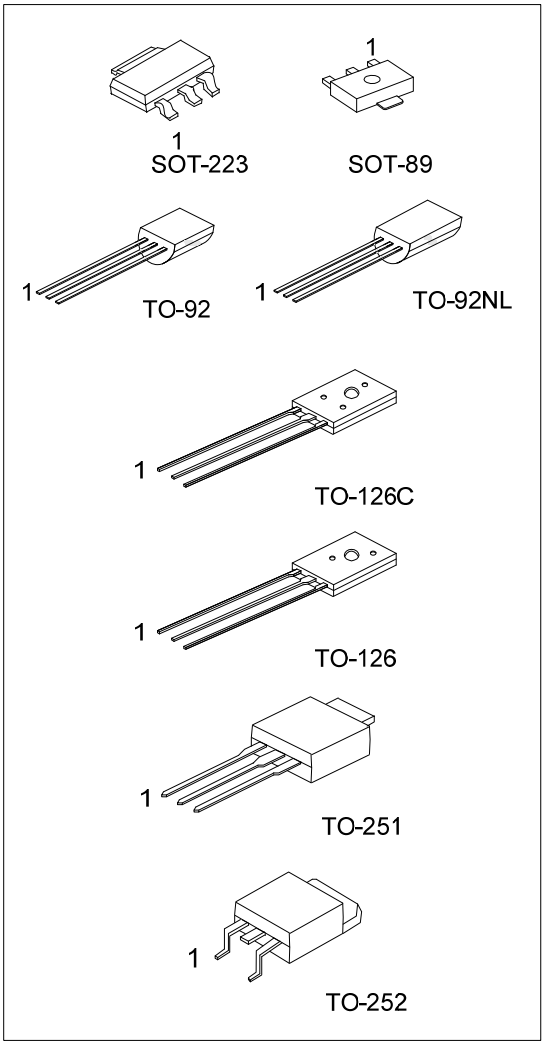
2SD669/A

NPN SILICON TRANSISTOR

BIPOLAR POWER GENERAL PURPOSE TRANSISTOR



Lead-free: 2SD669L/2SD669AL
Halogen-free: 2SD669G/2SD669AG

■ APPLICATIONS

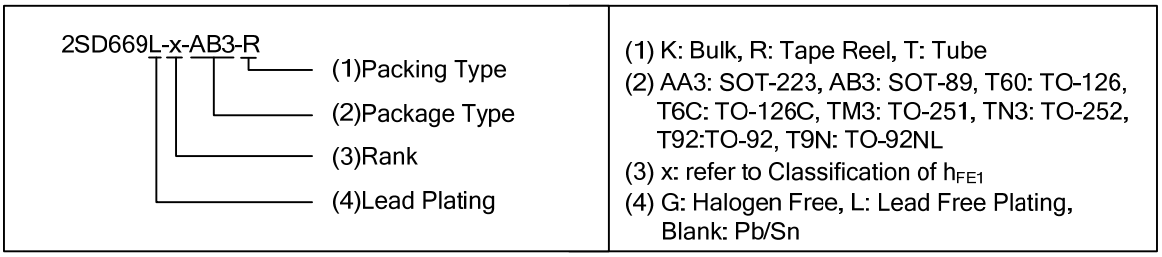
* Low frequency power amplifier complementary pair with UTC 2SB649/A

■ ORDERING INFORMATION

Ordering Number			Package	Pin Assignment			Packing
Normal	Lead Free Plating	Halogen-Free		1	2	3	
2SD669-x-AA3-R	2SD669L-x-AA3-R	2SD669G-x-AA3-R	SOT-223	B	C	E	Tape Reel
2SD669-x-AB3-R	2SD669L-x-AB3-R	2SD669G-x-AB3-R	SOT-89	B	C	E	Tape Reel
2SD669-x-T60-K	2SD669L-x-T60-K	2SD669G-x-T60-K	TO-126	E	C	B	Bulk
2SD669-x-T6C-K	2SD669L-x-T6C-K	2SD669G-x-T6C-K	TO-126C	E	C	B	Bulk
2SD669-x-T92-B	2SD669L-x-T92-B	2SD669G-x-T92-B	TO-92	E	C	B	Tape Box
2SD669-x-T92-K	2SD669L-x-T92-K	2SD669G-x-T92-K	TO-92	E	C	B	Bulk
2SD669-x-T9N-B	2SD669L-x-T9N-B	2SD669G-x-T9N-B	TO-92NL	E	C	B	Tape Box
2SD669-x-T9N-K	2SD669L-x-T9N-K	2SD669G-x-T9N-K	TO-92NL	E	C	B	Bulk
2SD669-x-T9N-R	2SD669L-x-T9N-R	2SD669G-x-T9N-R	TO-92NL	E	C	B	Tape Reel
2SD669-x-TM3-T	2SD669L-x-TM3-T	2SD669G-x-TM3-T	TO-251	E	C	B	Tube
2SD669-x-TN3-R	2SD669L-x-TN3-R	2SD669G-x-TN3-R	TO-252	B	C	E	Tape Reel
2SD669-x-TN3-T	2SD669L-x-TN3-T	2SD669G-x-TN3-T	TO-252	B	C	E	Tube

■ ORDERING INFORMATION(Cont.)

