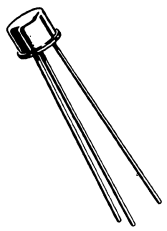
2N3883 (GERMANIUM)



Medium-current, germanium PNP high-speed switching transistor.

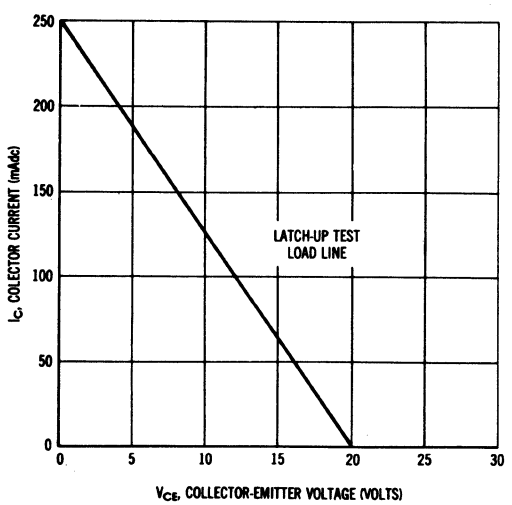
CASE 31
(TO-5)

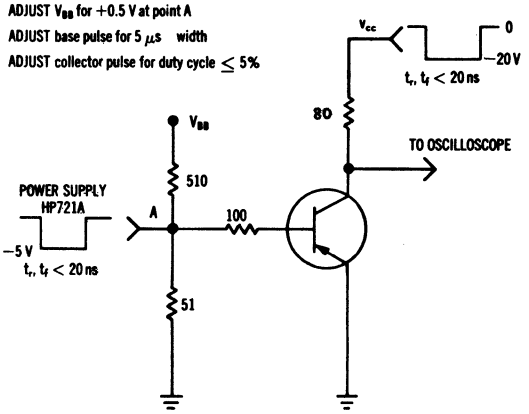
Collector connected to case

MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

Rating	Symbol	Value	Units
Collector-Base Voltage	V_{CB}	25	Vdc
Collector-Emitter Voltage	V_{CEO}	15	Vdc
Emitter-Base Voltage	V_{EB}	3.0	Vdc
Collector Current (Continuous)	I_C	300	mAdc
Junction Temperature	T_J	100	°C
Storage Temperature	T_{stg}	-65 to +100	°C
Device Dissipation @ 25°C Case Temperature (Derate 10 mW/°C above 25°C)	P_D	750	mW
Device Dissipation @ 25°C Ambient (Derate 4 mW/°C)	P_D	300	mW

