



DC COMPONENTS CO., LTD.

DISCRETE SEMICONDUCTORS

S9014

TECHNICAL SPECIFICATIONS OF NPN EPITAXIAL PLANAR TRANSISTOR

Description

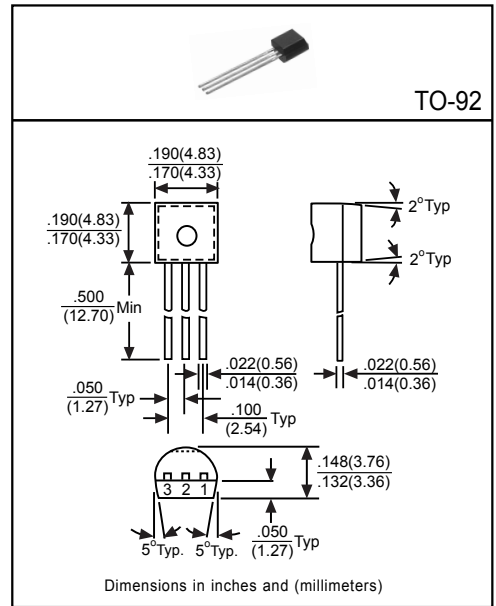
Designed for use in pre-amplifier of low level and low noise.

Pinning

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

Absolute Maximum Ratings (TA=25°C)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V <sub>CB0</sub>	50	V
Collector-Emitter Voltage	V <sub>CEO</sub>	45	V
Emitter-Base Voltage	V <sub>EBO</sub>	5	V
Collector Current	I <sub>C</sub>	100	mA
Total Power Dissipation	P <sub>D</sub>	450	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>	50	-	-	V	I <sub>C</sub> =100μA, I <sub>E</sub> =0
Collector-Emitter Breakdown Voltage	BV <sub>CEO</sub>	45	-	-	V	I <sub>C</sub> =1mA, I <sub>B</sub> =0
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	5	-	-	V	I <sub>E</sub> =100μA, I <sub>C</sub> =0
Collector Cutoff Current	I <sub>CBO</sub>	-	-	50	nA	V <sub>CB</sub> =50V, I <sub>E</sub> =0
Emitter Cutoff Current	I <sub>EBO</sub>	-	-	50	nA	V <sub>EB</sub> =5V, I <sub>C</sub> =0
Collector-Emitter Saturation Voltage <sup>(1)</sup>	V <sub>CE(sat)</sub>	-	0.14	0.3	V	I <sub>C</sub> =100mA, I <sub>B</sub> =5mA
Base-Emitter Saturation Voltage <sup>(1)</sup>	V <sub>BE(sat)</sub>	-	0.84	1	V	I <sub>C</sub> =100mA, I <sub>B</sub> =5mA
Base-Emitter On Voltage	V <sub>BE(on)</sub>	0.58	0.63	0.7	V	I <sub>C</sub> =2mA, V <sub>CE</sub> =5V
DC Current Gain <sup>(1)</sup>	h <sub>FE</sub>	60	280	1000	-	I <sub>C</sub> =1mA, V <sub>CE</sub> =5V
Transition Frequency	f <sub>T</sub>	150	270	-	MHz	I <sub>C</sub> =10mA, V <sub>CE</sub> =5V
Output Capacitance	C <sub>ob</sub>	-	2.2	3.5	pF	V <sub>CB</sub> =10V, f=1MHz, I <sub>E</sub> =0

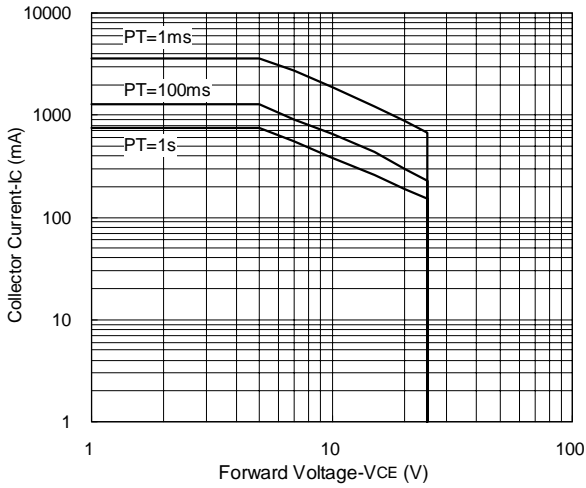
(1) Pulse Test: Pulse Width ≤ 380μs, Duty Cycle ≤ 2%

Classification of h<sub>FE</sub>

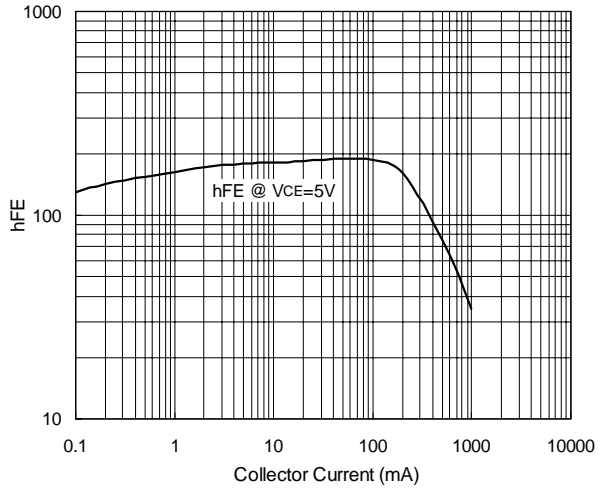
Rank	A	B	C	D
Range	60~150	100~300	200~600	400~1000

Electrical Characteristic Curves

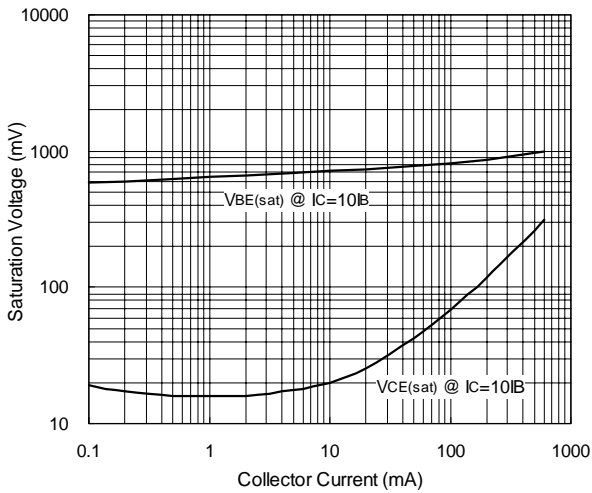
Safe Operating Area



Current Gain & Collector Current



Saturation Voltage & Collector Current



Cutoff Frequency & Collector Current

