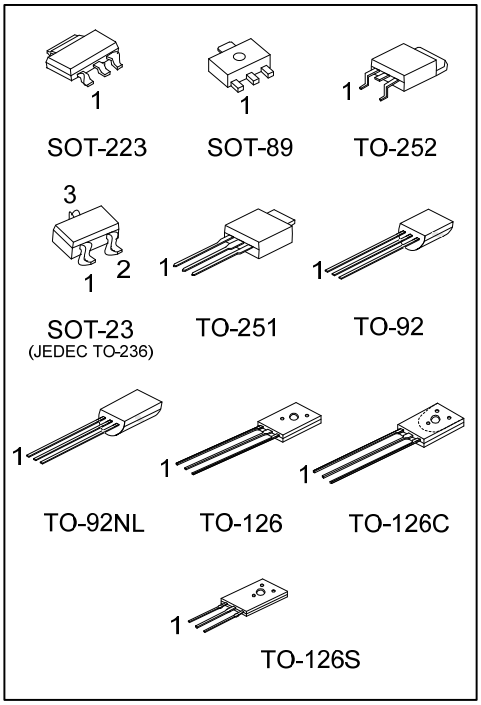
2SD669/A

NPN SILICON TRANSISTOR

BIPOLAR POWER GENERAL PURPOSE TRANSISTOR



■ APPLICATIONS

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

■ ORDERING INFORMATION

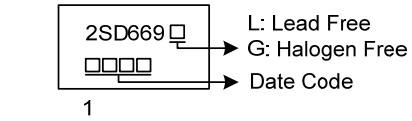
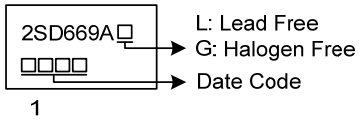
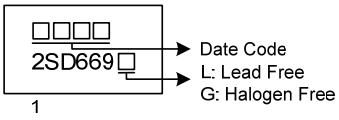
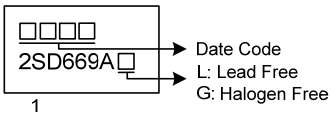
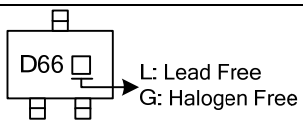
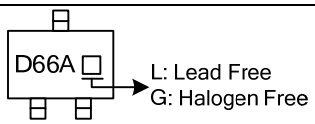
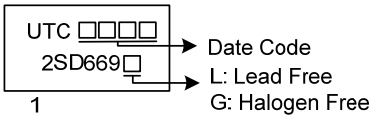
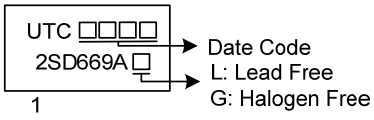
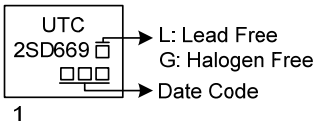
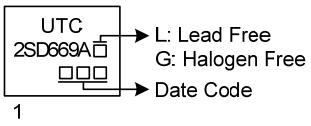
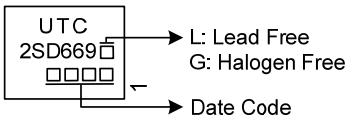
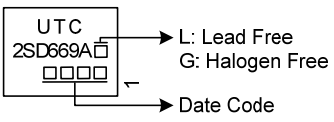
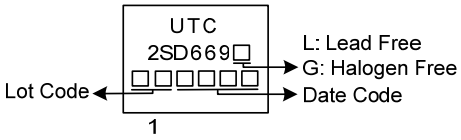
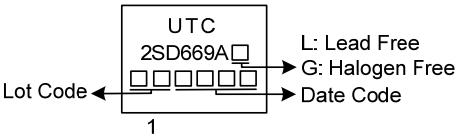
Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
2SD669xL-x-AA3-R	2SD669xG-x-AA3-R	SOT-223	B	C	E	Tape Reel
2SD669xL-x-AB3-R	2SD669xG-x-AB3-R	SOT-89	B	C	E	Tape Reel
2SD669xL-x-AE3-R	2SD669xG-x-AE3-R	SOT-23	E	B	C	Tape Reel
2SD669xL-x-AE3-6-R	2SD669xG-x-AE3-6-R	SOT-23	B	E	C	Tape Reel
2SD669xL-x-T60-K	2SD669xG-x-T60-K	TO-126	E	C	B	Bulk
2SD669xL-x-T60-T	2SD669xG-x-T60-T	TO-126	E	C	B	Tube
2SD669xL-x-T6C-K	2SD669xG-x-T6C-K	TO-126C	E	C	B	Bulk
2SD669xL-x-T6C-T	2SD669xG-x-T6C-T	TO-126C	E	C	B	Tube
2SD669xL-x-T6S-K	2SD669xG-x-T6S-K	TO-126S	E	C	B	Bulk
2SD669xL-x-T6S-T	2SD669xG-x-T6S-T	TO-126S	E	C	B	Tube
2SD669xL-x-T92-B	2SD669xG-x-T92-B	TO-92	E	C	B	Tape Box
2SD669xL-x-T92-K	2SD669xG-x-T92-K	TO-92	E	C	B	Bulk
2SD669xL-x-T9N-B	2SD669xG-x-T9N-B	TO-92NL	E	C	B	Tape Box
2SD669xL-x-T9N-K	2SD669xG-x-T9N-K	TO-92NL	E	C	B	Bulk
2SD669xL-x-TM3-T	2SD669xG-x-TM3-T	TO-251	B	C	E	Tube
2SD669xL-x-TN3-R	2SD669xG-x-TN3-R	TO-252	B	C	E	Tape Reel

