



# BTC1510F3

## NPN SILICON TRANSISTOR

### NPN EPITAXIAL PLANAR TRANSISTOR

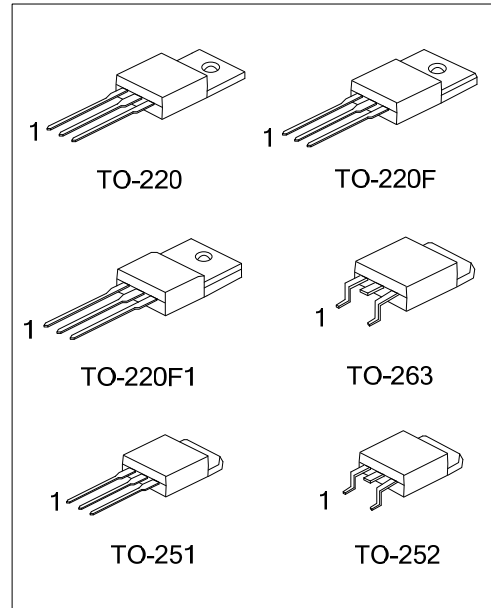
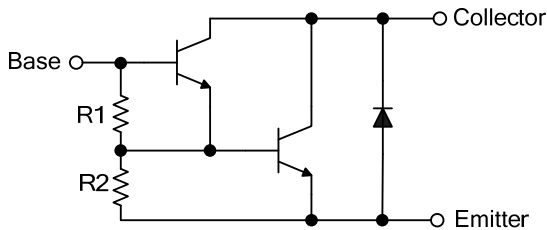
■ DESCRIPTION

As a NPN Darlington transistor the UTC **BTC1510F3** is designed for general purpose amplifier and low speed switching application.

■ FEATURES

- \* Very high  $BV_{CEO}$
- \* Very low  $V_{CE(SAT)}$
- \* Very high current gain

■ EQUIVALENT CIRCUIT



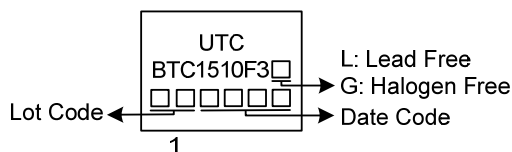
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
BTC1510F3L-TA3-T	BTC1510F3G-TA3-T	TO-220	B	C	E	Tube
BTC1510F3L-TF3-T	BTC1510F3G-TF3-T	TO-220F	B	C	E	Tube
BTC1510F3L-TF1-T	BTC1510F3G-TF1-T	TO-220F1	B	C	E	Tube
BTC1510F3L-TM3-T	BTC1510F3G-TM3-T	TO-251	B	C	E	Tube
BTC1510F3L-TN3-R	BTC1510F3G-TN3-R	TO-252	B	C	E	Tape Reel
BTC1510F3L-TQ2-T	BTC1510F3G-TQ2-T	TO-263	B	C	E	Tube
BTC1510F3L-TQ2-R	BTC1510F3G-TQ2-R	TO-263	B	C	E	Tape Reel

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

<p>BTC1510F3G-TA3-T</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Green Package</p>	<p>(1) T: Tube, R: Tape Reel</p> <p>(2) TA3: TO-220, TF3: TO-220F, TF1: TO-220F1</p> <p>TM3: TO-251, N3: TO-252, TQ2: TO-263</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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■ MARKING



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## NPN SILICON TRANSISTOR

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

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		$V_{CB0}$	150	V
Collector-Emitter Voltage		$V_{CEO}$	150	V
Emitter-Base Voltage		$V_{EBO}$	5	V
Collector Current	DC	$I_C$	10	A
	Pulse(Note 2)		15	
Collector Dissipation	$T_A=25^{\circ}\text{C}$	TO-220/TO-220F TO-220F1	2	W
		TO-251/TO-252	1.1	W
		TO-263	2	W
	$T_C=25^{\circ}\text{C}$	TO-220	72	W
		TO-220F/TO-220F1	36	W
		TO-251/TO-252	44	W
		TO-263	60	W
Junction Temperature		$T_J$	150	$^{\circ}\text{C}$
Storage Temperature		$T_{STG}$	-55 ~ +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.

