

Germanium PNP Transistor

MA202

AF High Voltage Transistor

105V / 200mA

DATASHEET

OEM –Motorola

Source: Motorola Databook 1972

MA200 thru **MA206** (GERMANIUM)**CASE 31(1)**
(TO-5)

All leads isolated from case

MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	MA200 MA202	MA201 MA203	MA204	MA205	MA206	Unit
Collector-Base Voltage	V_{CB}	105	105	90	75	60	Vdc
Collector-Emitter Voltage	V_{CE}	105	105	90	75	60	Vdc
Emitter-Base Voltage	V_{EB}	10	20	20	20	10	Vdc
Collector Current	I_C	200					mAdc
Emitter Current	I_E	200					mAdc
Junction and Storage Temperature Range	T_J, T_{stg}	-65 to +100					$^\circ\text{C}$
Thermal Resistance	θ_{JA}	0.5					$^\circ\text{C}/\text{mW}$
Collector Dissipation at $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	150 2.0					mW mW/ $^\circ\text{C}$

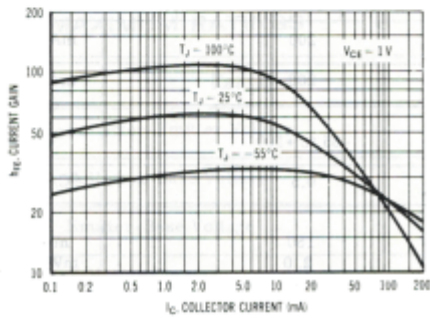
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Collector-Base Cutoff Current ($V_{CB} = 105\text{ V}, I_E = 0$) MA 200 thru MA203	I_{CBO}	—	12.0	50	μA
($V_{CB} = 90\text{ V}, I_E = 0$) MA204		—	—	—	
($V_{CB} = 75\text{ V}, I_E = 0$) MA205		—	—	—	
($V_{CB} = 60\text{ V}, I_E = 0$) MA206		—	—	—	
Collector-Base Cutoff Current ($V_{CB} = 2.5\text{ V}, I_E = 0$)	I_{CBO}	—	5.0	14	μA
Emitter-Base Cutoff Current ($V_{EB} = 10\text{ V}, I_C = 0$) MA200, MA202, MA206	I_{EBO}	—	3.0	50	μA
($V_{EB} = 20\text{ V}, I_C = 0$) MA201, MA203, MA204, MA205		—	3.0	50	
Collector-Emitter Saturation Voltage ($I_C = 5\text{ mAdc}, I_B = 0.25\text{ mAdc}$)	$V_{CE(sat)}$	—	0.11	0.35	Vdc
Base-Emitter Saturation Voltage ($I_C = 5\text{ mAdc}, I_B = 0.25\text{ mAdc}$)	$V_{BE(sat)}$	—	0.22	0.40	Vdc
DC Current Gain ($I_C = 5\text{ mAdc}, V_{CE} = 0.35\text{ Vdc}$) MA200, MA201, MA204, MA205, MA206	h_{FE}	20	—	—	—
MA202, MA203		40	—	—	—
DC Collector-Emitter Punch-Through Voltage (V_{CB} necessary to obtain V_{EB} of -1 V max, using instrument with $Z_{in} > 11$ megohm to measure V_{EB}) MA200, MA201, MA202, MA203	V_{PT}	105	—	—	Vdc
MA204		90	—	—	
MA205		75	—	—	
MA206		60	—	—	
Small-Signal Short-Circuit Forward Current Transfer Ratio Cutoff Frequency ($V_{CB} = 6\text{ Vdc}, I_E = 1\text{ mAdc}$)	$f_{\alpha b}$	—	1.0	—	MHz

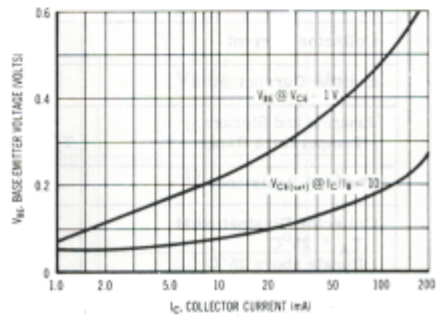
MA200 thru MA206 (continued)

DC CHARACTERISTICS
($T_J = 25^\circ\text{C}$ unless otherwise noted)

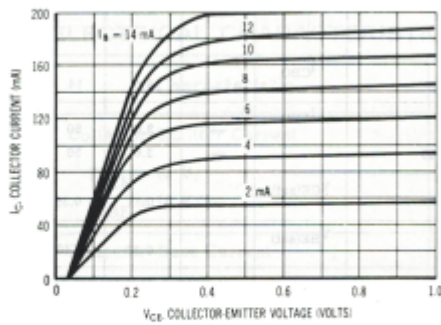
CURRENT GAIN



"ON" VOLTAGES



COLLECTOR SATURATION REGION



COLLECTOR HIGH VOLTAGE REGION

