High-gain Amplifier Transistor (32V , 0.3A)

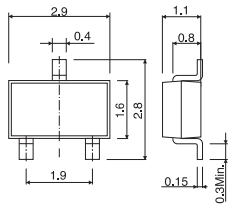
2SD1383K

●Features

1) Darlington connection for high DC current gain.
2) Built-in 4kΩ resistor between base and emitter.
3) Complements the 2SB852K.

●Dimensions (Unit : mm)

2SD1383K



(1)Emitter
(2)Base
(3)Collector

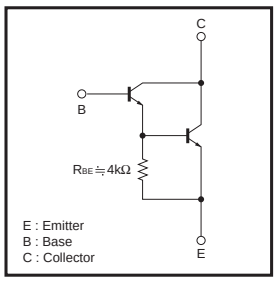
Each lead has same dimensions

●Packaging specifications

Type	2SD1383K
Package	SMT3
h_{FE}	B
Marking	W∗
Code	T146
Basic ordering unit (pieces)	3000

∗ Denotes h_{FE}

●Circuit diagram



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit	
Collector-base voltage	V_{CBO}	40	V	
Collector-emitter voltage	V_{CES}	32	V	∗1
Emitter-base voltage	V_{EBO}	6	V	
Collector current	I_C	0.3	A (DC)	
		1.5	A (Pulse)	∗2
Collector power dissipation	P_C	0.2	W	
Junction temperature	Tj	150	°C	
Storage temperature	Tstg	−55 to +150	°C	

∗1 R_{BE}=0Ω
∗2 Single pulse Pw=10ms

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions	
Collector-base breakdown voltage	BV_{CBO}	40	–	–	V	I_C=100μA	
Collector-emitter breakdown voltage	BV_{CES}	32	–	–	V	I_C= −1mA , R_{BE}=0Ω	
Emitter-base breakdown voltage	BV_{EBO}	6	–	–	V	I_E=100μA	
Collector cutoff current	I_{CBO}	–	–	1	μA	V_{CB}=24V	
Emitter cutoff current	I_{EBO}	–	–	1	μA	V_{EB}=4.5V	
DC current transfer ratio	h_{FE}	5000	–	–	–	V_{CE}=5V, I_C=0.1A	
Collector-emitter saturation voltage	$V_{CE(sat)}$	–	–	1.5	V	I_C=200mA, I_B=0.4mA	∗1
Transition frequency	f_T	–	250	–	MHz	V_{CE}=5V, I_E= −10mA, f=100MHz	∗2
Output capacitance	Cob	–	3	–	pF	V_{CB}=10V, I_E=0A, f=1MHz	

∗1 Measured using pulse current.
∗2 Transition frequency of the device.

●Electrical characteristic curves

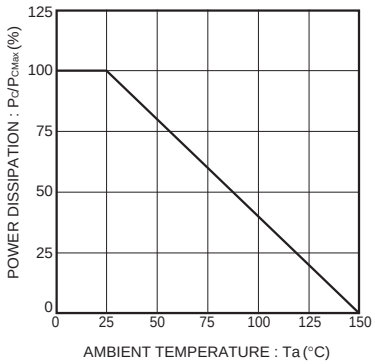


Fig.1 Power dissipation curves

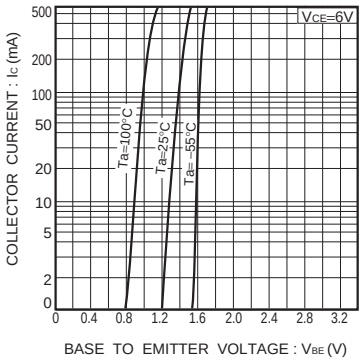


Fig.2 Ground emitter propagation characteristisc

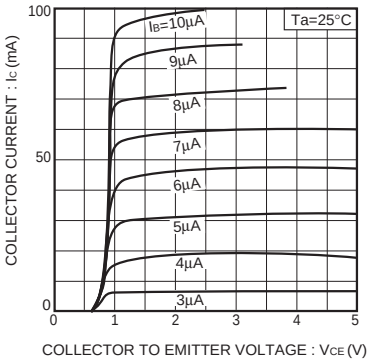


Fig.3 Ground emitter output characteristics

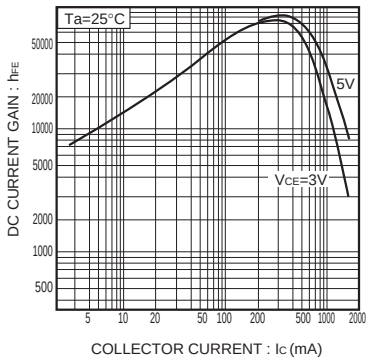


Fig.4 DC current gain vs. collector current (Ⅰ)

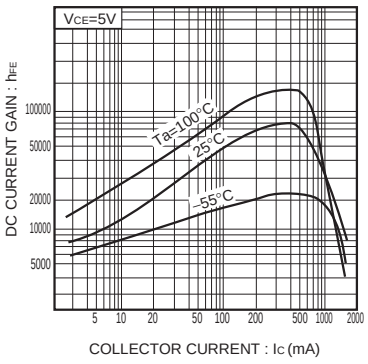


Fig.5 DC current gain vs. collector current (Ⅱ)

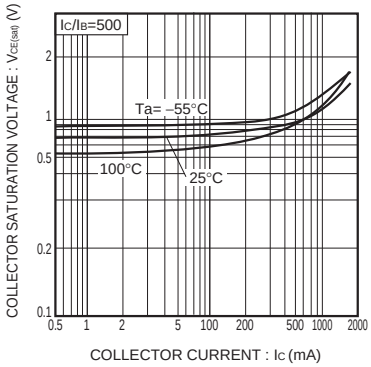


Fig.6 Collector-emitter saturation voltage vs. collector current

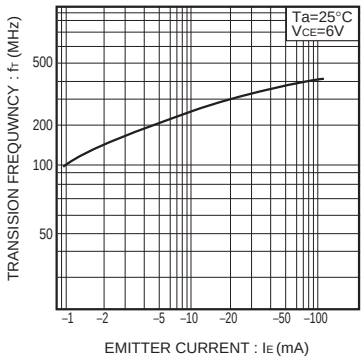


Fig.7 Gain bandwidth product vs. emitter current

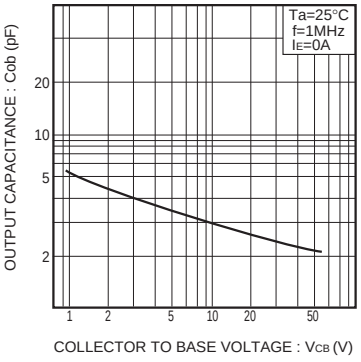


Fig.8 Collector output capacitance vs. collector-base voltage

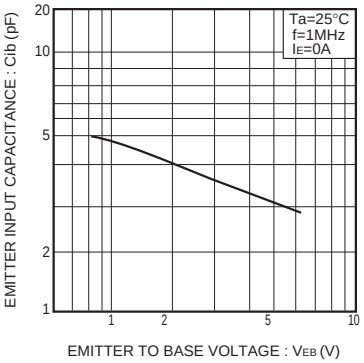


Fig.9 Emitter input capacitance vs. emitter-base voltage

Notes

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