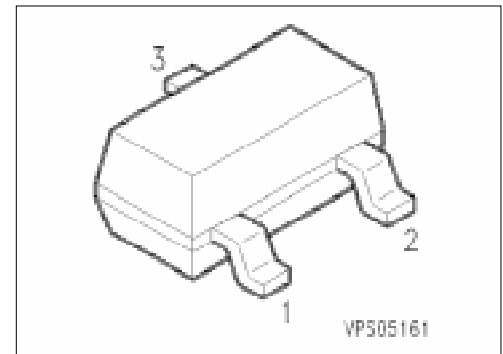


NPN Silicon Darlington Transistors

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			Package ¹⁾
			1	2	3	
BCV 27	FFs	Q62702-C1474	B	E	C	SOT-23
BCV 47	FGs	Q62702-C1501				

Maximum Ratings

Parameter	Symbol	Values		Unit
		BCV 27	BCV 47	
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, $T_s = 74\text{ °C}$	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 $T_A = 25^\circ\text{C}$, unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

DC characteristics

Collector-emitter breakdown voltage $I_C = 10\text{ mA}$	$V_{(BR)CE0}$				V
BCV 27		30	—	—	
BCV 47		60	—	—	
Collector-base breakdown voltage $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CB0}$				
BCV 27		40	—	—	
BCV 47		80	—	—	
Emitter-base breakdown voltage, $I_E = 10\text{ }\mu\text{A}$	$V_{(BR)EB0}$	10	—	—	
Collector cutoff current $V_{CB} = 30\text{ V}$	I_{CB0}	—	—	100	nA
BCV 27		—	—	100	nA
$V_{CB} = 60\text{ V}$		—	—	10	μA
BCV 47		—	—	10	μA
$V_{CB} = 30\text{ V}, T_A = 150^\circ\text{C}$		—	—	10	μA
$V_{CB} = 60\text{ V}, T_A = 150^\circ\text{C}$		—	—	10	μA
Emitter cutoff current, $V_{EB} = 4\text{ V}$	I_{EB0}	—	—	100	nA
DC current gain ¹⁾	h_{FE}				—
$I_C = 100\text{ }\mu\text{A}, V_{CE} = 1\text{ V}$		4000	—	—	
BCV 27		2000	—	—	
BCV 47		10000	—	—	
$I_C = 10\text{ mA}, V_{CE} = 5\text{ V}$		4000	—	—	
BCV 27		20000	—	—	
BCV 47		10000	—	—	
$I_C = 100\text{ mA}, V_{CE} = 5\text{ V}$		4000	—	—	
BCV 27		2000	—	—	
BCV 47					
Collector-emitter saturation voltage ¹⁾	V_{CEsat}	—	—	1	V
$I_C = 100\text{ mA}, I_B = 0.1\text{ mA}$					
Base-emitter saturation voltage ¹⁾	V_{BEsat}	—	—	1.5	
$I_C = 100\text{ mA}, I_B = 0.1\text{ mA}$					

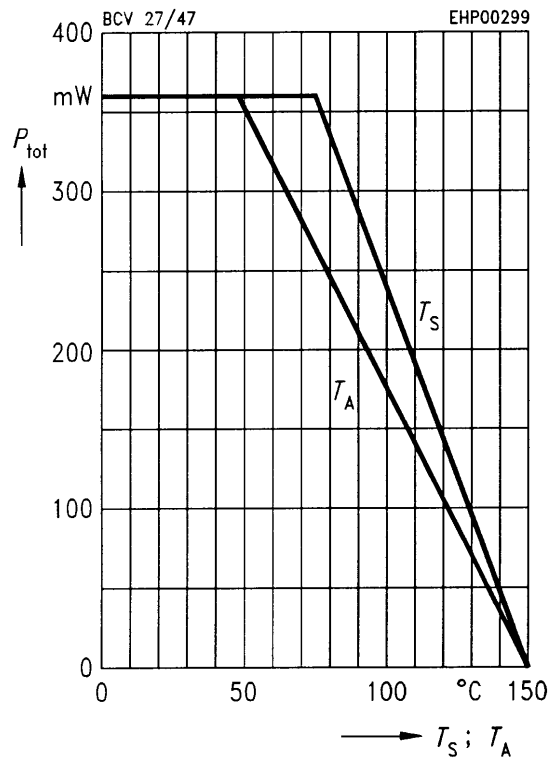
AC characteristics

Transition frequency $I_C = 50\text{ mA}, V_{CE} = 5\text{ V}, f = 20\text{ MHz}$	f_T	—	170	—	MHz
Output capacitance $V_{CB} = 10\text{ V}, f = 1\text{ MHz}$	C_{obo}	—	3.5	—	pF

¹⁾ Pulse test: $t \leq 300\text{ }\mu\text{s}$, $D = 2\%$.

