



## BCV47

Preliminary

NPN SILICON TRANSISTOR

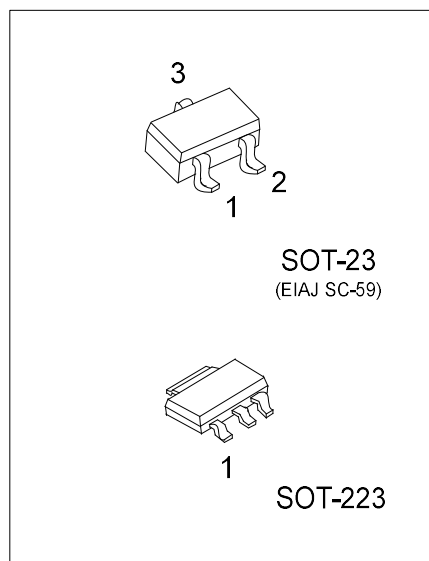
## NPN DARLINGTON TRANSISTOR

### DESCRIPTION

The UTC **BCV47** is a NPN Darlington transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for applications requiring extremely high gain.

### FEATURES

- \* Medium current: max. 500mA
- \* Low voltage: max. 60V



### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
BCV47L-AA3-R	BCV47G-AA3-R	SOT-223	B	C	E	Tape Reel
BCV47L-AE3-R	BCV47G-AE3-R	SOT-23	B	E	C	Tape Reel

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

<p>BCV47G-AA3-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) R: Tape Reel</p> <p>(2) AA3: SOT-223, AE3: SOT-23</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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### MARKING

SOT-23	SOT-223

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

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		$V_{CBO}$	80	V
Collector-Emitter Voltage		$V_{CES}$	60	V
Emitter-Base Voltage		$V_{EBO}$	10	V
Base Current		$I_B$	100	mA
Collector Current (DC)		$I_C$	500	mA
Peak Collector Current		$I_{CM}$	800	mA
Collector Power Dissipation (Note 2)	SOT-223	$P_C$	600	mW
	SOT-23		250	mW
Junction Temperature		$T_J$	+150	$^{\circ}\text{C}$
Storage Temperature		$T_{STG}$	-65 ~ +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 an FR4 printed-circuit board.

■ **THERMAL DATA**

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-223	$\theta_{JA}$	208.3	$^{\circ}\text{C/W}$
	SOT-23		500	$^{\circ}\text{C/W}$
Junction to Case	SOT-223	$\theta_{JC}$	20	$^{\circ}\text{C/W}$
	SOT-23		100	$^{\circ}\text{C/W}$

Note: Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	$BV_{CBO}$	$I_C=100\mu\text{A}$	80			V
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C=10\text{mA}$	60			V
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_E=10\mu\text{A}$	10			V
Collector Cut-off Current	$I_{CBO}$	$V_{CBO}=60\text{V}, I_E=0$			100	nA
Emitter Cut-off Current	$I_{EBO}$	$V_{EB}=10\text{V}, I_E=0$			100	nA
DC Current Gain (Note)	$h_{FE}$	$V_{CE}=5\text{V}, I_C=1\text{mA}$	2000			
		$V_{CE}=5\text{V}, I_C=10\text{mA}$	4000			
		$V_{CE}=5\text{V}, I_C=100\text{mA}$	10000			
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=100\text{mA}, I_B=0.1\text{mA}$			1	V
Base-Emitter Saturation Voltage (Note)	$V_{BE(SAT)}$	$I_C=100\text{mA}, I_B=0.1\text{mA}$			1.5	V
Base Emitter On Voltage (Note)	$V_{BE(ON)}$	$I_C=10\text{mA}, V_{CE}=5\text{V}$			1.4	V

Note: Pulse test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$ .

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