SOT-23 Formed SMD Package

BC849
BC850

SILICON PLANAR EPITAXIAL TRANSISTORS

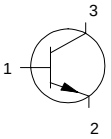
N–P–N transistors

Marking

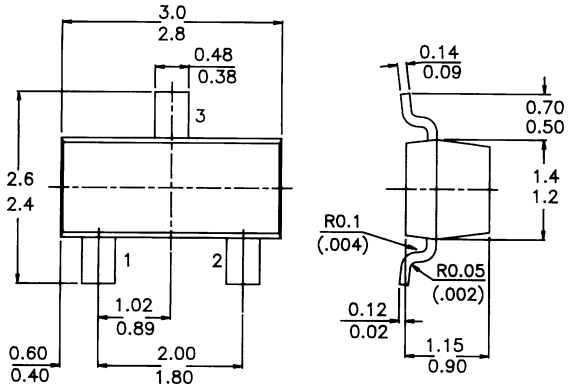
BC849 = 2D
BC849B = 2B
BC849C = 2C
BC850 = 2H
BC850B = 2F
8C850C = 2G

Pin configuration

1 = BASE
2 = EMITTER
3 = COLLECTOR



PACKAGE OUTLINE DETAILS
ALL DIMENSIONS IN mm



ABSOLUTE MAXIMUM RATINGS

			BC849	***BC850***	
Collector–emitter voltage (V_{BE} = 0)	V_{CES}	*max.*	*30*	*50*	*V*
Collector–emitter voltage (open base)	V_{CE0}	*max.*	*30*	*45*	*V*
Collector current (peak value)	I_{CM}	*max.*	*200*	*200*	*mA*
Total power dissipation up to T_{amb} = 25 °C	P_{tot}	*max.*	*250*	*250*	mW
Junction temperature	T_j	*max.*	*150*	*150*	*° C*
Small–signal current gain					
I_C = 2 mA; V_{CE} = 5 V; f = 1 kHz	h_{fe}	>	*240*	*240*	
		<	*900*	*900*	
Transition frequency					
I_C = 10 mA; V_{CE} = 5 V, f = 100 MHz	f_T	>	*100*	*> 100*	MHz
Noise figure at R_S = 2 kΩ					
I_C = 200 µA; V_{CE} = 5 V					
f = 30 Hz to 15 kHz	F	*typ.*	*1,4*	*1,4*	*dB*
		<	*4*	*3*	*dB*
f = 1 kHz; B = 200 Hz	F	*typ.*	*1,2*	*1*	*dB*
f = 10 Hz to 50 Hz (equivalent noise voltage)	V_n	<	—	*0,135*	mV

RATINGS *(at T_A = 25°C unless otherwise specified)*

Limiting values			***BC849***	***BC850***	
Collector–base voltage (open emitter)	V_{CBO}	*max.*	*30*	*50*	*V*
Collector–emitter voltage (V_{BE} = 0)	V_{CES}	*max.*	*30*	*50*	*V*
Collector–emitter voltage (open base)	V_{CEO}	*max.*	*30*	*45*	*V*
Emitter–base voltage (open collector)	V_{EBO}	*max.*	*5*		*V*
Collector current (d.c.)	I_C	*max.*	*100*		*mA*
Collector current (peak value)	I_{CM}	*max.*	*200*		*mA*
Emitter current (peak value)	$-I_{EM}$	*max.*	*200*		*mA*
Base current (peak value)	I_{BM}	*max.*	*200*		*mA*
Total power dissipation up to T_{amb} = 25 °C	P_{tot}	*max.*	*250*		mW
Storage temperature	T_{stg}		*–55 to +150*		*° C*
Junction temperature	T_j	*max.*	*150*		*° C*

THERMAL RESISTANCE

*From junction to ambient**	$R_{th\ j-a}$	=	*500*	K/W

CHARACTERISTICS

T_j = 25 °C unless otherwise specified

Collector cut–off current				
I_E = 0; V_{CB} = 30 V	I_{CBO}	<	*15*	*nA*
I_E = 0; V_{CB} = 30 V; T_j = 150 °C	I_{CBO}	<	*5*	µA
Base emitter voltage				
I_C = 2 mA; V_{CE} = 5 V	V_{BE}	*typ.*	*660*	*mV*
		580	*to 700*	*mV*
I_C = 10 mA; V_{CE} = 5 V	V_{BE}	<	*770*	*mV*
Saturation voltages				
I_C = 10 mA; I_B = 0,5 mA	V_{CEsat}	*typ.*	*90*	*mV*
			250	*mV*
	V_{BEsat}	*typ.*	*700*	*mV*
I_C = 100 mA; I_B = 5 mA	V_{CEsat}	*typ.*	*200*	*mV*
		<	*600*	*mV*
	V_{BEsat}	*typ.*	*900*	*mV*
Collector capacitance at f = 1 MHz				
$I_E = I_e$ = 0; V_{CB} = 10 V	C_c	*typ.*	*2,5*	*pF*
Transition frequency at f = 100 MHz				
I_C = 10 mA; V_{CE} = 5 V	f_T	>	*100*	MHz
Small signal current gain at f = 1 kHz				
I_C = 2 mA; V_{CE} = 5 V	h_{fe}		*110 – 800*	

Noise figure at R_S = 2 kΩ,			***BC849***	***BC850***	
I_C = 200 µA; V_{CE} = 5 V		*typ.*	*1,4*	*1,4*	*dB*
f = 30 Hz to 15 kHz	*F*	<	*4*	*3*	*dB*
		typ.	*1,2*	*1*	*dB*
f = 1 kHz; B = 200 Hz	*F*	<	*4*	*4*	*dB*

Equivalent noise voltage at R_S = 2 kΩ				
I_C = 200 μA; V_{CE} = 5 V				
f = 10 Hz to 50 Hz; T_{amb} = 25°C	V_n	*max.*	—	*0,135 mV*
			BC849B ***BC850B***	***BC849C*** ***BC850C***
D.C. current gain				
I_C = 10 μA; V_{CE} = 5V	h_{FE}	*typ.*	*150*	*270*
		>	*200*	*420*
I_c = 2 mA; V_{CE} = 5 V	h_{FE}	*typ.*	*290*	*520*
		<	*450*	*800*

Disclaimer

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