	3000			A
I_{RM}	I_F = – I_C = 300 A, – di_F/dt = 100 A/µs V_{BE} = – 3 V, V_R = V_{CE} = 400 V, T_{vj} = 125 °C		50		A
Q_{rr}			25		µC

Mechanical Data

M_1	Case to heatsink	SI units	3		6	Nm
		US units	27		53	lb. in.
M_2	Busbars to terminals 1, 2	SI units	2,5		5	Nm
		US units	22		44	lb. in.
	Busbars to terminals 3 ... 5	SI units	1,1		2	Nm
		US units	10		18	lb. in.
w				475		g
Case			D 19			

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. E 63 532

Typical Applications

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

1) T_{case} = 25 °C unless otherwise stated
2) $t_p \leq 300$ µs, D ≤ 1,5 %

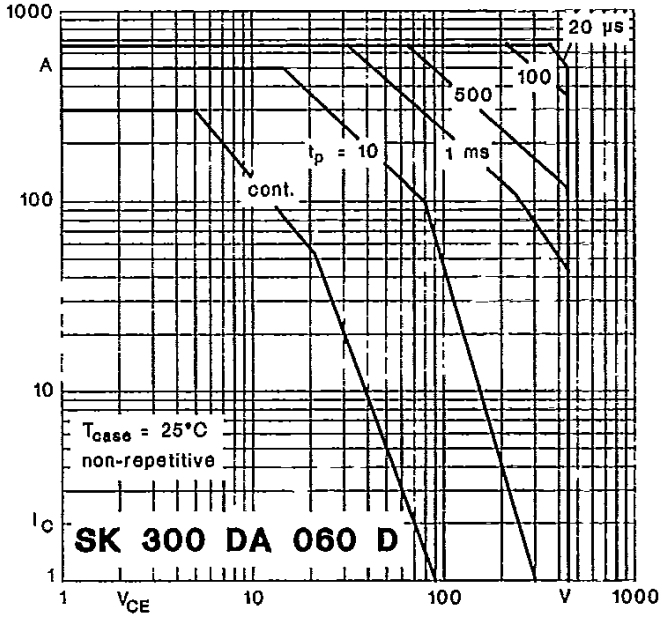


Fig. 1 Forward biased safe operating area (FBSOA)

