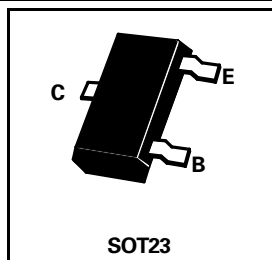


SOT23 PNP SILICON PLANAR GENERAL PURPOSE TRANSISTORS

ISSUE 6 - APRIL 1997

BC856	BC857
BC858	BC859
BC860	

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



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 $T_{amb}=25^{\circ}C$	P_{tot}	330					mW
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150					$^{\circ}C$

ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}C$ 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	$V_{CB} = -30V$ $T_{amb} = 150^{\circ}C$	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	Typ	-75	-75	-75	-75	-75	mV	$I_C = -10mA,$ $I_B = -0.5mA$
		Max.	-300	-300	-300	-250	-250	mV	$I_C = -100mA,$ $I_B = -5mA$
		Typ	-300					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	-600	-600	-600	-580	-580	mV	$I_C = -2mA$
		Typ	-650	-650	-650	-650	-650	mV	$V_{CE} = -5V$
		Max	-750	-750	-750	-750	-750	mV	$I_C = -10mA$ $V_{CE} = -5V$
	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.

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ELECTRICAL CHARACTERISTICS (Continued)

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

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ELECTRICAL CHARACTERISTICS (Continued)

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

Spice parameter data is available upon request for these devices