



2SD965/A

NPN SILICON TRANSISTOR

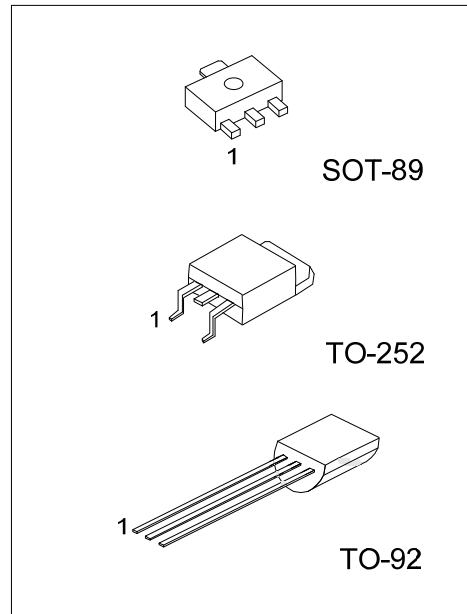
LOW VOLTAGE HIGH CURRENT TRANSISTOR

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

<p>2SD965L-x-AB3-R</p> <p>(1)Packing Type (2)Package Type (3)Rank (4)Lead Plating</p>	<p>(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</p>
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■ ABSOLUTE MAXIMUM RATING (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage	V _{CBO}	40	V
Collector-Emitter Voltage	V _{CEO}	2SD965	20
		2SD965A	30
Emitter-Base Voltage	V _{EBO}	7	V
Collector Dissipation	P _C	SOT-89	500
		TO-92	750
		TO-252	1
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)

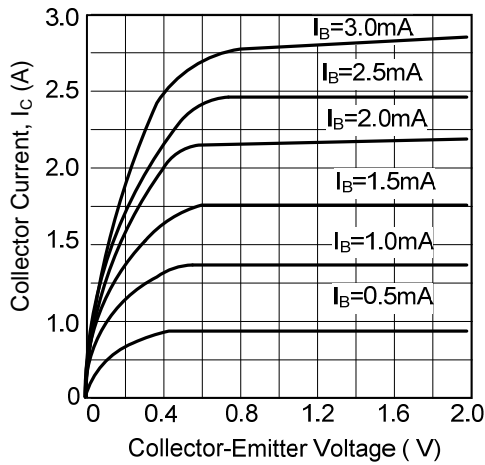
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV _{CBO}	I _C =100μA, I _E =0	40			V
Collector-Emitter Breakdown Voltage	BV _{CEO}	I _C =1mA, I _B =0	2SD965	20		V
			2SD965A	30		V
Emitter-Base Breakdown Voltage	BV _{EBO}	I _E =10μA, I _C =0	7			V
Collector Cut-off 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}

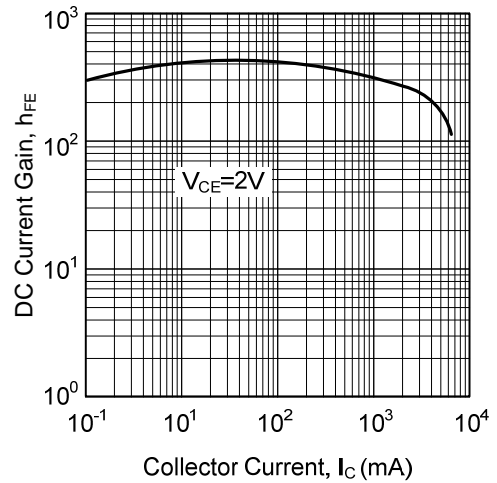
RANK	Q	R	S
RANGE	230-380	340-600	560-800

