



BC847B
BC847C

SMALL SIGNAL NPN TRANSISTORS

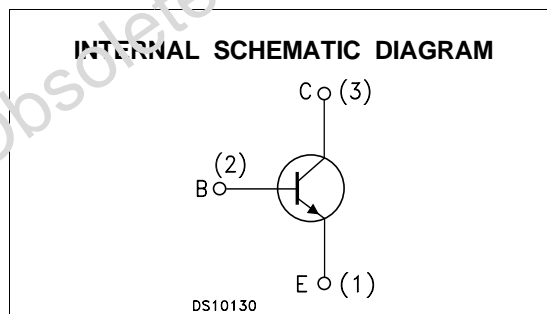
PRELIMINARY DATA

Type	Marking
BC847B	1F
BC847C	1G

- SILICON EPITAXIAL PLANAR NPN TRANSISTORS
- MINIATURE SOT-23 PLASTIC PACKAGE FOR SURFACE MOUNTING CIRCUITS
- TAPE AND REEL PACKING
- BC847B - THE PNP COMPLEMENTARY TYPE IS BC857B

APPLICATIONS

- WELL SUITABLE FOR PORTABLE EQUIPMENT
- SMALL LOAD SWITCH TRANSISTORS WITH HIGH GAIN AND LOW SATURATION VOLTAGE



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CB0}	Collector-Base Voltage ($I_E = 0$)	50	V
V_{CE0}	Collector-Emitter Voltage ($I_B = 0$)	45	V
V_{EB0}	Emitter-Base Voltage ($I_C = 0$)	6	V
I_C	Collector Current	100	mA
I_{CM}	Collector Peak Current	200	mA
P_{tot}	Total Dissipation at $T_C = 25^\circ\text{C}$	250	mW
T_{stg}	Storage Temperature	-65 to 150	$^\circ\text{C}$
T_j	Max. Operating Junction Temperature	150	$^\circ\text{C}$

BC847B / BC847C

THERMAL DATA

$R_{thj-amb}$ •	Thermal Resistance Junction-Ambient	Max	500	°C/W
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• Device mounted on a PCB area of 1 cm^2 .

