



# TIP31C

## NPN EXPITAXIAL TRANSISTOR

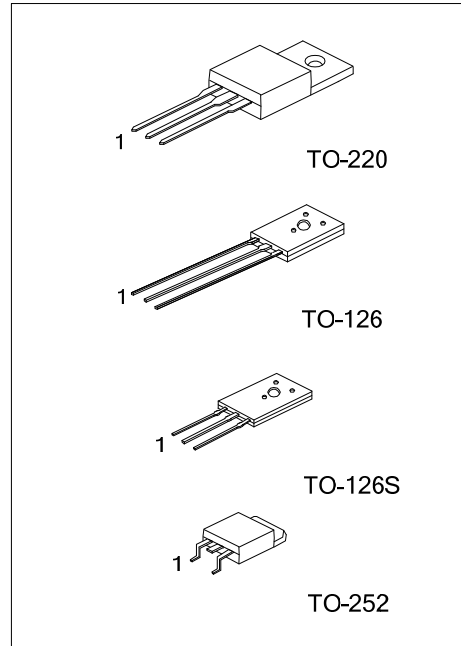
### NPN EXPITAXIAL PLANAR TRANSISTOR

#### DESCRIPTION

The UTC TIP31C is a NPN epitaxial planar transistor, designed for using in general purpose amplifier and switching applications.

#### FEATURES

\* Complement to TIP32C.



#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
TIP31CL-TA3-T	TIP31CG-TA3-T	TO-220	B	C	E	Tube
TIP31CL-T60-K	TIP31CG-T60-K	TO-126	B	C	E	Bulk
TIP31CL-T6S-K	TIP31CG-T6S-K	TO-126S	B	C	E	Bulk
TIP31CL-TN3-R	TIP31CG-TN3-R	TO-252	B	C	E	Tape Reel

<p>TIP31CL-TA3-T</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Plating</p>	<p>(1) T: Tube, K: Bulk, R: Tape Reel</p> <p>(2) TA3: TO-220, T60: TO-126, T6S: TO-126S</p> <p>TN3: TO-252</p> <p>(3) L: Lead Free, G: Halogen Free</p>
--	---

### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		$V_{CBO}$	100	V
Collector-Emitter Voltage		$V_{CEO}$	100	V
Emitter-Base Voltage		$V_{EBO}$	5	V
Collector Current	DC	$I_C$	3	A
	Pulse		5	A
Base Current		$I_B$	1	A
Collector Dissipation ( $T_c=25^\circ\text{C}$ )	TO-126S	$P_C$	10	W
	TO-126		40	W
	TO-220		15	W
	TO-252			
Junction Temperature		$T_J$	+150	$^\circ\text{C}$
Storage Temperature		$T_{STG}$	-65 ~ +150	$^\circ\text{C}$