COLLECTOR LATCH-UP VOLTAGE AND TEST CIRCUIT

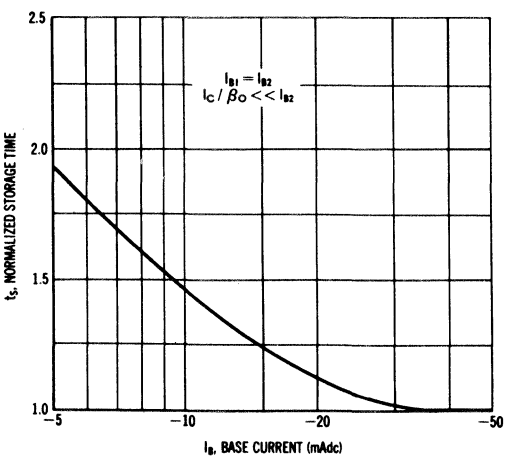


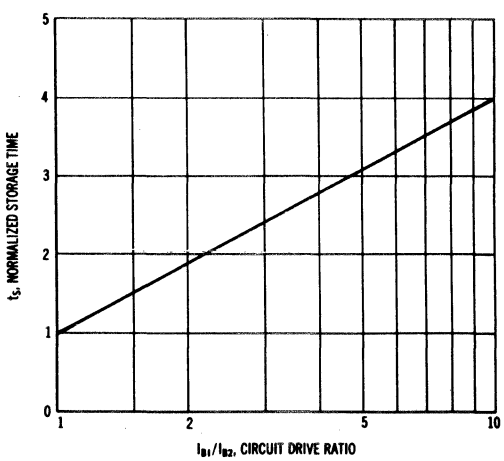


ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

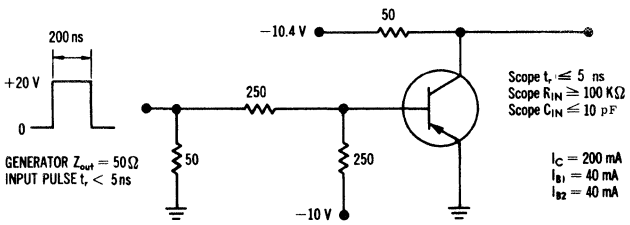
Characteristic	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage (I_C = 100μAdc, I_E = 0)	BV_{CBO}	25	—	—	Vdc
Collector-Emitter Breakdown Voltage (I_C = 10mAdc, I_B = 0)	BV_{CEO}	15	—	—	Vdc
Emitter-Base Breakdown Voltage (I_E = 100μAdc, I_C = 0)	BV_{EBO}	3.0	—	—	Vdc
Latch-Up Voltage	LV_{CEX}	20	—	—	Vdc
Collector-Emitter Leakage Current (V_{CE} = 15 Vdc, V_{EB} = 0)	I_{CES}	—	—	100	μAdc
Base Cutoff Current (V_{CE} = 15 Vdc, V_{EB} = 0)	I_B	—	—	100	μAdc
DC Current Gain (I_C = 200 mAdc, V_{CE} = 1.0 Vdc)	h_{FE}	30	—	—	—
Collector-Emitter Saturation Voltage (I_C = 200 mAdc, I_B = 40 mAdc	$V_{CE(sat)}$	—	0.35	0.5	Vdc
Base-Emitter Voltage (I_C = 200 mAdc, I_B = 40 mAdc)	V_{BE}	0.4	0.65	0.9	Vdc
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 100 kHz)	C_{ob}	—	4.5	8.0	pF
Input Capacitance (V_{BE} = 1 Vdc, I_C = 0, f = 100 kHz)	C_{ib}	—	10	25	pF
Current-Gain — Bandwidth Product (V_{CE} = 10 Vdc, I_C = 40 mAdc, f = 100 MHz)	f_T	100	300	—	MHz
Delay Time	t_d	—	8.0	15	ns
Rise Time	t_r	—	28	40	ns
Storage Time	t_s	—	40	70	ns
Fall Time	t_f	—	28	40	ns

