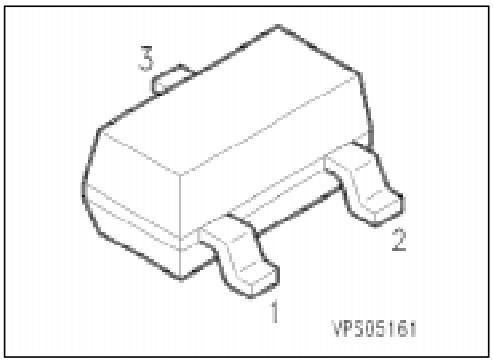
SIEMENS

NPN Silicon Transistors

SMBT 6428
SMBT 6429

- For AF input stages and driver applications
- High current gain
- Low collector-emitter saturation voltage



Type	Marking	Ordering Code (tape and reel)	Pin Configuration 1	2	3	Package[1]
SMBT 6428 SMBT 6429	s1K s1L	Q68000-A8321 Q68000-A8322	B	E	C	SOT-23

Maximum Ratings

Parameter	Symbol	Values SMBT 6428	SMBT 6429	Unit
Collector-emitter voltage	V_{CE0}	50	45	V
Collector-base voltage	V_{CB0}	60	55	
Emitter-base voltage	V_{EB0}	6		
Collector current	I_C	200		mA
Total power dissipation, $T_S = 71$ °C	P_{tot}	330		mW
Junction temperature	T_j	150		°C
Storage temperature range	T_{stg}	– 65 … + 150		

Thermal Resistance

Junction - ambient[2]	$R_{th\ JA}$	≤ 310	K/W
Junction - soldering point	$R_{th\ JS}$	≤ 240	

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.

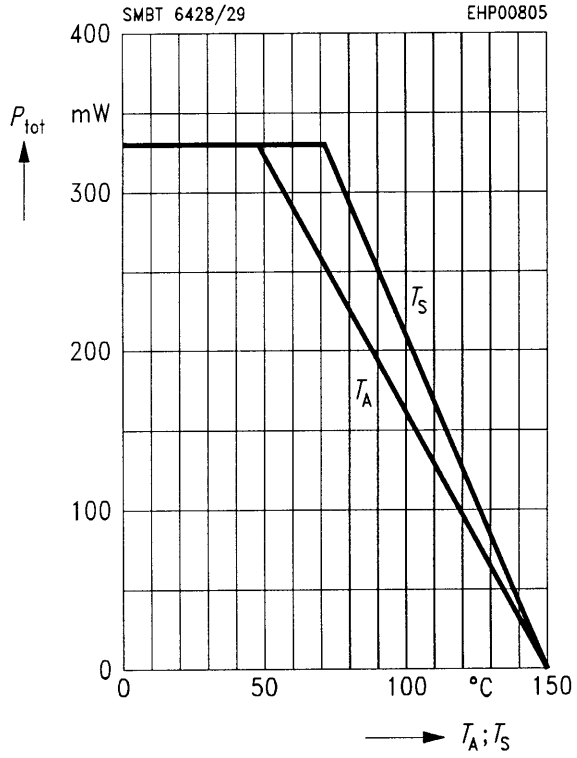
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC characteristics					
Collector-emitter breakdown voltage	$V_{(BR)CE0}$				V
I_C = 1 mA SMBT 6428		50	–	–	
SMBT 6429		45	–	–	
Collector-base breakdown voltage	$V_{(BR)CB0}$				
I_C = 10 µA SMBT 6428		60	–	–	
SMBT 6429		55	–	–	
Emitter-base breakdown voltage	$V_{(BR)EB0}$	6	–	–	
I_E = 1 µA					
Collector-base cutoff current	I_{CB0}				
V_{CB} = 30 V, I_E = 0		–	–	10	nA
V_{CB} = 30 V, I_E = 0, T_A = 150 °C		–	–	10	µA
Collector cutoff current	I_{CE0}	–	–	100	nA
V_{CE} = 30 V, I_B = 0					
Emitter-base cutoff current	I_{EB0}	–	–	10	
V_{EB} = 5 V, I_C = 0					
DC current gain	h_{FE}				–
I_C = 10 µA, V_{CE} = 5 V SMBT 6428		250	–	–	
SMBT 6429		500	–	–	
I_C = 100 µA, V_{CE} = 5 V SMBT 6428		250	–	650	
SMBT 6429		500	–	1250	
I_C = 1 mA, V_{CE} = 5 V SMBT 6428		250	–	–	
SMBT 6429		500	–	–	
I_C = 10 mA, V_{CE} = 5 V SMBT 6428		250	–	–	
SMBT 6429		500	–	–	
Collector-emitter saturation voltage[1)]	V_{CEsat}				V
I_C = 10 mA, I_B = 0.5 mA		–	–	0.2	
I_C = 100 mA, I_B = 5 mA		–	–	0.6	
Base-emitter voltage	$V_{BE(on)}$	0.56	–	0.66	
I_C = 1 mA, V_{CE} = 5 V					

