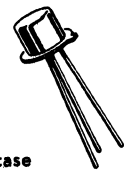
2N705 (GERMANIUM)

CASE 22
(TO-18)



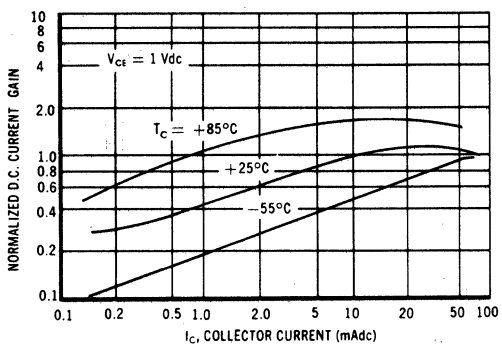
collector connected to case

PNP germanium mesa transistor for high-speed switching applications.

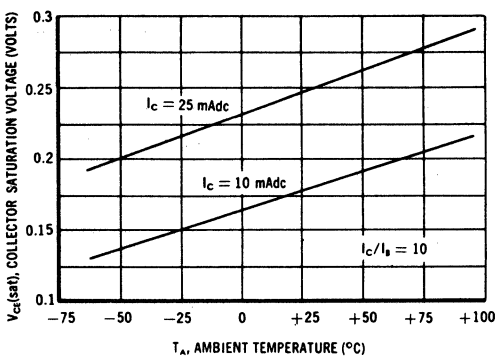
MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Base Voltage	V_{CB}	15	Vdc
Collector-Emitter Voltage	V_{CES}	15	Vdc
Emitter-Base Voltage	V_{EB}	3.5	Vdc
Collector Current	I_C	50	mAdc
Emitter Current	I_E	50	mAdc
Junction Temperature	T_J	100	°C
Storage Temperature	T_{stg}	-65°C to +100	°C
Collector Dissipation @ T_C = 25°C Derate above 25°C	P_C	300 4.0	mW mW/°C
Collector Dissipation in Free Air	P_C	150	mW

NORMALIZED D.C. CURRENT GAIN
versus COLLECTOR CURRENT



COLLECTOR SATURATION VOLTAGE
versus AMBIENT TEMPERATURE

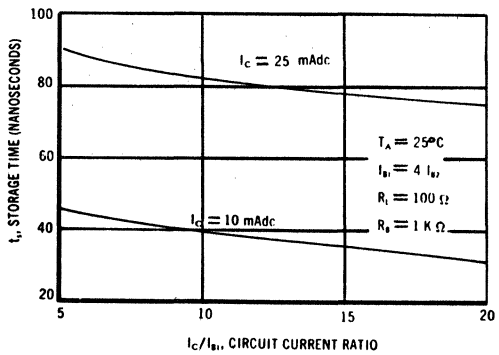


2N705 (continued)

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)	BV_{CBO}	15	—	—	Vdc
Collector-Emitter Breakdown Voltage (I_{CE} = 100 μAdc, V_{BE} = 0)	BV_{CES}	15	—	—	Vdc
Emitter-Base Breakdown Voltage (I_E = 100 μAdc, I_C = 0)	BV_{EBO}	3.5	—	—	Vdc
Collector Cutoff Current (V_{CB} = 5 Vdc, I_E = 0)	I_{CBO}	—	0.2	3.0	μAdc
DC Forward Current Transfer Ratio (V_{CE} = .3 Vdc, I_C = 10 mAdc)	h_{FE}	25	40	—	—
Collector Saturation Voltage (I_B = .4 mAdc, I_C = 10 mAdc)	$V_{CE(sat)}$	—	0.18	0.3	Vdc
(I_B = 5 mAdc, I_C = 50 mAdc)		—	0.45	—	
Base-Emitter Voltage (I_B = .4 mAdc, I_C = 10 mAdc)	V_{BE}	0.34	0.39	0.44	Vdc
Small Signal Forward Current Transfer Ratio (V_{CE} = 1.0 Vdc, I_C = 10 mAdc, f = 100 MHz)	h_{fe}	—	9.0	—	
Collector Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 1 MHz)	C_{ob}	—	5.0	—	pF
Input Capacitance (V_{EB} = 2 Vdc)	C_{ib}	—	3.5	—	pF
Common Base Alpha Cutoff Frequency (V_{CB} = 5 Vdc, I_C = 10 mAdc)	$f_{\alpha b}$	—	300	—	MHz
Delay + Rise Time (I_C = 10 mAdc, I_B = 1 mAdc)	$t_d + t_r$	—	55	75	ns
Storage Time (I_{B1} = 1.0 mAdc, I_{B2} = .25 mAdc)	t_s	—	65	100	ns
Fall Time (I_{B1} = 1.0 mAdc, I_{B2} = .25 mAdc)	t_f	—	70	100	ns

STORAGE TIME versus CIRCUIT CURRENT RATIO



CURRENT GAIN — BANDWIDTH PRODUCT (f_T) versus COLLECTOR CURRENT