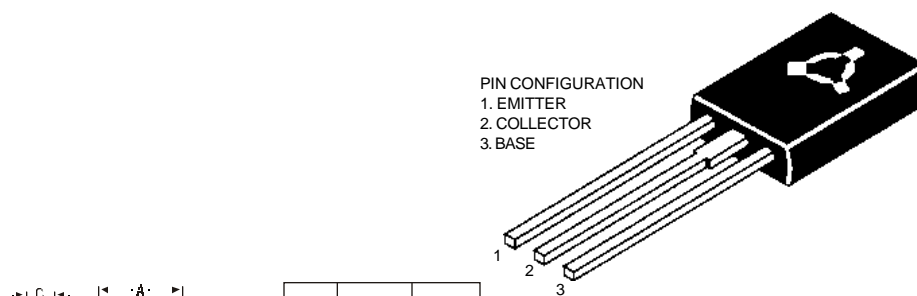


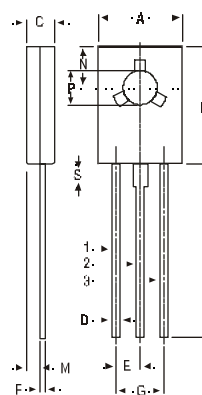
TO-126 (SOT-32) Plastic Package

**CSB649, CSB649A
CSD669, CSD669A**

CSB649, 649A PNP PLASTIC POWER TRANSISTORS
 CSD669, 669A NPN PLASTIC POWER TRANSISTORS
 Low frequency Power Amplifier



PIN CONFIGURATION
 1. EMITTER
 2. COLLECTOR
 3. BASE



DIM	MIN.	MAX.
A	7.4	7.8
B	10.5	10.8
C	2.4	2.7
D	0.7	0.9
E	2.25 TYP.	
F	0.49	0.75
G	4.5 TYP.	
L	15.7 TYP.	
M	1.27 TYP.	
N	3.75 TYP.	
P	3.0	3.2
S	2.5 TYP.	

ALL DIMENSIONS IN MM

ABSOLUTE MAXIMUM RATINGS

		649	649A
		669	669A
Collector-base voltage (open emitter)	V_{CB0}	max. 180	180 V
Collector-emitter voltage (open base)	V_{CE0}	max. 120	160 V
Collector current	I_C	max.	1.5 A
Total power dissipation up to $T_C = 25^\circ C$	P_C	max.	20 W
Junction temperature	T_j	max.	150 C
Collector-emitter saturation voltage $I_C = 0.5 A; I_B = 50 mA$	V_{CEsat}	max.	1.0 V
D.C. current gain $I_C = 150 mA; V_{CE} = 5 V$	h_{FE}	min. 60	60
		max. 320	200

RATINGS (at $T_A=25^\circ C$ unless otherwise specified)

Limiting values			
Collector-base voltage (open emitter)	V_{CB0}	max.	180 180 V
Collector-emitter voltage (open base)	V_{CE0}	max.	120 160 V

**CSB649, CSB649A
CSD669, CSD669A**

		649 669	649A 669A
Emitter-base voltage (open collector)	V _{EBO}	max.	5.0 V
Collector current	I _C	max.	1.5 A
Collector current (peak)	I _{CP}	max.	3.0 A
Total power dissipation up to T _A = 25 °C	P _C	max.	1.0 W
Total power dissipation up to T _C = 25 °C	P _C	max.	20 W
Junction temperature	T _j	max.	150 °C
Storage temperature	T _{stg}		65 to +150 °C

CHARACTERISTICS

T_{amb} = 25 °C unless otherwise specified

		649 669	649A 669A
Collector cutoff current I _E = 0; V _{CB} = 160 V	I _{CBO}	max.	10 µA
Breakdown voltages I _C = 10 mA; I _B = 0	V _{CEO}	min.	120 160 V
I _C = 1 mA; I _E = 0	V _{CBO}	min.	180 180 V
I _E = 1 mA; I _C = 0	V _{EBO}	min.	5.0 V
Saturation voltage I _C = 500 mA; I _B = 50 mA	V _{CEsat} *	max.	1.0 V
Base-emitter voltage I _C = 150 mA; V _{CE} = 5 V	V _{BE(on)} *	max.	1.5 V
D.C. current gain I _C = 150 mA; V _{CE} = 5 V	h _{FE} * ⁽¹⁾	min. max.	60 60 320 200
I _C = 500 mA; V _{CE} = 5 V	h _{FE}	min.	30
Transition frequency I _C = 150 mA; V _{CE} = 5 V	f _T	typ.	140 MHz
Output capacitance V _{CB} = 10 V; I _E = 0; f = 1 MHz	C _{ob}	typ.	27 pF
	C _{ob}	typ.	14 pF

***(1) h_{FE} classification:** **Non-A** **B 60 - 120, C 100 - 200, D 160 - 320**
 A **B 60 - 120, C 100 - 200**

*** Pulse test**

Disclaimer

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