

# 2SD1559

Silicon NPN Triple Diffused

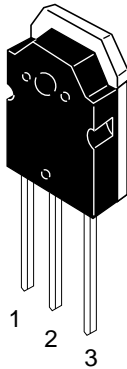
# HITACHI

## Application

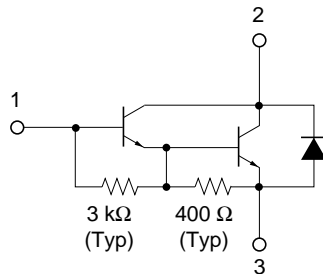
Low frequency power amplifier complementary pair with 2SB1079

## Outline

TO-3P



1. Base
2. Collector (Flange)
3. Emitter



**Absolute Maximum Ratings** ( $T_a = 25^\circ\text{C}$ )

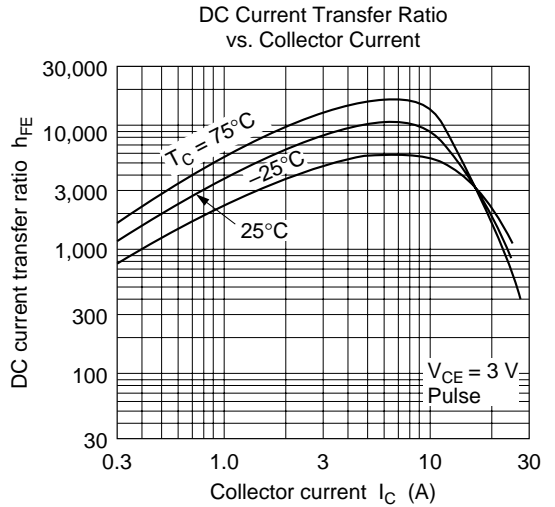
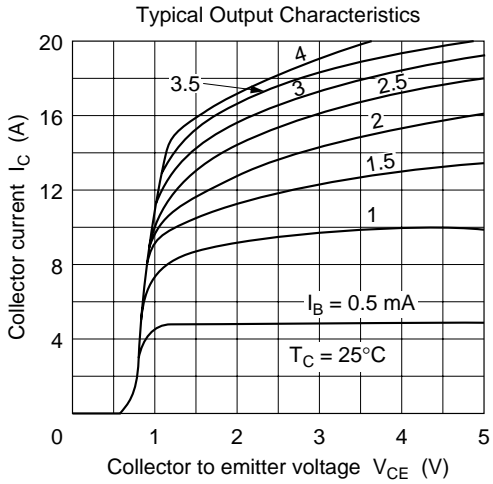
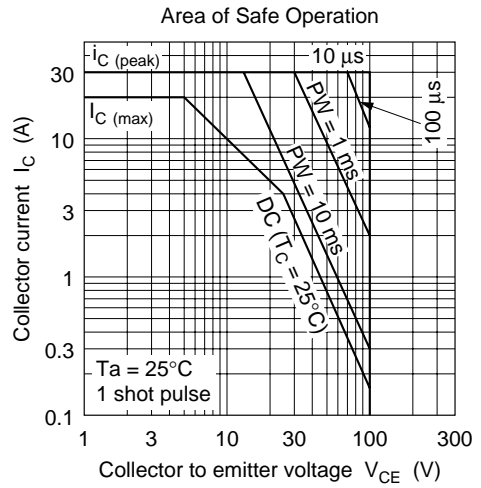
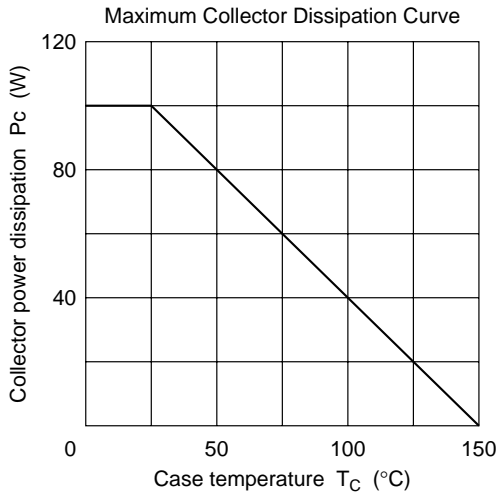
Item	Symbol	Rated	Unit
Collector to base voltage	$V_{\text{CBO}}$	100	V
Collector to emitter voltage	$V_{\text{CEO}}$	100	V
Emitter to base voltage	$V_{\text{EBO}}$	7	V
Collector current	$I_{\text{C}}$	20	A
Collector peak current	$I_{\text{C(peak)}}$	30	A
Base current	$I_{\text{B}}$	3	A
Collector power dissipation	$P_{\text{C}}^{*1}$	100	W
Junction temperature	$T_{\text{j}}$	150	$^\circ\text{C}$
Storage temperature	$T_{\text{stg}}$	-55 to +150	$^\circ\text{C}$

