

2SC4680

Preliminary

Silicon NPN Epitaxial
VHF/UHF High Frequency Switching

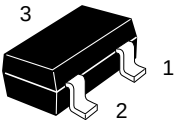
Features

- Low Ron and high performance for RF switch.
- Capable of high density mounting.

Table 1 Absolute Maximum Ratings
(Ta = 25°C)

Item	Symbol	Rating	Unit
Collector to base voltage	V_{CBO}	12	V
Collector to emitter voltage	V_{CEO}	8	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	°C
Storage temperature	T_{stg}	-55 to +150	°C

MPAK



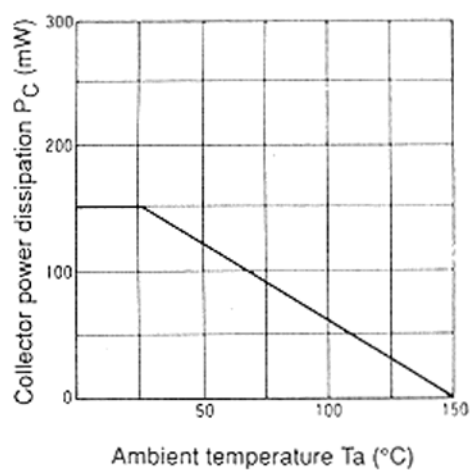
- 1. Emitter
- 2. Base
- 3. Collector

Table 2 Electrical Characteristics (Ta = 25°C)

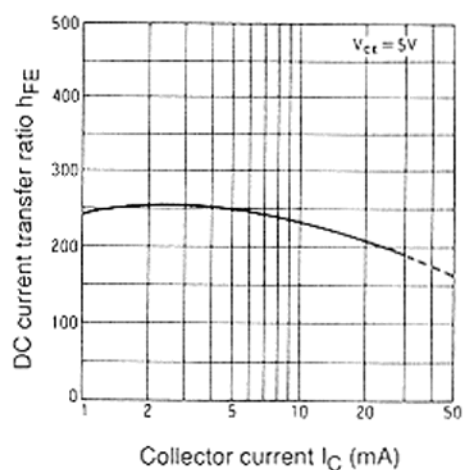
Item	Symbol	Min	Typ	Max	Unit	Test condition
Collector to base breakdown voltage	$V_{(BR)CBO}$	12	—	—	V	$I_C = 10\text{ }\mu\text{A}$, $I_E = 0$
Collector cutoff current	I_{CBO}	—	—	10	μA	$V_{CB} = 12\text{ V}$, $I_E = 0$
Collector cutoff current	I_{CEO}	—	—	1	mA	$V_{CE} = 8\text{ V}$, $R_{BE} = \infty$
Emitter cutoff current	I_{EBO}	—	—	10	μA	$V_{EB} = 3\text{ V}$, $I_C = 0$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	70	100	mV	$I_C = 20\text{ mA}$, $I_B = 4\text{ mA}$
DC current transfer ratio	h_{FE}	100	250	—	—	$V_{CE} = 5\text{ V}$, $I_C = 5\text{ mA}$
Collector output capacitance	C_{ob}	—	1.0	1.5	pF	$V_{CB} = 5\text{ V}$, $I_E = 0$, $f = 1\text{ MHz}$

- Marking is “XU-”.

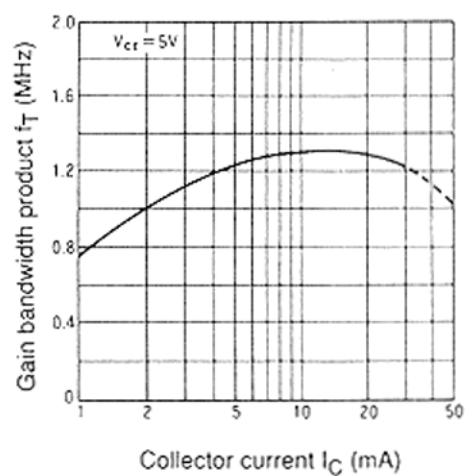
Maximum collector dissipation curve



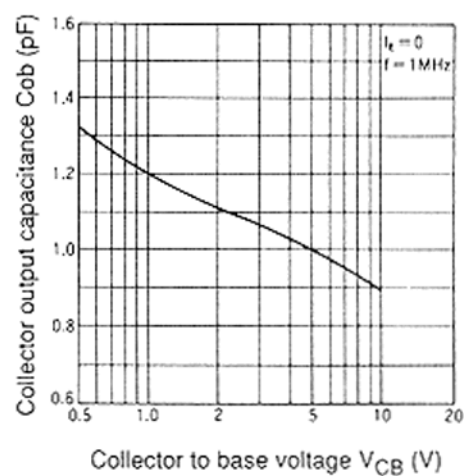
DC current transfer ratio vs. collector current



