



DC COMPONENTS CO., LTD.

DISCRETE SEMICONDUCTORS

MPSA13

TECHNICAL SPECIFICATIONS OF NPN DARLINGTON TRANSISTOR

Description

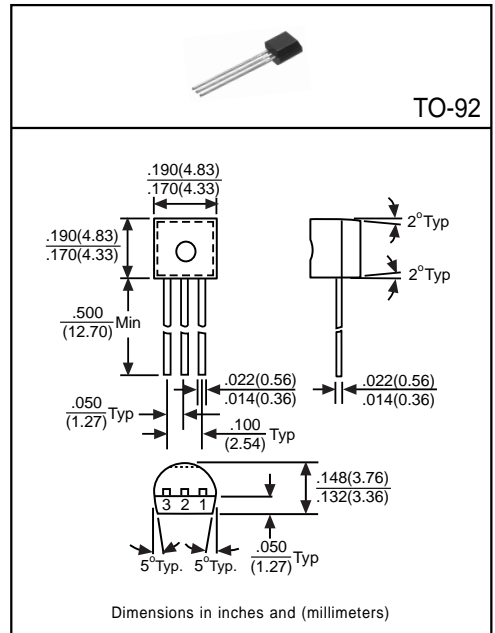
Designed for applications requiring extremely high current gain.

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>	30	V
Collector-Emitter Voltage	V <sub>CES</sub>	30	V
Emitter-Base Voltage	V <sub>EBO</sub>	10	V
Collector Current	I <sub>C</sub>	500	mA
Total Power Dissipation	P <sub>D</sub>	600	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>	30	-	-	V	I <sub>C</sub> =100μA, I <sub>E</sub> =0
Collector-Emitter Breakdown Voltage	BV <sub>CES</sub>	30	-	-	V	I <sub>C</sub> =0.1mA, V <sub>BE</sub> =0
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	10	-	-	V	I <sub>E</sub> =10μA, I <sub>C</sub> =0
Collector Cutoff Current	I <sub>CB0</sub>	-	-	0.1	μA	V <sub>CB</sub> =30V, I <sub>E</sub> =0
Emitter Cutoff Current	I <sub>EBO</sub>	-	-	0.1	μA	V <sub>EB</sub> =10V, I <sub>C</sub> =0
Collector-Emitter Saturation Voltage <sup>(1)</sup>	V <sub>CE(sat)1</sub>	-	-	1.5	V	I <sub>C</sub> =100mA, I <sub>B</sub> =0.1mA
	V <sub>CE(sat)2</sub>	-	1	-	V	I <sub>C</sub> =500mA, I <sub>B</sub> =0.5mA
DC Current Gain <sup>(1)</sup>	h <sub>FE1</sub>	5K	-	-	-	I <sub>C</sub> =10mA, V <sub>CE</sub> =5V
	h <sub>FE2</sub>	10K	-	-	-	I <sub>C</sub> =100mA, V <sub>CE</sub> =5V
	h <sub>FE3</sub>	-	50K	-	-	I <sub>C</sub> =500mA, V <sub>CE</sub> =5V
Transition Frequency	f <sub>T</sub>	125	-	-	MHz	I <sub>C</sub> =10mA, V <sub>CE</sub> =5V, f=100MHz
Output Capacitance	C <sub>ob</sub>	-	-	6	pF	V <sub>CB</sub> =10V, f=1MHz

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