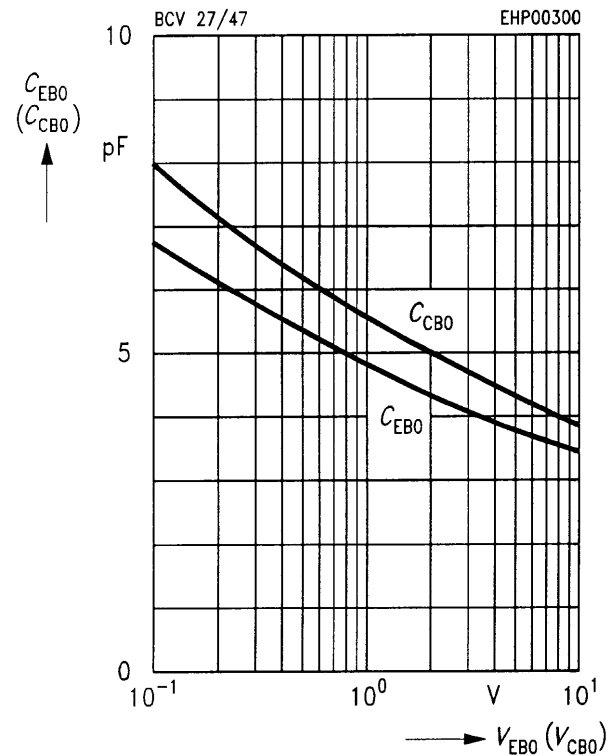
Total power dissipation $P_{\text{tot}} = f(T_A^*; T_S)$

* Package mounted on epoxy



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

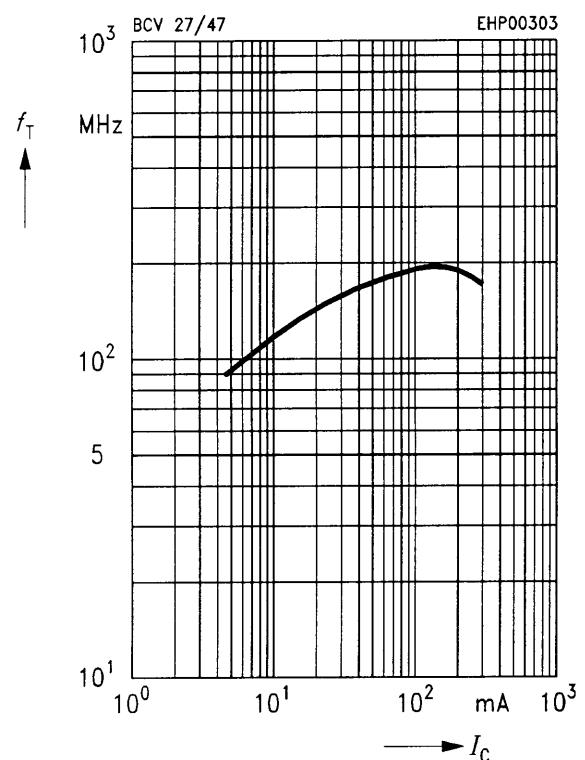
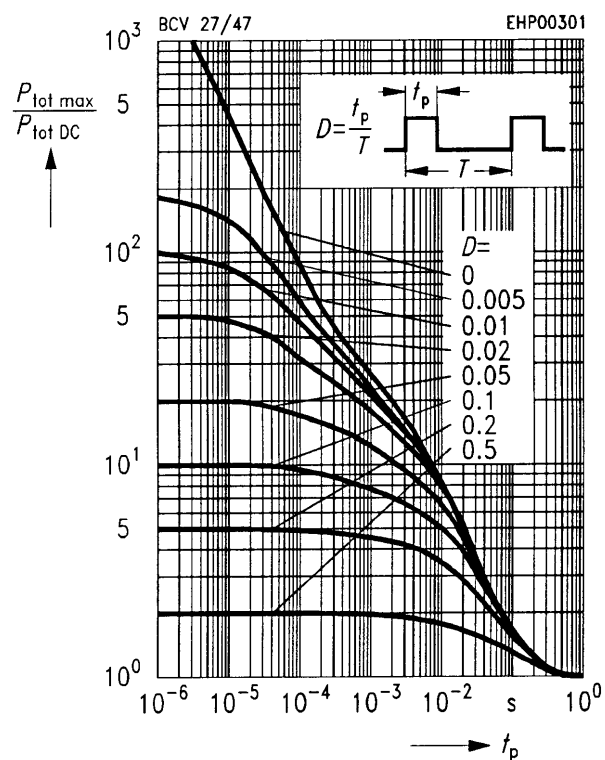
Emitter-base capacitance $C_{EB0} = f(V_{EB0})$



