



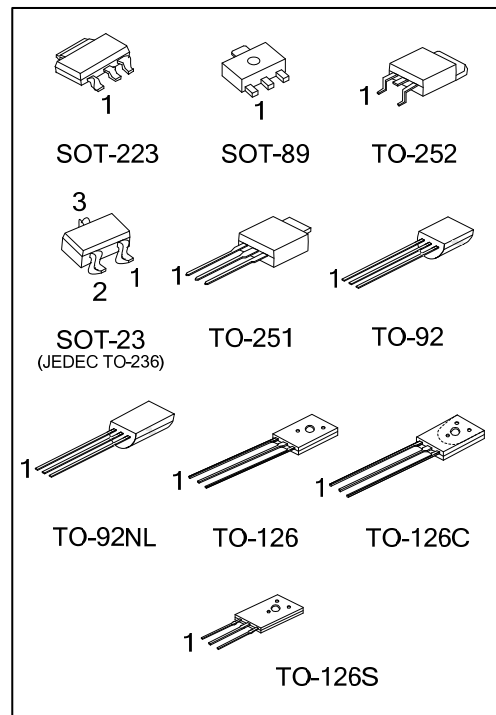
2SD669/A

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	
-	2SD669xG-x-AA3-R	SOT-223	B	C	E	Tape Reel
-	2SD669xG-x-AB3-R	SOT-89	B	C	E	Tape Reel
-	2SD669xG-x-AE3-R	SOT-23	B	E	C	Tape Reel
-	2SD669xG-x-AE3-6-R	SOT-23	E	B	C	Tape Reel
2SD669xL-x-T60-K	2SD669xG-x-T60-K	TO-126	E	C	B	Bulk
2SD669xL-x-T6C-K	2SD669xG-x-T6C-K	TO-126C	E	C	B	Bulk
2SD669xL-x-T6S-K	2SD669xG-x-T6S-K	TO-126S	E	C	B	Bulk
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 Assignment: B: Base C: Collector E: Emitter

<p>2SD669xG-x-AE3-6-R</p> <p>(1) Packing Type (2) Pin Assignment (3) Package Type (4) Rank (5) Green Package (6) Collector-Emitter Voltage</p>	<p>(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</p>
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MARKING INFORMATION

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

■ ABSOLUTE MAXIMUM RATING ($T_A=25^{\circ}\text{C}$ 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
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	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	-40 ~ +150	$^{\circ}\text{C}$

Notes: 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.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Case	SOT-89	θ_{JC}	38	$^{\circ}\text{C/W}$
	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)

