

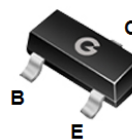
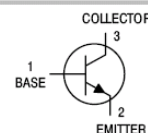
Features

- High DC current gain
- Complimentary to 2SB1197
- RoHS compliant with Halogen-free

HF

Mechanical Data

- Case: SOT-23
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Tin-plated; solderability per MIL-STD-202, Method 208



SOT-23

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
2SD1781-Q	SOT-23	3000 pcs / Tape & Reel	AFQ
2SD1781-R	SOT-23	3000 pcs / Tape & Reel	AFR

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-Base Breakdown Voltage	V _{CBO}	40	V
Collector-Emitter Breakdown Voltage	V _{CEO}	32	V
Emitter-Base Breakdown Voltage	V _{EBO}	5	V
Collector Current (Continuous)	I _C	0.8	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation	P _D	0.2	W
Junction Temperature Range	T _J	-55 ~ +150	°C
Storage Temperature Range	T _{STG}	-55 ~ +150	°C

Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 50\mu\text{A}$, $I_E = 0$	40	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}$, $I_B = 0$	32	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 50\mu\text{A}$, $I_C = 0$	5	-	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB} = 20\text{V}$, $I_E = 0$	-	-	0.5	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = 4\text{V}$, $I_C = 0$	-	-	0.5	μA
DC Current Gain	h_{FE}	$V_{CE} = 3\text{V}$, $I_C = 0.1\text{A}$	120	-	390	-
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 0.5\text{A}$, $I_B = 0.05\text{A}$	-	0.1	0.4	V
Transition Frequency	f_T	$I_E = -50\text{mA}$, $V_{CE} = 5\text{V}$ $f = 100\text{MHz}$	-	150	-	MHz
Collector Output Capacitance	C_{OB}	$V_{CB} = 10\text{V}$, $I_E = 0$, $f = 1\text{MHz}$	-	10	-	pF

