DESCRIPTION

Epitaxial planar type

NPN silicon transistor

The 2SD1781KR is available in SOT-23 Package.

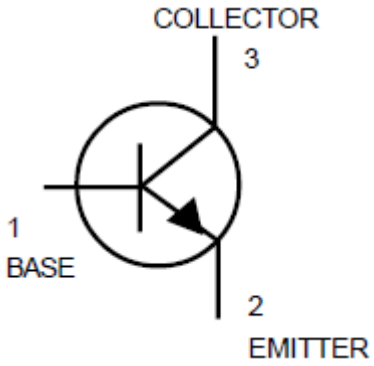
FEATURES

- Very low $V_{CE(sat)}$.
  $V_{CE(sat)}$ < 0.4 V (Typ.)
  (I_C / I_B = 500mA / 50mA)
- High current capacity in compact package
- Complements the 2SB1197KX
- RoHS Compliant
- Available in SOT-23 Package

ORDERING INFORMATION

Package Type	Part Number
SOT-23	2SD1781KR
Note	3,000pcs/Tape & Reel
AiT provides all RoHS Compliant Products	

PIN DESCRIPTION



ABSOLUTE MAXIMUM RATINGS

T_A = 25°C

V_{CBO}, Collector-base voltage	40V
V_{CEO}, Collector-emitter voltage	32V
V_{EBO}, Emitter-base voltage	5V
I_C, Collector current	0.8A(DC)
	1.5A(Pulse)NOTE1
P_C, Collector power dissipation	200mW
T_J, Junction temperature	150°C
T_{STG}, Storage temperature	-55°C ~ +150°C

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

NOTE1: Single pulse P_W=100ms

ELECTRICAL CHARACTERISTICS

T_A = 25°C

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Collector-base breakdown voltage	BV_{CBO}	I_C = 50μA	40	-	-	V
Collector-emitter breakdown voltage	BV_{CEO}	I_C = 1mA	32	-	-	V
Emitter-base breakdown voltage	BV_{EBO}	I_E = 50μA	5	-	-	V
Collector cutoff current	I_{CBO}	V_{CB} = 20V	-	-	0.5	μA
Emitter cutoff current	I_{EBO}	V_{EB} = 4V	-	-	0.5	μA
DC current transfer ratio	h_{FE}	I_C = 100mA V_{CE} = 3V ,	180	-	390	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C / I_B = 500mA / 50mA	-	-	0.4	V
Transition frequency	f_T	V_{CE} = 5V, I_E = -50mA, f = 100MHz	-	150	-	MHz
Output capacitance	C_{ob}	V_{CB}=10V, I_E=0A, f=1MHz	-	10	-	pF

TYPICAL PERFORMANCE CHARACTERISTICS

Figure1. Grounded emitter propagation characteristics

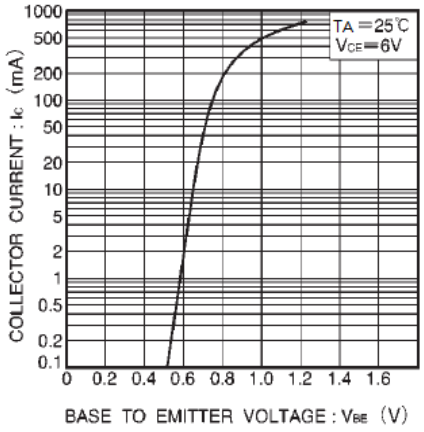


Figure 2. Grounded emitter output characteristics

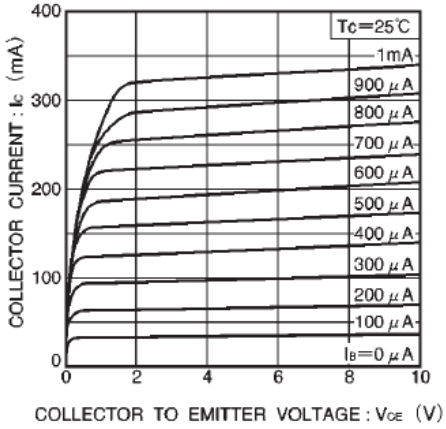


Figure 3. DC current gain vs. collector current

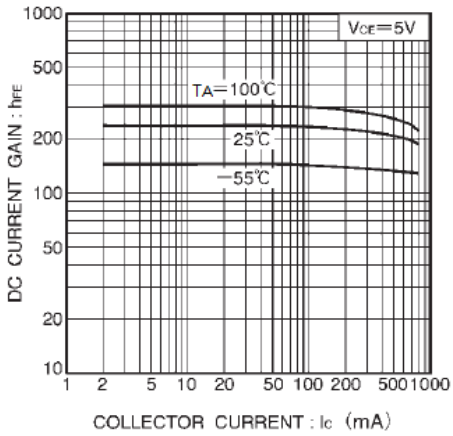


Figure 4. Collector-emitter saturation voltage vs. collector current(I)

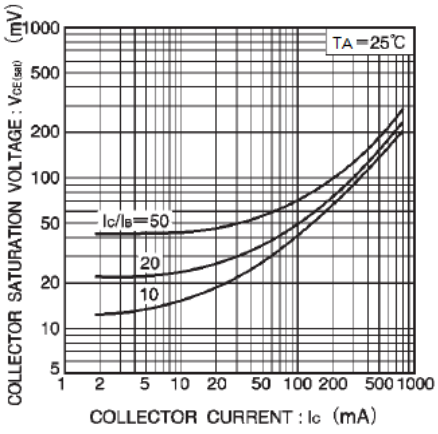


Figure 5. Collector-emitter saturation voltage vs. collector current(II)

