



2SD965/A

NPN SILICON TRANSISTOR

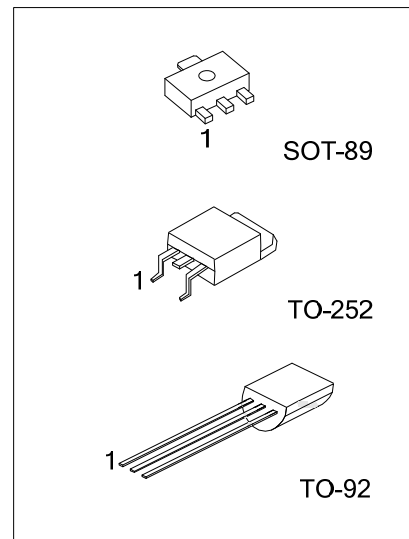
LOW VOLTAGE HIGH CURRENT TRANSISTOR

■ 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



■ ORDERING INFORMATION

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

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

<p>2SD965G-x-AB3-R</p>	<p>(1) R: Tape Reel, B: Tape Box, K: Bulk</p> <p>(2) AB3: SOT-89, T92: TO-92, TN3: TO-252</p> <p>(3) x: refer to Classification of h_{FE2}</p> <p>(4) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING

PACKAGE	MARKING	
	2SD965	2SD965A
SOT-89		
TO-252		
TO-92		

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

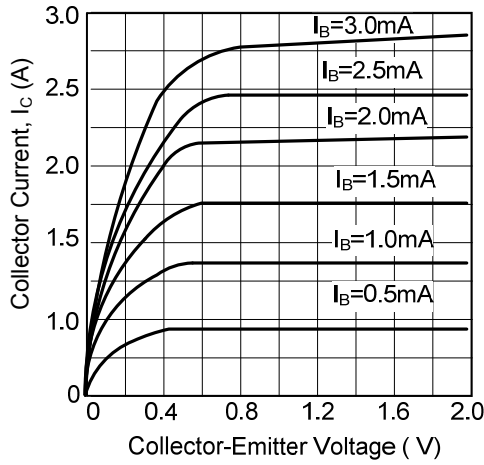
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage		BV _{CBO}	I _C =100μA, I _E =0	40			V
Collector-Emitter Breakdown Voltage	2SD965	BV _{CEO}	I _C =1mA, I _B =0	20			V
	2SD965A			30			V
Emitter-Base Breakdown Voltage		BV _{EBO}	I _E =10μA, I _C =0	7			V
Collector Cut-off 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		h _{FE1}	V _{CE} =2V, I _C =1mA		200		
		h _{FE2}	V _{CE} =2V, I _C =0.5A	230		800	
		h _{FE3}	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}

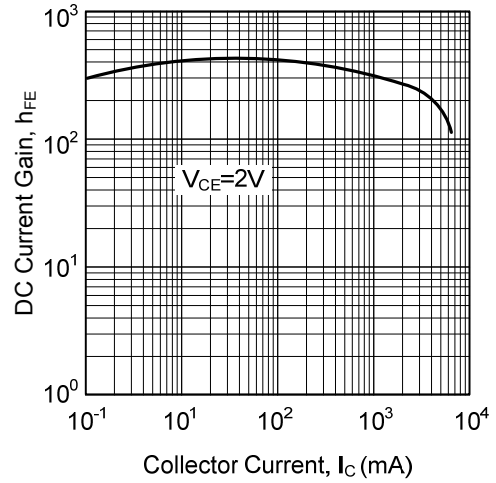
RANK	Q	R	S
RANGE	230-380	340-600	560-800

