



# DC COMPONENTS CO., LTD.

## DISCRETE SEMICONDUCTORS

### DC8050S

#### TECHNICAL SPECIFICATIONS OF NPN EPITAXIAL PLANAR TRANSISTOR

#### Description

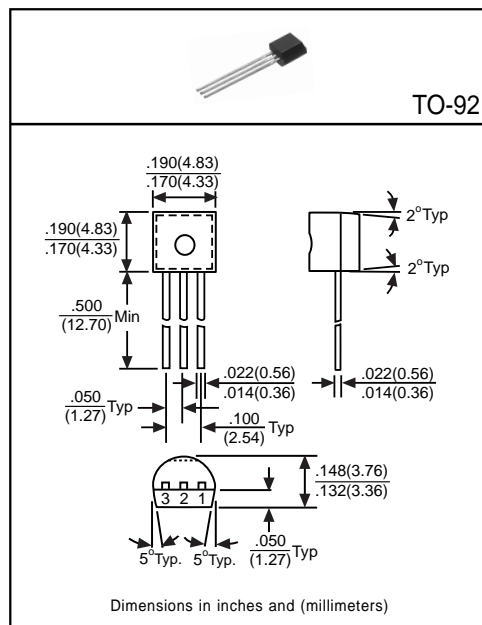
Designed for general purpose amplifier applications.

#### Pinning

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

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

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CB0}$	25	V
Collector-Emitter Voltage	$V_{CE0}$	20	V
Emitter-Base Voltage	$V_{EB0}$	5	V
Collector Current	$I_C$	700	mA
Total Power Dissipation	$P_D$	625	mW
Junction Temperature	$T_J$	+150	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-55 to +150	$^{\circ}\text{C}$



#### Electrical Characteristics

(Ratings at  $25^{\circ}\text{C}$  ambient temperature unless otherwise specified)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Collector-Base Breakdown Voltage	$BV_{CB0}$	25	-	-	V	$I_C=10\mu\text{A}$
Collector-Emitter Breakdown Voltage	$BV_{CE0}$	20	-	-	V	$I_C=1\text{mA}$
Emitter-Base Breakdown Voltage	$BV_{EB0}$	5	-	-	V	$I_E=10\mu\text{A}$
Collector Cutoff Current	$I_{CB0}$	-	-	1	$\mu\text{A}$	$V_{CB}=20\text{V}$
Emitter Cutoff Current	$I_{EB0}$	-	-	0.1	$\mu\text{A}$	$V_{EB}=6\text{V}$
Collector-Emitter Saturation Voltage <sup>(1)</sup>	$V_{CE(sat)}$	-	-	0.6	V	$I_C=0.5\text{A}$ , $I_B=50\text{mA}$
Base-Emitter On Voltage <sup>(1)</sup>	$V_{BE(on)}$	-	-	1	V	$I_C=150\text{mA}$ , $V_{CE}=1\text{V}$
DC Current Gain <sup>(1)</sup>	$h_{FE1}$	85	-	500	-	$I_C=150\text{mA}$ , $V_{CE}=1\text{V}$
	$h_{FE2}$	-	170	-	-	$I_C=500\text{mA}$ , $V_{CE}=1\text{V}$
Transition Frequency	$f_T$	150	-	-	MHz	$I_C=20\text{mA}$ , $V_{CE}=10\text{V}$ , $f=100\text{MHz}$
Output Capacitance	$C_{ob}$	-	-	10	pF	$V_{CB}=10\text{V}$ , $f=1\text{MHz}$

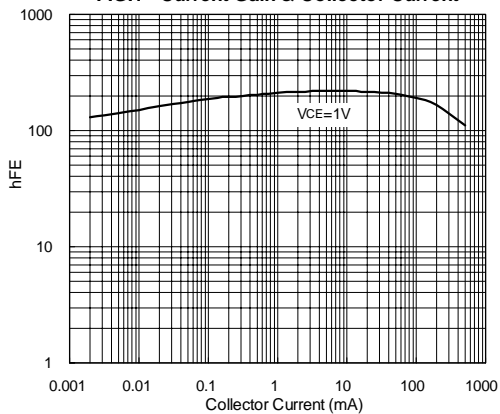
(1) Pulse Test: Pulse Width  $\leq 380\mu\text{s}$ , Duty Cycle  $\leq 2\%$