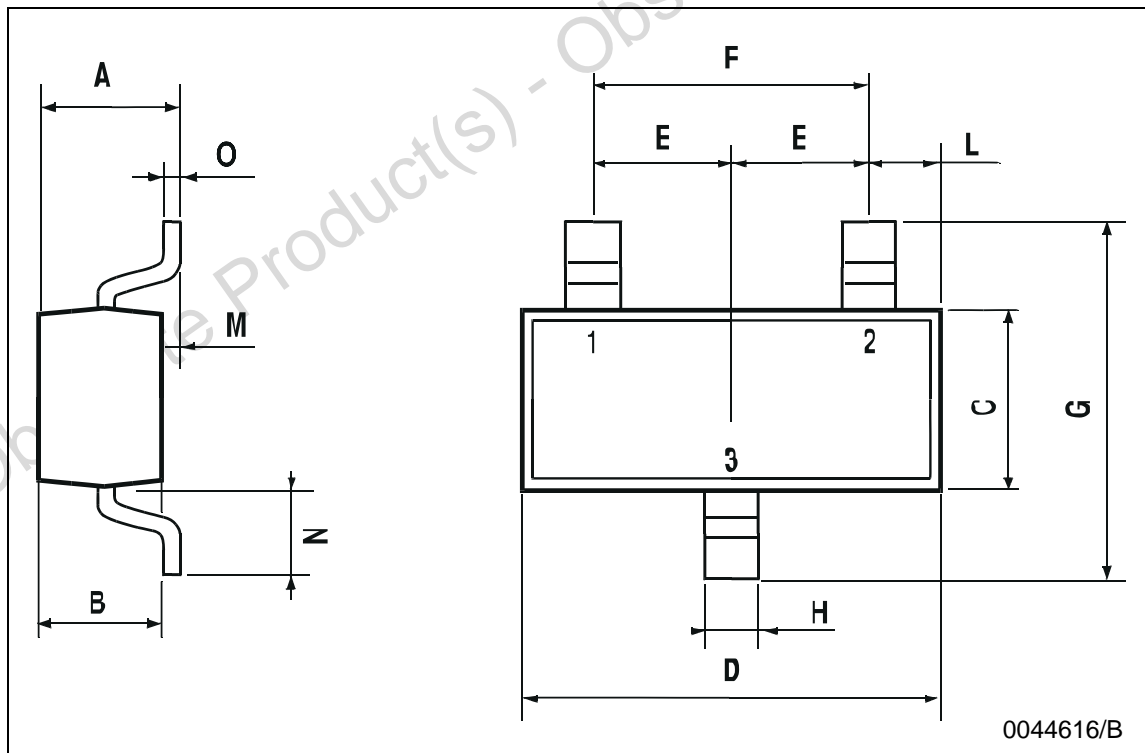
ELECTRICAL CHARACTERISTICS ($T_{case} = 25\text{ °C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current ($I_E = 0$)	$V_{CB} = 30\text{ V}$ $V_{CB} = 30\text{ V}$ $T_C = 150\text{ °C}$			15 5	nA μA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5\text{ V}$			100	nA
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ($I_E = 0$)	$I_C = 10\text{ }\mu\text{A}$	50			V
$V_{(BR)CEO}^*$	Collector-Emitter Breakdown Voltage ($I_B = 0$)	$I_C = 2\text{ mA}$	45			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ($I_C = 0$)	$I_E = 10\text{ }\mu\text{A}$	6			V
$V_{CE(sat)}^*$	Collector-Emitter Saturation Voltage	$I_C = 10\text{ mA}$ $I_B = 0.5\text{ mA}$ $I_C = 100\text{ mA}$ $I_B = 5\text{ mA}$		0.09 0.2	0.25 0.6	V V
$V_{BE(sat)}^*$	Base-Emitter Saturation Voltage	$I_C = 10\text{ mA}$ $I_B = 0.5\text{ mA}$ $I_C = 100\text{ mA}$ $I_B = 5\text{ mA}$		0.7 0.9		V V
$V_{BE(on)}^*$	Base-Emitter On Voltage	$I_C = 2\text{ mA}$ $V_{CE} = 5\text{ V}$ $I_C = 10\text{ mA}$ $V_{CE} = 5\text{ V}$	0.58	0.66	0.7 0.77	V V
h_{FE}^*	DC Current Gain	$I_C = 10\text{ }\mu\text{A}$ $V_{CE} = 5\text{ V}$ for BC847B for BC847C $I_C = 2\text{ mA}$ $V_{CE} = 5\text{ V}$ for BC847B for BC847C		150 270		
f_T	Transition Frequency	$I_C = 10\text{ mA}$ $V_{CE} = 5\text{ V}$ $f = 100\text{ MHz}$	100			MHz
C_{CBO}	Collector-Base Capacitance	$I_E = 0$ $V_{CB} = 10\text{ V}$ $f = 1\text{ MHz}$		2.5		pF
NF	Noise Figure	$V_{CE} = 5\text{ V}$ $I_C = 0.2\text{ mA}$ $f = 1\text{ KHz}$ $\Delta f = 200\text{ Hz}$ $R_G = 2\text{ K}\Omega$		2	10	dB

* Pulsed: Pulse duration = $300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$

SOT-23 MECHANICAL DATA

DIM.	mm			mils		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	0.85		1.1	33.4		43.3
B	0.65		0.95	25.6		37.4
C	1.20		1.4	47.2		55.1
D	2.80		3	110.2		118
E	0.95		1.05	37.4		41.3
F	1.9		2.05	74.8		80.7
G	2.1		2.5	82.6		98.4
H	0.38		0.48	14.9		18.8
L	0.3		0.6	11.8		23.6
M	0		0.1	0		3.9
N	0.3		0.65	11.8		25.6
O	0.09		0.17	3.5		6.7



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