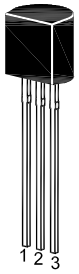
MPSA13 / 14

NPN Silicon Epitaxial Planar Transistors

for general purpose applications, darlington transistor.

The transistor is subdivided into one group according to its DC current gain.

On special request, these transistors can be manufactured in different pin configurations.



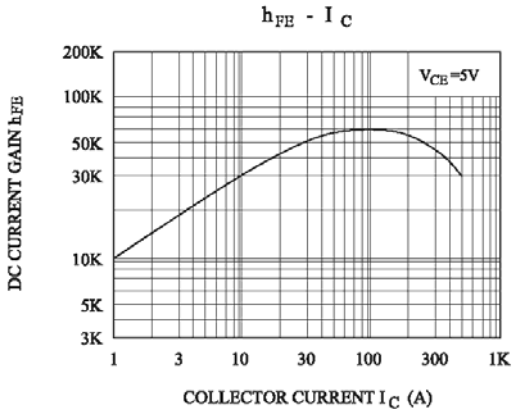
1. Emitter 2. Base 3. Collector
TO-92 Plastic Package

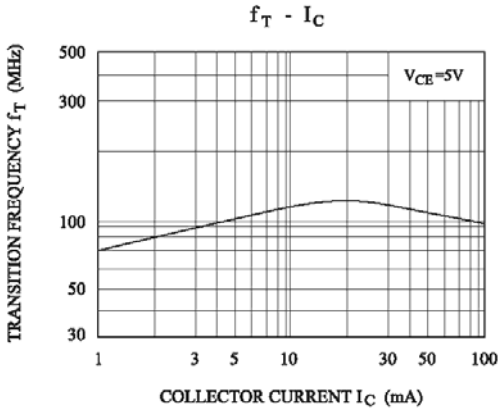
Absolute Maximum Ratings (T_a = 25 °C)

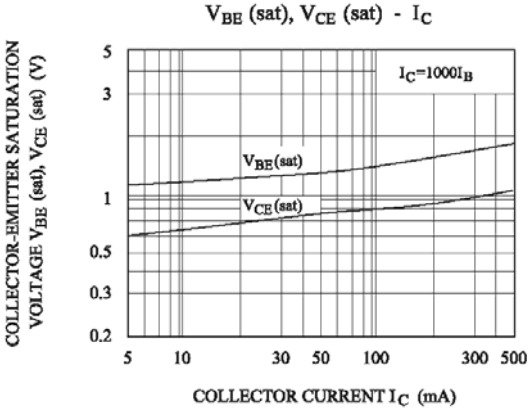
Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	30	V
Collector Emitter Voltage	V_{CES}	30	V
Emitter Base Voltage	V_{EBO}	10	V
Collector Current	I_C	500	mA
Power Dissipation	P_{tot}	625	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	- 55 to + 150	°C

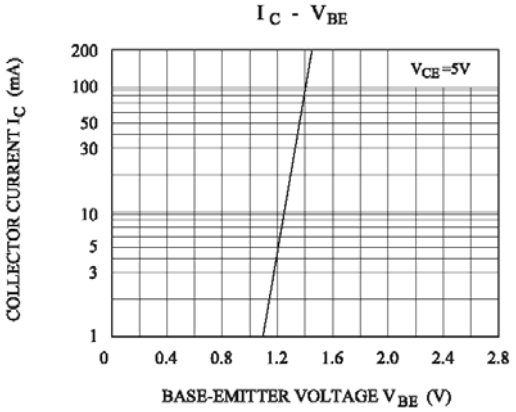
Characteristics at T_a = 25 °C

Parameter		Symbol	Min.	Max.	Unit
DC Current Gain					
at V_{CE} = 5 V, I_C = 10 mA	MPSA13	h_{FE}	5000	-	-
	MPSA14	h_{FE}	10000	-	-
at V_{CE} = 5 V, I_C = 100 mA	MPSA13	h_{FE}	10000	-	-
	MPSA14	h_{FE}	20000	-	-
Collector Base Cutoff Current at V_{CB} = 30 V		I_{CBO}	-	100	nA
Emitter Base Cutoff Current at V_{EB} = 10 V		I_{EBO}	-	100	nA
Collector Emitter Breakdown Voltage at I_C = 100 µA		$V_{(BR)CES}$	30	-	V
Collector Emitter Saturation Voltage at I_C = 100 mA, I_B = 0.1 mA		$V_{CE\ (sat)}$	-	1.5	V
Base Emitter On Voltage at I_C = 100 mA, V_{CE} = 5 V		$V_{BE(on)}$	-	2	V
Current Gain Bandwidth Product at V_{CE} = 5 V, I_C = 10 mA, f = 100 MHz		f_T	125	-	MHz


h_{FE} - I_C
V_{CE}=5V
DC CURRENT GAIN h_{FE}
200K
100K
50K
30K
10K
5K
3K
1
3
10
30
100
300
1K
COLLECTOR CURRENT I_C (A)


f_T - I_C
V_{CE}=5V
TRANSITION FREQUENCY f_T (MHz)
500
300
100
50
30
1
3
5
10
30
50
100
COLLECTOR CURRENT I_C (mA)


V_{BE} (sat), V_{CE} (sat) - I_C
I_C=1000I_B
V_{BE}(sat)
V_{CE}(sat)
COLLECTOR-EMITTER SATURATION VOLTAGE V_{BE} (sat), V_{CE} (sat) (V)
5
3
1
0.5
0.3
0.2
5
10
30
50
100
300
500
COLLECTOR CURRENT I_C (mA)


I_C - V_{BE}
V_{CE}=5V
COLLECTOR CURRENT I_C (mA)
200
100
50
30
10
5
3
1
0
0.4
0.8
1.2
1.6
2.0
2.4
2.8
BASE-EMITTER VOLTAGE V_{BE} (V)