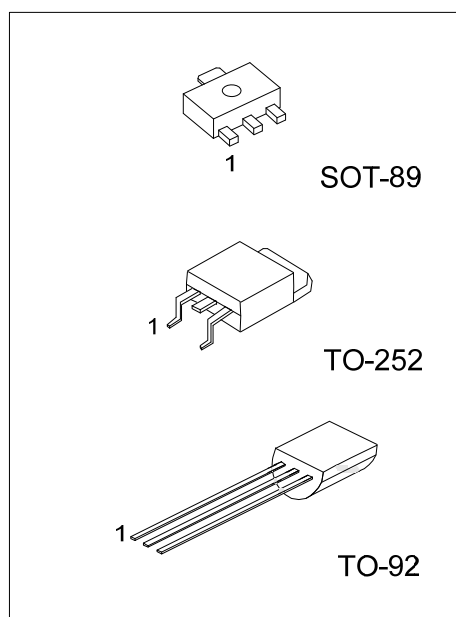


**2SD965/A****NPN SILICON TRANSISTOR****LOW VOLTAGE HIGH
CURRENT TRANSISTOR**■ **FEATURES**

- * Collector current up to 5A
- * UTC **2SD965**: Collector-Emitter voltage up to 20 V
- * UTC **2SD965A**: Collector-Emitter voltage up to 30 V

■ **APPLICATIONS**

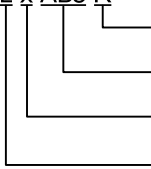
- * Audio amplifier
- * Flash unit of camera
- * Switching circuit



Lead-free: 2SD965L/2SD965AL
Halogen-free: 2SD965G/2SD965AG

■ **ORDERING INFORMATION**

Ordering Number			Package	Pin Assignment			Packing
Normal	Lead Free	Halogen Free		1	2	3	
2SD965-x-AB3-R	2SD965L-x-AB3-R	2SD965G-x-AB3-R	SOT-89	B	C	E	Tape Reel
2SD965-x-T92-B	2SD965L-x-T92-B	2SD965G-x-T92-B	TO-92	E	C	B	Tape Box
2SD965-x-T92-K	2SD965L-x-T92-K	2SD965G-x-T92-K	TO-92	E	C	B	Bulk
2SD965-x-TN3-R	2SD965L-x-TN3-R	2SD965G-x-TN3-R	TO-252	B	C	E	Tape Reel
2SD965A-x-AB3-R	2SD965AL-x-AB3-R	2SD965AG-x-AB3-R	SOT-89	B	C	E	Tape Reel
2SD965A-x-T92-B	2SD965AL-x-T92-B	2SD965AG-x-T92-B	TO-92	E	C	B	Tape Box
2SD965A-x-T92-K	2SD965AL-x-T92-K	2SD965AG-x-T92-K	TO-92	E	C	B	Bulk
2SD965A-x-TN3-R	2SD965AL-x-TN3-R	2SD965AG-x-TN3-R	TO-252	B	C	E	Tape Reel

2SD965L-x-AB3-R 		(1) Packing Type (2) Package Type (3) Rank (4) Lead Plating
		(1) B: Tape Box, K: Bulk, R: Tape Reel, T: Tube (2) AB3: SOT-89, T92: TO-92, TN3: TO-252 (3) x: refer to Classification of h_{FE2} (4) G: Halogen Free, L: Lead Free, Blank: Pb/Sn

■ ABSOLUTE MAXIMUM RATING (Ta=25°C)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		V_{CBO}	40	V
Collector-Emitter Voltage	2SD965	V_{CEO}	20	V
	2SD965A		30	V
Emitter-Base Voltage		V_{EBO}	7	V
Collector Dissipation	SOT-89	P_C	500	mW
	TO-92		750	mW
	TO-252		1	W
Collector Current		I_C	5	A
Junction Temperature		T_J	150	°C
Storage Temperature		T_{STG}	-65 ~ +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 (Ta=25°C, unless otherwise specified)

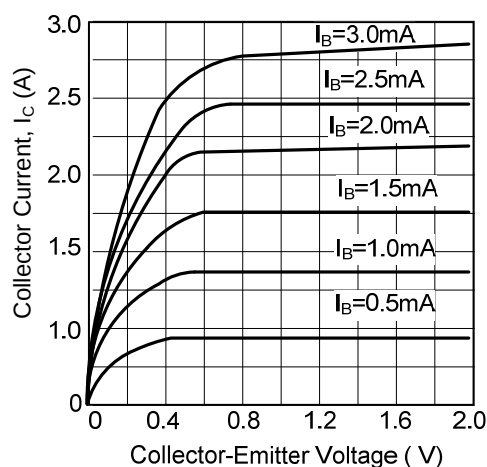
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage		BV _{CBO}	I _C =100μA, I _E =0	40			V
Collector-Emitter Breakdown Voltage	2SD965	BV _{CEO}	I _C =1mA, I _B =0	20			V
	2SD965A			30			V
Emitter-Base Breakdown Voltage		BV _{EBO}	I _E =10μA, I _C =0	7			V
Collector Cut-off Current		I _{CBO}	V _{CB} =10V, I _E =0			100	nA
Emitter Cut-off Current		I _{EBO}	V _{EB} =7V, I _C =0			100	nA
DC Current Gain(note)		h _{FE}	V _{CE} =2V, I _C =1mA		200		
			V _{CE} =2V, I _C =0.5A	230		800	
			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}