Gain bandwidth product vs. collector current

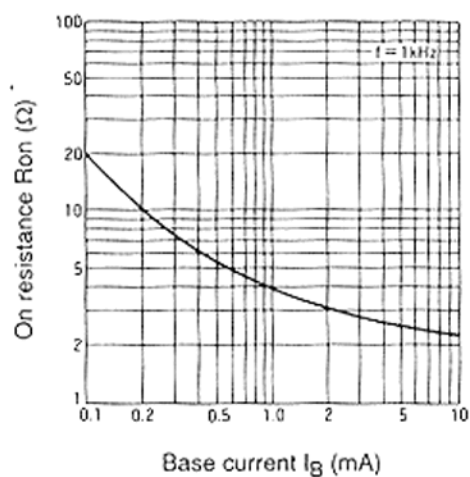


Collector output capacitance vs. collector to base voltage

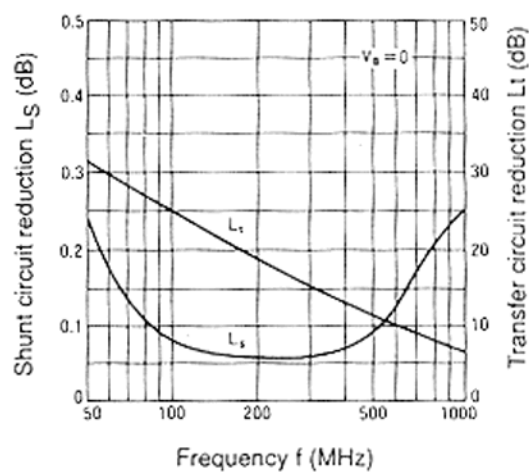


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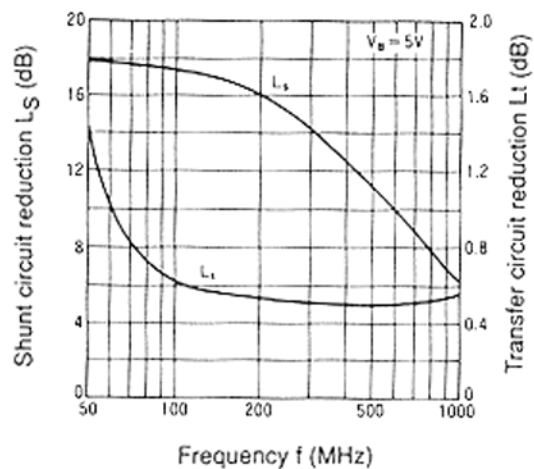
On resistance vs. base current



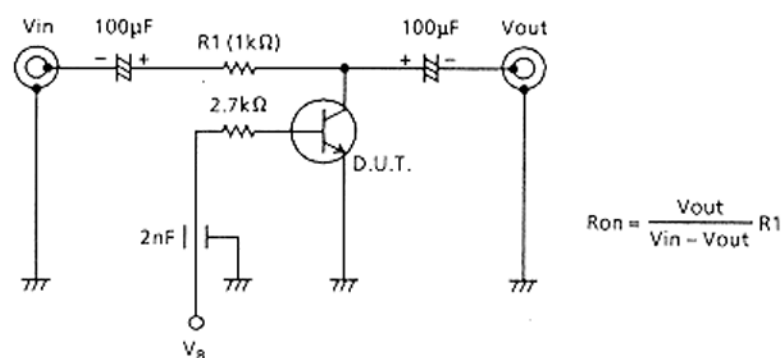
Signal reduction vs. frequency



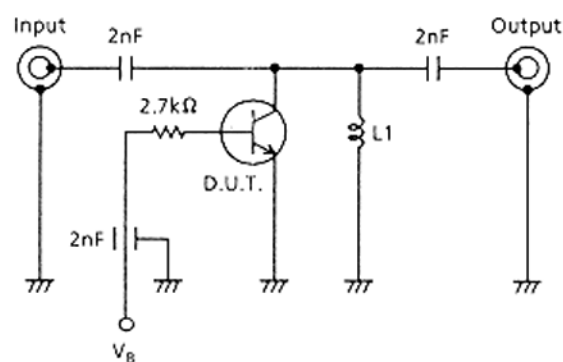
Signal reduction vs. frequency



On resistance test circuit

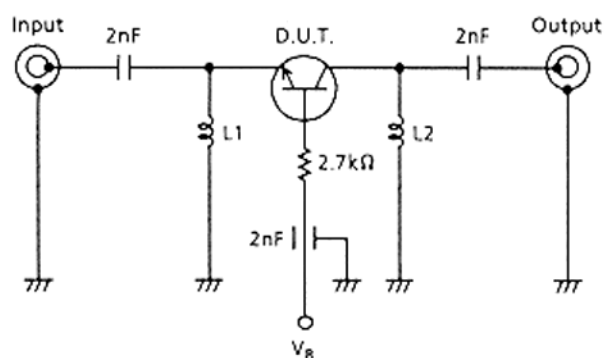


Reduction test circuit (Shunt circuit)



L1: 3 mm inside dia, $\phi 0.2$ mm enameled copper wire, 15 turns

Reduction test circuit (Transfer circuit)



L1, L2: 3 mm inside dia, $\phi 0.2$ mm enameled copper wire, 15 turns