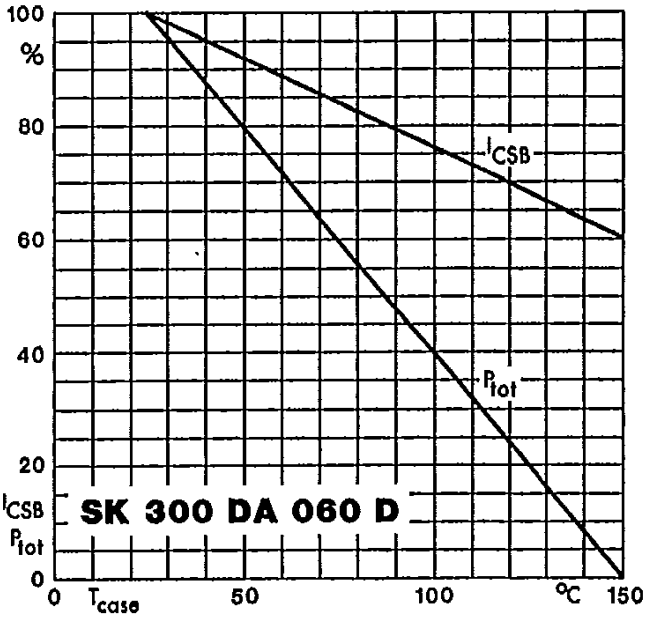


Fig. 2 Shifting the limits of the FBSOA with temperature

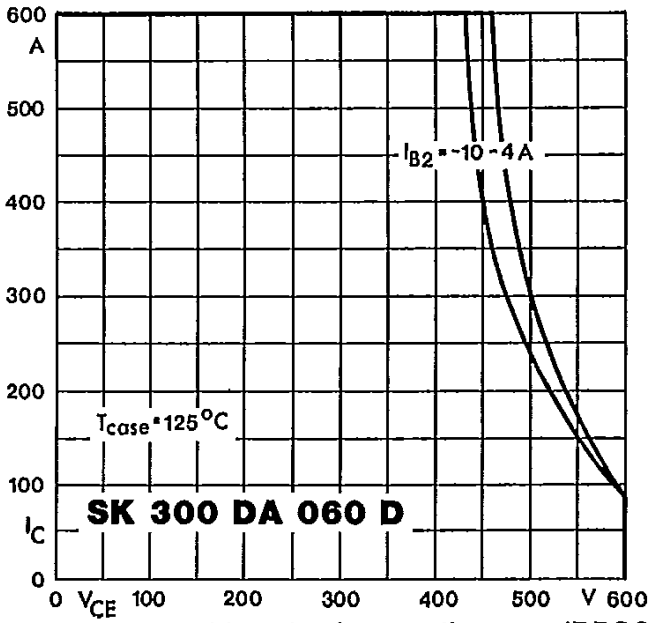


Fig. 3 Reverse biased safe operating area (RBSOA)