Ordering Number			Package	Pin Assignment			Packing
Normal	Lead Free Plating	Halogen-Free Plating		1	2	3	
2SD669A-x-AA3-R	2SD669AL-x-AA3-R	2SD669AG-x-AA3-R	SOT-223	B	C	E	Tape Reel
2SD669A-x-AB3-R	2SD669AL-x-AB3-R	2SD669AG-x-AB3-R	SOT-89	B	C	E	Tape Reel
2SD669A-x-T60-K	2SD669AL-x-T60-K	2SD669AG-x-T60-K	TO-126	E	C	B	Bulk
2SD669A-x-T6C-R	2SD669AL-x-T6C-R	2SD669AG-x-T6C-R	TO-126C	E	C	B	Bulk
2SD669A-x-T92-B	2SD669AL-x-T92-B	2SD669AG-x-T92-B	TO-92	E	C	B	Tape Box
2SD669A-x-T92-K	2SD669AL-x-T92-K	2SD669AG-x-T92-K	TO-92	E	C	B	Bulk
2SD669A-x-T9N-B	2SD669AL-x-T9N-B	2SD669AG-x-T9N-B	TO-92NL	E	C	B	Tape Box
2SD669A-x-T9N-K	2SD669AL-x-T9N-K	2SD669AG-x-T9N-K	TO-92NL	E	C	B	Bulk
2SD669A-x-T9N-R	2SD669AL-x-T9N-R	2SD669AG-x-T9N-R	TO-92NL	E	C	B	Tape Reel
2SD669A-x-TM3-T	2SD669AL-x-TM3-T	2SD669AG-x-TM3-T	TO-251	E	C	B	Tube
2SD669A-x-TN3-R	2SD669AL-x-TN3-R	2SD669AG-x-TN3-R	TO-252	B	C	E	Tape Reel
2SD669A-x-TN3-T	2SD669AL-x-TN3-T	2SD669AG-x-TN3-T	TO-252	B	C	E	Tube



(1) K: Bulk, R: Tape Reel, T: Tube
(2) AA3: SOT-223, AB3: SOT-89, T60: TO-126, T6C: TO-126C, TM3: TO-251, TN3: TO-252, T92:TO-92, T9N: TO-92NL
(3) x: refer to Classification of h_{FE1}
(4) G: Halogen Free, L: Lead Free Plating, Blank: Pb/Sn

■ ABSOLUTE MAXIMUM RATING (Ta=25℃, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		V_{CBO}	180	V
Collector-Emitter Voltage	2SD669	V_{CEO}	120	V
	2SD669A		160	
Emitter-Base Voltage		V_{EBO}	5	V
Collector Current		I_C	1.5	A
Collector Peak Current		$I_{C(PEAK)}$	3	A
Collector Power Dissipation	SOT-223	P_D	0.5	W
Collector Power Dissipation	TO-126		1	W
Junction Temperature		T_J	+150	℃
Storage Temperature		T_{STG}	-40 ~ +150	℃

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℃, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector to Base Breakdown Voltage		BV_{CBO}	I_C=1mA, I_E=0	180			V
Collector to Emitter Breakdown Voltage	2SD669	BV_{CEO}	I_C=10mA, R_{BE}=∞	120			V
	2SD669A			160			
Emitter to Base Breakdown Voltage		BV_{EBO}	I_E=1mA, I_C=0	5			V
Collector Cut-off Current		I_{CBO}	V_{CB}=160V, I_E=0			10	μA
DC Current Gain		h_{FE1}	V_{CE}=5V, I_C=150mA (Note)	60		320	
		h_{FE2}	V_{CE}=5V, I_C=500mA (Note)	30			
Collector-Emitter Saturation Voltage		$V_{CE(SAT)}$	I_C=600mA, I_B=50mA (Note)			1	V
Base-Emitter Voltage		V_{BE}	V_{CE}=5V, I_C=150mA (Note)			1.5	V
Current Gain Bandwidth Product		f_T	V_{CE}=5V, I_C=150mA (Note)		140		MHz
Output Capacitance		C_{ob}	V_{CB}=10V, I_E=0, f=1MHz		14		pF

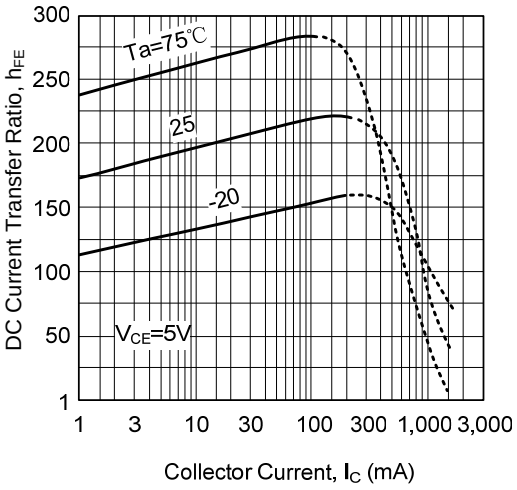
Note: Pulse test.