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

2SD669xG-x-AE3-6-R
- (1)Packing Type
- (2)Pin Assignment
- (3)Package Type
- (4)Rank
- (5)Green Package
- (6) Collector-Emitter Voltage

(1) B: Tape Box, K: Bulk, R: Tape Reel, T: Tube
(2) refer to Pin Assignment
(3) AA3: SOT-223, AB3: SOT-89, AE3: SOT-23
T60: TO-126, T6C: TO-126C, T6S: TO-126S
TM3: TO-251, TN3: TO-252, T92: TO-92
T9N: TO-92NL
(4) x: refer to Classification of h_{FE1}
(5) G: Halogen Free and Lead Free, L: Lead Free
(6) A: 160V, Blank: 120V

■ MARKINL INFORMATION

PACKALE	MARKINL	
	2SD669	2SD669A
SOT-223		
SOT-89		
SOT-23		
TO-126 TO-126C TO-126S		
TO-92		
TO-92NL		
TO-251 TO-252		

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

PARAMETER		SYMBOL	RATINLS	UNIT
Collector-Base VoltaLe		V_{CBO}	180	V
Collector-Emitter VoltaLe	2SD669	V_{CEO}	120	V
	2SD669A		160	
Emitter-Base VoltaLe		V_{EBO}	5	V
Collector Current		I_C	1.5	A
Collector Peak Current		$I_{C(PEAK)}$	3	A
Base Current		I_B	0.5	A
Power Dissipation	SOT-223/ SOT-89	P_D	0.5	W
	SOT-23		0.35	W
	TO-126/TO-126S		1.3	W
	TO-126C		1	W
	TO-92/TO-92NL		0.6	W
	TO-251/TO-252		2	W
Junction Temperature		T_J	+150	°C
StoraLe Temperature		T_{STL}	-40 ~ +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.

