

# Power Transistor (15V, 0.5A)

## 2SD1757K

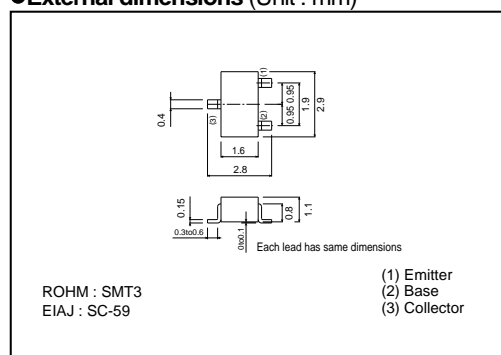
### ●Features

- 1) Low  $V_{CE(sat)}$ . (Typ.8mV at  $I_C/I_B = 10/1mA$ )
- 2) Optimal for muting.

### ●Absolute maximum ratings ( $T_a=25^\circ C$ )

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	30	V
Collector-emitter voltage	$V_{CEO}$	15	V
Emitter-base voltage	$V_{EBO}$	6.5	V
Collector current	$I_C$	0.5	A
Collector power dissipation	$P_C$	0.2	W
Junction temperature	$T_J$	150	$^\circ C$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ C$

### ●External dimensions (Unit : mm)



### ●Packaging specifications and $h_{FE}$

Type	2SD1757K
Package	SMT3
$h_{FE}$	QRS
Marking	AA*
Code	T146
Basic ordering unit (pieces)	3000

\* Denotes  $h_{FE}$

### ●Electrical characteristics ( $T_a=25^\circ C$ )

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	30	—	—	V	$I_C=50\mu A$
Collector-emitter breakdown voltage	$BV_{CEO}$	15	—	—	V	$I_C=1mA$
Emitter-base breakdown voltage	$BV_{EBO}$	6.5	—	—	V	$I_E=50\mu A$
Collector cutoff current	$I_{CBO}$	—	—	0.5	$\mu A$	$V_{CB}=20V$
Emitter cutoff current	$I_{EBO}$	—	—	0.5	$\mu A$	$V_{EB}=4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	0.1	0.4	V	$I_C/I_B=500mA/50mA$
DC current transfer ratio	$h_{FE}$	120	—	560	—	$V_{CE}/I_C=3V/100mA$
Transition frequency	$f_T$	—	150	—	MHz	$V_{CE}=5V, I_E=50mA, f=100MHz$
Output capacitance	$C_{ob}$	—	15	—	pF	$V_{CB}=10V, I_E=0A, f=1MHz$

## Transistors

## ●Electrical characteristics curves

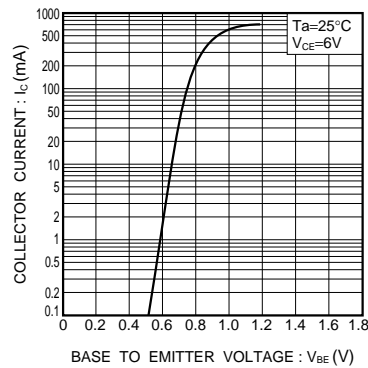


Fig.1 Ground emitter propagation characteristics

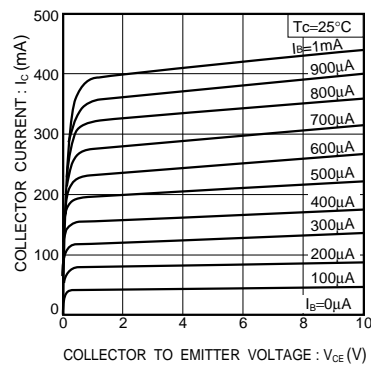


Fig.2 Ground emitter output characteristics

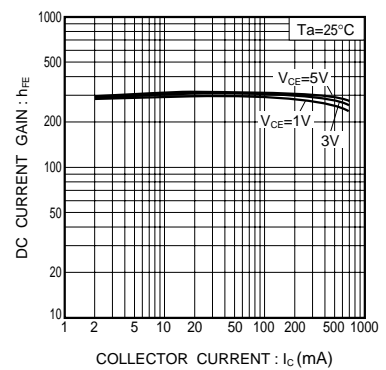


Fig.3 DC current gain vs. collector current (I)

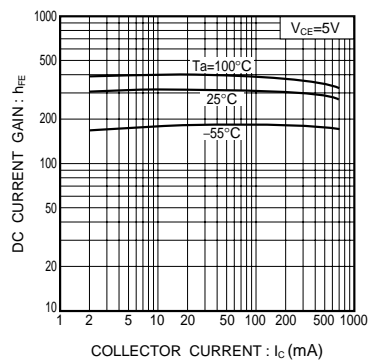


Fig.4 DC current gain vs. collector current (II)