TYPICAL CHARACTERISTICS

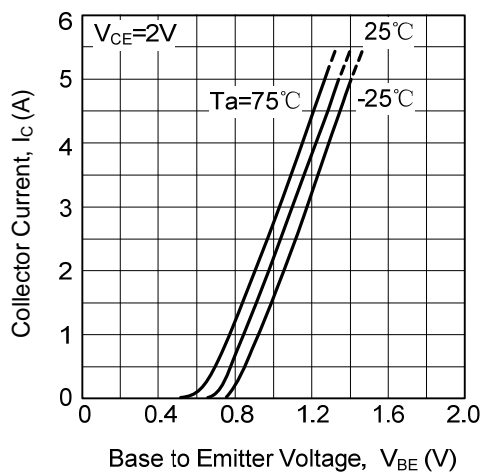
Static Characteristics



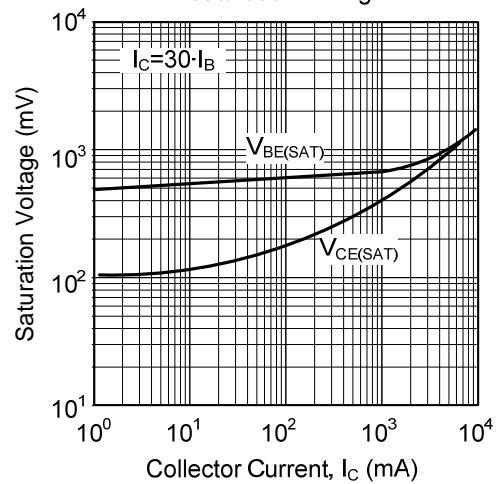
DC Current Gain



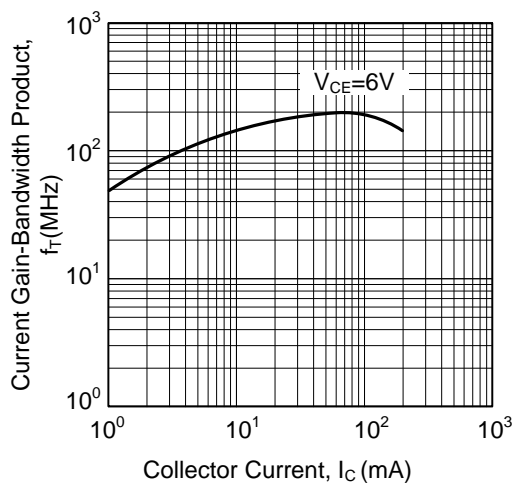
Base-Emitter on Voltage



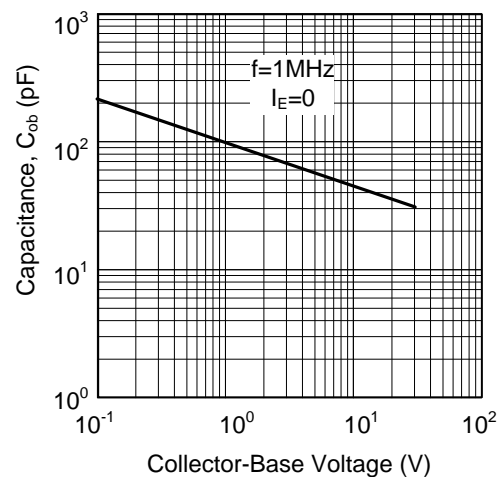
Saturation Voltage



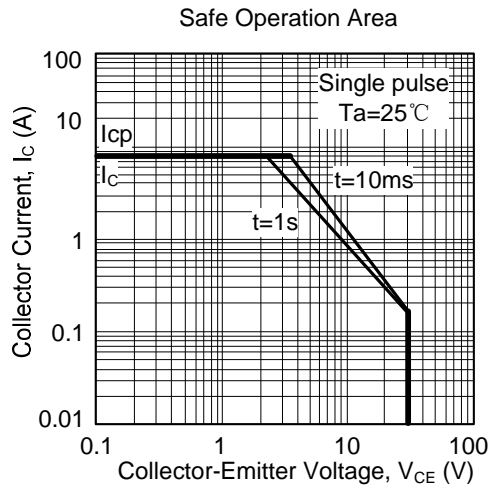
Current Gain-Bandwidth Product



Collector Output Capacitance



■ TYPICAL CHARACTERISTICS



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