■ HERMAL DATA

PARAMETER		SYMBOL	RATINLS	UNIT
Junction to Case	SOT-89	θ_{JC}	38	°C/W
	SOT-223		14	
	SOT-23		110	
	TO-92/TO-92NL		80	
	TO-126/TO-126S		6.25	
	TO-126C		10	
	TO-251/TO-252		4.5	

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Collector to Base Breakdown VoltaLe		BV_{CBO}	I_C=1mA, I_E=0	180			V
Collector to Emitter Breakdown VoltaLe	2SD669	BV_{CEO}	I_C=10mA, R_{BE}=∞	120			V
	2SD669A			160			
Collector to Emitter Breakdown VoltaLe (V_{BE}=0V)	2SD669	BV_{CES}	I_C=1mA, V_{BE}=0V	120			V
	2SD669A			160			
Emitter to Base Breakdown VoltaLe		BV_{EBO}	I_E=1mA, I_C=0	5			V
Collector Cut-off Current		I_{CBO}	V_{CB}=160V, I_E=0			10	μA
Emitter Cutoff Current		I_{EBO}	V_{EB}=4V, I_C=0			10	μA
ON CHARACTERISTICS							
DC Current Lain		h_{FE1}	V_{CE}=5V, I_C=150mA (Note)	60		320	
		h_{FE2}	V_{CE}=5V, I_C=500mA (Note)	30			
Collector-Emitter Saturation VoltaLe		$V_{CE(SAT)}$	I_C=600mA, I_B=50mA (Note)			1	V
Base-Emitter Saturation VoltaLe		$V_{BE(SAT)}$	I_C=600mA, I_B=50mA (Note)			1.2	V
Base-Emitter VoltaLe		V_{BE}	V_{CE}=5V, I_C=150mA (Note)			1.5	V
DYNAMIC CHARACTERISTICS							
Current Lain 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
SWITCHINL CHARACTERISTICS							
Rise Time		t_R	V_{CC}=50V, I_C=0.5A, I_{B1}=I_{B2}=10mA, t_P=25μs, Duty Cycle≤1%		0.5		μs
StoraLe Time		t_S			1.5		
Fall Time		t_F			0.7		

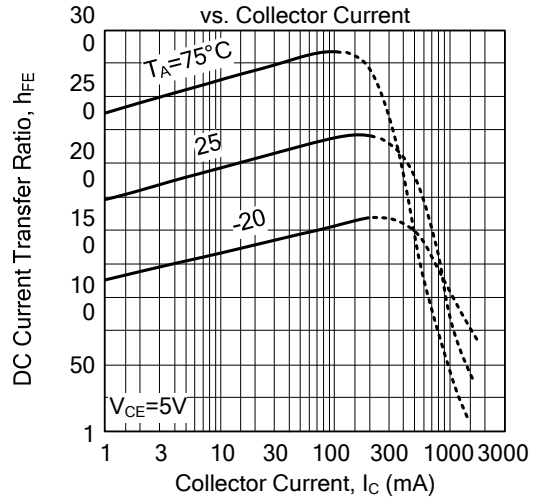
Note: Pulse test.

