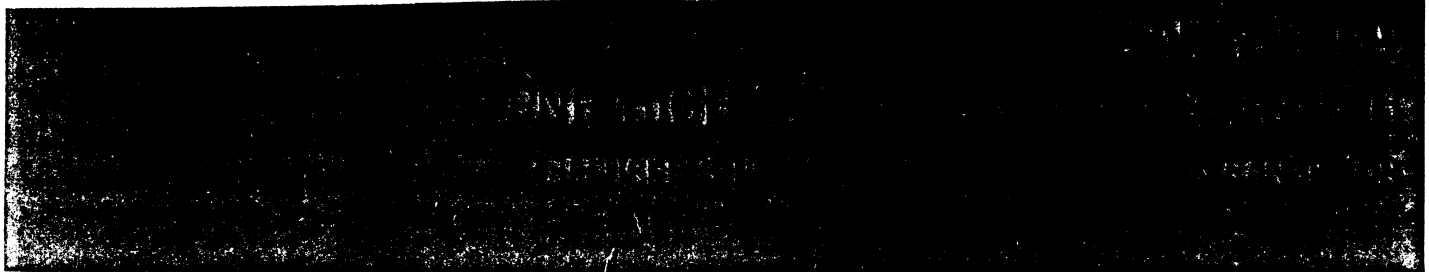


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- **FAST SWITCHING** -- $t_{on} = 20 \text{ ns (MAX)}$
-- $t_{off} = 25 \text{ ns (MAX)}$
-- $\tau_s = 20 \text{ ns (MAX)}$
- **HIGH FREQUENCY** -- $f_T = 800 \text{ MHz (MIN)}$
- **LOW CAPACITANCE** -- $C_{obo} = 4.5 \text{ pF (MAX)}$
- **LOW SATURATION VOLTAGE** -- $V_{CE(SAT)} = 0.13 \text{ V (MAX)} @ I_C = 10 \text{ mA}$

ABSOLUTE MAXIMUM RATINGS [Note 1]

Maximum Temperatures

Storage Temperature
Operating Junction Temperature
Lead Temperature (Soldering, 60 second time limit)

-65°C to +200°C
200°C Maximum
300°C Maximum

Maximum Power Dissipation

Total Dissipation at 25°C Case Temperature [Notes 2 and 3]
at 100°C Case Temperature [Notes 2 and 3]
at 25°C Ambient Temperature [Notes 2 and 3]

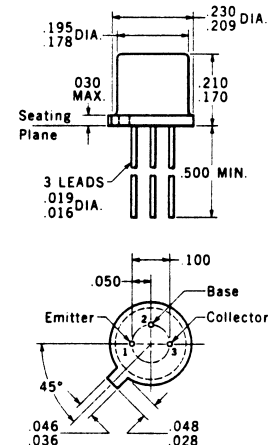
1.2 Watts
0.72 Watt
0.36 Watt

Maximum Voltages

V_{CBO} Collector to Base Voltage
 V_{CEO} Collector to Emitter Voltage [Note 4]
 V_{EBO} Emitter to Base Voltage

-12 Volts
-12 Volts
-4.5 Volts

PHYSICAL DIMENSIONS in accordance with JEDEC (TO-18) outline



NOTES: All dimensions in inches
Leads are gold-plated kovar
Collector internally connected to case
Package weight is 0.44 gram

ELECTRICAL CHARACTERISTICS (25°C Free Air Temperature Unless Otherwise Noted)

Symbol	Characteristic	Min.	Typ.	Max.	Units	Test Conditions
t_{on}	Turn On Time [Note 6, Figure 1]		10	20	ns	$I_C \approx 30 \text{ mA}$ $I_B \approx 3.0 \text{ mA}$
t_{off}	Turn Off Time [Note 6, Figure 1]		15	25	ns	$I_C \approx 30 \text{ mA}$ $I_B \approx 3.0 \text{ mA}$
t_{on}	Turn On Time [Note 6, Figure 2]		23	60	ns	$I_C \approx 30 \text{ mA}$ $I_B \approx 1.5 \text{ mA}$
t_{off}	Turn Off Time [Note 6, Figure 2]		13	35	ns	$I_C \approx 30 \text{ mA}$ $I_B \approx 1.5 \text{ mA}$
τ_s	Charge Storage Time Constant [Note 6, Figure 3]		15	20	ns	$I_C \approx I_B \approx 10 \text{ mA}$
$V_{CE(sat)}$	Pulsed Collector-Emitter Saturation Voltage [Note 5]	-0.08	-0.13		Volts	$I_C = 10 \text{ mA}$ $I_B = 1.0 \text{ mA}$
$V_{CE(sat)}$	Pulsed Collector-Emitter Saturation Voltage [Note 5]	-0.12	-0.19		Volts	$I_C = 30 \text{ mA}$ $I_B = 3.0 \text{ mA}$
$V_{CE(sat)}$	Pulsed Collector-Emitter Saturation Voltage [Note 5]	-0.28	-0.45		Volts	$I_C = 100 \text{ mA}$ $I_B = 10 \text{ mA}$
$V_{BE(sat)}$	Pulsed Base-Emitter Saturation Voltage [Note 5]	-0.78	-0.82	-0.92	Volts	$I_C = 10 \text{ mA}$ $I_B = 1.0 \text{ mA}$
$V_{BE(sat)}$	Pulsed Base-Emitter Saturation Voltage [Note 5]	-0.85	-0.93	-1.15	Volts	$I_C = 30 \text{ mA}$ $I_B = 3.0 \text{ mA}$
$V_{BE(sat)}$	Pulsed Base-Emitter Saturation Voltage [Note 5]	-1.0	-1.14	-1.5	Volts	$I_C = 100 \text{ mA}$ $I_B = 10 \text{ mA}$
h_{fe}	High Frequency Current Gain ($f = 100 \text{ MHz}$)	8.0	12			$I_C = 30 \text{ mA}$ $V_{CE} = -10 \text{ V}$
C_{obo}	Output Capacitance		3.3	4.5	pF	$I_E = 0$ $V_{CB} = -5.0 \text{ V}$
C_{ibo}	Input Capacitance		4.7	6.0	pF	$I_C = 0$ $V_{EB} = -0.5 \text{ V}$
I_{CES}	Collector Reverse Current		0.29	50	nA	$V_{BE} = 0$ $V_{CE} = -10 \text{ V}$

Additional Electrical Characteristics on page 2

NOTES:

- (1) These ratings are limiting values above which the serviceability of any individual semiconductor device may be impaired.
- (2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
- (3) These ratings give a maximum junction temperature of 200°C and junction to case thermal resistance of 146°C/watt (derating factor of 6.85 mW/°C); junction to ambient thermal resistance of 486°C/watt (derating factor of 2.06 mW/°C).
- (4) This rating refers to a high current point where collector to emitter voltage is lowest. For more information send for Fairchild Publication APP-4/2.
- (5) Pulse Conditions: length = 300 μ s; duty cycle = 1%.