CLASSIFICATION OF h_{FE}

Rank	Q	R
Range	120-270	180-390
Marking	AFQ	AFR

Ratings and Characteristics Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

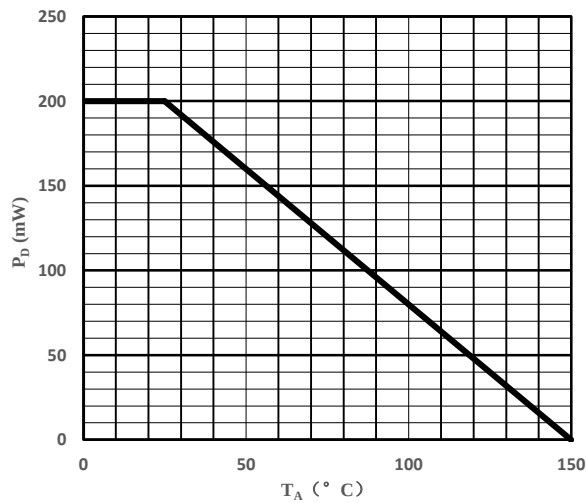


Fig 1 P_D vs. T_A

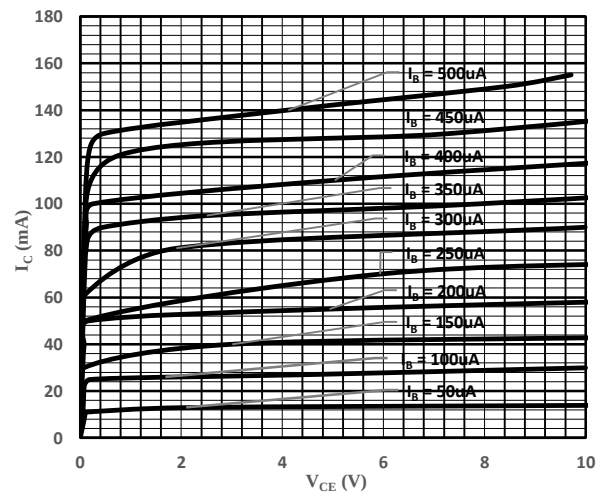


Fig 2 I_C vs. V_{CE}

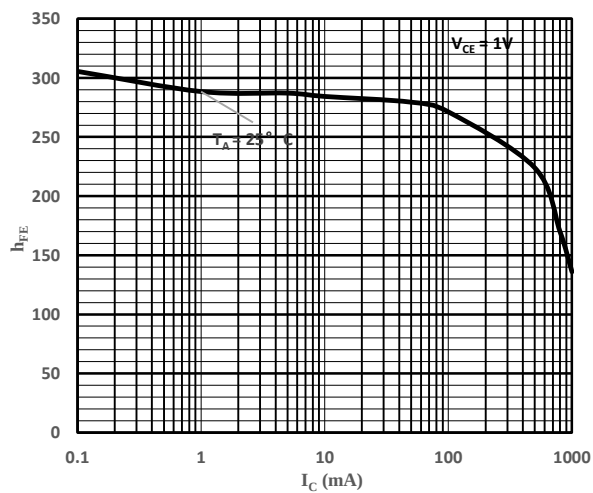


Fig 3 h_{FE} vs. I_C

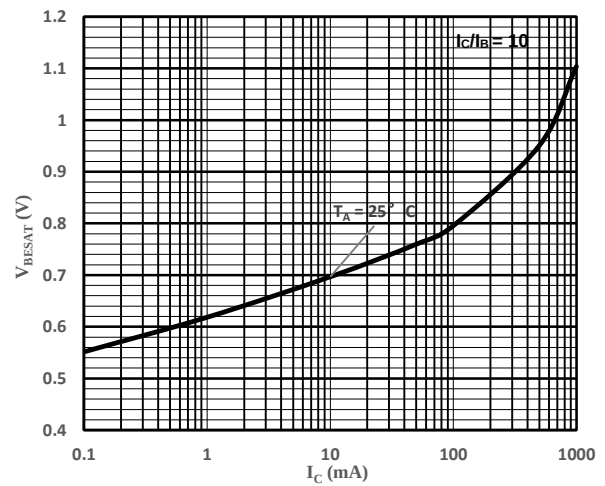


Fig 4 $V_{BE(sat)}$ vs. I_C

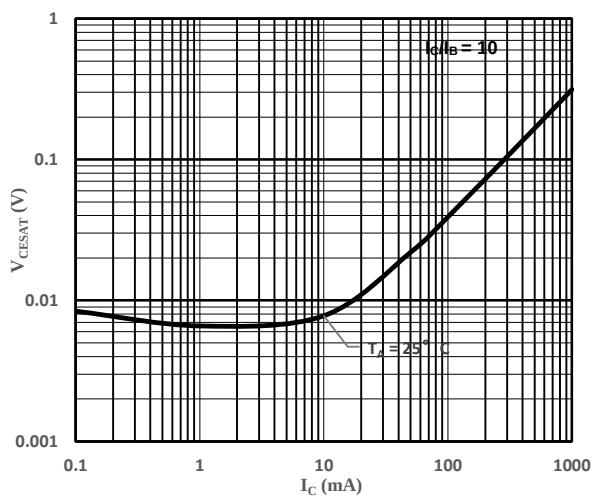


Fig 5 $V_{CE(sat)}$ vs. I_C

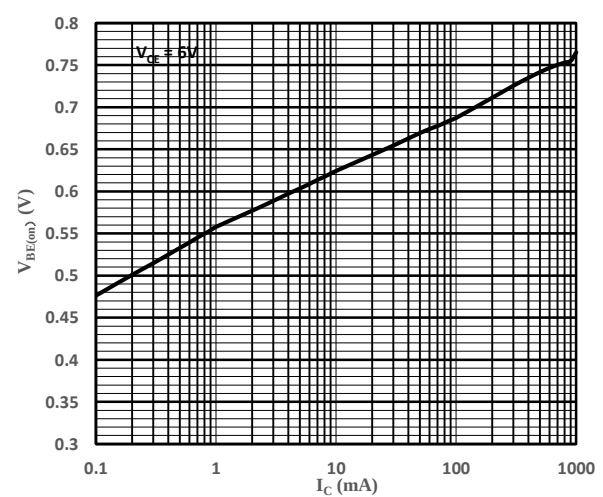