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

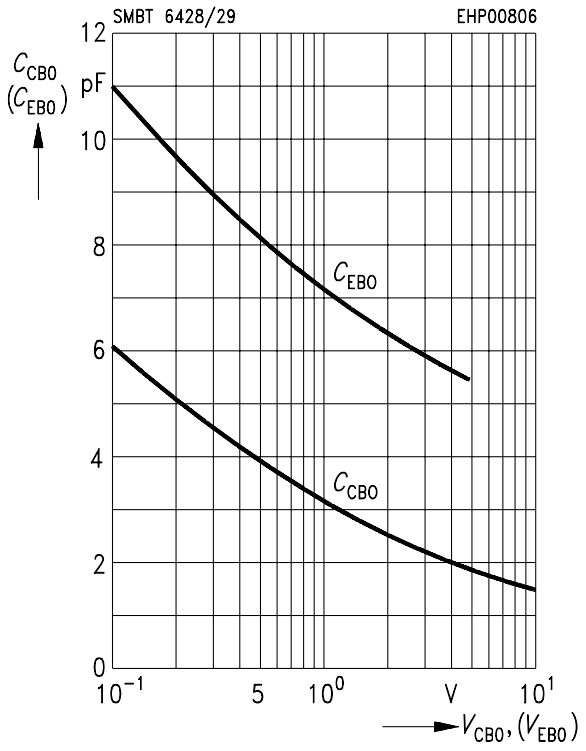
Electrical Characteristics
at T_A = 25 °C, unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC characteristics					
Transition frequency I_C = 5 mA, V_{CE} = 5 V, f = 100 MHz	f_T	100	–	700	MHz
Output capacitance V_{CB} = 10 V, f = 1 MHz	C_{obo}	–	–	3	pF
Input capacitance V_{EB} = 0.5 V, f = 1 MHz	C_{ibo}	–	–	15	

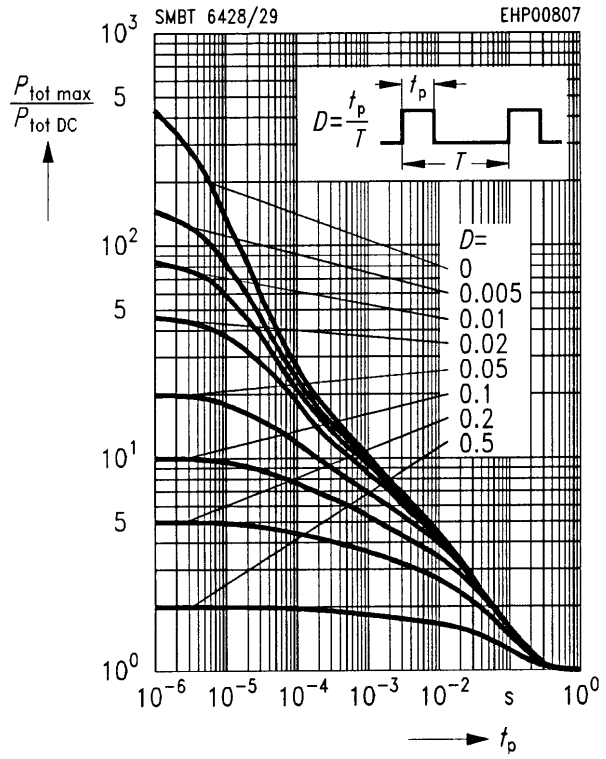
Total power dissipation $P_{tot} = f(T_A^*; T_S)$
* Package mounted on epoxy



