TO-126Plastic-Encapsulate Transistors

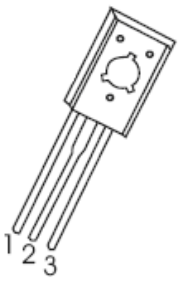
TRANSISTOR (NPN)

FEATURES

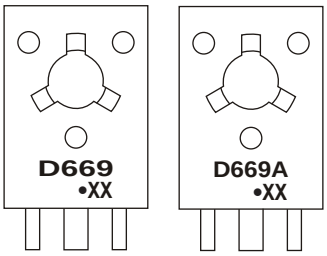
Low Frequency Power Amplifier Complementary Pair with 2SB649 / 2SB649A

TO-126

1. EMITTER
2. COLLECTOR
3. BASE

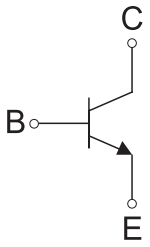


MARKING



D669,D669A=Device code
Solid dot = Green molding compound device, if none, the normal device
XX=Code

Equivalent Circuit



ORDERING INFORMATION

Part Number	Package	Packing Method	Pack Quantity
2SD669	TO-126	Bulk	200pcs/Bag
2SD669A	TO-126	Bulk	200pcs/Bag
2SD669-TU	TO-126	Tube	60pcs/Tube
2SD669A-TU	TO-126	Tube	60pcs/Tube

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Symbol	Parameter		Value	Unit
V_{CBO}	Collector- Base Voltage		180	V
V_{CEO}	Collector-Emitter Voltage	2SD669	120	V
		2SD669A	160	
V_{EBO}	Emitter-Base Voltage		5	V
I_C	Collector Current -Continuous		1.5	A
P_C	Collector Dissipation		1	W
T_J,T_{stg}	Operation Junction and Storage Temperature Range		-55-150	℃

ELECTRICAL CHARACTERISTICS

T_a=25℃ unless otherwise specified

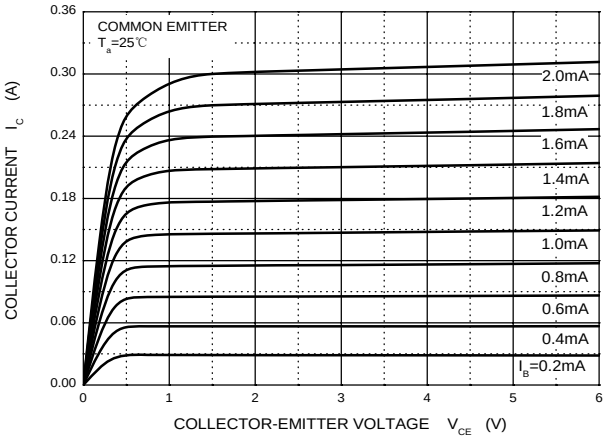
Parameter	Symbol	Test conditions		Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=1mA, I_E=0		180			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=10mA, I_B=0	2SD669	120			V
			2SD669A	160			
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=1mA, I_C=0		5			V
Collector cut-off current	I_{CBO}	V_{CB}=160V, I_E=0				10	μA
Emitter cut-off current	I_{EBO}	V_{EB}=4V, I_C=0				10	μA
DC current gain	$h_{FE(1)}$	V_{CE}=5V, I_C=150mA	2SD669	60		320	
			2SD669A	60		200	
	$h_{FE(2)}$	V_{CE}=5V, I_C=500mA		30			
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=500mA, I_B=50mA				1	V
Base-emitter voltage	V_{BE}	V_{CE}=5V, I_C=150mA				1.5	V
Transition frequency	f_T	V_{CE}=5V, I_C=150mA			140		MHz
Collector output capacitance	C_{ob}	V_{CB}=10V, I_E=0, f=1MHz			14		pF

CLASSIFICATION OF $h_{FE(1)}$

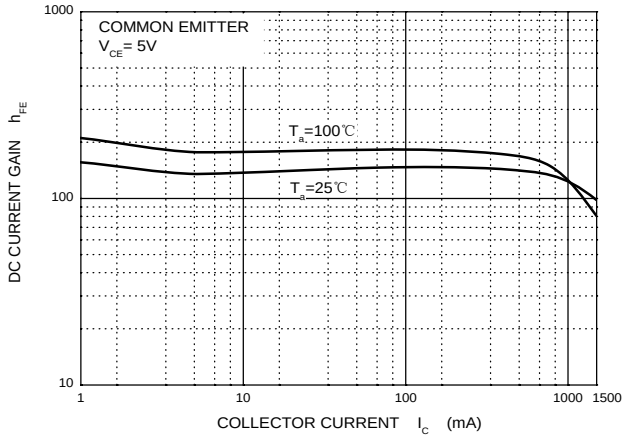
Rank		B	C	D
Range	**2SD669**	60-120	100-200	160-320
	2SD669A	60-120	100-200	

