

Transistors

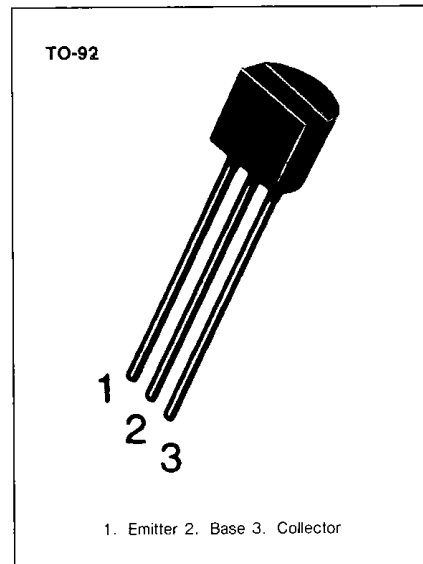
MPSA42

HIGH VOLTAGE TRANSISTOR

• Collector Dissipation: P_c (max)=625mW

ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ\text{C}$)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	300	V
Collector-Emitter Voltage	V_{CEO}	300	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	500	mA
Collector Dissipation	P_C	625	mW
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~150	$^\circ\text{C}$



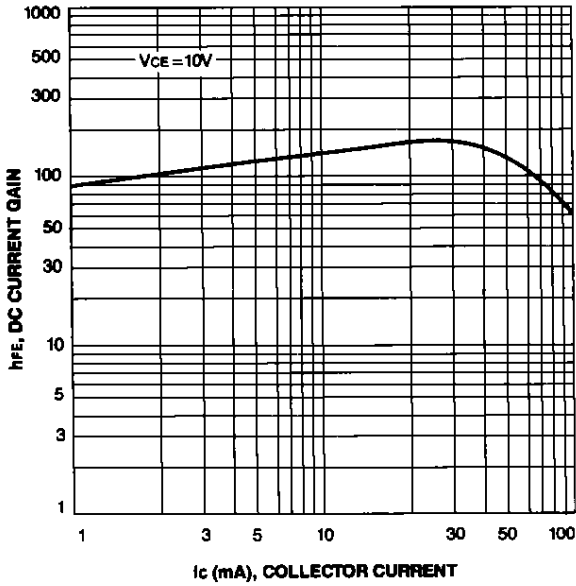
ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$)

Characteristic	Symbol	Test Condition	Min	Max	Unit
Collector-Base Breakdown Voltage	BV_{CBO}	$I_C = 100\mu\text{A}, I_B = 0$	300		V
*Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C = 1\text{mA}, I_B = 0$	300		V
Emitter-Base Breakdown Voltage	BV_{EBO}	$I_E = 100\mu\text{A}, I_C = 0$	6		V
Collector Cut-off Current	I_{CBO}	$V_{CB} = 200\text{V}, I_E = 0$		100	nA
Emitter Cut-off Current	I_{EBO}	$V_{BE} = 6\text{V}, I_C = 0$		100	nA
*DC Current Gain	h_{FE}	$V_{CE} = 10\text{V}, I_C = 1\text{mA}$ $V_{CE} = 10\text{V}, I_C = 10\text{mA}$ $V_{CE} = 10\text{V}, I_C = 30\text{mA}$	25 40 40		
*Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 20\text{mA}, I_B = 2\text{mA}$		0.5	V
*Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 20\text{mA}, I_B = 2\text{mA}$		0.9	V
Collector-Base Capacitance	C_{CB}	$V_{CB} = 20\text{V}, I_E = 0$ $f = 1\text{MHz}$		3	pF
Current Gain Bandwidth Product	f_T	$V_{CE} = 20\text{V}, I_C = 10\text{mA}$ $f = 100\text{MHz}$	50		MHz

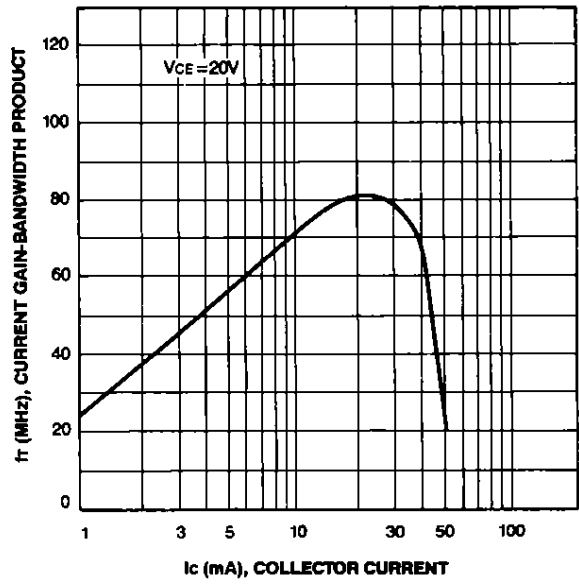
* Pulse Test: $PW = 300\mu\text{s}$, Duty Cycle = 2%



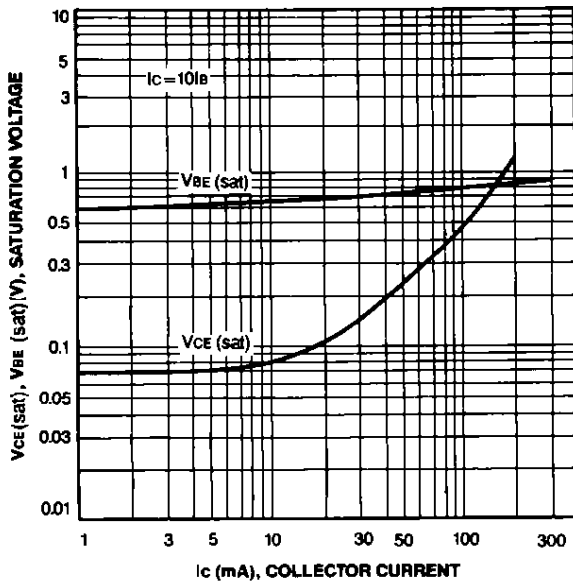
DC CURRENT GAIN



CURRENT GAIN-BANDWIDTH PRODUCT



COLLECTOR-EMITTER SATURATION VOLTAGE
BASE-EMITTER SATURATION VOLTAGE



COLLECTOR-BASE CAPACITANCE

