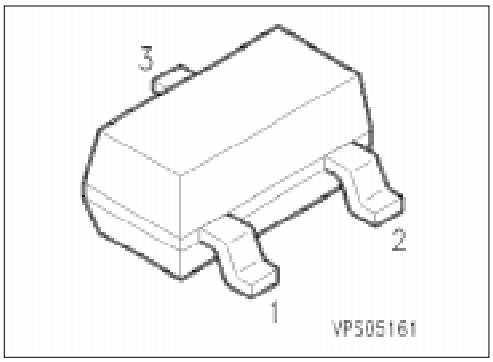
SIEMENS

NPN Silicon Darlington Transistors

BCV 27
BCV47

- For general AF applications
- High collector current
- High current gain
- Complementary types: BCV 26, BCV 46 (PNP)



Type	Marking	Ordering Code (tape and reel)	Pin Configuration 1	2	3	Package[1]
BCV 27 BCV 47	FFs FGs	Q62702-C1474 Q62702-C1501	B	E	C	SOT-23

Maximum Ratings

Parameter	Symbol	Values BCV 27	BCV 47	Unit
Collector-emitter voltage	V_{CE0}	30	60	V
Collector-base voltage	V_{CB0}	40	80	
Emitter-base voltage	V_{EB0}	10	10	
Collector current	I_C	500		mA
Peak collector current	I_{CM}	800		
Base current	I_B	100		
Peak base current	I_{BM}	200		
Total power dissipation, T_S = 74 ˚C	P_{tot}	360		mW
Junction temperature	T_j	150		˚C
Storage temperature range	T_{stg}	– 65 … + 150		

Thermal Resistance

Junction - ambient[2]	$R_{th\ JA}$	≤ 280	K/W
Junction - soldering point	$R_{th\ JS}$	≤ 210	

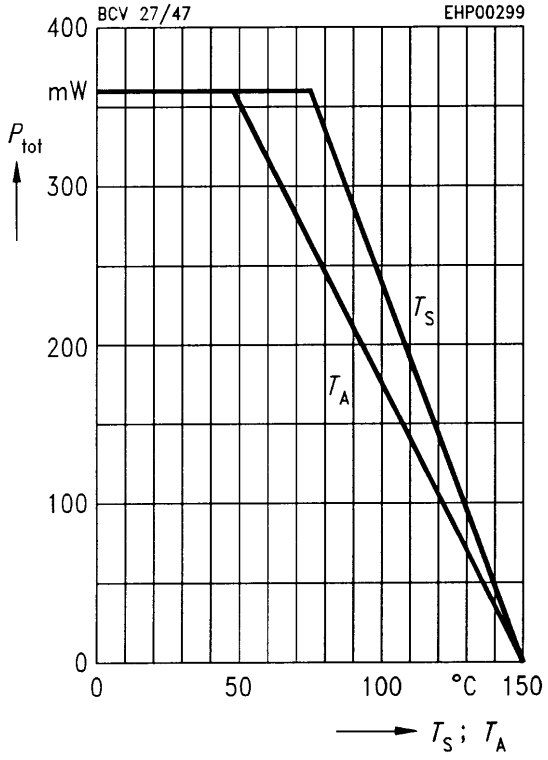
1) For detailed information see chapter Package Outlines.
2) Package mounted on epoxy pcb 40 mm × 40 mm × 1.5 mm/6 cm² Cu.

Electrical Characteristics
at T_A = 25 ˚C, unless otherwise specified.

