



# DC COMPONENTS CO., LTD.

## DISCRETE SEMICONDUCTORS

DC9013

### TECHNICAL SPECIFICATIONS OF NPN EPITAXIAL PLANAR TRANSISTOR

#### Description

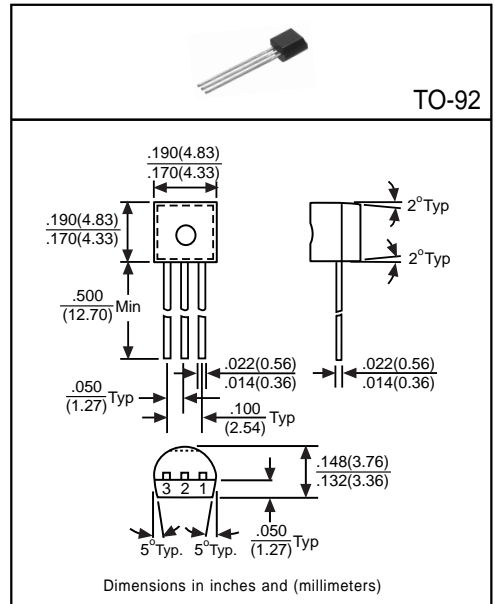
Designed for use in 1W output amplifier of portable radios in class B push-pull operation.

#### Pinning

- 1 = Emitter
- 2 = Base
- 3 = Collector

#### Absolute Maximum Ratings (T<sub>A</sub>=25°C)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V <sub>CB0</sub>	40	V
Collector-Emitter Voltage	V <sub>CE0</sub>	20	V
Emitter-Base Voltage	V <sub>EB0</sub>	5	V
Collector Current	I <sub>C</sub>	500	mA
Base Current	I <sub>B</sub>	100	mA
Total Power Dissipation	P <sub>D</sub>	625	mW
Junction Temperature	T <sub>J</sub>	+150	°C
Storage Temperature	T <sub>STG</sub>	-55 to +150	°C



#### Electrical Characteristics

(Ratings at 25°C ambient temperature unless otherwise specified)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Collector-Base Breakdown Voltage	BV <sub>CB0</sub>	40	-	-	V	I <sub>C</sub> =100μA, I <sub>E</sub> =0
Collector-Emitter Breakdown Voltage	BV <sub>CE0</sub>	20	-	-	V	I <sub>C</sub> =1mA, I <sub>B</sub> =0
Emitter-Base Breakdown Voltage	BV <sub>EB0</sub>	5	-	-	V	I <sub>E</sub> =100μA, I <sub>C</sub> =0
Collector Cutoff Current	I <sub>CBO</sub>	-	-	100	nA	V <sub>CB</sub> =25V, I <sub>E</sub> =0
Emitter Cutoff Current	I <sub>EBO</sub>	-	-	100	nA	V <sub>EB</sub> =3V, I <sub>C</sub> =0
Collector-Emitter Saturation Voltage <sup>(1)</sup>	V <sub>CE(sat)</sub>	-	-	0.6	V	I <sub>C</sub> =500mA, I <sub>B</sub> =50mA
Base-Emitter Saturation Voltage <sup>(1)</sup>	V <sub>BE(sat)</sub>	-	-	1.2	V	I <sub>C</sub> =500mA, I <sub>B</sub> =50mA
Base-Emitter On Voltage	V <sub>BE(on)</sub>	-	-	0.9	V	I <sub>C</sub> =10mA, V <sub>CE</sub> =1V
DC Current Gain <sup>(1)</sup>	h <sub>FE1</sub>	64	120	300	-	I <sub>C</sub> =50mA, V <sub>CE</sub> =1V
	h <sub>FE2</sub>	40	-	-	-	I <sub>C</sub> =500mA, V <sub>CE</sub> =1V
Transition Frequency	f <sub>T</sub>	100	-	-	MHz	I <sub>C</sub> =10mA, V <sub>CE</sub> =1V, f=100MHz
Output Capacitance	C <sub>ob</sub>	-	-	8	pF	V <sub>CB</sub> =10V, f=1MHz

(1) Pulse Test: Pulse Width ≤ 380μs, Duty Cycle ≤ 2%

#### Classification of h<sub>FE1</sub>

Rank	D	E	F	G	H	I	I1	I2
Range	64-91	78-112	96-135	112-166	144-202	176-300	176-246	214-300