

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
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ON CHARACTERISTICS

Forward-Current Transfer Ratio $I_C = 0.5 \text{ Adc}, V_{CE} = 4.0 \text{ Vdc}$ $I_C = 4.0 \text{ Adc}, V_{CE} = 4.0 \text{ Vdc}$ $I_C = 10 \text{ Adc}, V_{CE} = 4.0 \text{ Vdc}$	h_{FE}	40 20 5.0	60	
Collector-Emitter Saturation Voltage $I_C = 4.0 \text{ Adc}, I_B = 0.4 \text{ Adc}$ $I_C = 10 \text{ Adc}, I_B = 3.3 \text{ Adc}$	$V_{CE(sat)}$		0.75 2.0	Vdc
Base-Emitter Saturation Voltage $I_C = 4.0 \text{ Adc}, V_{CE} = 4.0 \text{ Vdc}$	$V_{BE(sat)}$		1.4	Vdc

DYNAMIC CHARACTERISTICS

Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 4.0 \text{ Adc}, V_{CE} = 4.0 \text{ Vdc}, f = 100 \text{ kHz}$	$ h_{fe} $	8.0	40	
Output Capacitance $V_{CB} = 10 \text{ Vdc}, I_E = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$	C_{obo}		700	pF

SWITCHING CHARACTERISTICS

Turn-On Time $V_{CC} = 30 \text{ Vdc}; I_C = 4.0 \text{ Adc}; I_{B1} = 0.4 \text{ Adc}$	t_{on}		6.0	μs
Turn-Off Time $V_{CC} = 30 \text{ Vdc}; I_C = 4.0 \text{ Adc}; I_{B1} = -I_{B2} = 0.4 \text{ Adc}$	t_{off}		12	μs

SAFE OPERATING AREA**DC Tests** $T_C = +25^\circ\text{C}, 1 \text{ Cycle}, t = 1.0 \text{ s}$ **Test 1** $V_{CE} = 7.8 \text{ Vdc}, I_C = 15 \text{ Adc}$ **Test 2** $V_{CE} = 70 \text{ Vdc}, I_C = 1.67 \text{ Adc}$ **Switching Tests** $T_A = +25^\circ\text{C}; \text{duty cycle} \leq 10\%; R_S \leq 0.1 \Omega$ **Test 1** $t_P = 5.0 \text{ ms}; R_{BB1} = 2.0 \Omega; V_{BB1} \geq 10 \text{ Vdc}; R_{BB2} = 100 \Omega; V_{CC} \geq 10 \text{ Vdc}; V_{BB2} = 1.5 \text{ Vdc}; I_C = 15 \text{ Adc}$ **Test 2** $t_P = 20 \text{ ms}; R_{BB1} = 30 \Omega; V_{BB1} \geq 10 \text{ Vdc}; R_{BB2} = 100 \Omega; V_{CC} \geq 10 \text{ Vdc}; V_{BB2} = 1.5 \text{ Vdc}; I_C = 3.8 \text{ Adc}$