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

Transition frequency $f_T = f(I_C)$

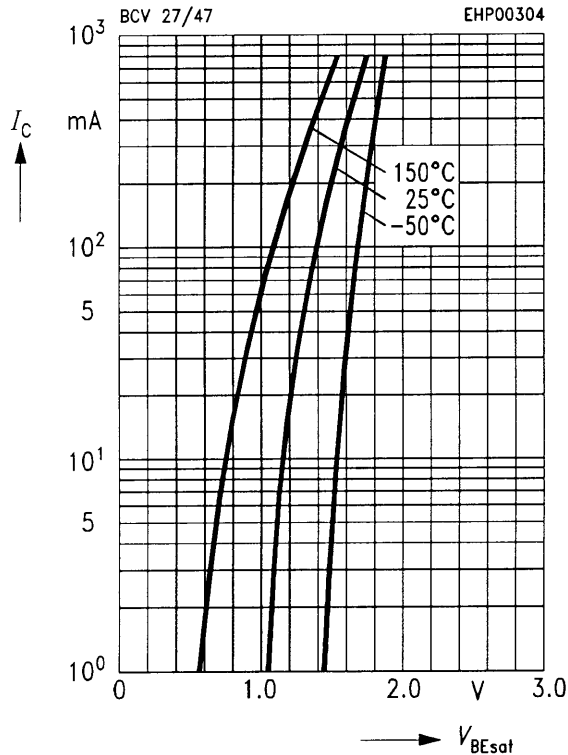
$V_{CE} = 5 \text{ V}$



Base-emitter saturation voltage

$$I_C = f(V_{BEsat})$$

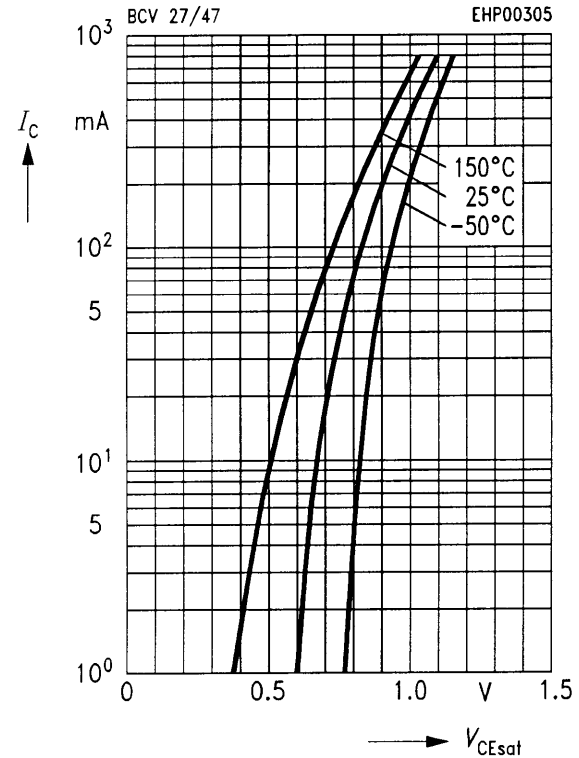
$$h_{FE} = 1000$$



Collector-emitter saturation voltage

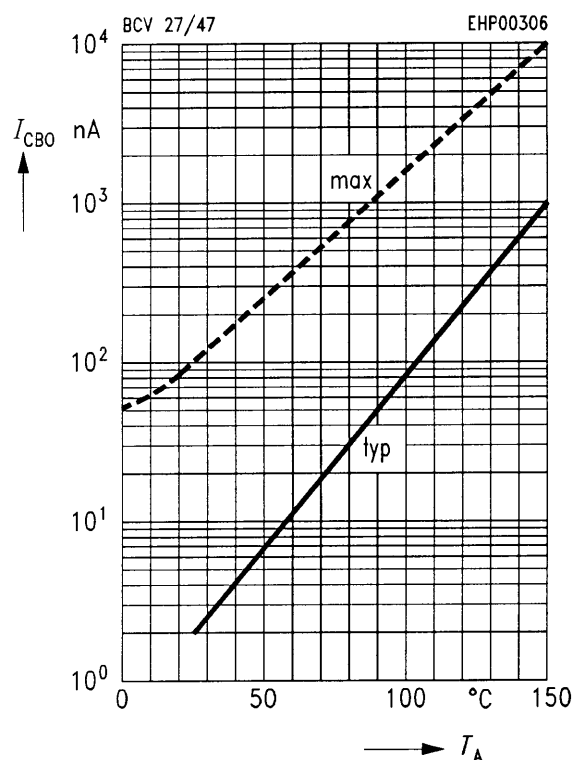
$$I_C = f(V_{CEsat})$$

$$h_{FE} = 1000$$



Collector cutoff current $I_{CB0} = f(T_A)$

$$V_{CB} = V_{CE max}$$



DC current gain $h_{FE} = f(I_C)$

$$V_{CE} = 5 V$$

