



2SD965/A

NPN SILICON TRANSISTOR

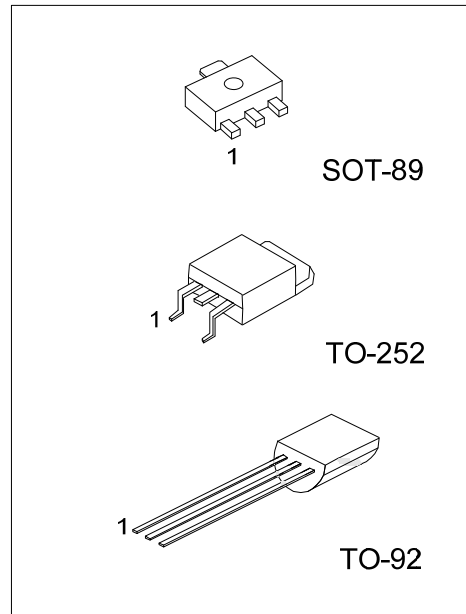
LOW VOLTAGE HIGH CURRENT TRANSISTOR

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	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)

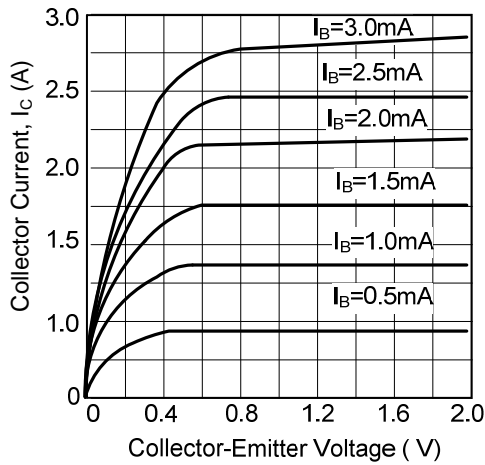
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage		BV_{CBO}	$I_C=100\mu A, I_E=0$	40			V
Collector-Emitter Breakdown Voltage	2SD965	BV_{CEO}	$I_C=1mA, I_B=0$	20			V
	2SD965A			30			V
Emitter-Base Breakdown Voltage		BV_{EBO}	$I_E=10\mu A, I_C=0$	7			V
Collector Cut-off 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}

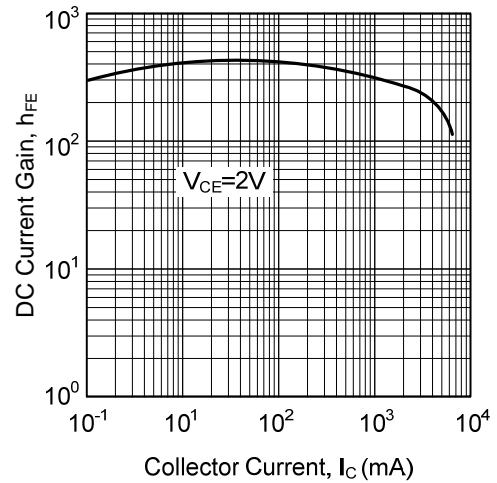
RANK	Q	R	S
RANGE	230-380	340-600	560-800

TYPICAL CHARACTERISTICS

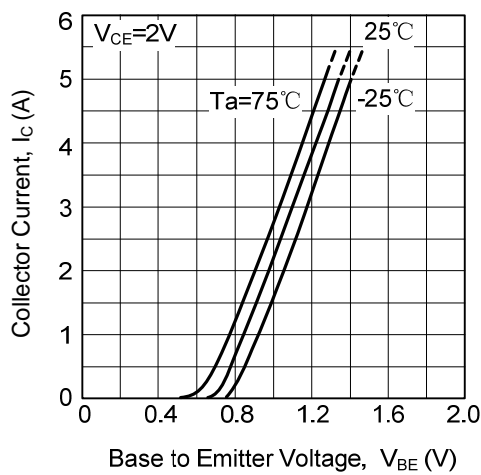
Static Characteristics



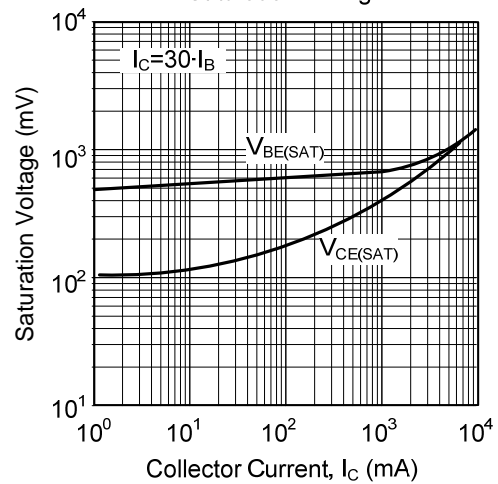
DC Current Gain



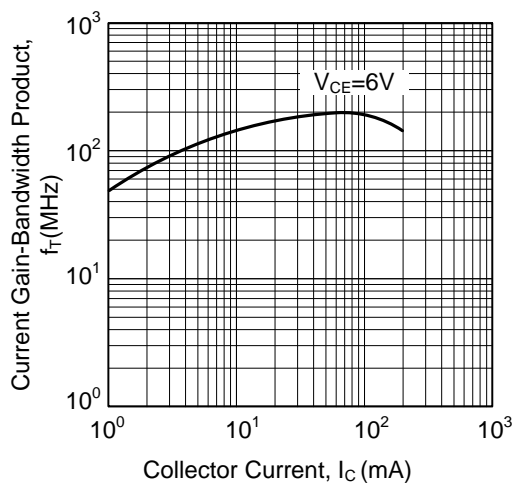
Base-Emitter on Voltage



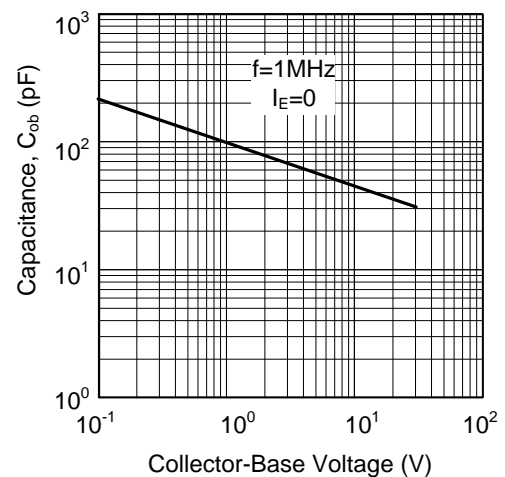
Saturation Voltage



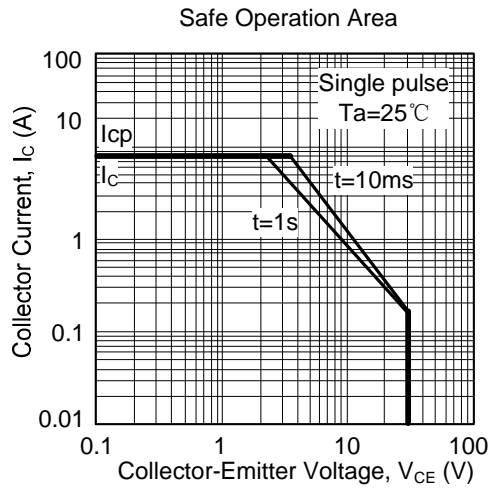
Current Gain-Bandwidth Product



Collector Output Capacitance



■ TYPICAL CHARACTERISTICS



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