
2SC3867

Silicon NPN Epitaxial

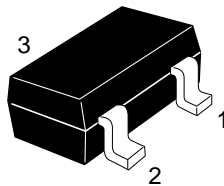
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Application

- UHF frequency converter
- Wide band amplifier

Outline

MPAK



1. Base
2. Emitter
3. Collector

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

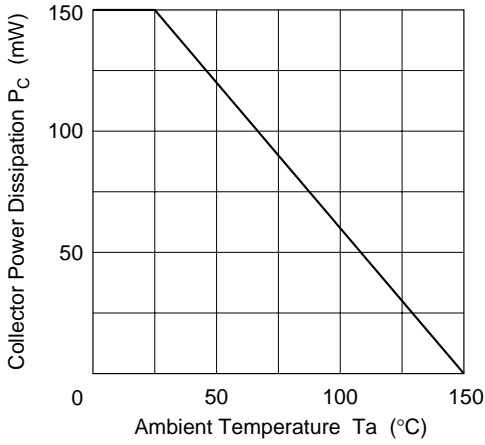
Item	Symbol	Rated	Unit
Collector to base voltage	V_{CBO}	20	V
Collector to emitter voltage	V_{CEO}	11	V
Emitter to base voltage	V_{EBO}	3	V
Collector current	I_{C}	50	mA
Collector power dissipation	P_{C}	150	mW
Junction temperature	T_{j}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

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

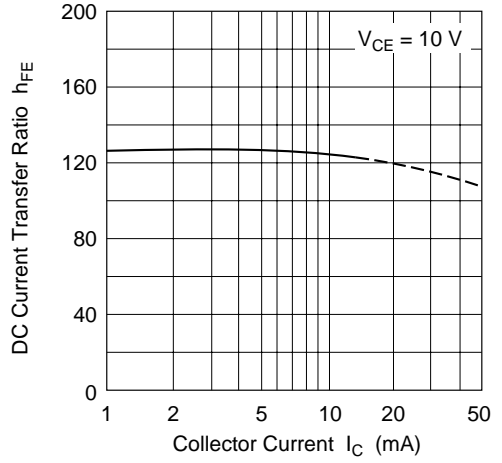
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(\text{BR})\text{CBO}}$	20	—	—	V	$I_{\text{C}} = 10 \mu\text{A}$, $I_{\text{E}} = 0$
Collector to emitter breakdown voltage	$V_{(\text{BR})\text{CEO}}$	11	—	—	V	$I_{\text{C}} = 1 \text{ mA}$, $R_{\text{BE}} = \infty$
Emitter to base breakdown voltage	$V_{(\text{BR})\text{EBO}}$	3	—	—	V	$I_{\text{E}} = 10 \mu\text{A}$, $I_{\text{C}} = 0$
Collector cutoff current	I_{CBO}	—	—	0.5	μA	$V_{\text{CB}} = 15 \text{ V}$, $I_{\text{E}} = 0$
Collector to emitter saturation voltage	$V_{\text{CE}(\text{sat})}$	—	—	0.7	V	$I_{\text{C}} = 10 \text{ mA}$, $I_{\text{B}} = 5 \text{ mA}$
DC current transfer ratio	h_{FE}	45	—	200		$V_{\text{CE}} = 10 \text{ V}$, $I_{\text{C}} = 5 \text{ mA}$
Gain bandwidth product	f_{T}	2.5	3.8	—	GHz	$V_{\text{CE}} = 10 \text{ V}$, $I_{\text{C}} = 10 \text{ mA}$
Collector output capacitance	C_{ob}	—	0.8	1.5	pF	$V_{\text{CB}} = 10 \text{ V}$, $I_{\text{E}} = 0$, $f = 1 \text{ MHz}$
Conversion gain	CG	10	14	—	dB	$V_{\text{CC}} = 10 \text{ V}$, $I_{\text{C}} = 1 \text{ mA}$, $f = 900 \text{ MHz}$,
Noise figure	NF	—	10	14	dB	$f_{\text{osc}} = 930 \text{ MHz}$, (-5dBm), $f_{\text{out}} = 30 \text{ MHz}$

Note: Marking is "DI—"