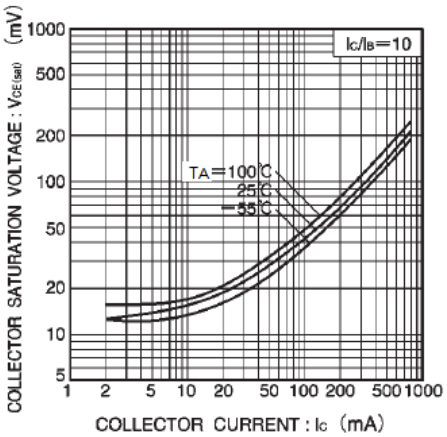


Figure 6. Gain bandwidth product vs. emitter current

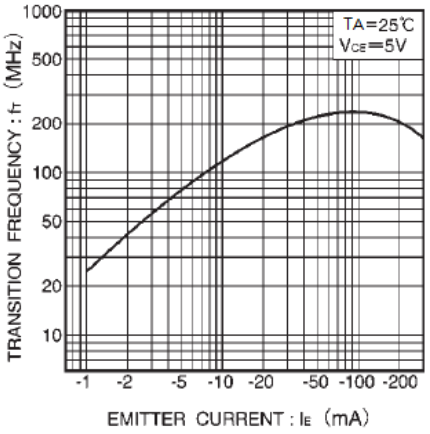


Figure 7. Collector output capacitance vs. collector-base voltage

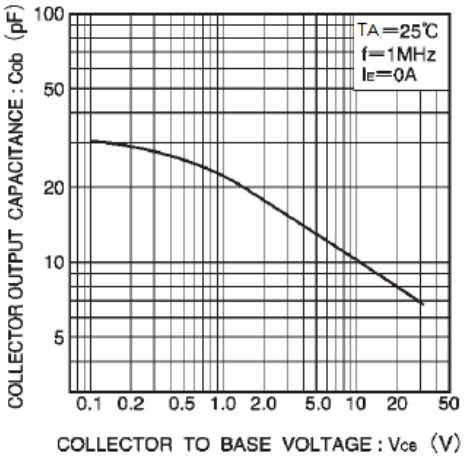
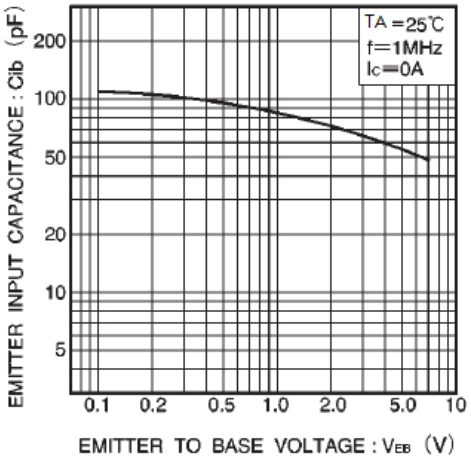
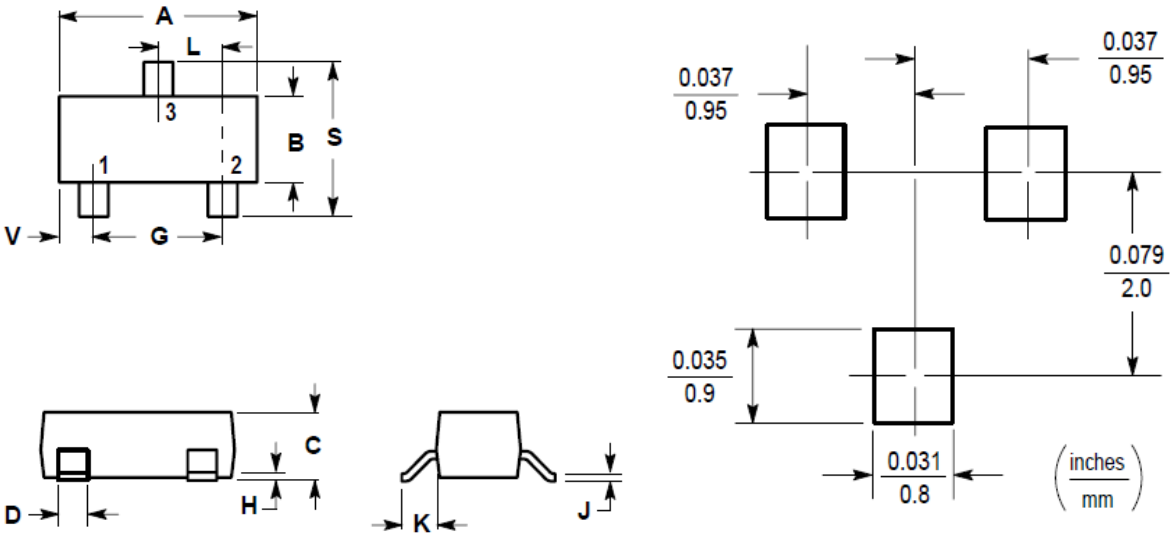


Figure 8. Emitter input capacitance vs. emitter-base voltage



PACKAGE INFORMATION

Dimension in SOT-23 Package (Unit: mm)



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.80	3.04	0.1102	0.1197
B	1.20	1.40	0.0472	0.0551
C	0.89	1.11	0.0350	0.0440
D	0.37	0.50	0.0150	0.0200
G	1.78	2.04	0.0701	0.0807
H	0.013	0.100	0.0005	0.0040
J	0.085	0.177	0.0034	0.0070
K	0.35	0.69	0.0140	0.0285
L	0.89	1.02	0.0350	0.0401
S	2.10	2.64	0.0830	0.1039
V	0.45	0.60	0.0177	0.0236

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