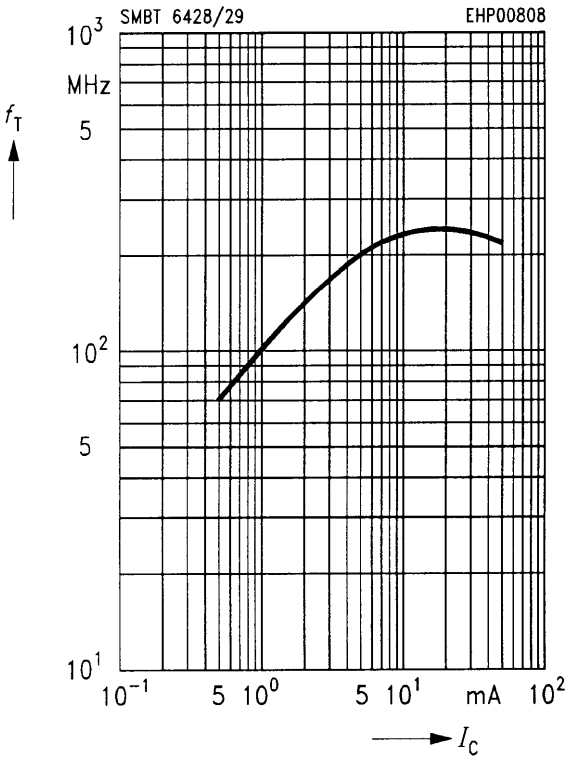
Collector-base capacitance $C_{CB0} = f(V_{CB0})$
Emitter-base capacitance $C_{EB0} = f(V_{EB0})$



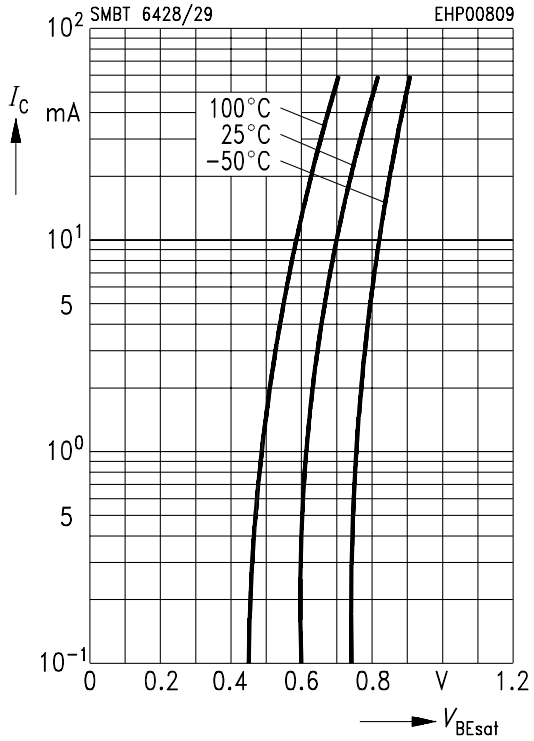
Permissible pulse load $P_{tot\,max}/P_{tot\,DC} = f(t_p)$