■ TYPICAL CHARACTERISTICS

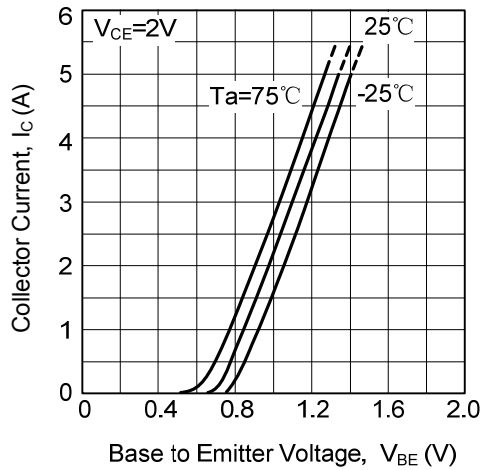
Static Characteristics



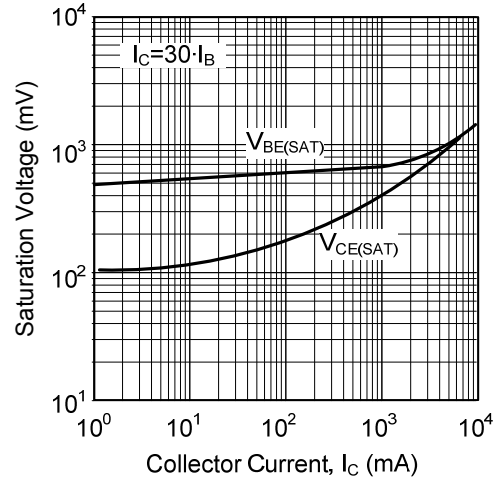
DC Current Gain



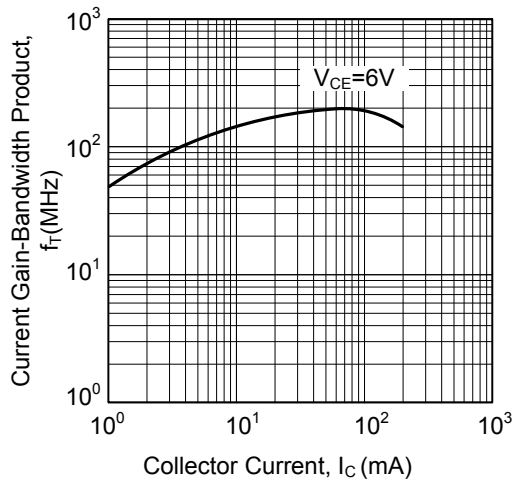
Base-Emitter on Voltage



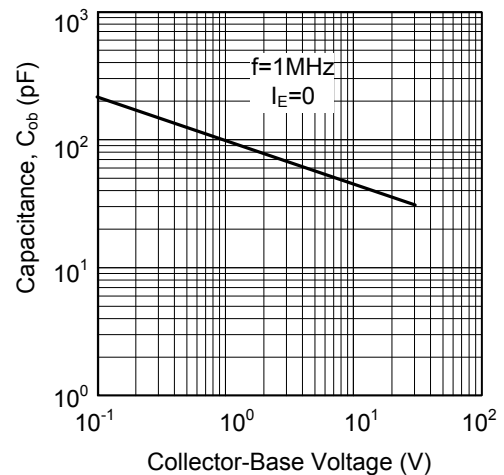
Saturation Voltage



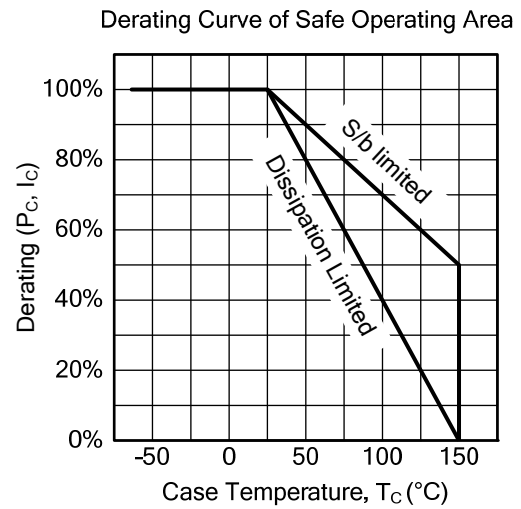
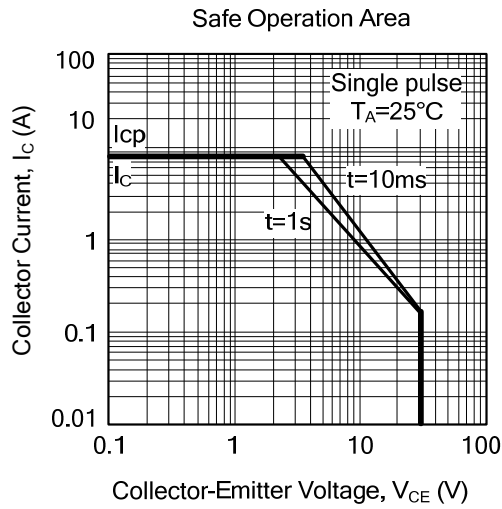
Current Gain-Bandwidth Product



Collector Output Capacitance



TYPICAL CHARACTERISTICS



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