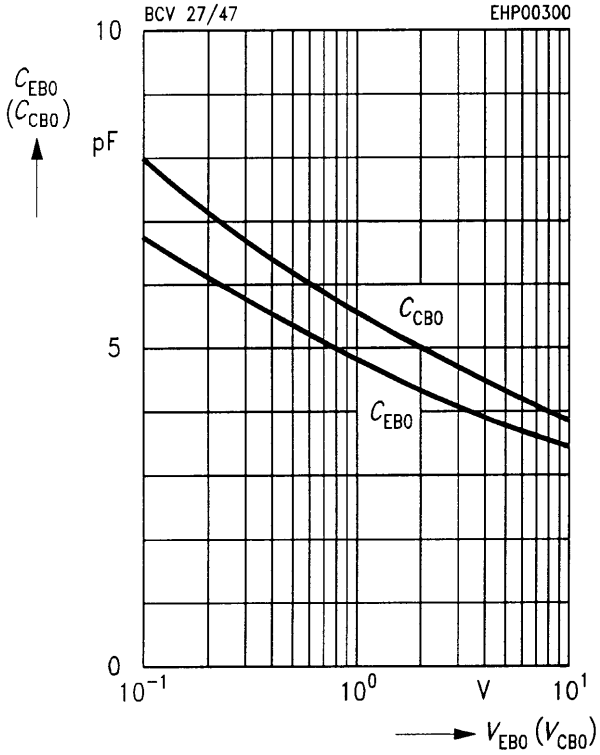
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC characteristics					
Collector-emitter breakdown voltage I_C = 10 mA	$V_{(BR)CE0}$				V
BCV 27		30	–	–	
BCV 47		60	–	–	
Collector-base breakdown voltage I_C = 100 µA	$V_{(BR)CB0}$				
BCV 27		40	–	–	
BCV 47		80	–	–	
Emitter-base breakdown voltage, I_E = 10 µA	$V_{(BR)EB0}$	10	–	–	
Collector cutoff current	I_{CB0}				
V_{CB} = 30 V BCV 27		–	–	100	nA
V_{CB} = 60 V BCV 47		–	–	100	nA
V_{CB} = 30 V, T_A = 150 ˚C BCV 27		–	–	10	µA
V_{CB} = 60 V, T_A = 150 ˚C BCV 47		–	–	10	µA
Emitter cutoff current, V_{EB} = 4 V	I_{EB0}	–	–	100	nA
DC current gain[1)]	h_{FE}				–
I_C = 100 µA, V_{CE} = 1 V BCV 27		4000	–	–	
BCV 47		2000	–	–	
I_C = 10 mA, V_{CE} = 5 V BCV 27		10000	–	–	
BCV 47		4000	–	–	
I_C = 100 mA, V_{CE} = 5 V BCV 27		20000	–	–	
BCV 47		10000	–	–	
I_C = 0.5 A, V_{CE} = 5 V BCV 27		4000	–	–	
BCV 47		2000	–	–	
Collector-emitter saturation voltage[1)] I_C = 100 mA, I_B = 0.1 mA	V_{CEsat}	–	–	1	V
Base-emitter saturation voltage[1)] I_C = 100 mA, I_B = 0.1 mA	V_{BEsat}	–	–	1.5	
AC characteristics					
Transition frequency I_C = 50 mA, V_{CE} = 5 V, f = 20 MHz	f_T	–	170	–	MHz
Output capacitance V_{CB} = 10 V, f = 1 MHz	C_{obo}	–	3.5	–	pF

[1)] Pulse test: $t \leq 300$ µs, D = 2 %.

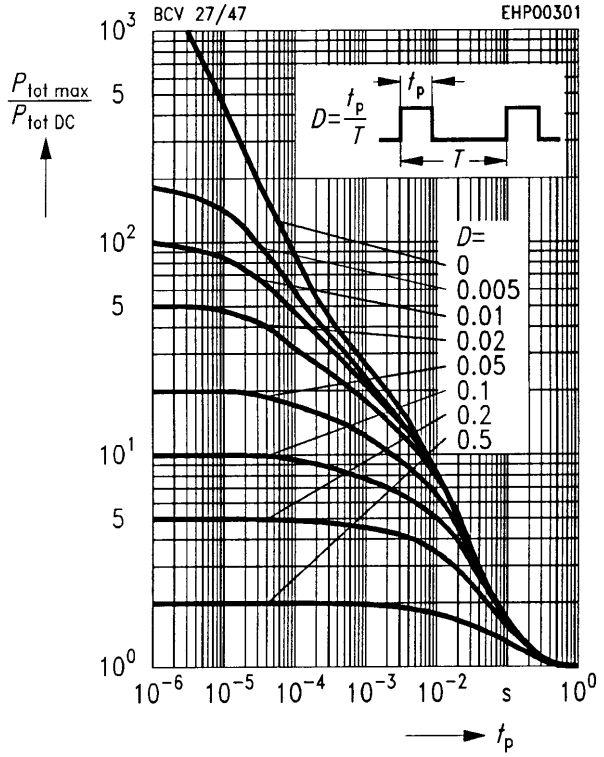
Total power dissipation $P_{tot} = f(T_A^*; T_S)$
* Package mounted on epoxy



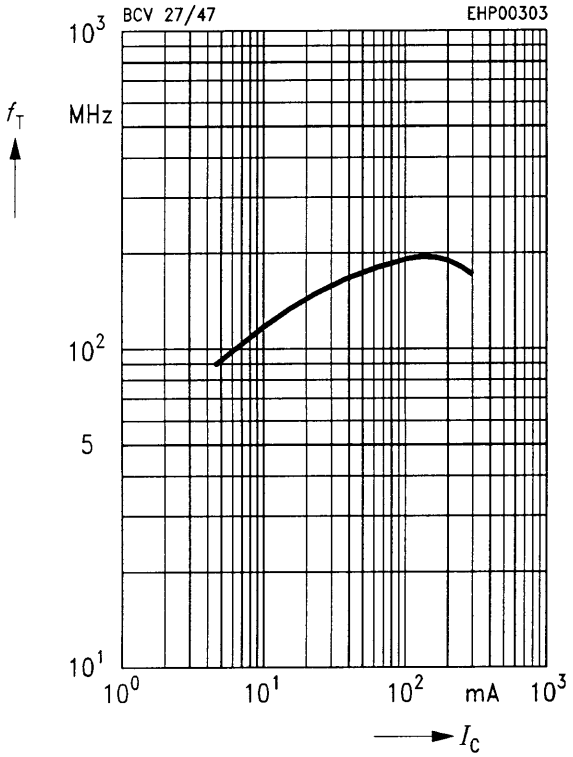
Collector-base capacitance $C_{CB0} = f(V_{CB0})$
Emitter-base capacitance $C_{EB0} = f(V_{EB0})$