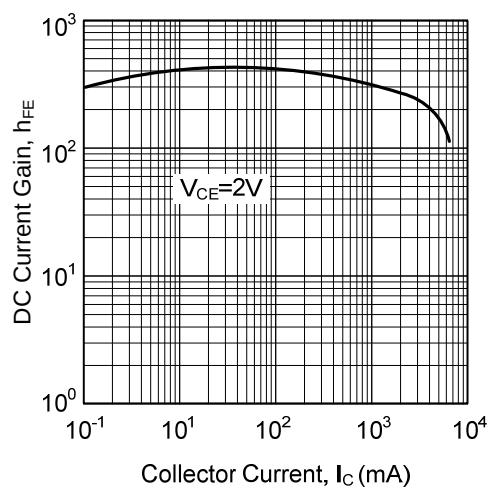
RANK	Q	R	S
RANGE	230-380	340-600	560-800

TYPICAL CHARACTERISTICS

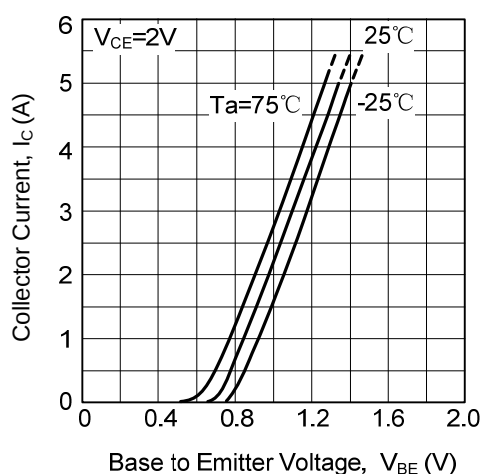
Static Characteristics



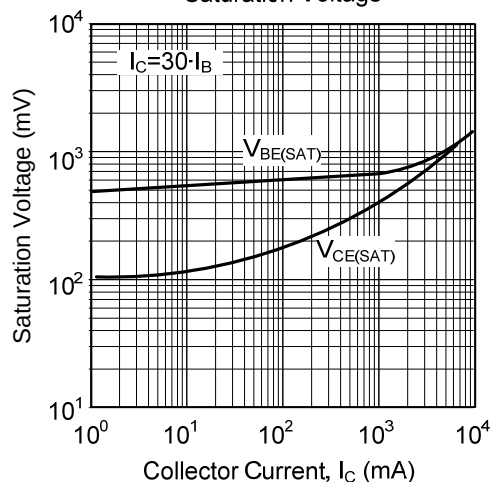
DC Current Gain



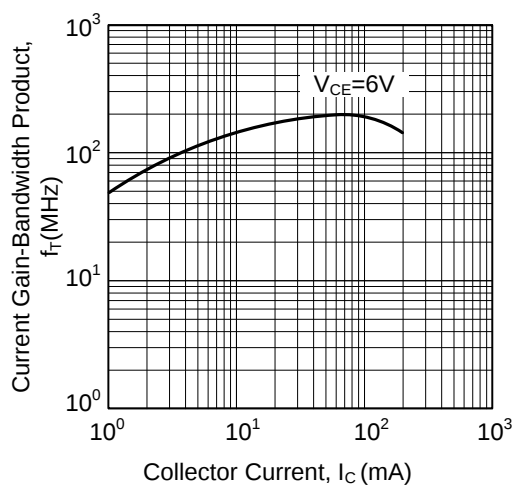
Base-Emitter on Voltage



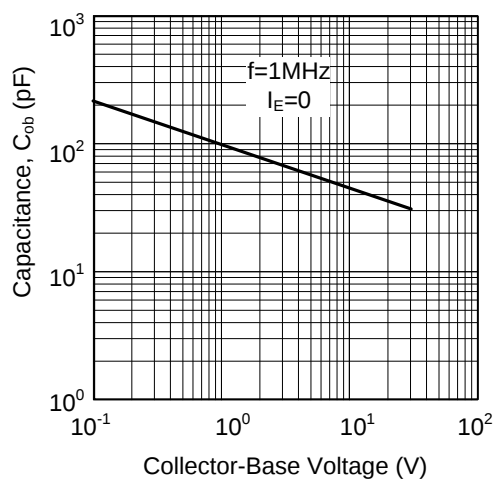
Saturation Voltage



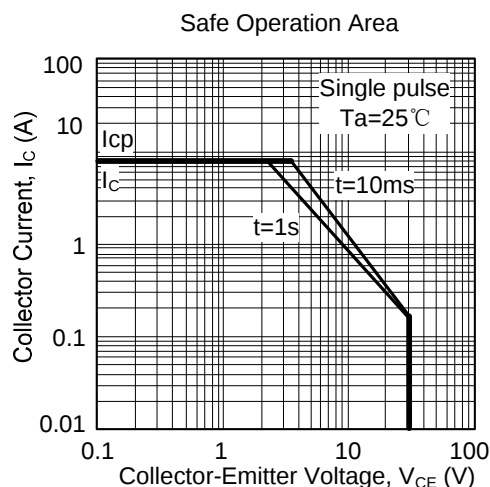
Current Gain-Bandwidth Product



Collector Output Capacitance



TYPICAL CHARACTERISTICS



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