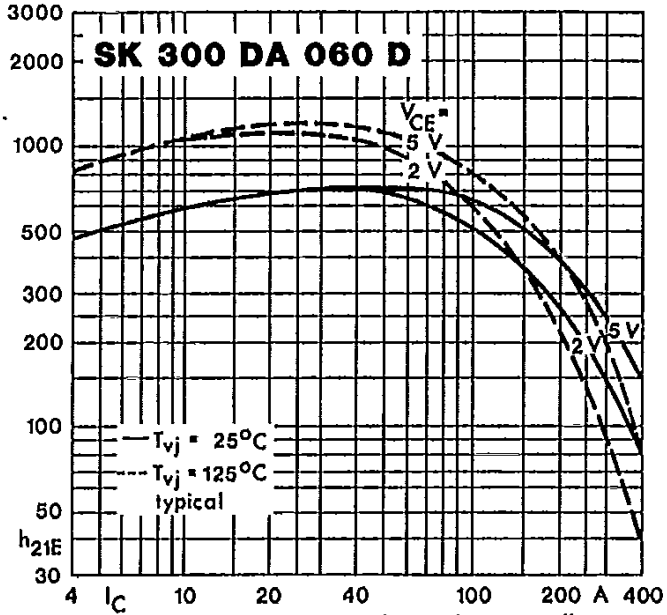


Fig. 4 Forward current transfer ratio vs. coll. current

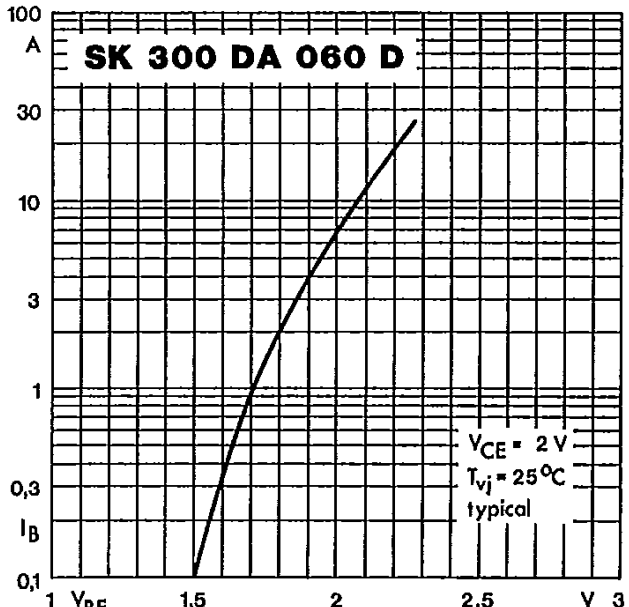


Fig. 5 Base current/voltage characteristic

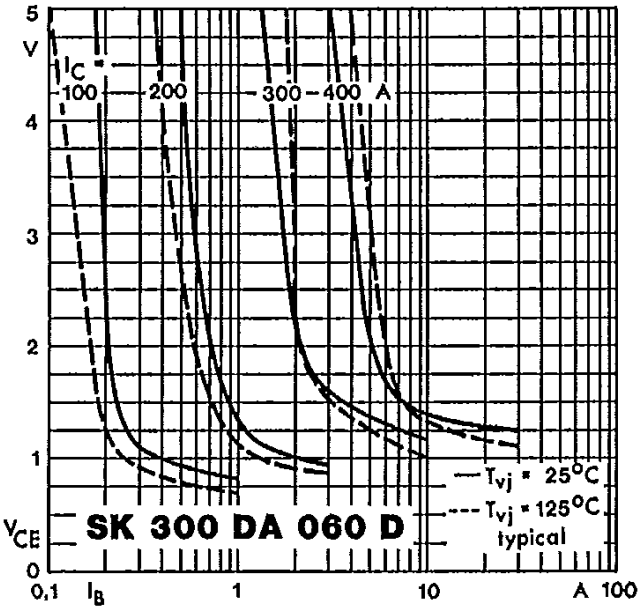


Fig. 6 Collector-emitter voltage vs. base current

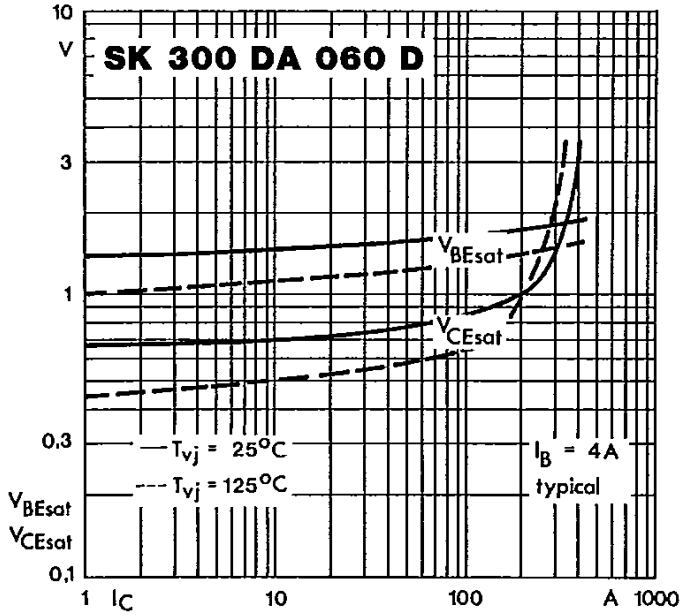


Fig. 7 Saturation voltages vs. collector current