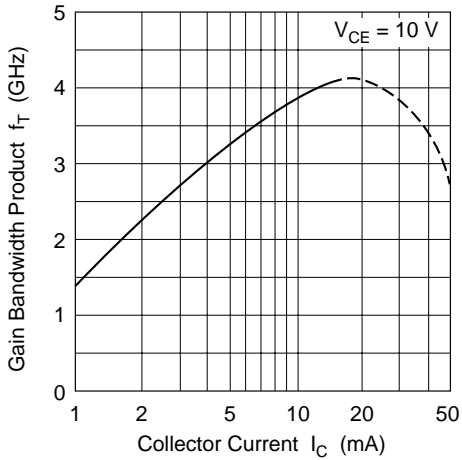
Maximum Collector Dissipation Curve



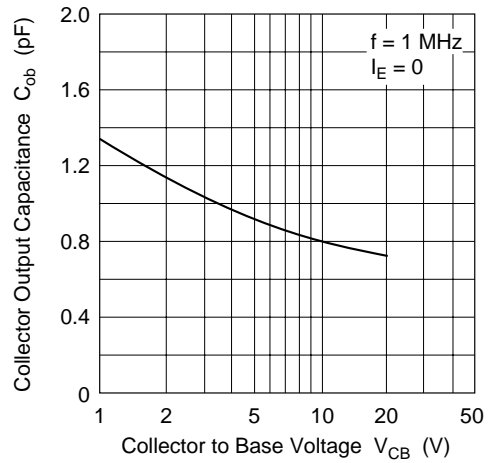
DC Current Transfer Ratio vs. Collector Current

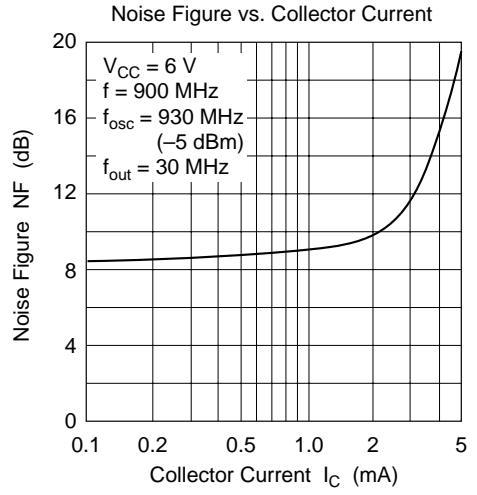
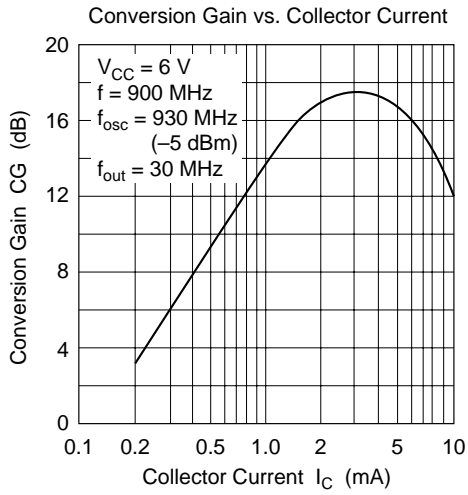


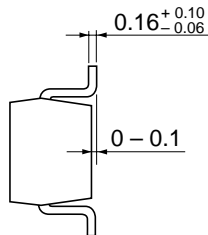
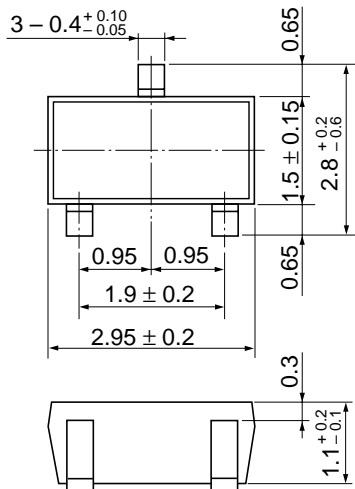
Gain Bandwidth Product vs. Collector Current



Collector Output Capacitance vs. Collector to Base Voltage







Hitachi Code	MPAK
JEDEC	—
EIAJ	Conforms
Weight (reference value)	0.011 g

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