
2SC2732

Silicon NPN Epitaxial

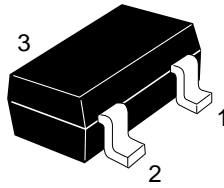
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Application

UHF frequency converter

Outline

MPAK



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

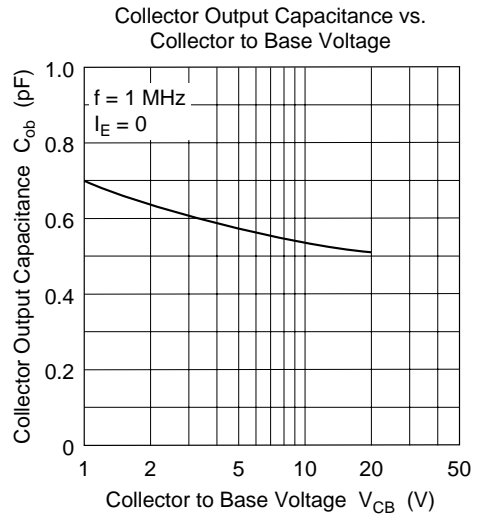
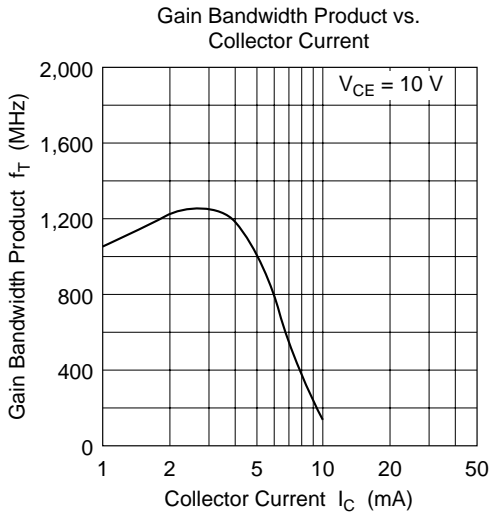
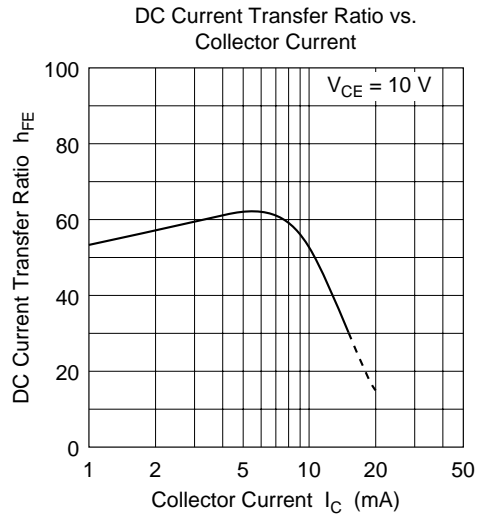
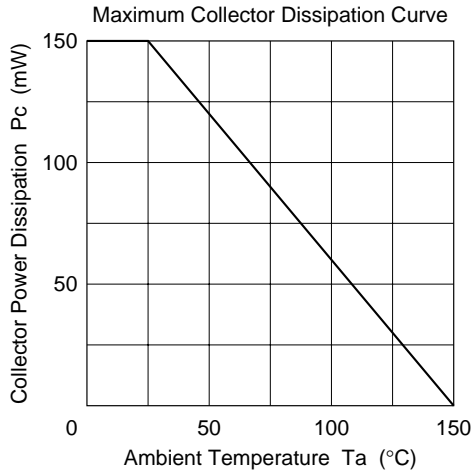
Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	30	V
Collector to emitter voltage	V_{CEO}	25	V
Emitter to base voltage	V_{EBO}	4	V
Collector current	I_{C}	20	mA
Collector power dissipation	P_{C}	150	mW
Junction temperature	T_{j}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

