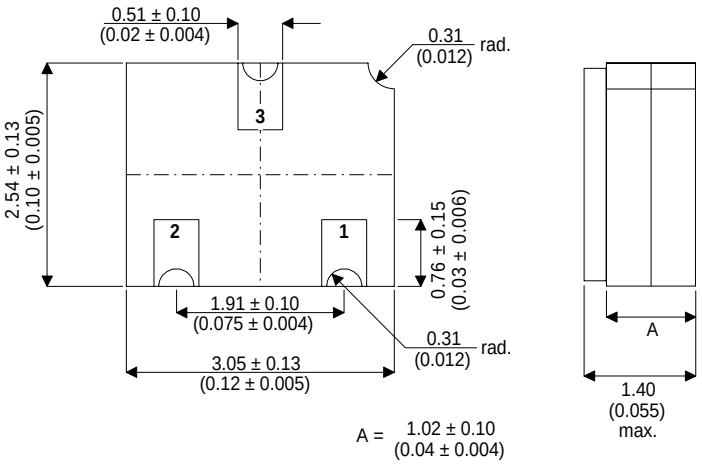
BCY70CSM
BCY71CSM
BCY72CSM

HIGH SPEED
MEDIUM POWER
PNP SWITCHING TRANSISTOR

MECHANICAL DATA
Dimensions in mm (inches)



LCC1

Underside View

PAD 1 – Base PAD 2 – Emitter PAD 3 – Collector

FEATURES

- **Hermetic Surface Mount Package (SOT23 Compatible)**
- **CECC Screening Options available**

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise stated)		**BCY70**	**BCY71**	**BCY72**
V_{CBO}	Collector - Base Voltage (I_E= 0)	-50V	-45V	-25V
V_{CEO}	Collector - Emitter Voltage(I_B= 0)	-40V	-45V	-25V
V_{EBO}	Emitter - Base Voltage(I_C= 0)	–5V		
I_{CM}	Collector Peak Current	-200mA		
P_{tot}	Total Power Dissipation @ T_{amb} < 25°C	350mW		
T_J , T_{STG}	Operating and Storage Junction Temperature Range	–65 to +200°C		

Semelab plc. Telephone +44(0)1455 556565. Fax +44(0)1455 552612. e-mail sales@semelab.co.uk
Website http://www.semelab.co.uk

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** V_{CE} = -50V			-10 -500	nA
		V_{CE} = -20V **BCY71** V_{CE} = -45V			-100 -10	nA µA
		V_{CE} = -20V **BCY72** V_{CE} = -25V			-100 -10	nA 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 I_C = -50mA I_B = -5mA			-0.25 -0.5	V
$V_{BE(sat)}$*	Base – Emitter Saturation Voltage	I_C = -10mA I_B = -1mA **BCY70 AND BCY71 ONLY** I_C = -50mA I_B = -5mA	-0.6		-0.9 -1.2	V
h_{FE}*	DC Current Gain	**BCY70** I_C = -0.1mA V_{CE} = -1V I_C = -1mA V_{CE} = -1V I_C = -10mA V_{CE} = -1V I_C = -50mA V_{CE} = -1V	40 45 50 15			—
		BCY71 I_C = -0.01mA V_{CE} = -1V I_C = -0.1mA V_{CE} = -1V I_C = -1mA V_{CE} = -1V I_C = -10mA V_{CE} = 1V I_C = -50mA V_{CE} = -1V	80 90 100 15	60	600	
		BCY72 I_C = - 1mA V_{CE} = - 1V I_C = -10mA V_{CE} = -1V	40 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** I_C = -10mA V_{CE} = -20V f = 100MHz **BCY70** **BCY71 and BCY72**	15 250 200			MHz
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	

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: $t_p \leq 300\mu s$, $\delta \leq 1\%$