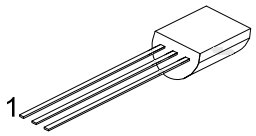
2SD965B

NPN EPITAXIAL SILICON TRANSISTOR

LOW VOLTAGE HIGH CURRENT NPN TRANSISTOR



TO-92

■ FEATURES

* Collector current up to 5A
* Collector-Emitter voltage up to 30V

■ APPLICATIONS

* Audio amplifier
* Flash unit of camera
* Switching circuit

■ ORDERING INFORMATION

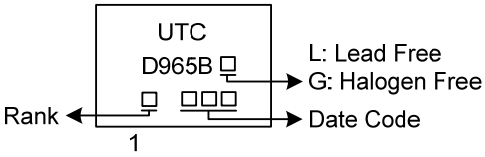
Order Number		Package	Pin Assignment			Packing
Lead Free Plating	Halogen Free		1	2	3	
2SD965BL-x-T92-B	2SD965BG-x-T92-B	TO-92	E	C	B	Tape Box
2SD965BL-x-T92-K	2SD965BG-x-T92-K	TO-92	E	C	B	Bulk

Note: Pin Assignment: E: Emitter C: Collector B: Base

2SD965BG-x-T92-B

(1)Packing Type	(1) B: Tape Box, K: Bulk
(2)Package Type	(2) T92: TO-92
(3)Rank	(3) x: refer to Classification of h_{FE2}
(4)Green Package	(4) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATING (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-base voltage	V_{CBO}	40	V
Collector-emitter voltage	V_{CEO}	30	V
Emitter-base voltage	V_{EBO}	7	V
Collector dissipation	P_C	750	mW
Collector current	I_C	5	A
Junction Temperature	T_J	125	°C
Operating Temperature	T_{OPR}	-20 ~ +85	°C
Storage Temperature	T_{STG}	-40 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	BV_{CBO}	I_C=100μA, I_E=0	40			V
Collector-emitter breakdown voltage	BV_{CEO}	I_c=1mA, I_B=0	30			V
Emitter-base breakdown voltage	BV_{EBO}	I_E=10μA, I_C=0	7			V
Collector cut-off current	I_{CBO}	V_{CB}=30V, I_E=0			200	nA
Emitter cut-off current	I_{EBO}	V_{EB}=7V, I_C=0			200	nA
DC current gain (note)	$h_{FE\ 1}$	V_{CE}=2V, I_C=1mA		200		
	$h_{FE\ 2}$	V_{CE}=2V,I_C=0.5A	230		800	
	$h_{FE\ 3}$	V_{CE}=2V, I_C=2A	150			
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=3A, I_B= 0.1A			1	V
Current gain bandwidth product	f_T	V_{CE}=6V, I_C=50mA		150		MHz
Output capacitance	C_{ob}	V_{CB}=20V, I_E=0, f=1MHz			50	pF

■ CLASSIFICATION OF h_{FE2}

RANK	Q	R	S
RANGE	230-380	340-600	560-800

■ TYPICAL CHARACTERISTICS

Fig. 1 Static Characteristics

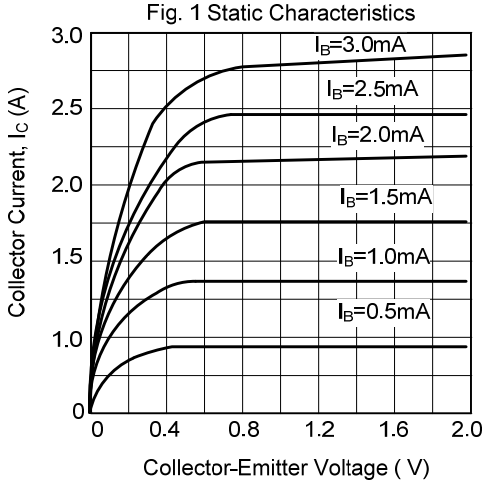


Fig. 2 DC Current Gain

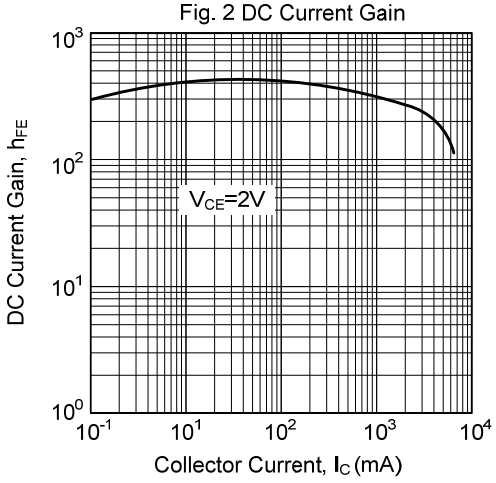


Fig. 3 Base-Emitter On Voltage

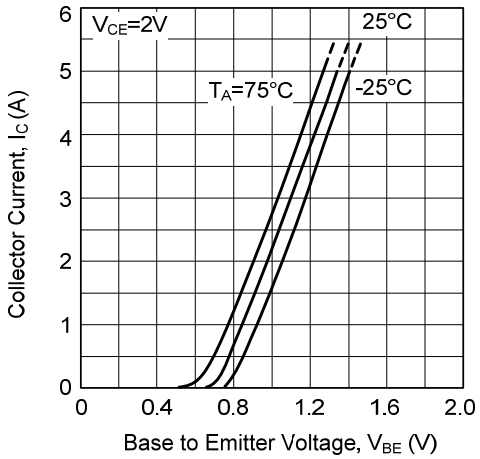


Fig. 4 Saturation Voltage

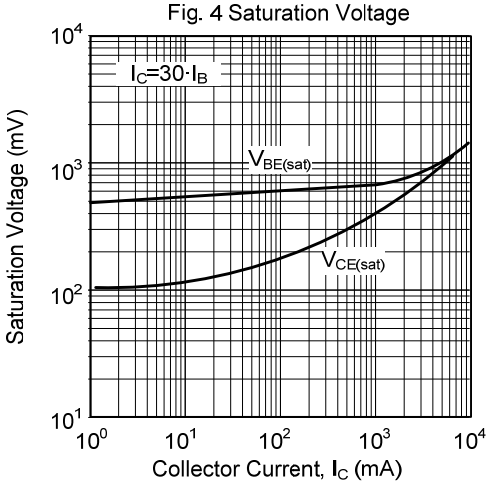


Fig. 5 Current Gain-Bandwidth Product

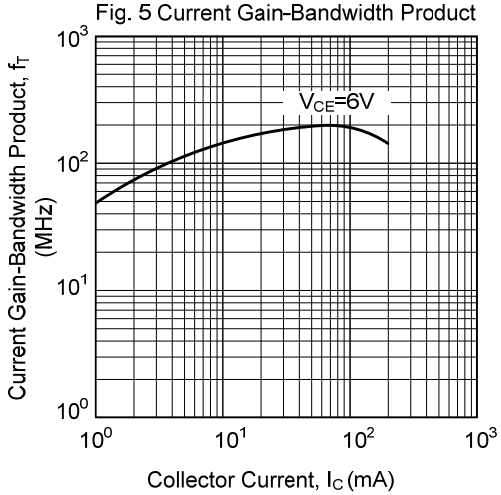


Fig. 6 Collector Output Capacitance