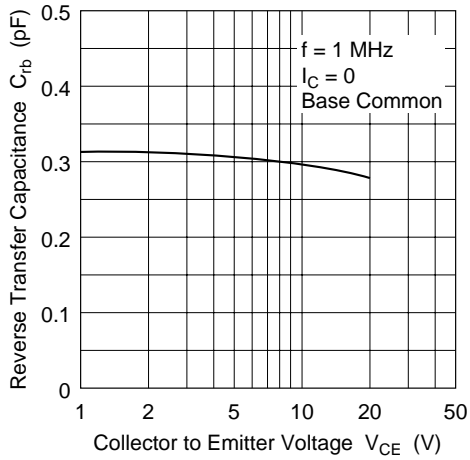
Electrical Characteristics ($T_a = 25^\circ\text{C}$)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(\text{BR})\text{CBO}}$	30	—	—	V	$I_{\text{C}} = 10 \mu\text{A}$, $I_{\text{E}} = 0$
Collector to emitter breakdown voltage	$V_{(\text{BR})\text{CEO}}$	25	—	—	V	$I_{\text{C}} = 1 \text{ mA}$, $R_{\text{BE}} = \infty$
Emitter to base breakdown voltage	$V_{(\text{BR})\text{EBO}}$	4	—	—	V	$I_{\text{E}} = 10 \mu\text{A}$, $I_{\text{C}} = 0$
Collector cutoff current	I_{CBO}	—	—	0.5	μA	$V_{\text{CB}} = 10 \text{ V}$, $I_{\text{C}} = 0$
Collector to emitter saturation voltage	$V_{\text{CE}(\text{sat})}$	—	—	5	V	$I_{\text{C}} = 10 \text{ mA}$, $I_{\text{B}} = 1 \text{ mA}$
DC current transfer ratio	h_{FE}	30	60	—		$V_{\text{CE}} = 10 \text{ V}$, $I_{\text{C}} = 3 \text{ mA}$
Gain bandwidth product	f_{T}	700	1000	—	MHz	$V_{\text{CE}} = 10 \text{ V}$, $I_{\text{C}} = 5 \text{ mA}$
Collector output capacitance	C_{ob}	—	0.5	0.8	pF	$V_{\text{CB}} = 10 \text{ V}$, $I_{\text{E}} = 0$, $f = 1 \text{ MHz}$
Conversion gain	CG	—	7.0	—	dB	$V_{\text{CC}} = 12 \text{ V}$, $I_{\text{C}} = 1 \text{ mA}$, $f = 900 \text{ MHz}$, $f_{\text{OSC}} = 930 \text{ MHz (0dBm)}$, $f_{\text{out}} = 30 \text{ MHz}$
Noise figure	NF	—	10.0	—	dB	$V_{\text{CC}} = 12 \text{ V}$, $I_{\text{C}} = 1 \text{ mA}$, $f = 900 \text{ MHz}$, $f_{\text{OSC}} = 930 \text{ MHz (0dBm)}$, $f_{\text{out}} = 30 \text{ MHz}$

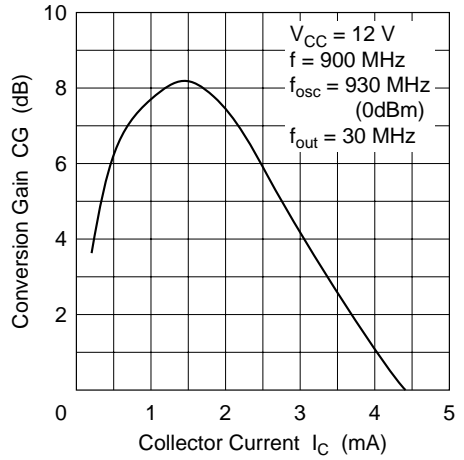
Note: Marking is "EC".



