
2SD1609, 2SD1610

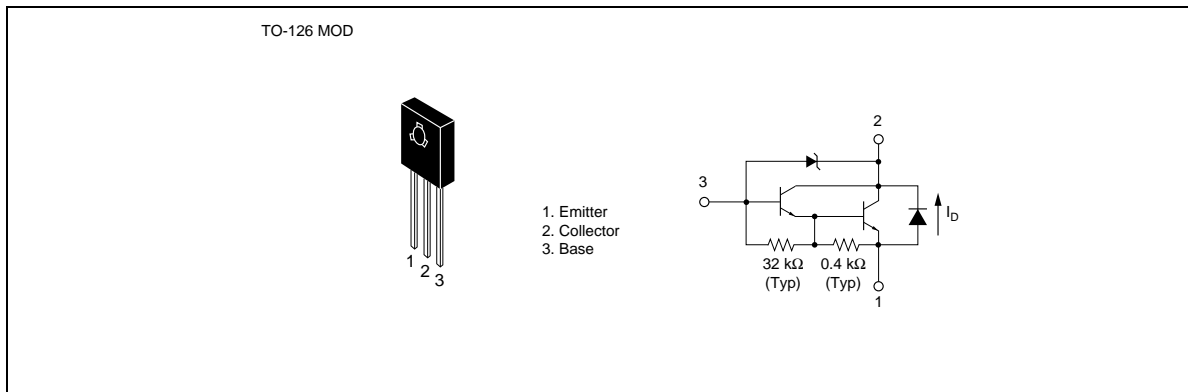
Silicon NPN Epitaxial

HITACHI

Application

Low frequency high voltage amplifier complementary pair with 2SB1109 and 2SB1110

Outline



Absolute Maximum Ratings (T_a = 25°C)

Item	Symbol	Ratings		Unit
		2SD1609	2SD1610	
Collector to base voltage	V _{CBO}	160	200	V
Collector to emitter voltage	V _{CEO}	160	200	V
Emitter to base voltage	V _{EBO}	5	5	V
Collector current	I _C	100	100	mA
Collector power dissipation	P _C	1.25	1.25	W
Junction temperature	T _j	150	150	°C
Storage temperature	T _{stg}	-45 to +150	-45 to +150	°C

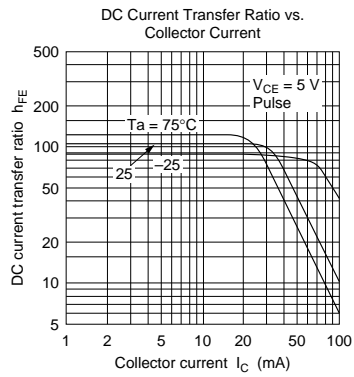
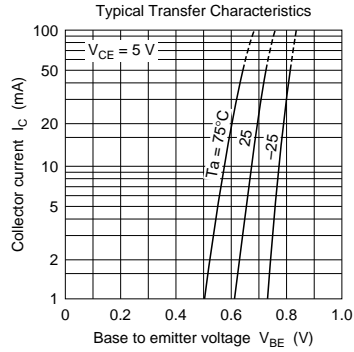
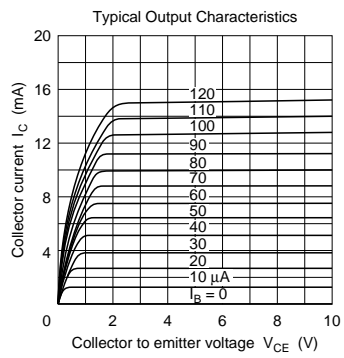
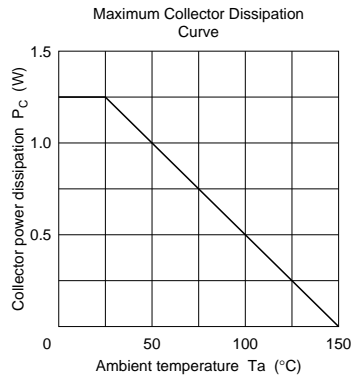
2SD1609, 2SD1610

Electrical Characteristics (Ta = 25°C)

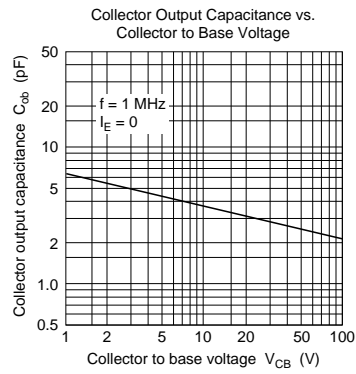
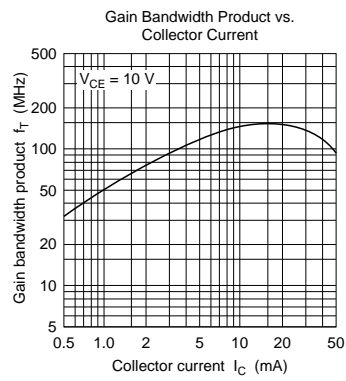
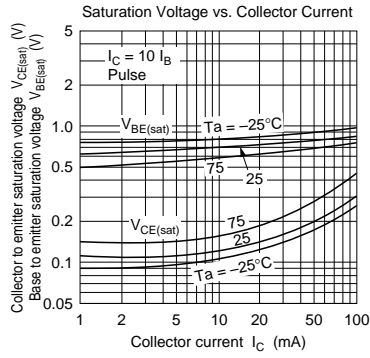
Item	Symbol	2SD1609			2SD1610			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	$V_{(BR)CBO}$	160	—	—	200	—	—	V	$I_C = 10 \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	160	—	—	200	—	—	V	$I_C = 1 \text{ mA}, R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	5	—	—	V	$I_E = 10 \mu A, I_C = 0$
Collector cutoff current	I_{CBO}	—	—	10	—	—	—	μA	$V_{CB} = 140 \text{ V}, I_E = 0$
		—	—	—	—	—	10		$V_{CE} = 160 \text{ V}, I_E = 0$
DC current transfer ratio	h_{FE1}^{*1}	60	—	320	60	—	320		$V_{CE} = 5 \text{ V}, I_C = 10 \text{ mA}$
	h_{FE2}	30	—	—	30	—	—		$V_{CE} = 5 \text{ V}, I_C = 1 \text{ mA}$
Base to emitter voltage	V_{BE}	—	—	1.5	—	—	1.5	V	$V_{CE} = 5 \text{ V}, I_C = 10 \text{ mA}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	2	—	—	2	V	$I_C = 30 \text{ mA}, I_B = 3 \text{ mA}$
Gain bandwidth product	f_T	—	140	—	—	140	—	MHz	$V_{CE} = 5 \text{ V}, I_C = 10 \text{ mA}$
Collector output capacitance	C_{ob}	—	3.8	—	—	3.8	—	pF	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$

Note: 1. The 2SD1609 and 2SD1610 are grouped by h_{FE1} as follows.

B	C	D
60 to 120	100 to 200	160 to 320



2SD1609, 2SD1610



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