Fig 6 $V_{BE(on)}$ vs. I_C

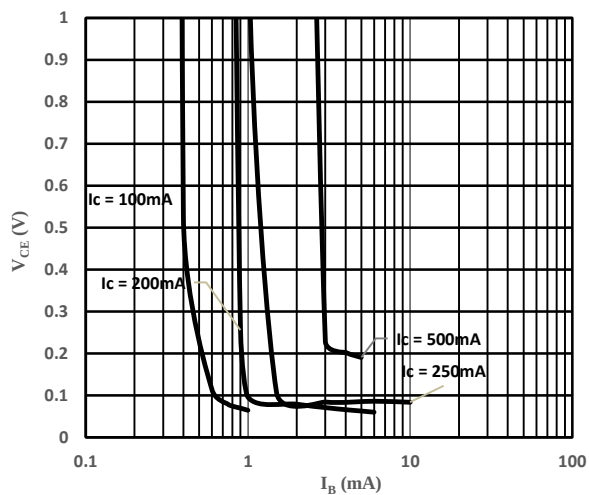


Fig 7 V_{CE} vs. I_B

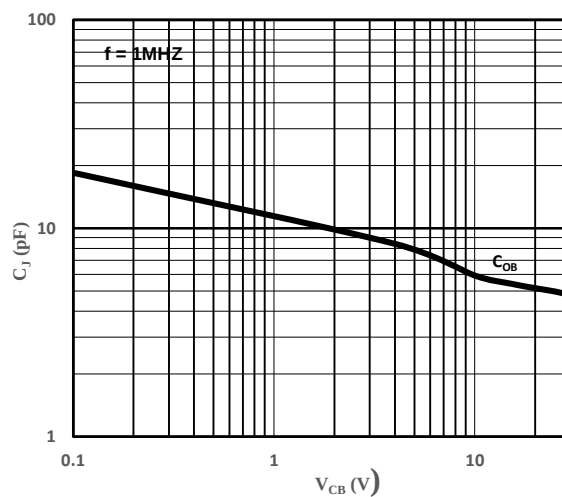


Fig 8 C_J vs. V_{CB}

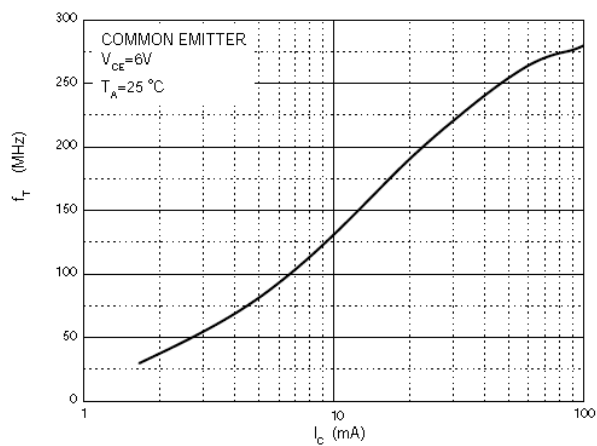
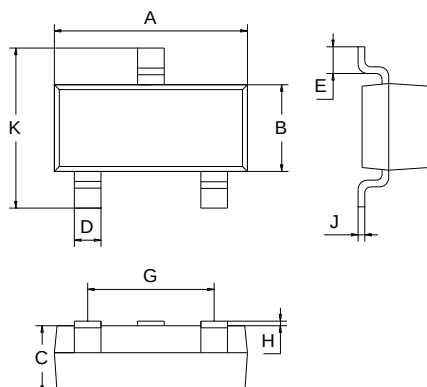


Fig 9 f_T vs. I_C

Package Outline Dimensions (Unit: mm)



SOT-23		
Dimension	Min.	Max.
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.30	0.50
E	0.35	0.48
G	1.80	2.00
H	0.02	0.10
J	0.05	0.15
K	2.20	2.60

Package Outline Dimensions (Unit: mm)

SOT-23