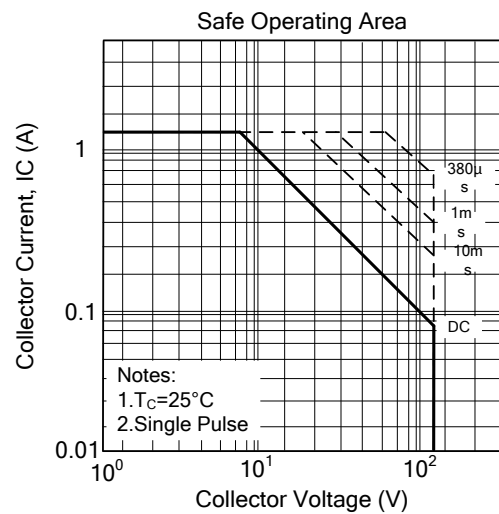
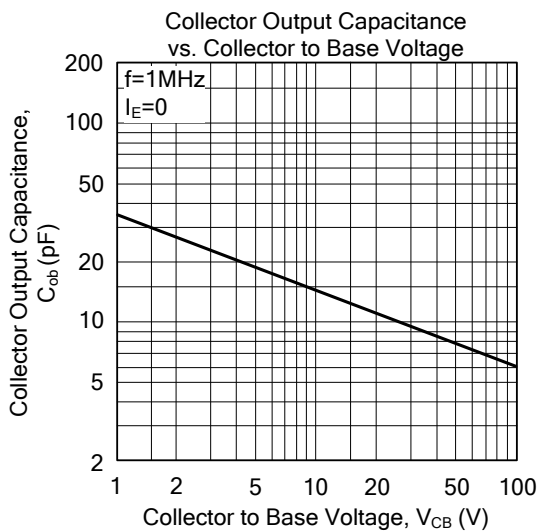
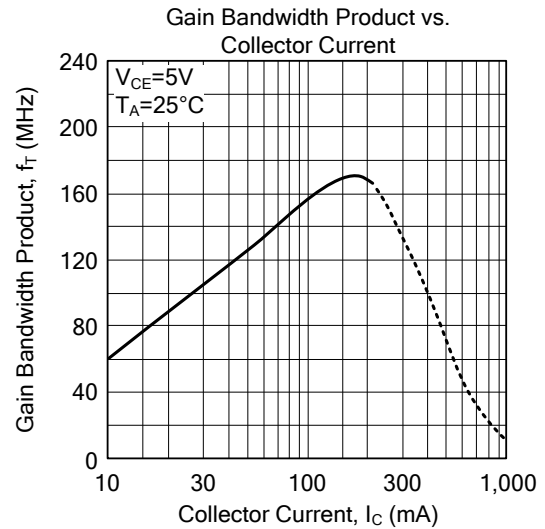
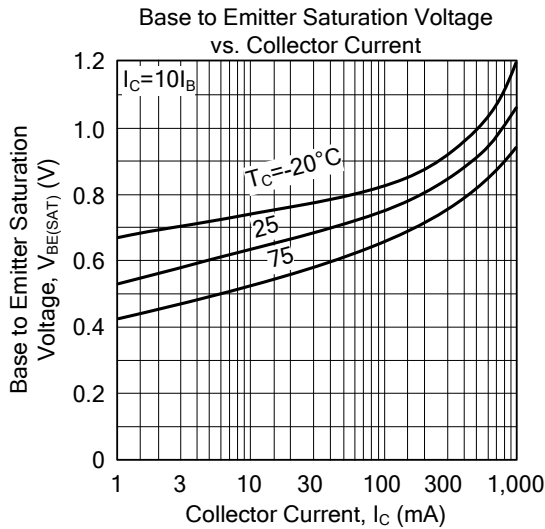
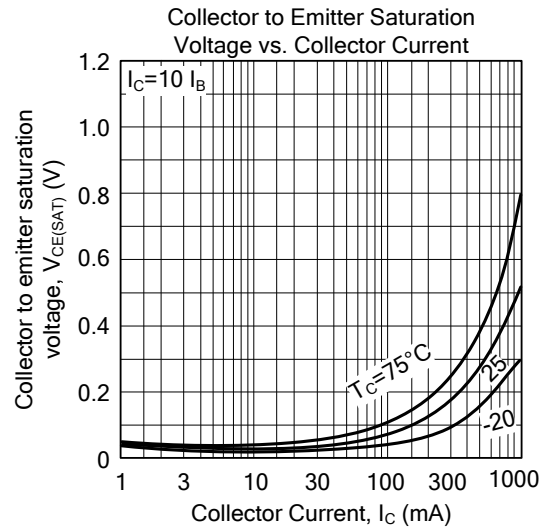
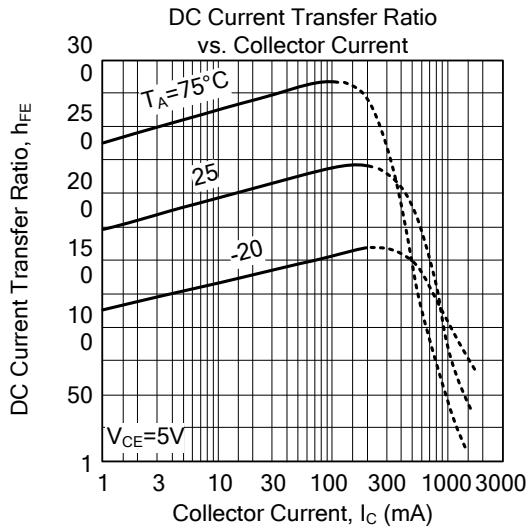
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Collector to Base Breakdown Voltage	BV _{CBO}	I _C =1mA, I _E =0	180			V
Collector to Emitter Breakdown Voltage	2SD669	BV _{CEO} I _C =10mA, R _{BE} =∞	120			V
	2SD669A		160			
Collector to Emitter Breakdown Voltage (V _{BE} =0V)	2SD669	BV _{CES} I _C =1mA, V _{BE} =0V	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
Emitter Cutoff Current	I _{EBO}	V _{EB} =4V, I _C =0			10	μA
ON CHARACTERISTICS						
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 Saturation Voltage	V _{BE(SAT)}	I _C =600mA, I _B =50mA (Note)			1.2	V
Base-Emitter Voltage	V _{BE}	V _{CE} =5V, I _C =150mA (Note)			1.5	V
DYNAMIC CHARACTERISTICS						
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
SWITCHING CHARACTERISTICS						
Rise Time	t _R	V _{CC} =50V, I _C =0.5A, I _{B1} =I _{B2} =10mA, t _p =25μs, Duty Cycles≤1%		0.5		μs
Storage Time	t _S			1.5		
Fall Time	t _F			0.7		

Note: Pulse test.

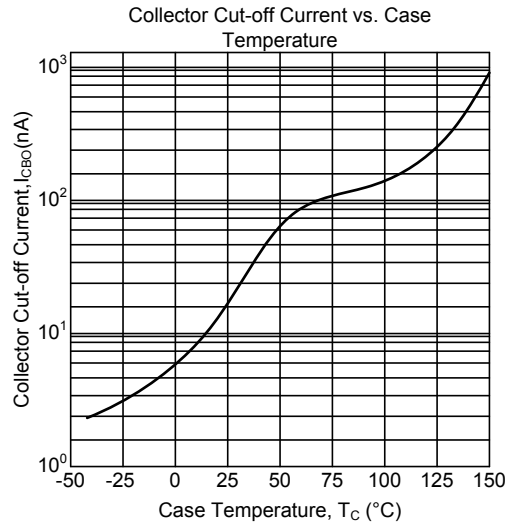
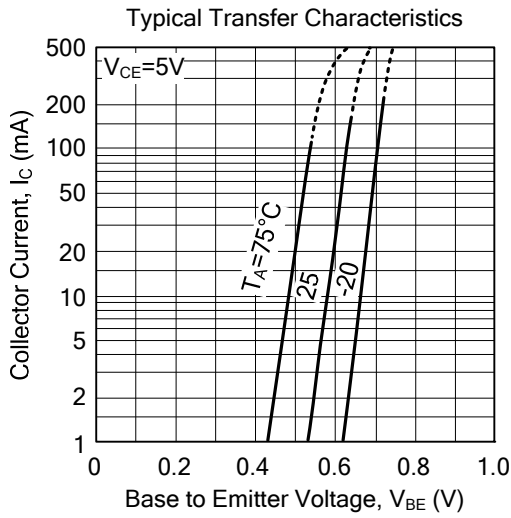
■ CLASSIFICATION OF h_{FE1}

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

TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



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