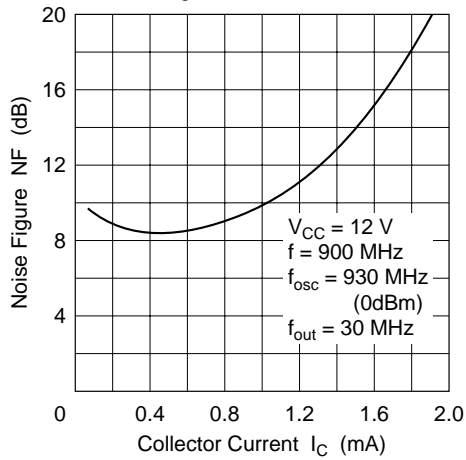
Reverse Transfer Capacitance vs. Collector to Emitter Voltage



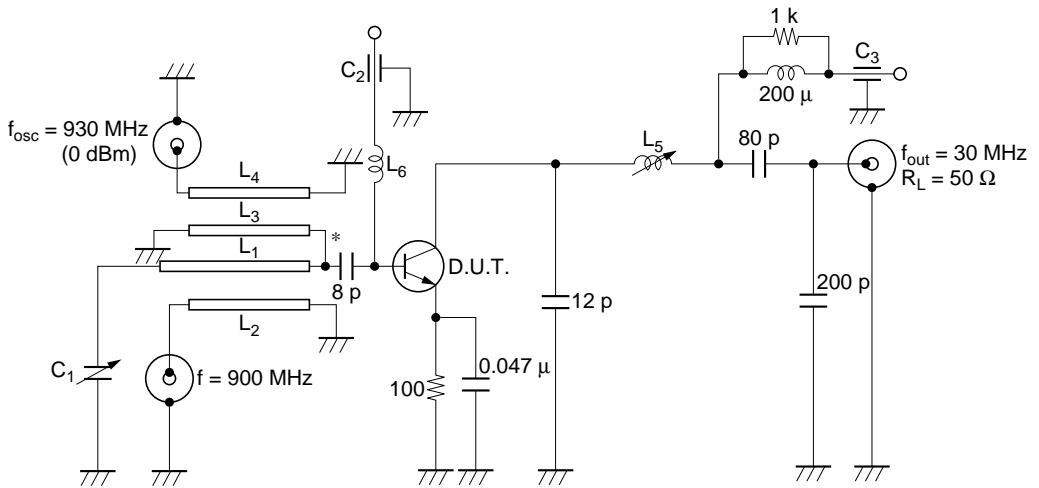
Conversion Gain vs. Collector Current



Noise Figure vs. Collector Current



Conversion Gain, Noise Figure Test Circuit



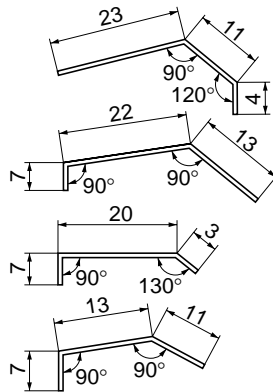
*.....Disk Capacitor
 Unit R : Ω
 C : F
 L : H

L₁ : ϕ 1 mm Enameled Copper wire

L₂ : ϕ 1 mm Enameled Copper wire

L₃ : ϕ 1 mm Enameled Copper wire

L₄ : ϕ 1 mm Enameled Copper wire



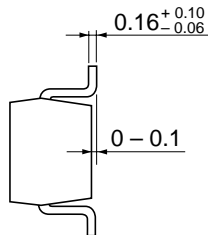
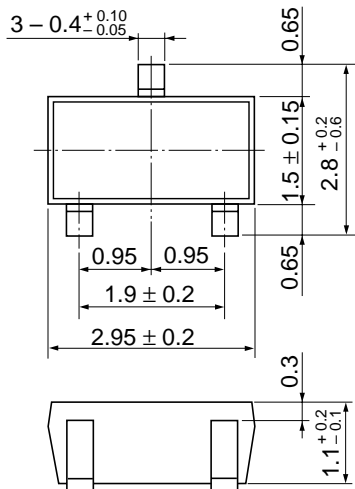
Unit : mm

L₅ : Bobbin ϕ 0.5 mm inside dia, ϕ 0.2 mm Enameled Copper wire 20 Turns

L₆ : ϕ 5 mm Enameled Copper wire 1 Turns inside dia ϕ 6 mm

C₁ : 20 pF max. Air Trimmer Condenser

C₂, C₃ : 1000 pF Air Core Capacitor



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

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