Elektronische Bauelemente

2SD1781K

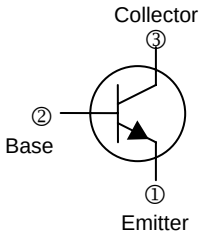
NPN Silicon
Plastic Encapsulated Transistor

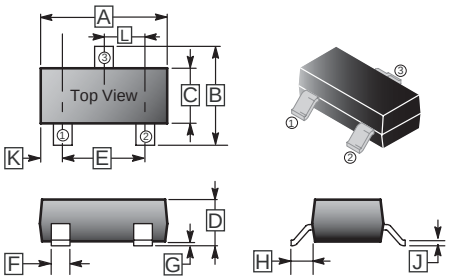
RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

SOT-23

FEATURES

- Very low V_{CE}(sat).V_{CE}(sat) < 0.4 V (Typ.) (I_C /I_B = 500mA / 50mA)
- Complements to 2SB1197K





MARKING

AF□ ← □ = hFE ranking

REF.	Millimeter Min.	Millimeter Max.	REF.	Millimeter Min.	Millimeter Max.
A	2.80	3.00	G	0.10 REF.	
B	2.25	2.55	H	0.55 REF.	
C	1.20	1.40	J	0.08	0.15
D	0.90	1.15	K	0.5 REF.	
E	1.80	2.00	L	0.95 TYP.	
F	0.30	0.50			

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
Collector to Base Voltage	V_{CBO}	40	V
Collector to Emitter Voltage	V_{CEO}	32	V
Emitter to Base Voltage	V_{EBO}	5	V
Collector Current - Continuous	I_C	0.8	A
Total Device Dissipation	P_C	200	mW
Junction and Storage Temperature	T_J, T_{STG}	150, -55~150	°C

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Collector–Base Breakdown Voltage	BV_{CBO}	40	-	-	V	I_C = 50μA, I_E = 0
Collector–Emitter Breakdown Voltage	BV_{CEO}	32	-	-	V	I_C = 1mA, I_B = 0
Emitter–Base Breakdown Voltage	BV_{EBO}	5	-	-	V	I_E = 50μA, I_C = 0
Collector Cut-off Current Emitter Cut-off Current	I_{CBO} I_{EBO}	-	-	0.5 0.5	μA μA	V_{CB} = 20V, I_E = 0 V_{EB} = 4V, I_C = 0
DC Current Gain	h_{FE}	120	-	390		I_C = 100mA, V_{CE} = 3.0V
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	-	-	0.4	V	I_C = 500mA, I_B = 50mA
Transition Frequency	f_T	-	150	-	MHz	V_{CE} = 5V, I_C = 50mA, f = 100MHz
Collector Output Capacitance	C_{OB}	-	10	-	pF	V_{CB} = 10V, I_E = 0, f = 1.0MHz