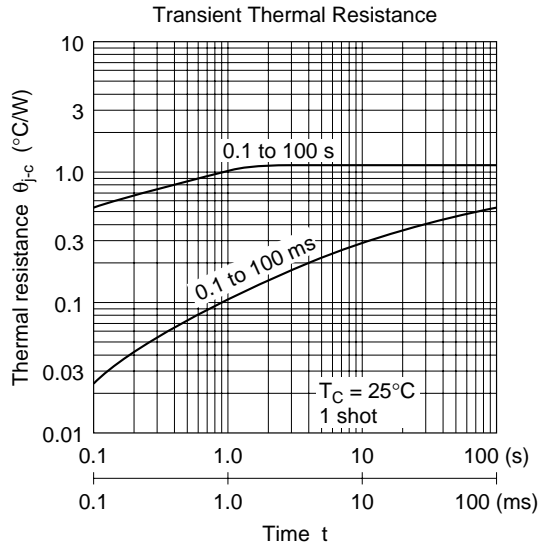
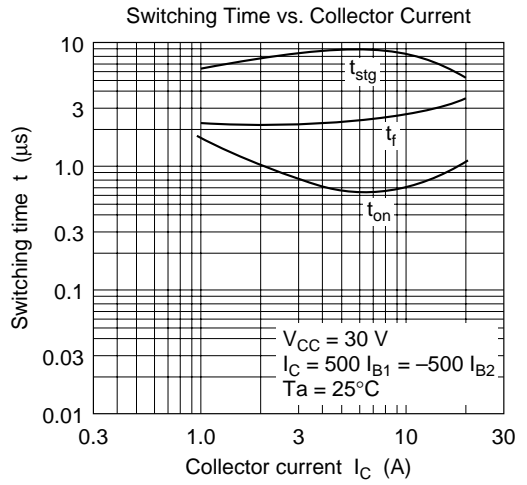
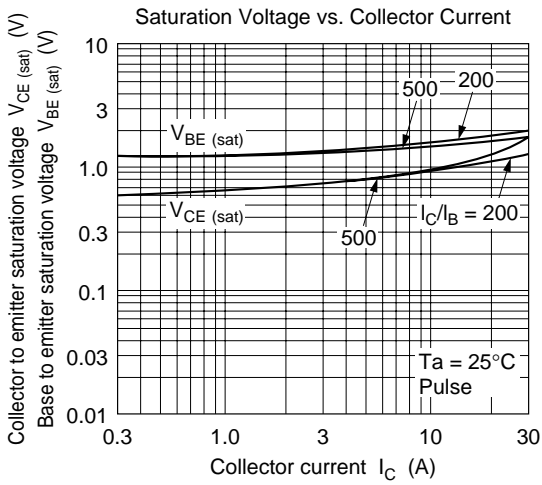
Note: 1. Value at  $T_{\text{c}} = 25^\circ\text{C}$ .