Typical Characteristics

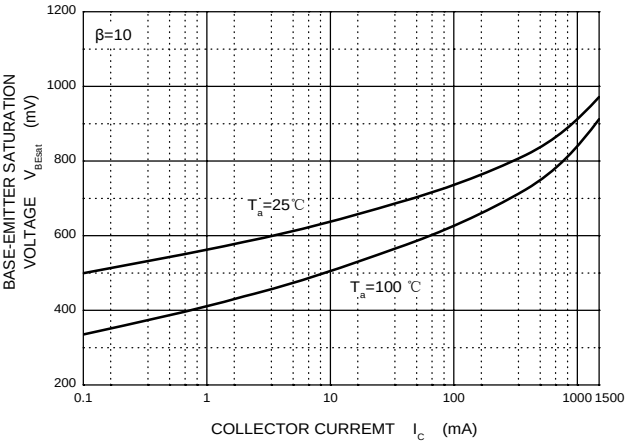
Static Characteristic



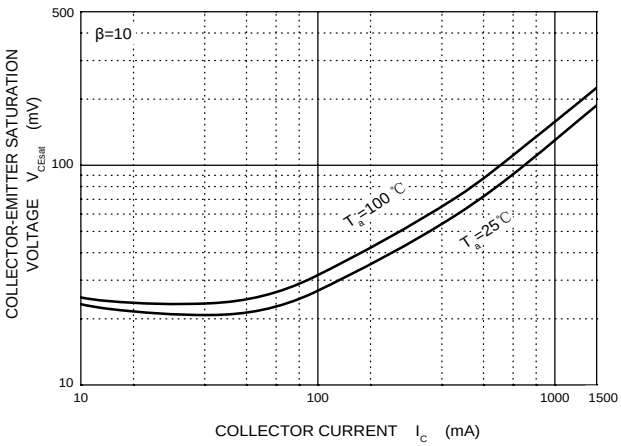
h_{FE} —— I_C



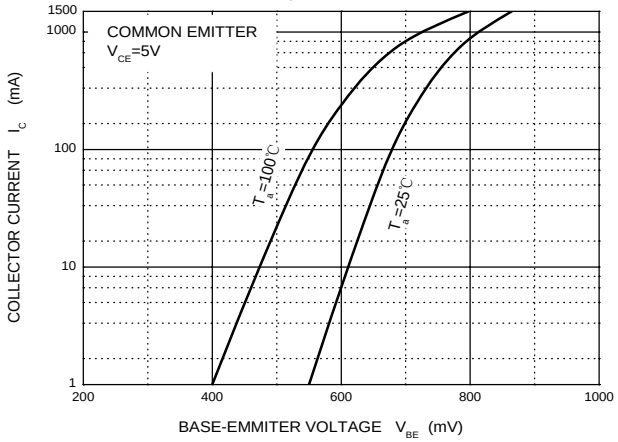
V_{BEsat} —— I_c



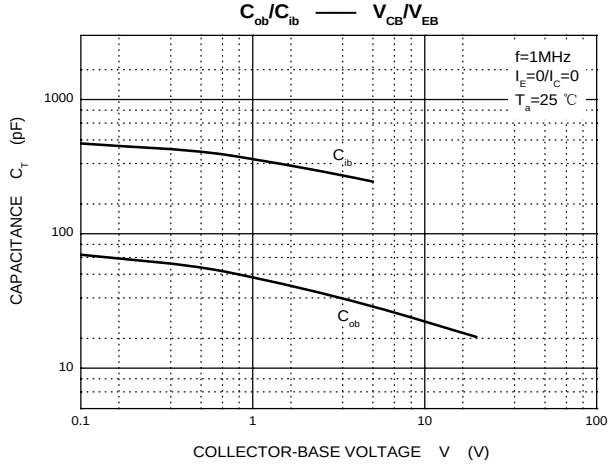
V_{CEsat} —— I_C



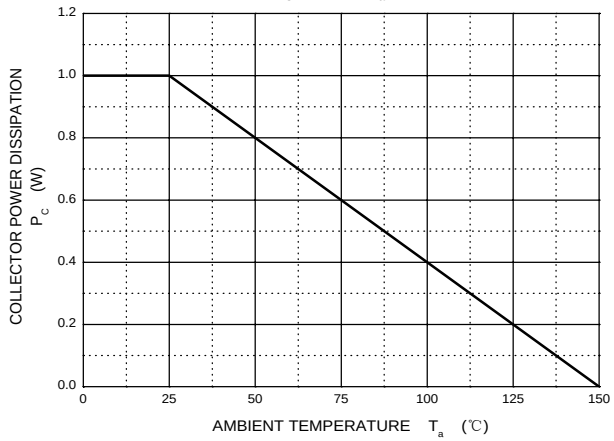
I_C —— V_{BE}



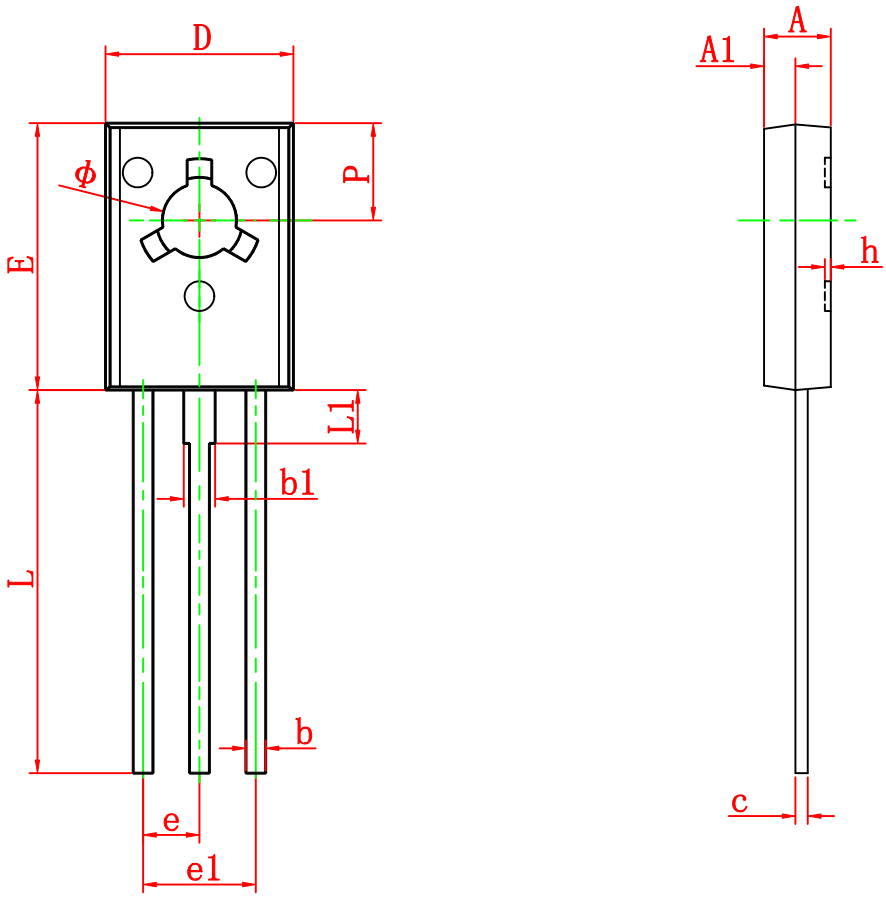
C_{ob}/C_{ib} —— V_{CB}/V_{EB}



P_C —— T_a



TO-126 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	2.500	2.900	0.098	0.114
A1	1.100	1.500	0.043	0.059
b	0.660	0.860	0.026	0.034
b1	1.170	1.370	0.046	0.054
c	0.450	0.600	0.018	0.024
D	7.400	7.800	0.291	0.307
E	10.600	11.000	0.417	0.433
e	2.290 TYP		0.090 TYP	
e1	4.480	4.680	0.176	0.184
h	0.000	0.300	0.000	0.012
L	15.300	15.700	0.602	0.618
L1	2.100	2.300	0.083	0.091
P	3.900	4.100	0.154	0.161
Φ	3.000	3.200	0.118	0.126