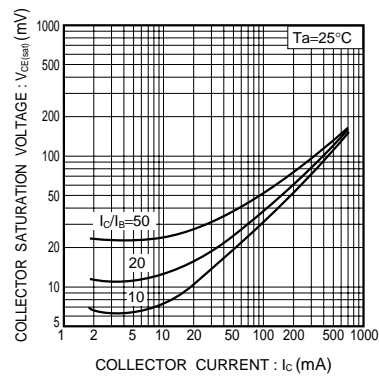


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

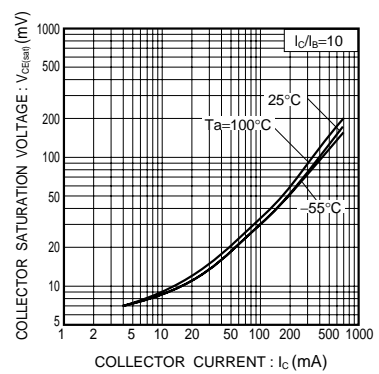


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

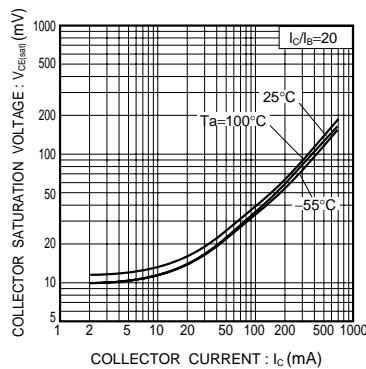


Fig.7 Collector-emitter saturation voltage vs. collector current (III)

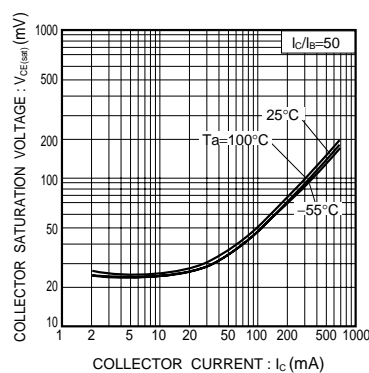


Fig.8 Collector-emitter saturation voltage vs. collector current (IV)

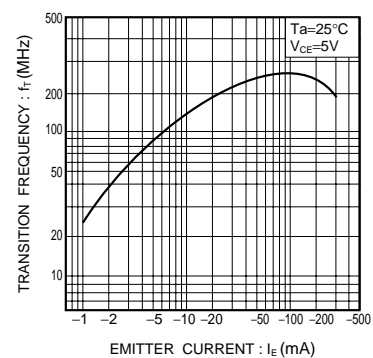


Fig.9 Gain bandwidth product vs. emitter current

## Transistors

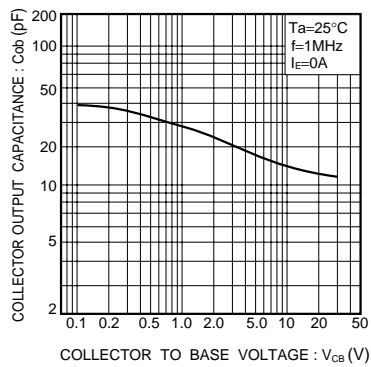


Fig.10 Collector output capacitance vs. collector-base voltage

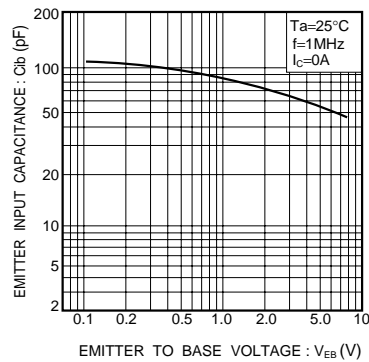


Fig.11 Emitter input capacitance vs. emitter-base voltage

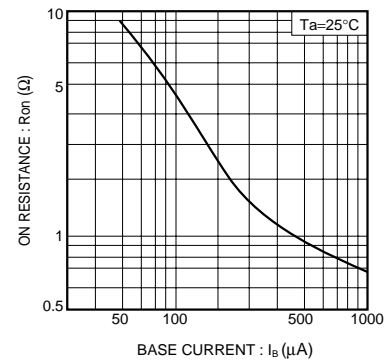


Fig.12 "ON" resistance vs. base current characteristics

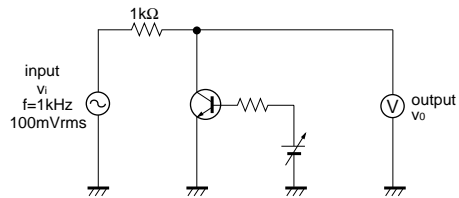


Fig.13 "ON" resistance measurement circuit

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