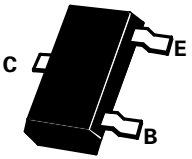
SOT23 PNP SILICON PLANAR GENERAL PURPOSE TRANSISTORS

ISSUE 6 - APRIL 1997

BC856 BC857 BC858 BC859 BC860

PARTMARKING DETAILS		COMPLEMENTARY TYPES	
BC856A–3A	BC858C–3L	BC856	BC846
BC856B–Z3B	BC859A–Z4A	BC857	BC847
BC857A–Z3E	BC859B–4B	BC858	BC848
BC857B–3F	BC859C–Z4C	BC859	BC849
BC857C–3G	BC860A–Z4E	BC860	BC850
BC858A–3J	BC860B–4F		
BC858B–3K	BC860C–4GZ		



SOT23

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	BC856	BC857	BC858	BC859	BC860	UNIT
Collector-Base Voltage	V_{CBO}	-80	-50	-30	-30	-50	V
Collector-Emitter Voltage	V_{CES}	-80	-50	-30	-30	-50	V
Collector-Emitter Voltage	V_{CEO}	-65	-45	-30	-30	-45	V
Emitter-Base Voltage	V_{EBO}	-5					V
Continuous Collector Current	I_C	-100					mA
Peak Pulse Current	I_{EM}	-200					mA
Base Current	I_{BM}	-200					mA
Base Current	I_{EM}	-200					mA
Power Dissipation at T_{amb}=25°C	P_{tot}	330					mW
Operating and Storage Temperature Range	T_j:T_{stg}	-55 to +150					°C

ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

PARAMETER	SYMBOL		BC856	BC857	BC858	BC859	BC860	UNIT	CONDITIONS.
Collector Cut-Off Current	I_{CBO}	Max	-15					nA	V_{CB} = -30V
		Max	-4					µA	V_{CB} = -30V Tamb=150°C
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	Typ Max.	-75 -300	-75 -300	-75 -300	-75 -250	-75 -250	mV	I_C=-10mA, I_B=-0.5mA
		Typ Max.	-250 -650					mV	I_C=-100mA, I_B=-5mA
		Typ Max.	-300 -600					mV	I_C=-10mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	Typ	-700					mV	I_C=-10mA, I_B=-0.5mA
		Typ	-850					mV	I_C=-100mA, I_B=-5mA
Base-Emitter Voltage	V_{BE}	Min Typ Max	-600 -650 -750	-600 -650 -750	-600 -650 -750	-580 -650 -750	-580 -650 -750	mV	I_C=-2mA V_{CE}=-5V
		Max	-820					mV	I_C=-10mA V_{CE}=-5V

* Collector-Emitter Saturation Voltage at I_C = 10mA for the characteristics going through the operating point I_C = 11mA, V_{CE} = 1V at constant base current.

ELECTRICAL CHARACTERISTICS (Continued)

PARAMETER	SYMBOL		BC856	BC857	BC858	BC859	BC860	UNIT	CONDITIONS.
Noise Figure	N	Typ Max	2 10	2 10	2 10	1 4	1 4	dB dB	V_{CB} = -5V, I_C=-200μA, R_G=2kΩ, f=1kHz, Δf=200Hz
		Typ Max	– –	– –	– –	1.2 4	1 3	dB dB	V_{CB} = -5V, I_C=-200μA, R_G=2kΩ, f=30Hz to 15kHz at -3dB points
Equivalent Noise Voltage	e_n	Max	–	–	–	110	110	nV	V_{CB} = -5V, I_C=-200μA, R_G=2kΩ, f=10Hz to 50Hz at -3dB points
Dynamic Characteristics Group VI	h_{ie}	Min Typ Max	0.4 1.2 2.2	0.4 1.2 2.2	0.4 1.2 2.2	– – –	– – –	kΩ kΩ kΩ	
Group A		Min Typ Max	1.6 2.7 4.5					kΩ kΩ kΩ	
Group B		Min Typ Max	3.2 4.5 8.5					kΩ kΩ kΩ	
Group C		Min Typ Max	– – –	– – –	6 8.7 15	6 8.7 15	6 8.7 15	kΩ kΩ kΩ	
Group VI Group A Group B Group C	h_{re}	Typ Typ Typ Typ	2.5 1.5 2	2.5 1.5 2	2.5 1.5 2 3	– 1.5 2 3	– 1.5 2 3	$x10^{-4}$ $x10^{-4}$ $x10^{-4}$ $x10^{-4}$	
Group VI	h_{fe}	Min Typ Max	75 110 150	75 110 150	75 110 150	– – –	– – –		V_{CE}=-5V Ic=-2mA f=1kHz
Group A		Min Typ Max	125 220 260						
Group B		Min Typ Max	240 330 500						
Group C		Min Typ Max	– – –	450 600 900	450 600 900	450 600 900	450 600 900		
Group VI	h_{oe}	Typ Max	20 40	20 40	20 40	– –	– –	μs μs	
Group A		Typ Max	18 30					μs μs	
Group B		Typ Max	30 60					μs μs	
Group C		Typ Max	– –	– –	60 110	60 110	60 110	μs μs	

ELECTRICAL CHARACTERISTICS (Continued)

PARAMETER		SYMBOL		BC856	BC857	BC858	BC859	BC860	UNIT	CONDITIONS.
Static Forward Current Ratio	Group VI	h_{FE}	Min Typ Max	75 110 150	75 110 150	75 110 150	– – –	– – –		I_C=-2mA, V_{CE}=-5V
	Group A	h_{FE}	Typ	90	90	90	–	–		I_C=-0.01mA,V_{CE}=-5V
			Min Typ Max			125 180 250				I_C=-2mA, V_{CE}=-5V
			Typ	120	120	120	–	–		I_C=-100mA,V_{CE}=-5V
	Group B	h_{FE}	Typ			150				I_C=-0.01mA,V_{CE}=-5V
			Min Typ Max			220 290 475				I_C=-2mA, V_{CE}=-5V
			Typ	200	200	200	–	–		I_C=-100mA,V_{CE}=-5V
	Group C	h_{FE}	Typ.	–	270	270	270	270		I_C=-0.01mA, V_{CE}=-5V
			Min Typ Max	– – –	420 500 800	420 500 800	420 500 800	420 500 800		I_C=-2mA, V_{CE}=-5V
			Typ	–	–	400	–	–		I_C=-100mA,V_{CE}=-5V
Transition Frequency		f_T	Typ	150	150	150	300	300	MHz	I_C=-10mA,V_{CE}=-5V f=100MHz
Collector-Base Capacitance		C_{obo}	Typ			4.5			pF	V_{CB}=-10V, f=1MHz

Spice parameter data is available upon request for these devices