

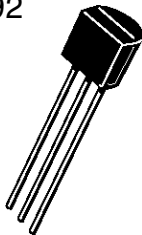


Description

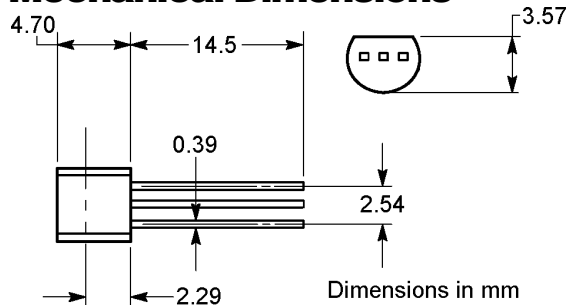
NPN Epitaxial Planar Transistor

MPSA42

TO-92



Mechanical Dimensions



Maximum Ratings

Ratings	Symbol	Value	Units
Collector - Emitter Voltage	V_{CE0}	300	V
Collector - Base Voltage	V_{CBO}	300	V
Emitter - Base Voltage	V_{EBO}	6.0	V
Collector Current	I_C	500	mA
Total Device Dissipation $T_A = 25^\circ\text{C}$	P_D	625	mW
Junction and Storage Temperature	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$

Electrical Characteristics @ 25°C

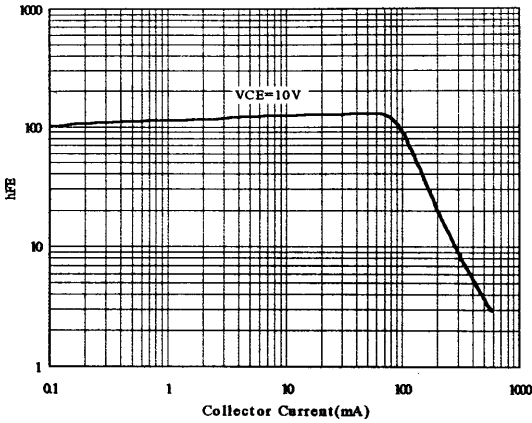
Characteristic	Symbol	Min	Max	Unit
Collector - Emitter Breakdown Voltage ($I_C = 1.0\text{mA}$)	$V_{BR(CEO)}$	300	---	V
Collector - Base Breakdown Voltage ($I_C = 100\mu\text{A}$)	$V_{BR(CBO)}$	300	---	V
Emitter - Base Breakdown Voltage ($I_E = 10\mu\text{A}$)	$V_{BR(EBO)}$	6.0	---	V
Collector Cutoff Current ($V_{CB} = 260\text{V}, I_E = 0$)	I_{CBO}	---	0.1	μA
Emitter Cutoff Current ($V_{EB} = 6.0\text{V}, I_C = 0$)	I_{EBO}	---	0.1	μA
DC Current Gain ($I_C = 1.0\text{mA}, V_{CE} = 10\text{V}$) ($I_C = 10\text{mA}, V_{CE} = 10\text{V}$) ($I_C = 30\text{mA}, V_{CE} = 10\text{V}$)	H_{FE}	25 40 40	--- --- ---	---
Collector - Emitter Saturation Voltage ($I_C = 20\text{mA}, I_B = 2.0\text{mA}$)	$V_{CE(sat)}$	---	350	mV
Base - Emitter Saturation Voltage ($I_C = 20\text{mA}, I_B = 2.0\text{mA}$)	$V_{BE(sat)}$	---	900	mV
Current - Gain - Bandwidth Product ($I_C = 10\text{mA}, V_{CE} = 20\text{V}, f = 100\text{MHz}$)	f_T	50	---	MHz
Output Capacitance ($V_{CB} = 20\text{V}, f = 1.0\text{MHz}$)	C_{ob}	---	3.0	pF

Classification of Rank

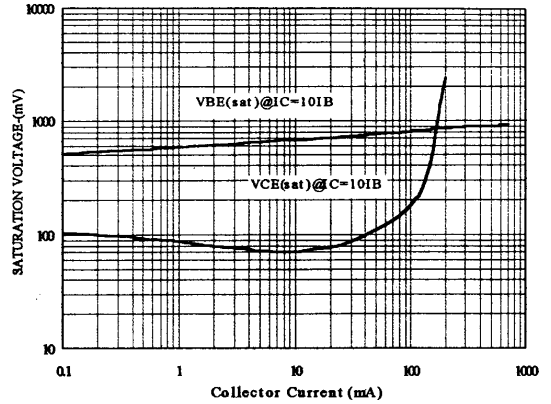
Rank	hFE1	hFE2	hFE3	$V_{CE(sat)}$
NS	>80	>120	>120	<200mV
N	>25	>40	>40	<350mV

MPSA42 NPN Epitaxial Planar Transistor

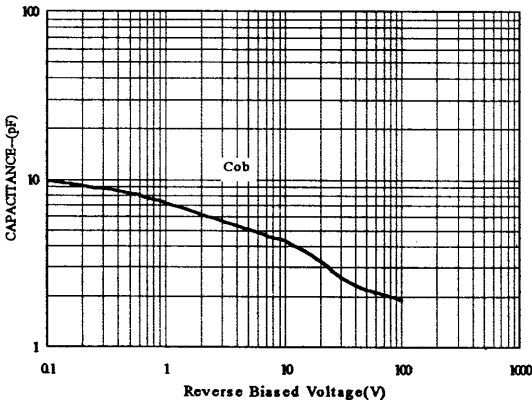
CURRENT GAIN VS COLLECTOR CURRENT



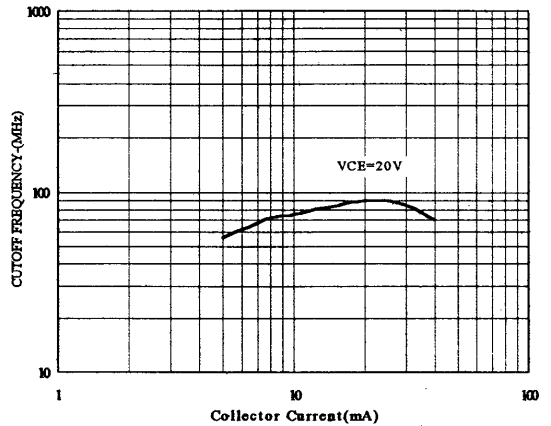
SATURATION VOLTAGE VS COLLECTOR CURRENT



CAPACITANCE VS REVERSE-BIASED VOLTAGE



CUTOFF FREQUENCY VS IC



SAFE OPERATING AREA

