SEME LAB

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

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current (V_{BE} = 0)	V_{CE} = -20V	**BCY70**			-10	nA
		V_{CE} = -50V				-500	
		V_{CE} = -20V	**BCY71**			-100	nA
		V_{CE} = -45V				-10	µA
		V_{CE} = -20V	**BCY72**			-100	nA
		V_{CE} = -25V				-10	µA
I_{EBO}	Emitter Cutoff Current (I_C = 0)	V_{EB} = -5V				-10	µA
$V_{CE(sat)}$*	Collector – Emitter Saturation Voltage	I_C = -10mA I_B = -1mA				-0.25	V
		I_C = -50mA I_B = -5mA				-0.5	
$V_{BE(sat)}$*	Base – Emitter Saturation Voltage	I_C = -10mA I_B = -1mA **BCY70 AND BCY71 ONLY**		-0.6		-0.9	V
		I_C = -50mA I_B = -5mA				-1.2	
h_{FE}*	DC Current Gain	**BCY70**					—
		I_C = -0.1mA V_{CE} = -1V		40			
		I_C = -1mA V_{CE} = -1V		45			
		I_C = -10mA V_{CE} = -1V		50			
		I_C = -50mA V_{CE} = -1V		15			
		BCY71					
		I_C = -0.01mA V_{CE} = -1V			60		
		I_C = -0.1mA V_{CE} = -1V		80			
		I_C = -1mA V_{CE} = -1V		90			
		I_C = -10mA V_{CE} = 1V		100		600	
		I_C = -50mA V_{CE} = -1V		15			
		BCY72					
		I_C = -1mA V_{CE} = - 1V		40			
		I_C = -10mA V_{CE} = -1V		50			
h_{fe}	Small Signal Current	I_C = -1mA V_{CE} = -10V f = 1KHz		100		400	—
f_T	Transition Frequency	I_C = -0.1mA V_{CE} = -20V f = 10.7MHz **BCY71**		15			MHz
		I_C = -10mA V_{CE} = -20V f = 100MHz **BCY70**		250			
		BCY71 and BCY72		200			
C_{EBO}	Emitter-Base Capacitance	I_C = 0 V_{EB} = -1V f = 1MHz				8	pF
C_{CBO}	Collector-Base Capacitance	I_E = 0 V_{CB} = -10V f = 1MHz				6	

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ELECTRICAL CHARACTERISTICS continued (T_A = 25°C unless otherwise stated)

Parameter		Test Conditions	Min.	Typ.	Max.	Unit
NF	Noise Figure	I_C = -0.1mA V_{CE} = -5V R_g = 2KΩ f = 10 to 10000 Hz **BCY70 AND BCY71** **BCY70**			6 2	dB
h_{ie}	Input Impedance	I_C = -1mA V_{CE} = -10V f = 1kHz **BCY71 ONLY**	2		12	KΩ
h_{re}	Reverse Voltage Ratio	I_C = -1mA V_{CE} = -10V f = 1kHz **BCY71 ONLY**			20×10^{-4}	—
h_{oe}	Output Admittance	I_C = -1mA V_{CE} = -10V f = 1kHz **BCY71 ONLY**	10		60	µS
t_d	Delay Time	I_C = -10mA V_{EE} = 3V I_{B1} = -1mA **BCY70 AND BCY72 ONLY**		23	35	ns
t_r	Rise Time	I_C = -10mA V_{EE} = 3V I_{B1} = -1mA **BCY70 AND BCY72 ONLY**		25	35	ns
t_s	Storage Time	I_C = -10mA V_{EE} = 3V I_{B1} = -I_{B2} = -1mA **BCY70 AND BCY72 ONLY**		270	350	ns
t_f	Fall Time	I_C = -10mA V_{EE} = 3V I_{B1} = -I_{B2} = -1mA **BCY70 AND BCY72 ONLY**		50	80	ns
t_{on}	Turn-on Time	I_C = -10mA V_{EE} = 3V I_{B1} = -1mA **BCY70 AND BCY72 ONLY**		48	65	ns
t_{off}	Turn-Off Time	I_C = -10mA V_{EE} = 3V I_{B1} = -I_{B2} = -1mA **BCY70 AND BCY72 ONLY**		320	420	ns

NOTES:

* Pulse test: $t_p \leq 300µs$, $\delta \leq 1\%$