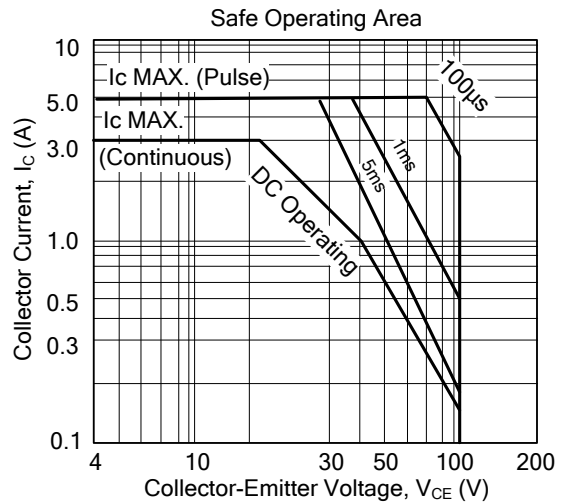
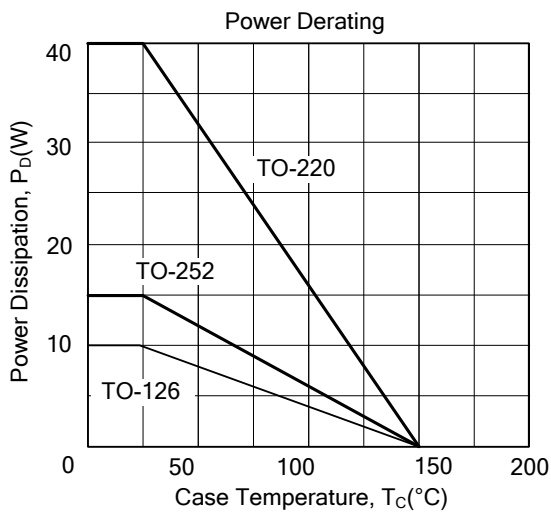
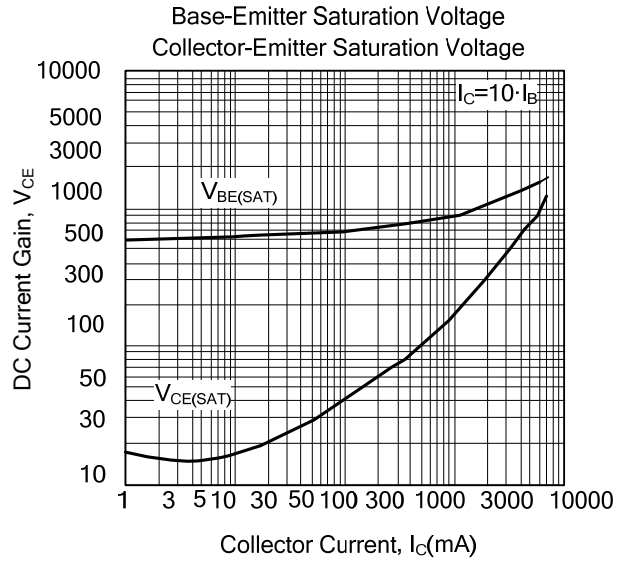
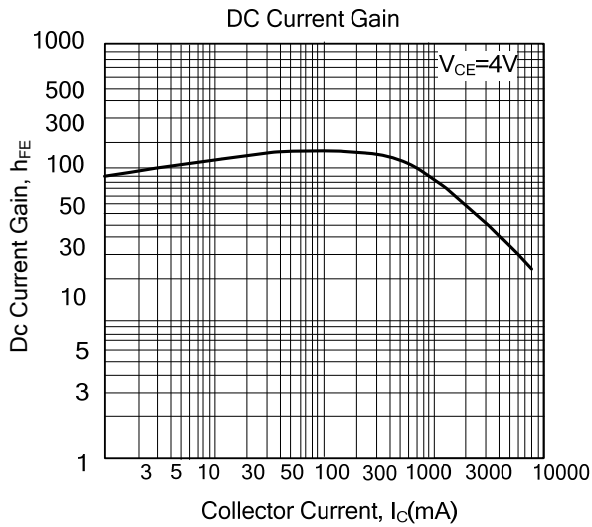
Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

### ■ ELECTRICAL CHARACTERISTICS ( $T_c=25^\circ\text{C}$ )

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Emitter Sustaining Voltage (Note)	$BV_{CEO}$	$I_C=30\text{mA}, I_B=0$	100			V
Collector Cutoff Current	$I_{CES}$	$V_{CB}=100\text{V}, V_{EB}=0$			200	$\mu\text{A}$
Collector Cutoff Current	$I_{CEO}$	$V_{CE}=60\text{V}, I_B=0$			0.3	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{BE}=5\text{V}, I_C=0$			1	mA
Collector-Emitter Saturation Voltage (Note)	$V_{CE(SAT)}$	$I_C=3\text{A}, I_B=375\text{mA}$			1.2	V
Base-Emitter On Voltage (Note)	$V_{BE(ON)}$	$I_C=3\text{A}, V_{CE}=4\text{V}$			1.8	V
DC Current Gain (Note)	$h_{FE1}$	$I_C=1\text{A}, V_{CE}=4\text{V}$	25			
	$h_{FE2}$	$I_C=3\text{A}, V_{CE}=4\text{V}$	10		50	
Current Gain Bandwidth Product	$f_T$	$I_C=0.5\text{A}, V_{CE}=10\text{V}, f=1\text{MHz}$	3			MHz

Note: Pulse Test:  $PW \leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$

## TYPICAL CHARACTERISTICS



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. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.