



**BC846PN**

Advance

**NPN SILICON TRANSISTOR**

**SWITCHING AND AMPLIFIER APPLICATION**

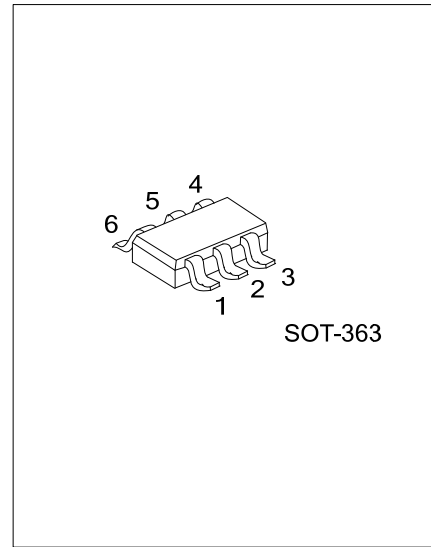
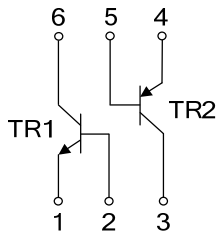
■ DESCRIPTION

The UTC **BC846PN** is a dual transistor, including an NPN transistor and a PNP transistor. This device is ideal for portable applications where board space is at a premium.

■ FEATURES

\* Electrically-isolated complimentary transistor pairs.

■ EQUIVALENT CIRCUIT



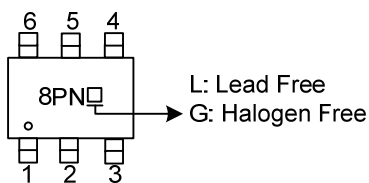
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment						Packing
Lead Free	Halogen Free		1	2	3	4	5	6	
BC846PNL-AL6-R	BC846PNG-AL6-R	SOT-363	E1	B1	C2	E2	B2	C1	Tape Reel

Note: Pin Assignment: E: Emitter B: Base C: Collector

<p>BC846PNG-AL6-R</p>	<p>(1) R: Tape Reel (2) AL6: SOT-363 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
-----------------------	--

■ MARKING



■ ABSOLUTE MAXIMUM RATING ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	VALUE		UNIT
		TR1	TR2	
Collector-Base Voltage	$V_{CBO}$	65	-65	V
Collector-Emitter Voltage	$V_{CEO}$	80	-80	V
Emitter-Base Voltage	$V_{EBO}$	6	-6	V
Collector Current (DC)	$I_C$	100	-100	mA
Collector Dissipation (Note 2)	$P_D$	225		mW
Junction Temperature	$T_J$	+150		$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-40 ~ +150		$^\circ\text{C}$

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Transistor mounted on FR-4 board 70×60×1mm.

■ ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>TR1</b>						
Collector-Base Breakdown Voltage	$BV_{CBO}$	$I_C=10\mu\text{A}$ , $I_E=0$	80			V
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C=10\text{mA}$ , $I_B=0$	6.5			V
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_E=10\mu\text{A}$ , $I_C=0$	6.0			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=30\text{V}$ , $I_E=0$			1.5	nA
Collector Cutoff Current	$I_{CEO}$	$V_{CE}=40\text{V}$				nA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=5\text{V}$			100	nA
DC Current Gain	$h_{FE}$	$V_{CE}=5\text{V}$ , $I_C=10\mu\text{A}$		90		
		$V_{CE}=5\text{V}$ , $I_C=2\text{mA}$	110	180	220	
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=10\text{mA}$ , $I_B=0.5\text{mA}$			0.25	V
		$I_C=100\text{mA}$ , $I_B=5.0\text{mA}$			0.6	V
Collector-Base Saturation Voltage	$V_{BE(SAT)}$	$I_C=10\text{mA}$ , $I_B=0.5\text{mA}$		0.7		V
		$I_C=100\text{mA}$ , $I_B=5.0\text{mA}$		0.9		V
Base-Emitter On Voltage	$V_{BE(ON)}$	$V_{CE}=5.0\text{V}$ , $I_C=2\text{mA}$	0.58	0.66	0.7	V
		$V_{CE}=5.0\text{V}$ , $I_C=10\text{mA}$			0.77	V
Output Capacitance	$C_{OB}$	$V_{CB}=10\text{V}$ , $I_E=0$ , $f=1.0\text{MHz}$			4.5	pF
<b>TR2</b>						
Collector-Base Breakdown Voltage	$BV_{CBO}$	$I_C=-10\mu\text{A}$ , $I_E=0$	-80			V
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C=-10\text{mA}$ , $I_B=0$	-6.5			V
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_E=-1\mu\text{A}$ , $I_C=0$	-5.0			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=-30\text{V}$ , $I_E=0$			-15	nA
Collector Cutoff Current	$I_{CEO}$	$V_{CE}=-40\text{V}$				nA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=-5\text{V}$			-100	nA
DC Current Gain	$h_{FE}$	$V_{CE}=-5\text{V}$ , $I_C=-10\mu\text{A}$		90		
		$V_{CE}=-5\text{V}$ , $I_C=-2\text{mA}$	110	180	220	
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=-10\text{mA}$ , $I_B=-0.5\text{mA}$			-0.30	V
		$I_C=-100\text{mA}$ , $I_B=-5.0\text{mA}$			-0.65	V
Collector-Base Saturation Voltage	$V_{BE(SAT)}$	$I_C=-10\text{mA}$ , $I_B=-0.5\text{mA}$		-0.7		V
		$I_C=-100\text{mA}$ , $I_B=-5.0\text{mA}$		-0.9		V
Base-Emitter On Voltage	$V_{BE(ON)}$	$V_{CE}=-5.0\text{V}$ , $I_C=-2\text{mA}$	-0.58		-0.75	V
		$V_{CE}=-5.0\text{V}$ , $I_C=-10\text{mA}$			-0.82	V
Output Capacitance	$C_{OB}$	$V_{CB}=-10\text{V}$ , $I_E=0$ , $f=1.0\text{MHz}$			4.5	pF

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.