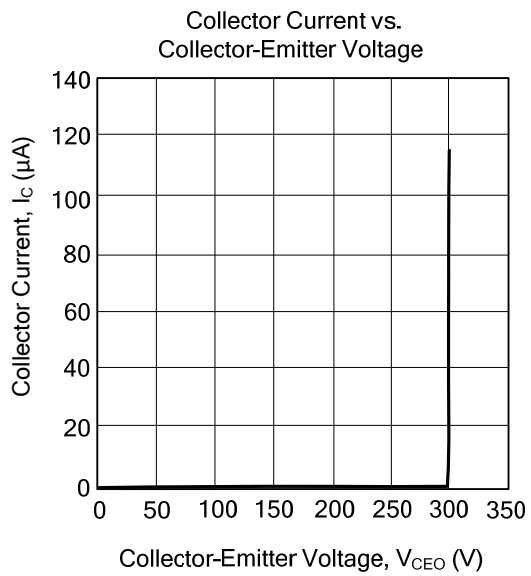
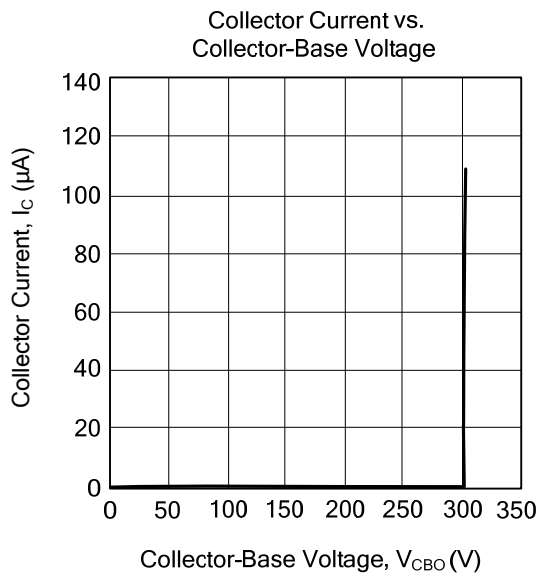
2. Pulse test: Pulse Width=100ms

### ■ ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	$BV_{CB0}$	$I_C=100\mu\text{A}$ , $I_E=0$	150			V
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C=5\text{mA}$ , $I_B=0$	150			V
Base-Emitter Turn-On Voltage (Note)	$V_{BE(ON)}$	$V_{CE}=3\text{V}$ , $I_C=5\text{A}$			2.8	V
		$V_{CE}=3\text{V}$ , $I_C=10\text{A}$			4.5	
Forward Voltage	$V_{FEC}$	$I_C=5\text{A}$			3	V
Collector Cutoff Current	$I_{CB0}$	$V_{CB}=150\text{V}$ , $I_E=0$			200	$\mu\text{A}$
Collector Cutoff Current	$I_{CEO}$	$V_{CE}=150\text{V}$ , $I_E=0$			200	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=5\text{V}$ , $I_C=0$			2	mA
<b>ON CHARACTERISTICS</b>						
DC Current Gain (Note)	$h_{FE}$	$V_{CE}=3\text{V}$ , $I_C=5\text{A}$	2		20	K
		$V_{CE}=3\text{V}$ , $I_C=10\text{A}$	100			
Base-Emitter Saturation Voltage(Note)	$V_{BE(SAT)}$	$I_C=5\text{A}$ , $I_B=5\text{mA}$			2	V
Collector-Emitter Saturation Voltage (Note)	$V_{CE(SAT)}$	$I_C=5\text{A}$ , $I_B=10\text{mA}$			1.5	V
		$I_C=10\text{A}$ , $I_B=100\text{mA}$			3	V
		$I_C=5\text{A}$ , $I_B=2.5\text{mA}$			2	V

Note: Pulse test: Pulse Width  $\leq 380\mu\text{s}$ , Duty Cycle  $\leq 2\%$

### ■ TYPICAL CHARACTERISTICS



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