LT1839

**f_T = 1000 MHz MIN
HIGH FREQUENCY
TRANSISTOR
NPN SILICON**

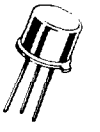
2

The RF Line

NPN Silicon High Frequency Transistor

. . . specifically designed for CRT driver applications requiring high frequency and high voltage, such as high resolution color graphics video monitors.

- High Voltage — $V_{(BR)CBO}$ = 120 V Min
- High Cutoff Frequency — f_τ = 1000 MHz Min
- Low Output Capacitance — C_{cb} = 2.5 pF Max @ V_{CB} = 15 V
- Gold Metallization



CASE 79-04, STYLE 1
(TO-39)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	70	Vdc
Collector-Base Voltage	V_{CBO}	120	Vdc
Emitter-Base Voltage	V_{EBO}	3	Vdc
Collector Current — Continuous	I_C	300	mAdc
Operating Junction Temperature	T_J	200	°C
Storage Temperature Range	T_{stg}	−65 to +200	°C

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage (I_C = 1 mA, I_B = 0)	$V_{(BR)CEO}$	70	—	—	Vdc
Collector-Base Breakdown Voltage (I_C = 0.1 mA, I_E = 0)	$V_{(BR)CBO}$	120	—	—	Vdc
Emitter-Base Breakdown Voltage (I_E = 0.1 mA, I_C = 0)	$V_{(BR)EBO}$	3	—	—	Vdc
Collector Cutoff Current (V_{CB} = 80 V, I_E = 0)	I_{CBO}	—	—	20	μAdc
Collector Cutoff Current (V_{CE} = 80 V, V_{BE} = 0)	I_{CES}	—	—	100	μAdc
ON CHARACTERISTICS					
DC Current Gain (I_C = 50 mA, V_{CE} = 5 V)	h_{FE}	20	—	60	—
Collector-Emitter Saturation Voltage (I_C = 50 mA, I_B = 5 mA)	$V_{CE(sat)}$	—	—	800	mV
DYNAMIC CHARACTERISTICS					
Collector-Base Capacitance (V_{CB} = 15 V, I_E = 0, f = 1 MHz)	C_{cb}	—	—	2.5	pF
FUNCTIONAL TESTS					
Cutoff Frequency (V_{CE} = 10 V, I_C = 80 mA, f = 250 MHz)	f_τ	1	—	—	GHz
Insertion Gain (V_{CE} = 10 V, I_C = 50 mA, f = 200 MHz)	$\|S_{21}\|^2$	13	—	—	dB

2

TYPICAL CHARACTERISTICS

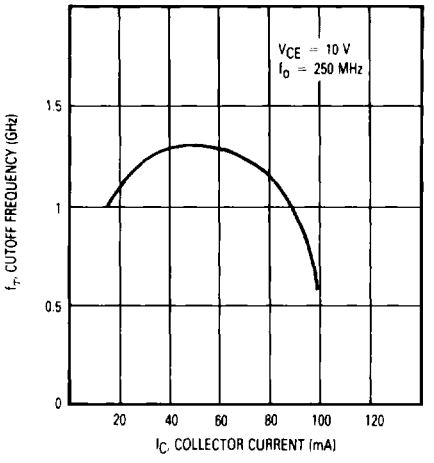


Figure 1. Gain Bandwidth Product versus Collector Current

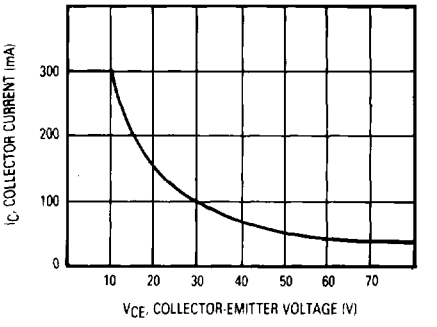


Figure 2. Safe Operating Area

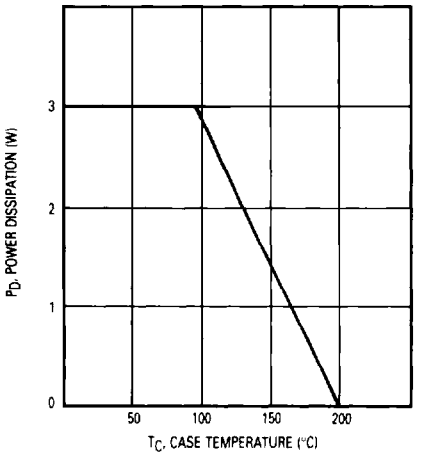


Figure 3. Power Dissipation versus Temperature

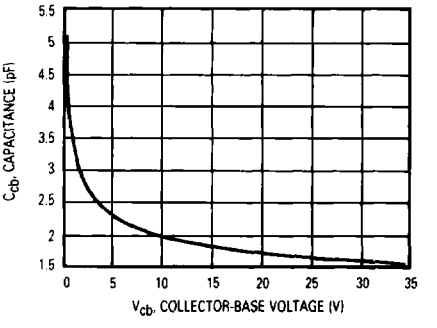


Figure 4. Junction Capacitance versus Voltage