
2SC3957

Silicon NPN Epitaxial, Darlington

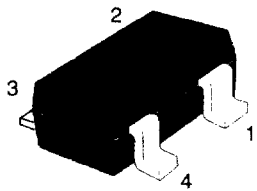
HITACHI

Application

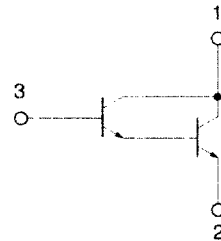
High gain amplifier

Outline

MPAK-4



- 1. Collector
- 2. Emitter
- 3. Base
- 4. NC



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

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	40	V
Collector to emitter voltage	V_{CEO}	30	V
Emitter to base voltage	V_{EBO}	10	V
Collector current	I_{C}	300	mA
Collector peak current	$I_{\text{C (peak)}}$	500	mA
Collector power dissipation	P_{C}	150	mW
Junction temperature	T_{j}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

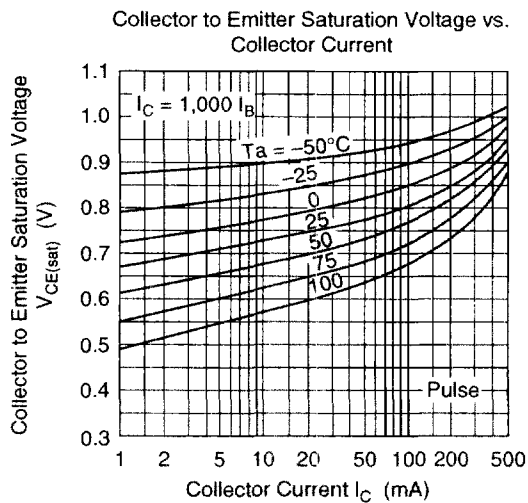
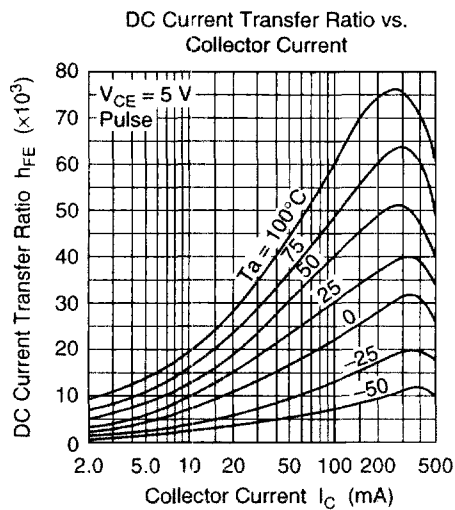
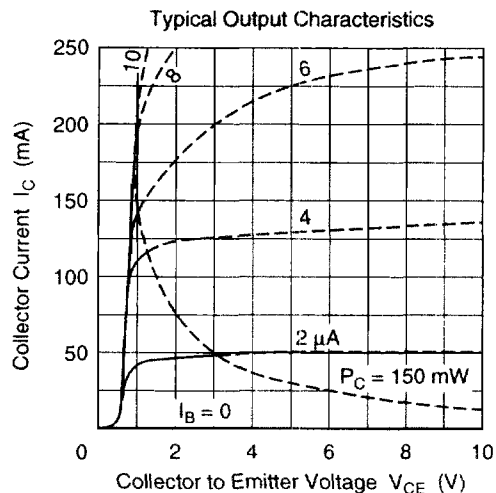
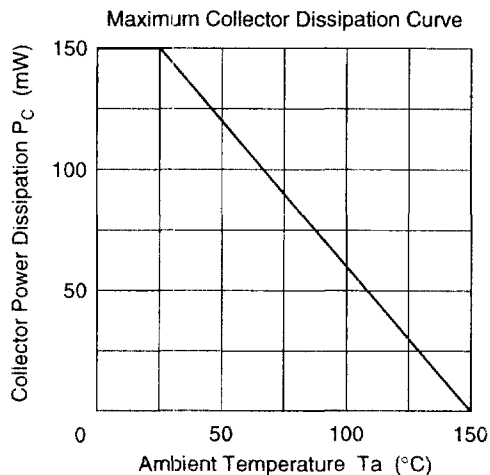
Electrical Characteristics ($T_a = 25^\circ\text{C}$)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to emitter breakdown voltage	$V_{(\text{BR})\text{CEO}}$	30	—	—	V	$I_{\text{C}} = 1 \text{ mA}$, $R_{\text{BE}} = \infty$
Collector cutoff current	I_{CBO}	—	—	100	nA	$V_{\text{CB}} = 30 \text{ V}$, $I_{\text{E}} = 0$
Emitter cutoff current	I_{EBO}	—	—	100	nA	$V_{\text{EB}} = 10 \text{ V}$, $I_{\text{C}} = 0$
DC current transfer ratio	h_{FE1}^{*1}	2000	—	100000		$I_{\text{C}} = 10 \text{ mA}$, $V_{\text{CE}} = 5 \text{ V}^{*2}$
	h_{FE2}^{*1}	3000	—	—		$I_{\text{C}} = 100 \text{ mA}$, $V_{\text{CE}} = 5 \text{ V}^{*2}$
	h_{FE3}^{*1}	3000	—	—		$I_{\text{C}} = 400 \text{ mA}$, $V_{\text{CE}} = 5 \text{ V}^{*2}$
Collector to emitter saturation voltage	$V_{\text{CE(sat)}}$	—	—	1.5	V	$I_{\text{C}} = 100 \text{ mA}$, $I_{\text{B}} = 0.1 \text{ mA}^{*2}$
Base to emitter saturation voltage	$V_{\text{BE(sat)}}$	—	—	2.0	V	$I_{\text{C}} = 100 \text{ mA}$, $I_{\text{B}} = 0.1 \text{ mA}^{*2}$

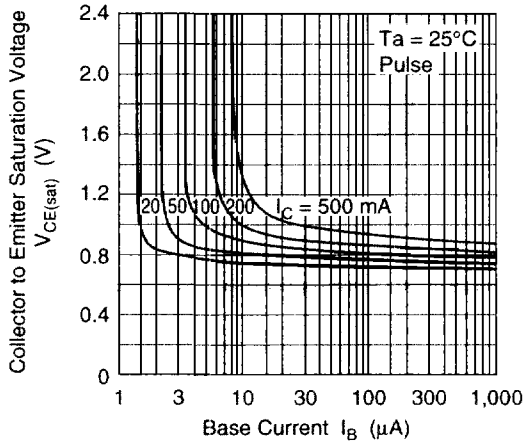
Notes: 1. The 2SC3957 is grouped by h_{FE} as follows.

2. Pulse test

Mark	GIA	GIB
h_{FE1}	2000 to 100000	5000 to 100000
h_{FE2}	3000 min	10000 min
h_{FE3}	3000 min	10000 min



Collector to Emitter Saturation Voltage vs.
Base Current



Base to Emitter Saturation Voltage vs.
Collector Current