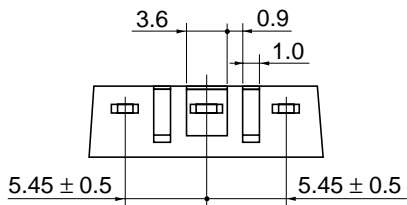
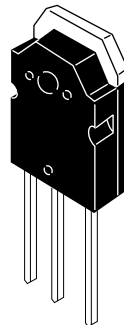
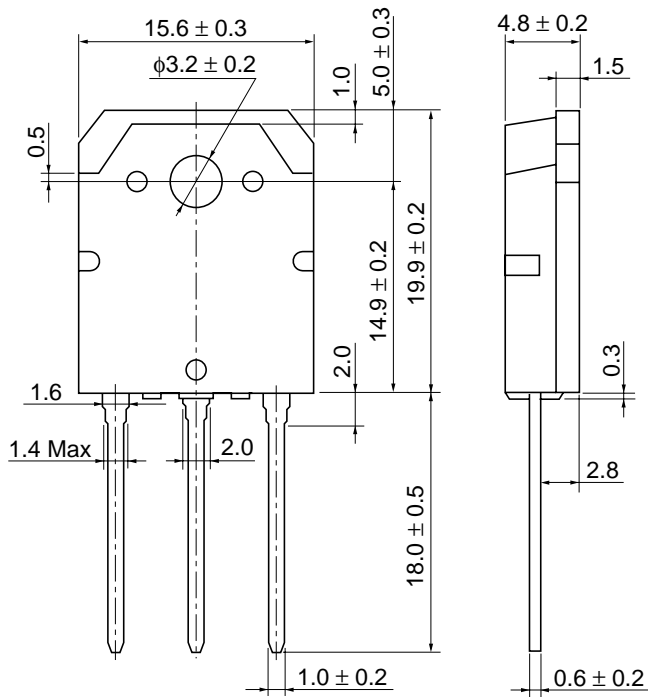
**Electrical Characteristics** ( $T_a = 25^\circ\text{C}$ )

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(\text{BR})\text{CBO}}$	100	—	—	V	$I_{\text{C}} = 0.1 \text{ mA}, I_{\text{E}} = 0$
Collector to emitter breakdown voltage	$V_{(\text{BR})\text{CEO}}$	100	—	—	V	$I_{\text{C}} = 25 \text{ mA}, R_{\text{BE}} = \infty$
Collector to emitter sustain voltage	$V_{\text{CEO(sus)}}$	100	—	—	V	$I_{\text{C}} = 200 \text{ mA}, R_{\text{BE}} = \infty^{*1}$
Emitter to base breakdown voltage	$V_{(\text{BR})\text{EBO}}$	7	—	—	V	$V_{\text{EB}} = 50 \text{ mA}, I_{\text{C}} = 0$
Collector cutoff current	$I_{\text{CBO}}$	—	—	100	$\mu\text{A}$	$V_{\text{CB}} = 100 \text{ V}, I_{\text{E}} = 0$
	$I_{\text{CEO}}$	—	—	1.0	mA	$V_{\text{CE}} = 80 \text{ V}, R_{\text{BE}} = \infty$
DC current transfer ratio	$h_{\text{FE}}$	1000	—	20000		$V_{\text{CE}} = 3 \text{ V}, I_{\text{C}} = 10 \text{ A}^{*1}$
Collector to emitter saturation voltage	$V_{\text{CE(sat)1}}$	—	—	2.0	V	$I_{\text{C}} = 10 \text{ A}, I_{\text{B}} = 20 \text{ mA}^{*1}$
Base to emitter saturation voltage	$V_{\text{BE(sat)1}}$	—	—	2.5	V	
Collector to emitter saturation voltage	$V_{\text{CE(sat)2}}$	—	—	3.0	V	$I_{\text{C}} = 20 \text{ A}, I_{\text{B}} = 200 \text{ mA}^{*1}$
Base to emitter saturation voltage	$V_{\text{BE(sat)2}}$	—	—	3.5	V	
Turn on time	$t_{\text{on}}$	—	1.0	—	$\mu\text{s}$	$I_{\text{C}} = 10 \text{ A}, I_{\text{B1}} = -I_{\text{B2}} = 20 \text{ mA}$
Storage time	$t_{\text{stg}}$	—	9.0	—	$\mu\text{s}$	
Fall time	$t_{\text{f}}$	—	3.0	—	$\mu\text{s}$	

Note: 1. Pulse test.







Hitachi Code	TO-3P
JEDEC	—
EIAJ	Conforms
Weight (reference value)	5.0 g

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