■ CLASSIFICATION OF h_{FE1}

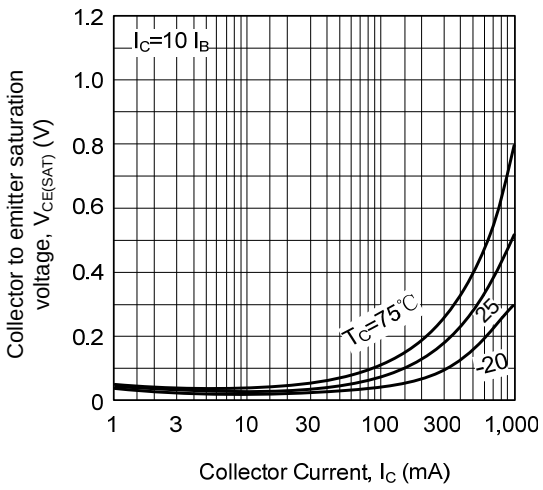
RANK	B	C	D
RANGE	60-120	100-200	160-320

■ TYPICAL CHARACTERISTICS

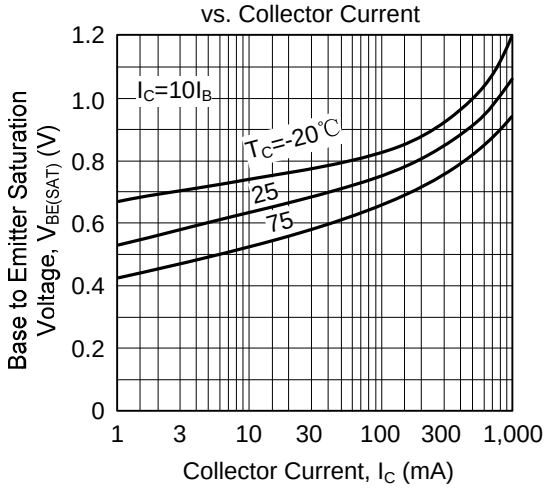
DC Current Transfer Ratio vs. Collector Current



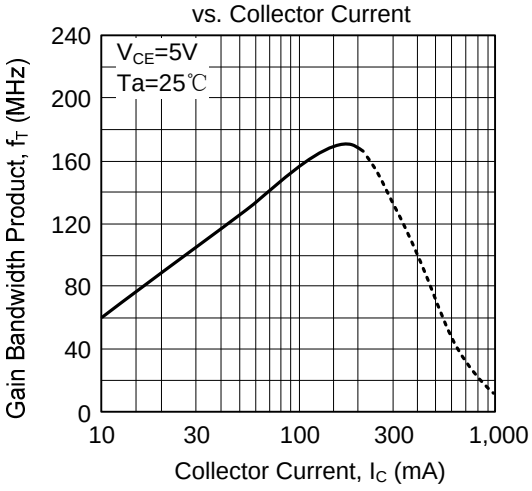
Collector to Emitter Saturation Voltage vs. Collector Current



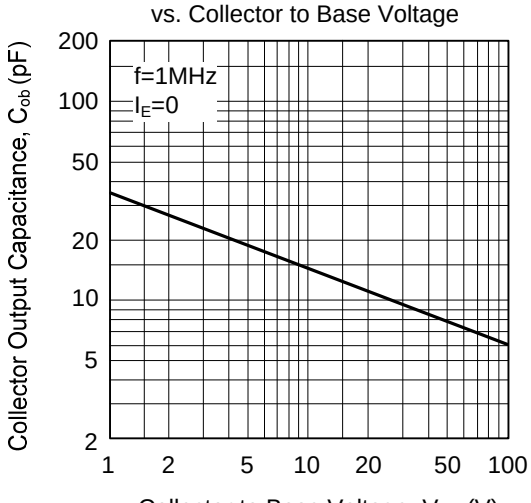
Base to Emitter Saturation Voltage vs. Collector Current



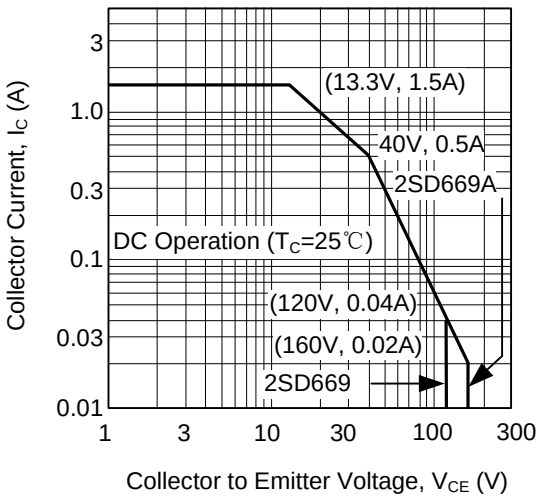
Gain Bandwidth Product vs. Collector Current



Collector Output Capacitance vs. Collector to Base Voltage



Area of Safe Operation



■ TYPICAL CHARACTERISTICS(Cont.)