

**TO-126 Plastic-Encapsulate Transistors****2SB649/2SB649A** TRANSISTOR (PNP)**FEATURES**

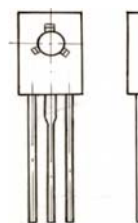
Low frequency power amplifier complementary pair
with 2SD669/A

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	-180	V
V_{CEO}	Collector-Emitter Voltage		
	2SB649	-120	V
	2SB649A	-160	
V_{EBO}	Emitter-Base Voltage	-5	V
I_{C}	Collector Current –Continuous	-1.5	A
P_{C}	Collector Power Dissipation	1	W
T_{J}	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55-150	$^{\circ}\text{C}$

TO- 126

1. EMITTER
2. COLLECTOR
3. BASE



1 2 3

ELECTRICAL CHARACTERISTICS ($T_{\text{amb}}=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(\text{BR})\text{CBO}}$	$I_{\text{C}} = -1\text{mA}, I_{\text{E}} = 0$	-180			V
Collector-emitter breakdown voltage	$V_{(\text{BR})\text{CEO}}$	$I_{\text{C}} = -10\text{mA}, I_{\text{B}} = 0$	-120			V
		2SB649	-120			
		2SB649A	-160			
Emitter-base breakdown voltage	$V_{(\text{BR})\text{EBO}}$	$I_{\text{E}} = -1\text{mA}, I_{\text{C}} = 0$	-5			V
Collector cut-off current	I_{CBO}	$V_{\text{CB}} = -160\text{V}, I_{\text{E}} = 0$			-10	μA
Emitter cut-off current	I_{EBO}	$V_{\text{EB}} = -4\text{V}, I_{\text{C}} = 0$			-10	μA
DC current gain	$h_{\text{FE}(1)}$	$V_{\text{CE}} = -5\text{V}, I_{\text{C}} = -150\text{mA}$	60		320	
		2SB649A	60		200	
	$h_{\text{FE}(2)}$	$V_{\text{CE}} = -5\text{V}, I_{\text{C}} = -500\text{mA}$	30			
Collector-emitter saturation voltage	$V_{\text{CE(sat)}}$	$I_{\text{C}} = -500\text{mA}, I_{\text{B}} = -50\text{mA}$			-1	V
Base-emitter voltage	V_{BE}	$V_{\text{CE}} = -5\text{V}, I_{\text{C}} = -150\text{mA}$			-1.5	V
Transition frequency	f_{T}	$V_{\text{CE}} = -5\text{V}, I_{\text{C}} = -150\text{mA}$		140		MHz
Collector output capacitance	C_{ob}	$V_{\text{CB}} = -10\text{V}, I_{\text{E}} = 0, f = 1\text{MHz}$		27		pF

CLASSIFICATION OF $h_{\text{FE}(1)}$

Rank	B	C	D
Range 2SB649	60-120	100-200	160-320
2SB649A	60-120	100-200	

Typical Characteristics

2SB649,649A