CLASSIFICATION OF h_{FE}

Rank	Q	R
Range	120 – 270	180-390
Marking	AF**Q**	AF**R**

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CHARACTERISTICS CURVE

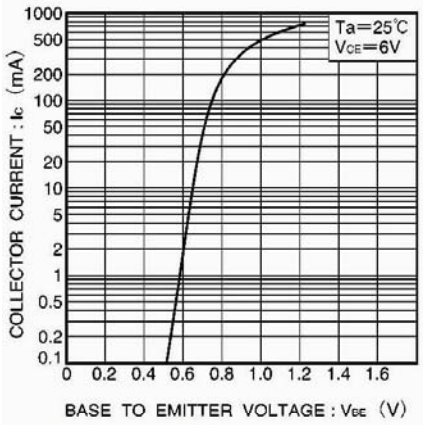

Fig.1 Grounded emitter propagation characteristics

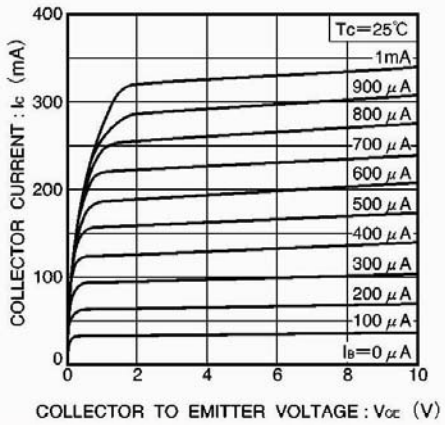

Fig.2 Grounded emitter output characteristics

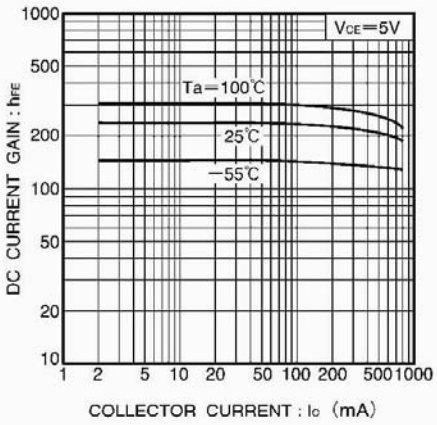

Fig.3 DC current gain vs. collector current

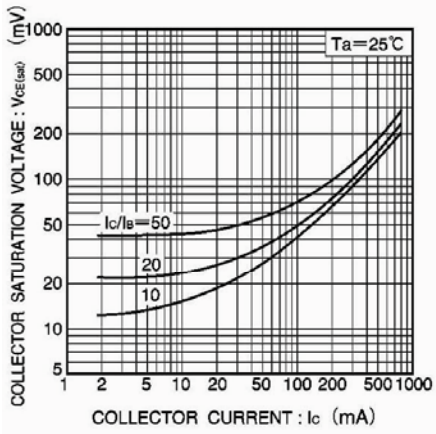

Fig.4 Collector-emitter saturation voltage vs. collector current (Ⅰ)

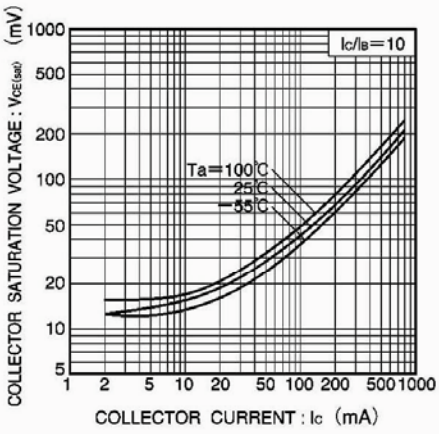

Fig.5 Collector-emitter saturation voltage vs. collector current (Ⅱ)

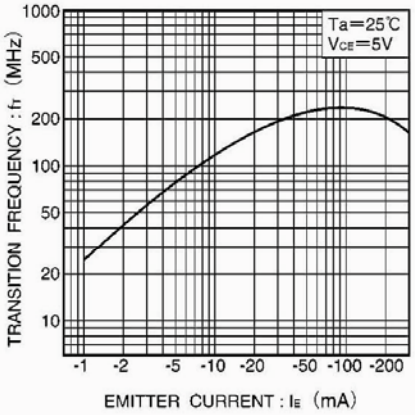

Fig.6 Gain bandwidth product vs. emitter current

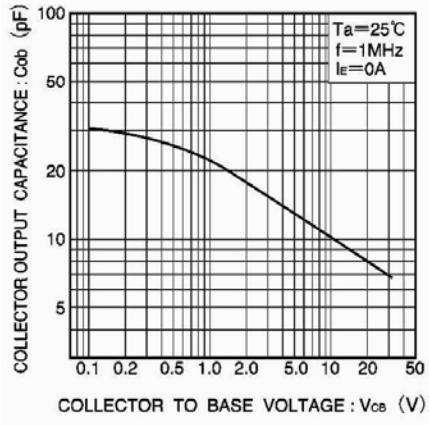

Fig.7 Collector output capacitance vs. collector-base voltage

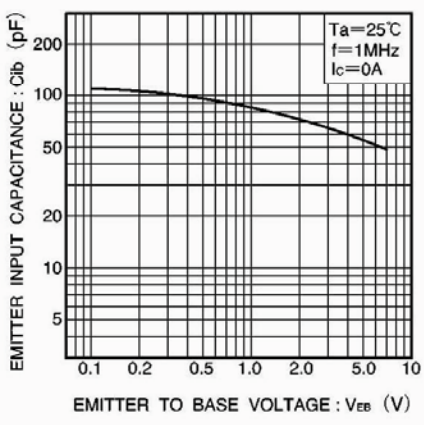

Fig.8 Emitter input capacitance vs. emitter-base voltage