

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
Collector-Emitter Cutoff Current $V_{EB} = 2.0 \text{ Vdc}, V_{CE} = 20 \text{ Vdc}$ $V_{EB} = 2.0 \text{ Vdc}, V_{CE} = 30 \text{ Vdc}$	I_{CEX}		100 100	ηAdc
Emitter-Base Cutoff Current $V_{EB} = 2.0 \text{ Vdc}$ $V_{EB} = 5.0 \text{ Vdc}$	I_{EBO}		200 10 10	ηAdc μAdc

ON CHARACTERISTICS (3)

Forward-Current Transfer Ratio $I_C = 10 \text{ mAdc}, V_{CE} = 1.0 \text{ Vdc}$ $I_C = 150 \text{ mAdc}, V_{CE} = 1.0 \text{ Vdc}$ $I_C = 500 \text{ mAdc}, V_{CE} = 1.0 \text{ Vdc}$ $I_C = 1.0 \text{ Adc}, V_{CE} = 1.5 \text{ Vdc}$ $I_C = 1.5 \text{ Adc}, V_{CE} = 5.0 \text{ Vdc}$	h_{FE}	35 40 40 30 20 30 20	140 120 80	
Collector-Emitter Saturation Voltage $I_C = 10 \text{ mAdc}, I_B = 1.0 \text{ mAdc}$ $I_C = 150 \text{ mAdc}, I_B = 15 \text{ mAdc}$ $I_C = 500 \text{ mAdc}, I_B = 50 \text{ mAdc}$ $I_C = 1.0 \text{ Adc}, I_B = 100 \text{ mAdc}$	$V_{CE(sat)}$		0.1 0.22 0.5 0.9	Vdc
Base-Emitter Saturation Voltage $I_C = 10 \text{ mAdc}, I_B = 1.0 \text{ mAdc}$ $I_C = 150 \text{ mAdc}, I_B = 15 \text{ mAdc}$ $I_C = 500 \text{ mAdc}, I_B = 50 \text{ mAdc}$ $I_C = 1.0 \text{ Adc}, I_B = 100 \text{ mAdc}$	$V_{BE(sat)}$	0.9	0.8 1.0 1.2 1.4	Vdc

DYNAMIC CHARACTERISTICS

Forward Current Transfer Ratio, Magnitude $I_C = 50 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}, f = 100 \text{ MHz}$	$ h_{fe} $	1.8 1.5	6.0 6.0	
Output Capacitance $V_{CB} = 10 \text{ Vdc}, I_E = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$	C_{obo}		25	pF
Input Capacitance $V_{EB} = 0.5 \text{ Vdc}, I_C = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$	C_{ibo}		80	pF

SWITCHING CHARACTERISTICS

Delay Time	$V_{CC} = 30 \text{ Vdc}, V_{EB} = 0,$	t_d	8.0	ηs
Rise Time	$I_C = 1.0 \text{ mAdc}, I_{B1} = 100 \text{ mAdc}$	t_r	35	ηs
Storage Time	$V_{CC} = 30 \text{ Vdc}, V_{EB} = 0,$	t_s	80	ηs
Fall Time	$I_C = 1.0 \text{ mAdc}, I_{B1} = 100 \text{ mAdc}$	t_f	35	ηs

(3) Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$.