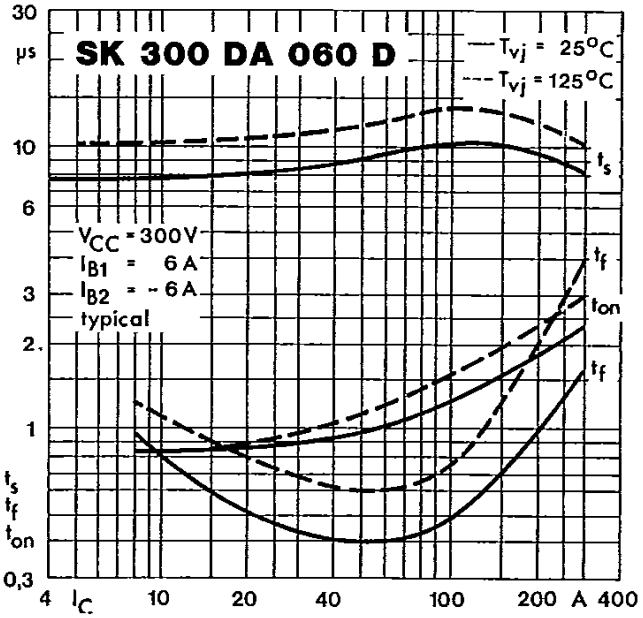


Fig. 8 Switching times vs. collector current

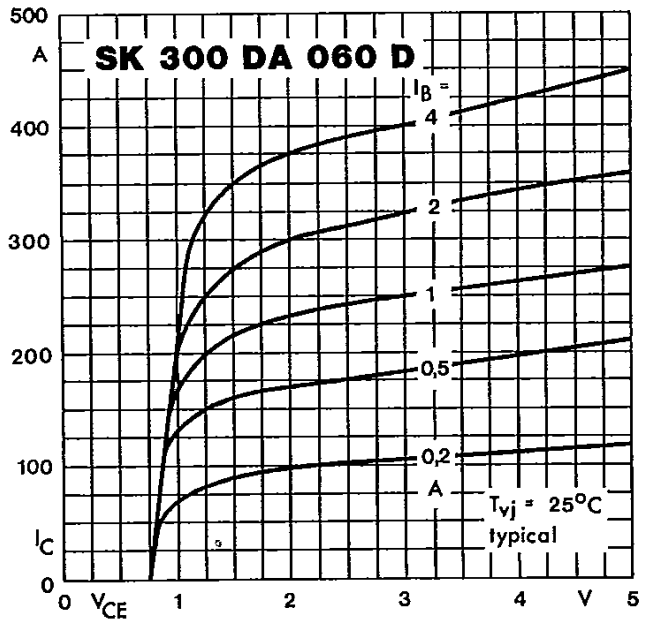


Fig. 9 Collector current/voltage characteristics

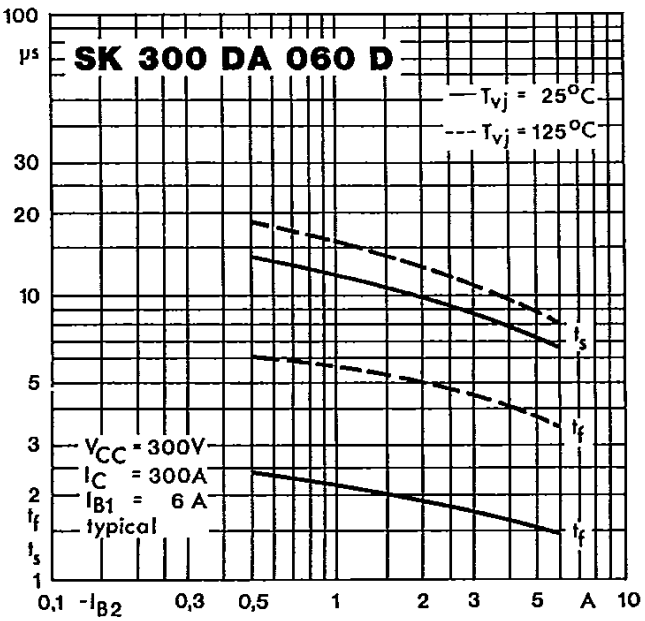


Fig. 10 Turn-off times vs. negative base current

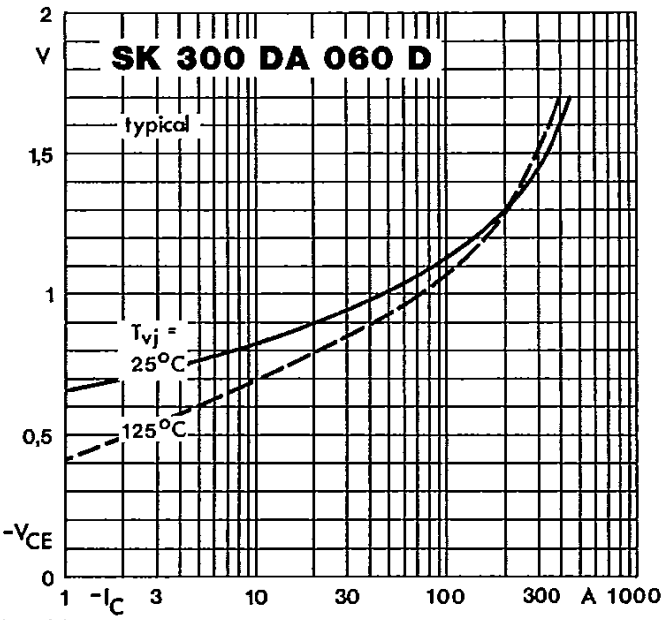


Fig. 11 Inverse diode forward characteristics