■ CLASSIFICATION OF h_{FE1}

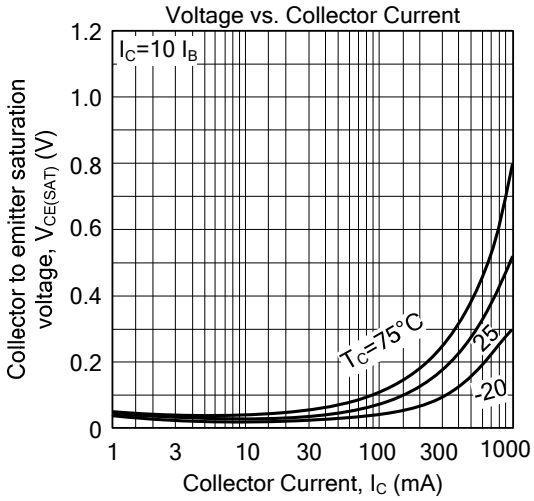
RANK	B	C	D
RANLE	60-120	100-200	160-320

■ TYPICAL CHARACTERISTICS

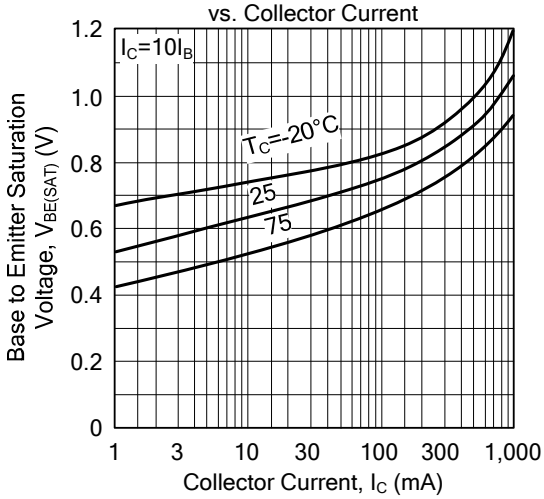
DC Current Transfer Ratio vs. Collector Current



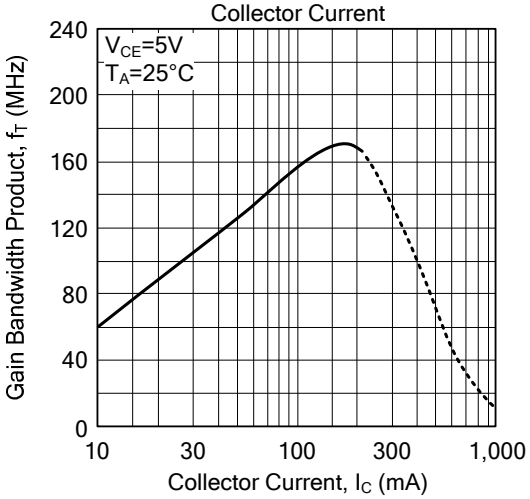
Collector to Emitter Saturation Voltage vs. Collector Current



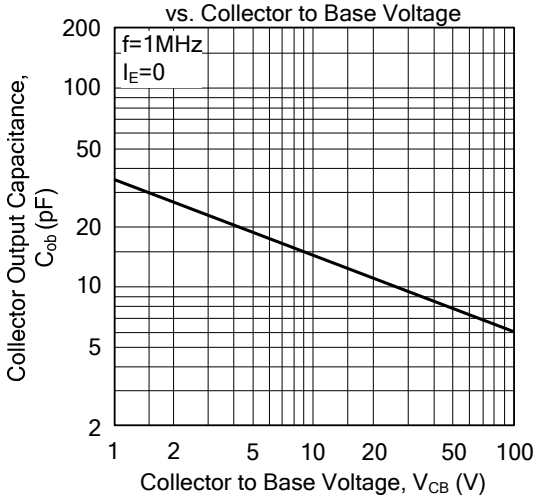
Base to Emitter Saturation Voltage vs. Collector Current



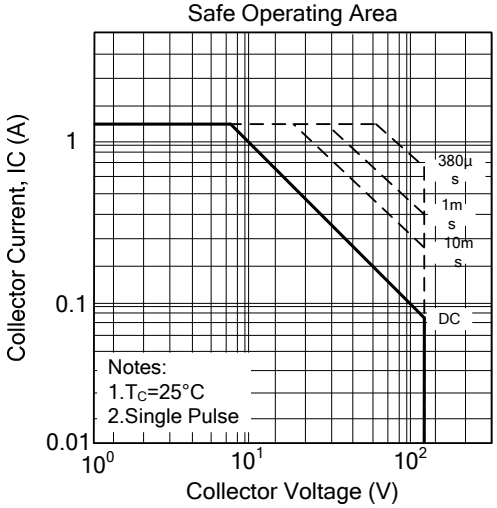
Gain Bandwidth Product vs. Collector Current



Collector Output Capacitance vs. Collector to Base Voltage



Safe Operating Area



■ TYPICAL CHARACTERISTICS (Cont.)