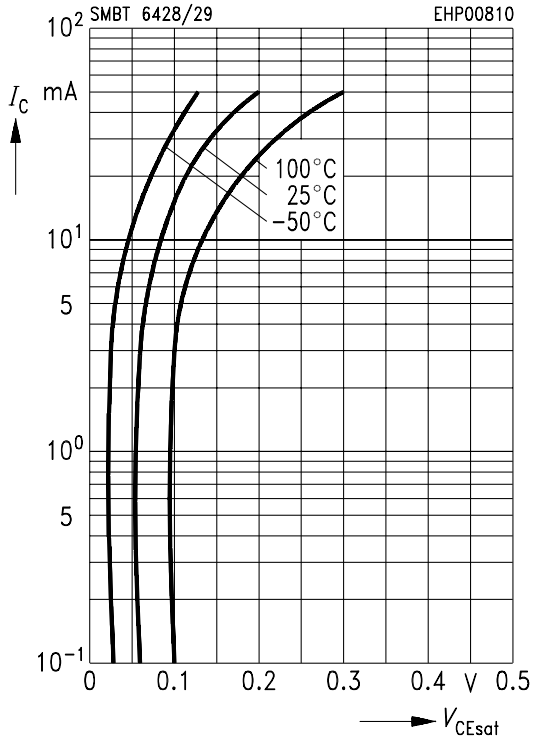
Transition frequency $f_T = f(I_C)$
V_{CE} = 5 V



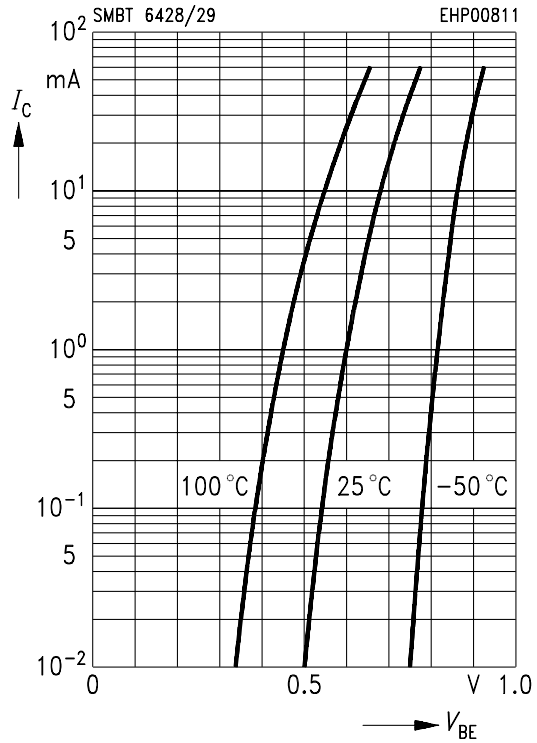
Base-emitter saturation voltage
$I_C = f(V_{BEsat})$, $h_{FE} = 40$



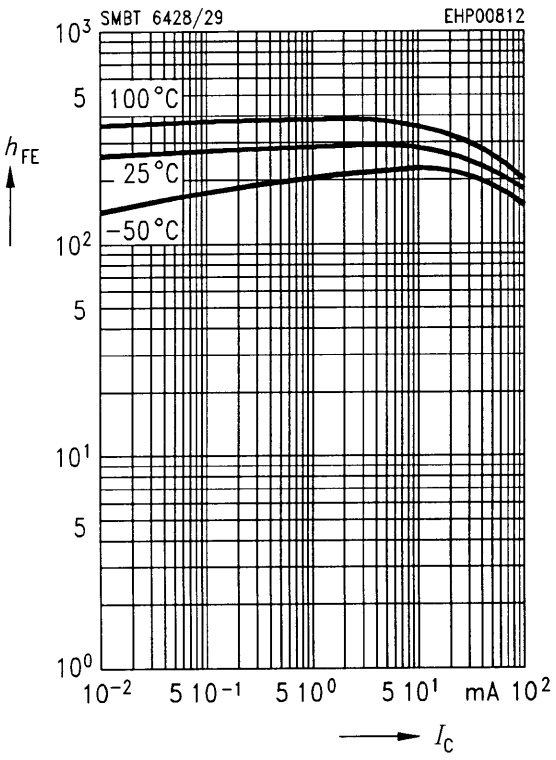
Collector-emitter saturation voltage
$I_C = f(V_{CEsat})$, $h_{FE} = 40$



Collector current $I_C = f(V_{BE})$
V_{CE} = 1 V



DC current gain $h_{FE} = f(I_C)$
V_{CE} = 1 V



Collector cutoff current $I_{CB0} = f(T_A)$
V_{CB} = 30 V