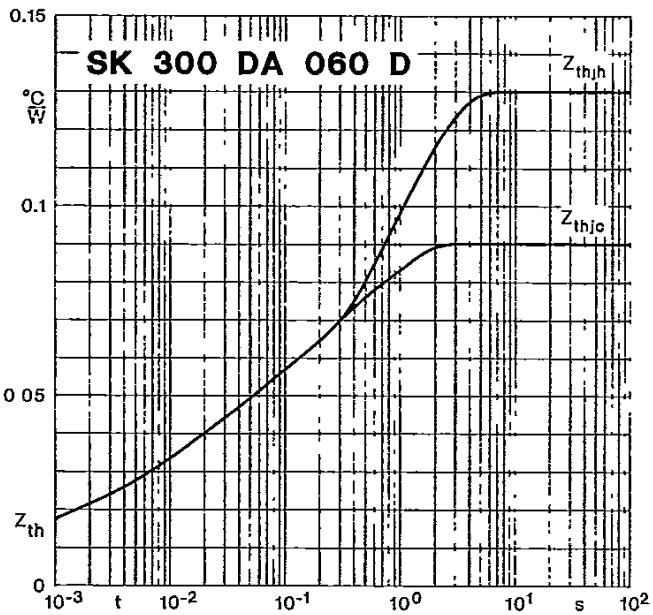


Fig. 12 Transient thermal impedance vs. time

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Case D 19

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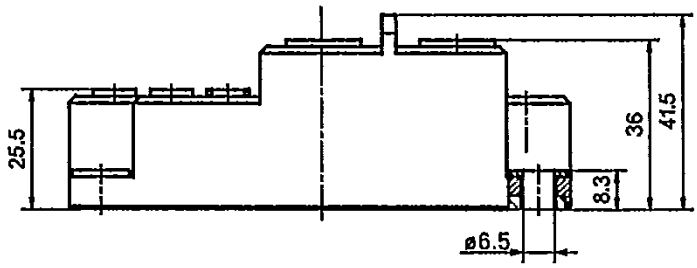
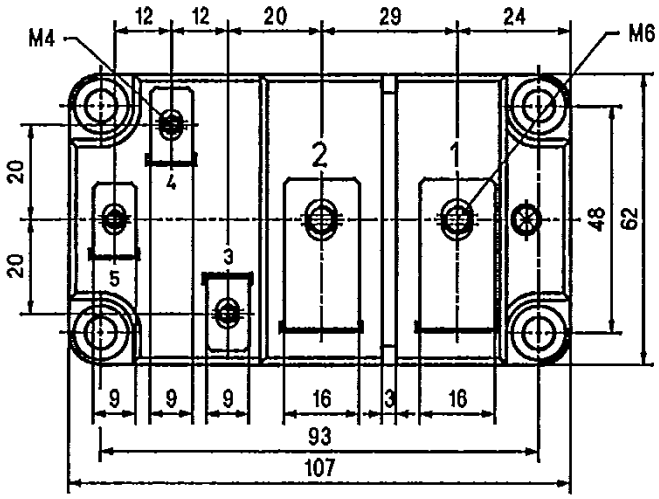
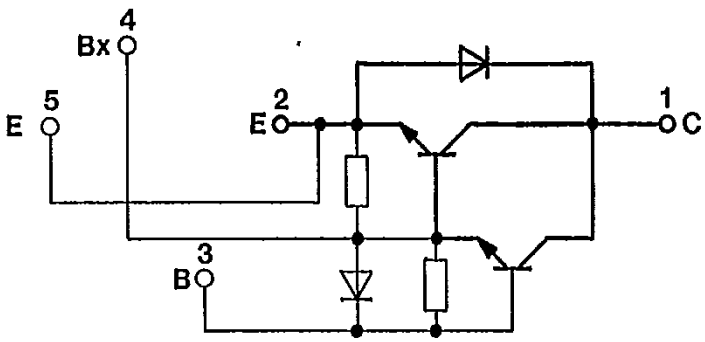
UL recognized, file no. E 63 532







Dimensions in mm