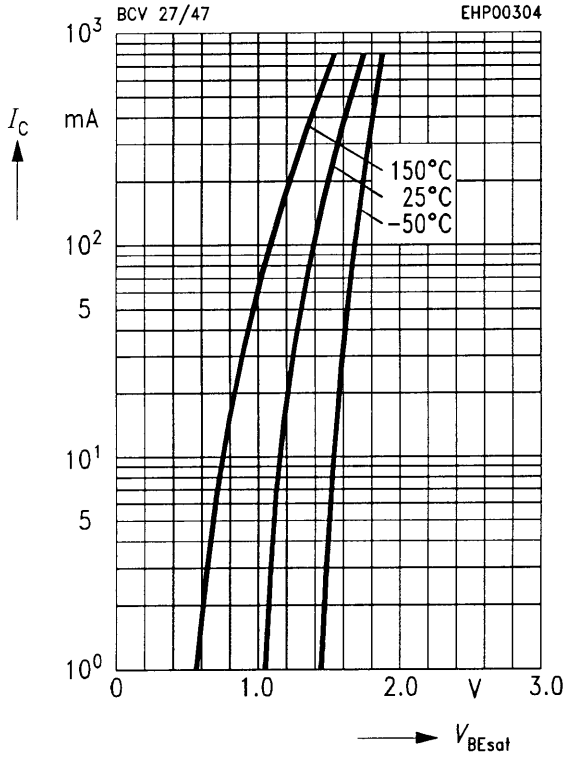
Permissible pulse load $P_{tot\,max}/P_{tot\,DC} = f(t_p)$



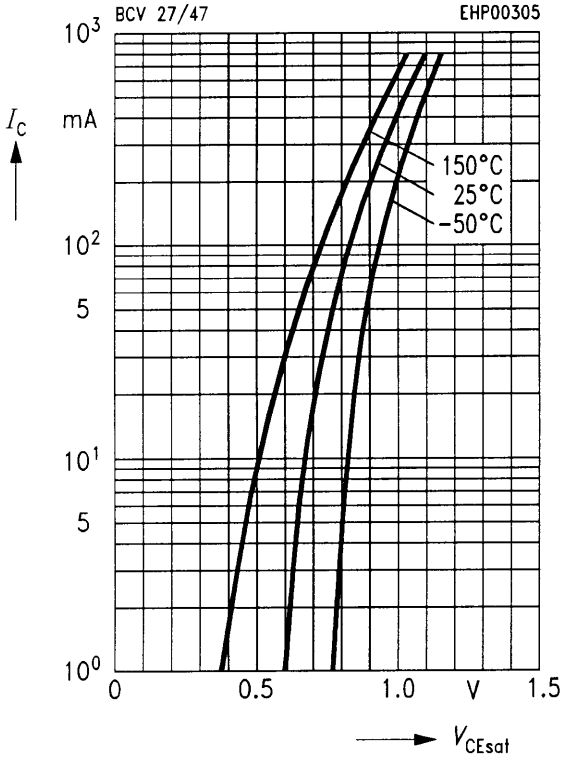
Transition frequency $f_T = f(I_C)$
V_{CE} = 5 V



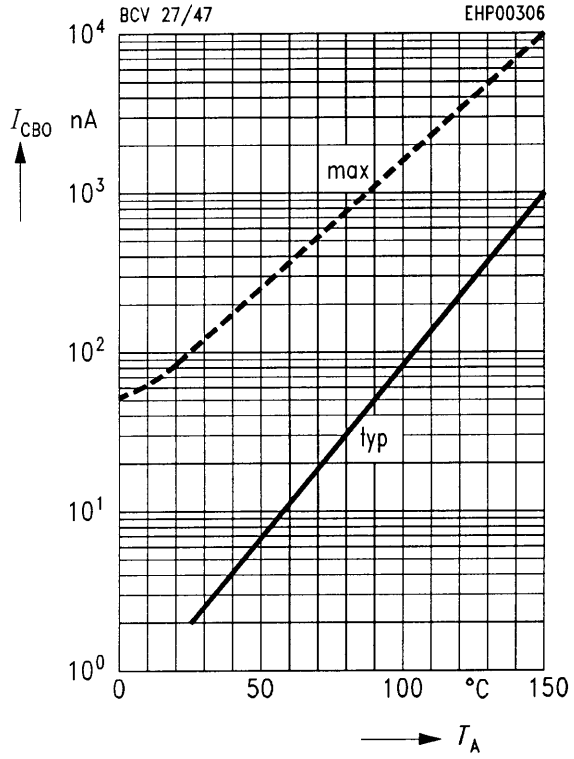
Base-emitter saturation voltage
$I_C = f(V_{BEsat})$
$h_{FE} = 1000$



Collector-emitter saturation voltage
$I_C = f(V_{CEsat})$
$h_{FE} = 1000$



Collector cutoff current $I_{CB0} = f(T_A)$
$V_{CB} = V_{CE\ max}$



DC current gain $h_{FE} = f(I_C)$
$V_{CE} = 5$ V