



CHENMKO ENTERPRISE CO.,LTD

Halogens free devices

**SURFACE MOUNT
NPN Switching Transistor**

VOLTAGE 32 Volts CURRENT 0.8 Ampere

2SD1781KGP

APPLICATION

- * Telephone and professional communication equipment.
- * Other switching applications.

FEATURE

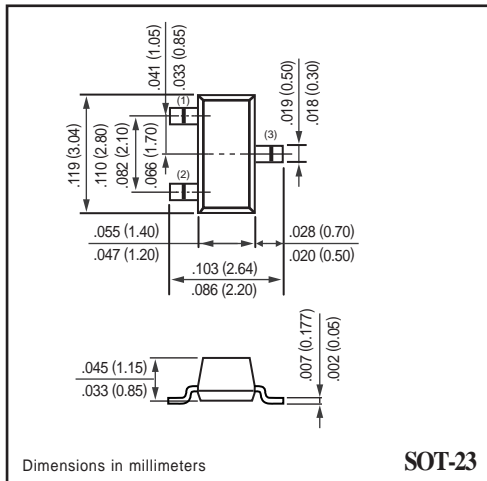
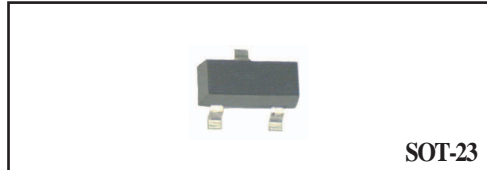
- * Small surface mounting type. (SOT-23)
- * Collector peak current (Max.=1500mA).
- * Suitable for high packing density.
- * Low voltage (Max.=32V) .
- * High saturation current capability.
- * Voltage controlled small signal switch.

CONSTRUCTION

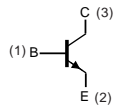
- * NPN Switching Transistor

MARKING

- * HFE(Q):D9C-
- * HFE(R):NU



CIRCUIT



LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _{CB0}	collector-base voltage	open emitter	-	40	V
V _{CEO}	collector-emitter voltage	open base	-	32	V
V _{EB0}	emitter-base voltage	open collector	-	5	V
I _C	collector current DC		-	0.8	A
I _{CM}	peak collector current		-	1.5	A
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C; note 1	-	200	mW
T _{stg}	storage temperature		-55	+150	°C
T _j	junction temperature		-	150	°C

Note

1. Transistor mounted on an FR4 printed-circuit board.

RATING CHARACTERISTIC CURVES (2SD1781KGP)

CHARACTERISTICS

$T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
BV_{CBO}	collector-base breakdown voltage	$I_E = 0; I_C = -50\text{ }\mu\text{A}$	40	–	V
BV_{CEO}	collector-emitter breakdown voltage	$I_B = 0; I_C = -1\text{ mA}$	32	–	V
BV_{EBO}	emitter-base breakdown voltage	$I_C = 0; I_E = -50\text{ }\mu\text{A}$	5	–	V
I_{CBO}	collector cut-off current	$I_E = 0; V_{CB} = 20\text{ V}$	–	500	nA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = 4\text{ V}$	–	500	nA
h_{FE}	DC current gain	$V_{CE} = 3\text{ V}$; note 1 $I_C = 100\text{ mA}$	120	390	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 500\text{ mA}, I_B = 50\text{ mA}$	–	400	mV
C_C	collector capacitance	$I_E = I_B = 0; V_{CB} = 10\text{ V}; f = 1\text{ MHz}$	–	10 Typ.	pF
f_T	transition frequency	$I_C = 50\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$	–	150 Typ.	MHz

Note

1. Pulse test: $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$.
2. h_{FE} : Q Grade: 120~270
R Grade: 180~390

RATING CHARACTERISTIC CURVES (2SD1781KGP)