STORAGE TIME VARIATIONS

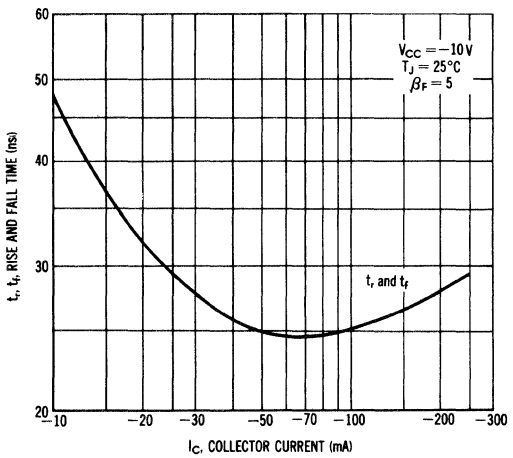




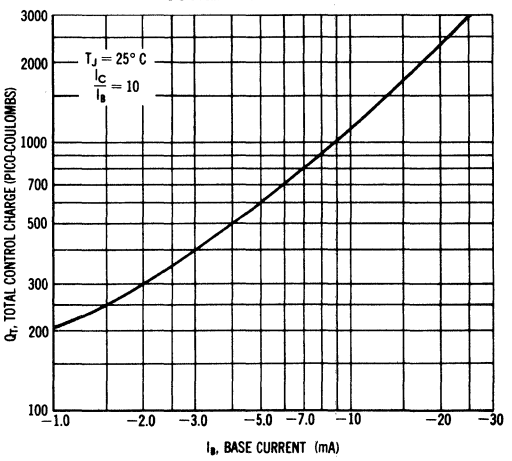
SWITCHING TIME TEST CIRCUIT



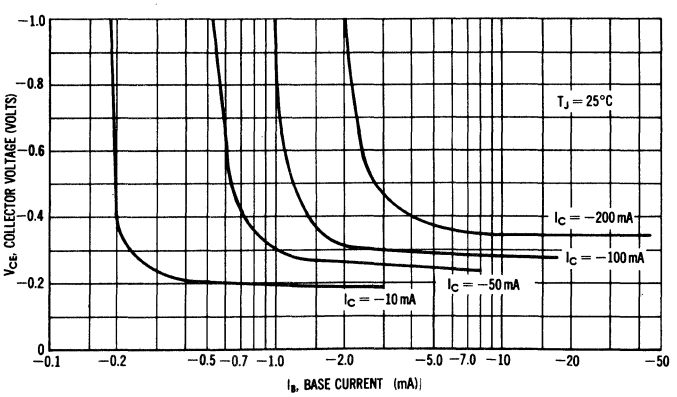
TYPICAL RISE AND FALL TIME BEHAVIOR



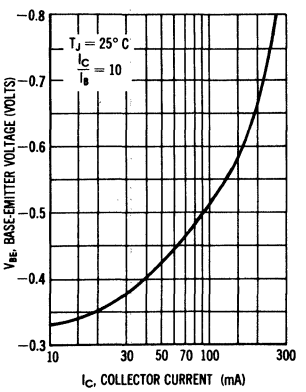
TOTAL CONTROL CHARGE



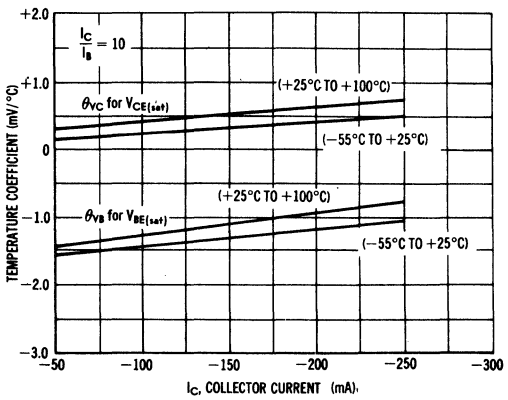
COLLECTOR-EMITTER SATURATION VOLTAGES versus BASE CURRENT



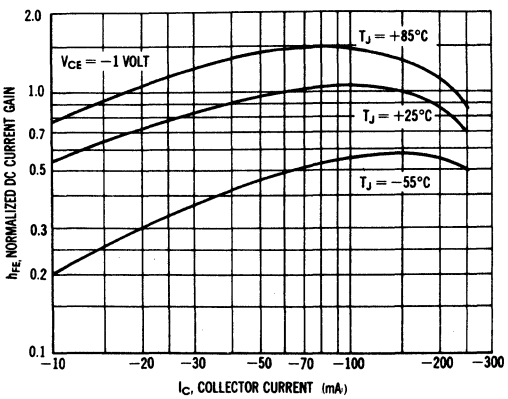
BASE-EMITTER VOLTAGE versus COLLECTOR CURRENT



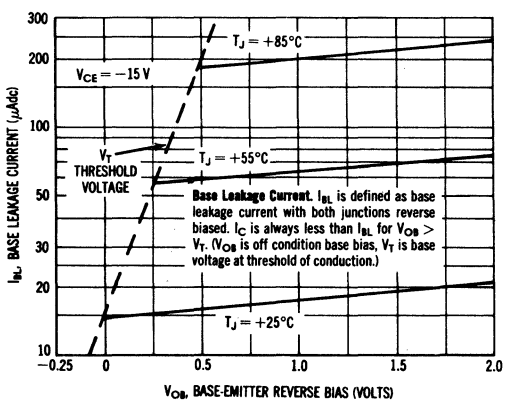
TEMPERATURE COEFFICIENTS



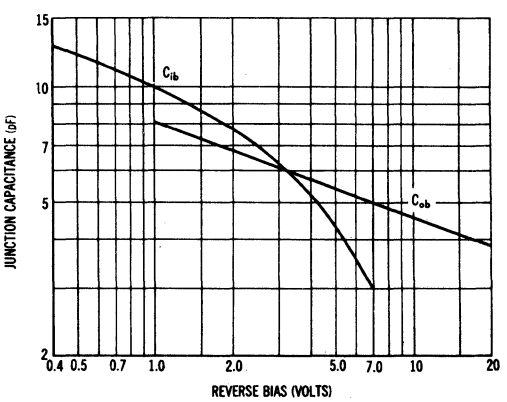
NORMALIZED CURRENT GAIN CHARACTERISTICS



LEAKAGE CHARACTERISTICS COMMON EMITTER



JUNCTION CAPACITANCE versus REVERSE VOLTAGE



2N3896 thru 2N3899 (SILICON)

For Specifications, See 2N3870 Data