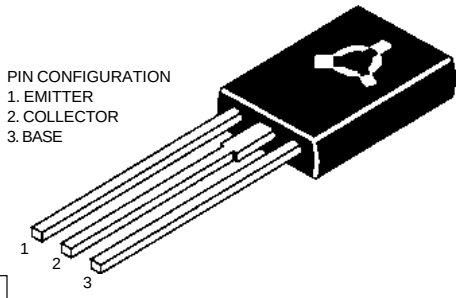
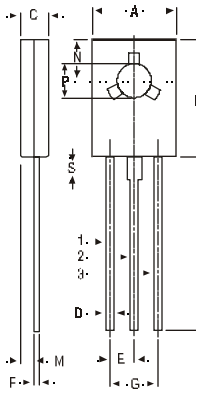
TO-126 (SOT-32) Plastic Package

CSB649, CSB649A
CSD669, CSD669A

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





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

			649 669	649A 669A	
Collector-base voltage (open emitter)	V_{CBO}	max.	180	180	V
Collector-emitter voltage (open base)	V_{CEO}	max.	120	160	V
Collector current	I_C	max.	1.5		A
Total power dissipation up to T_C = 25 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 C unless otherwise specified)

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

			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		mA
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		ºC
Storage temperature	T_{stg}		65 to +150		ºC

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.	60	60	
		max.	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 **PNP**	C_{ob}	typ.	27		pF
NPN	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**

Notes

Disclaimer

The product information and the selection guides facilitate selection of the CDIL's Discrete Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished on the CDIL Web Site/ CD is believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Discrete Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

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