Fig.1 Grounded emitter propagation characteristics

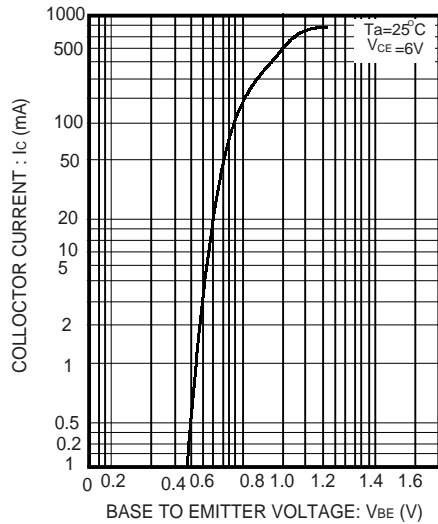


Fig.2 Grounded emitter output characteristics

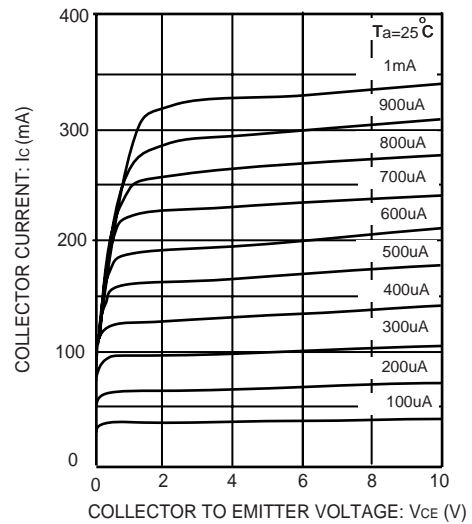


Fig.3 DC Current gain vs. collector current

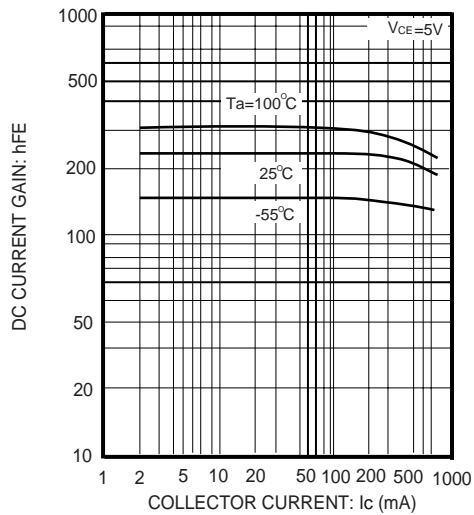
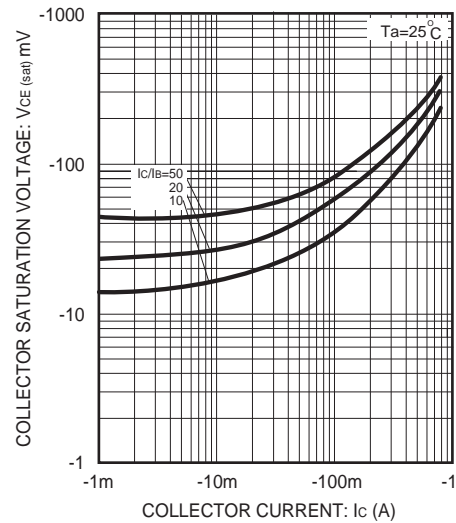


Fig.4 Collector-emitter saturation voltage vs. collector current (1)



RATING CHARACTERISTIC CURVES (2SD1781KGP)

Fig.5 Collector-emitter saturation voltage vs. collector current (2)

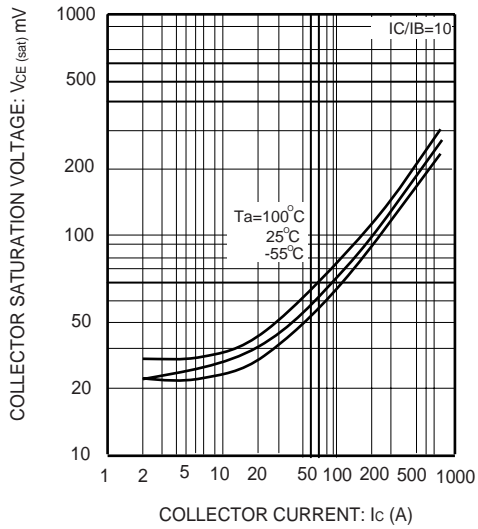


Fig.6 Gain bandwidth product vs. emitter current

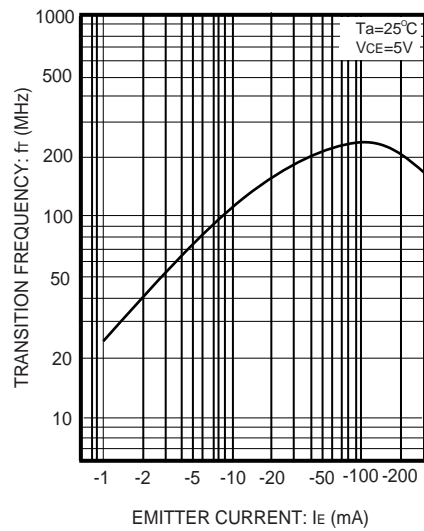


Fig.7 Collector output capacitance vs. collector-base voltage

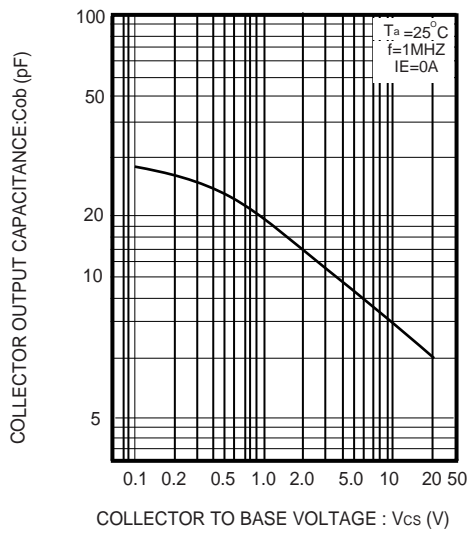


Fig.8 Emitter input capacitance vs. emitter-base voltage