#### Classification of $h_{FE1}$

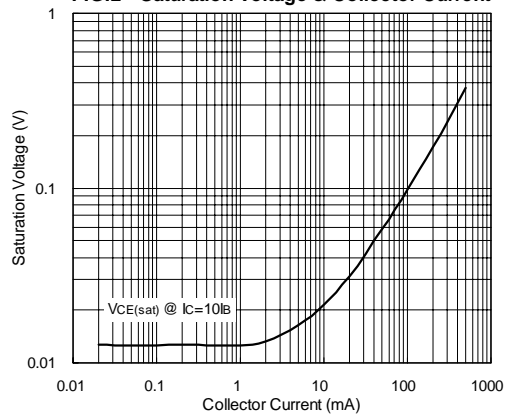
Rank	B	C	D	E
Range	85~160	100~200	150~300	250~500

# RATING AND CHARACTERISTIC CURVES OF DC8050S

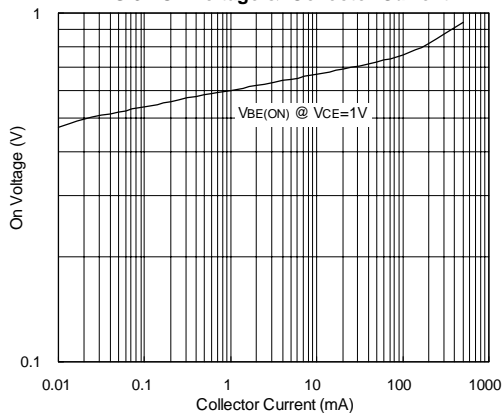
**FIG.1 - Current Gain & Collector Current**



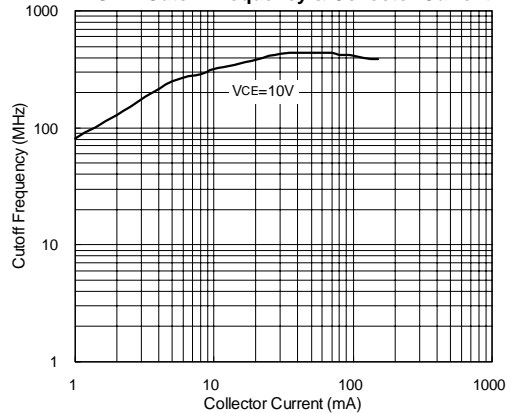
**FIG.2 - Saturation Voltage & Collector Current**



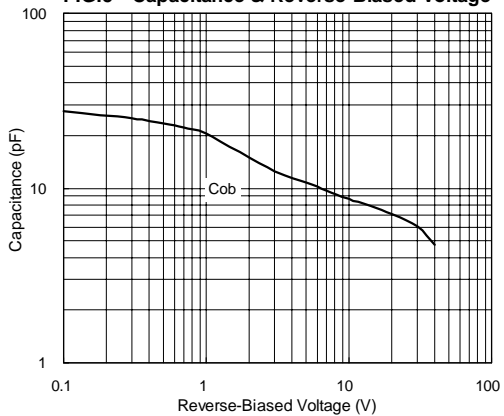
**FIG.3 - On Voltage & Collector Current**



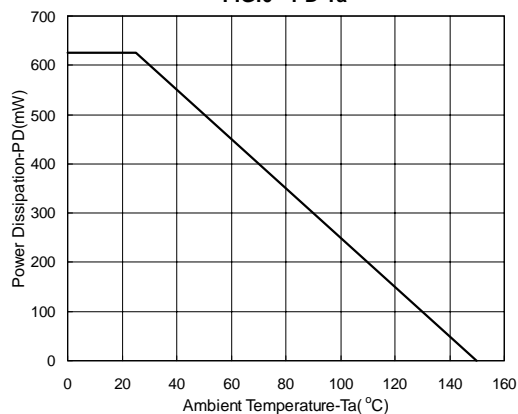
**FIG.4 - Cutoff Frequency & Collector Current**



**FIG.5 - Capacitance & Reverse-Biased Voltage**



**FIG.6 - PD-Ta**



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