



# TIP31C

## NPN EXPITAXIAL TRANSISTOR

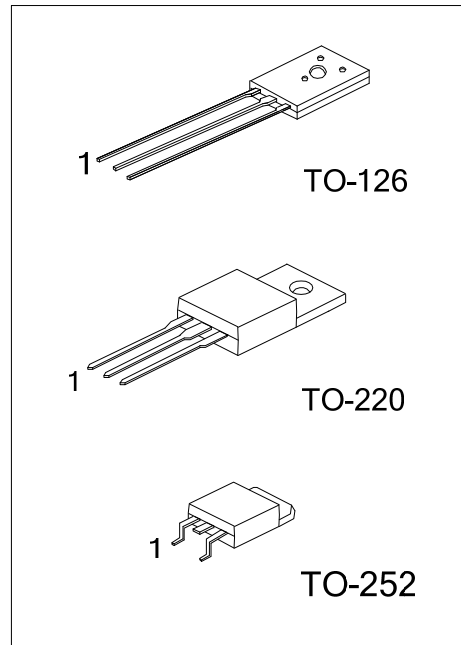
### NPN EXPITAXIAL PLANAR TRANSISTOR

■ DESCRIPTION

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

■ FEATURES

\* Complement to TIP32C.



Lead-free: TIP31CL  
Halogen-free: TIP31CG

■ ORDERING INFORMATION

Ordering Number			Package	Pin Assignment			Packing
Normal	Lead Free	Halogen Free		1	2	3	
TIP31C-T60-B	TIP31CL-T60-B	TIP31CG-T60-B	TO-126	B	C	E	Bulk
TIP31C-TA3-T	TIP31CL-TA3-T	TIP31CG-TA3-T	TO-220	B	C	E	Tube
TIP31C-TN3-R	TIP31CL-TN3-R	TIP31CG-TN3-R	TO-252	B	C	E	Tape Reel

<p>TIP31CL-T60-B</p>	<p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Plating</p>	<p>(1) B: Tape Box, K: Bulk, R: Tape Reel, T: Tube</p> <p>(2) T60: TO-126, TA3: TO-220, TN3: TO-252</p> <p>(3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn</p>
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### ■ 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-126	$P_C$	10	W
	TO-220		40	W
	TO-252		15	W
Junction Temperature		$T_J$	+150	$^\circ\text{C}$
Storage Temperature		$T_{STG}$	-65 ~ +150	$^\circ\text{C}$

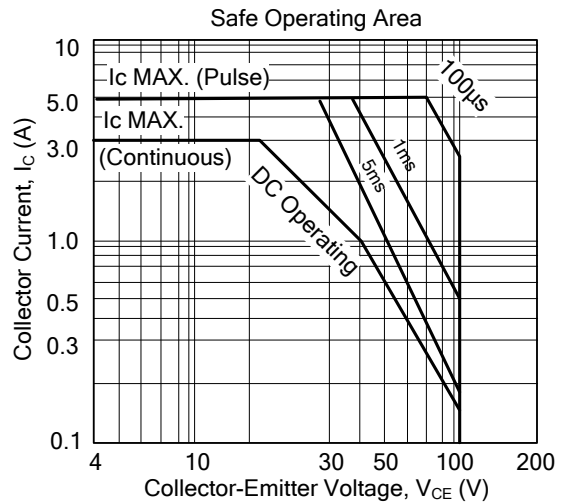
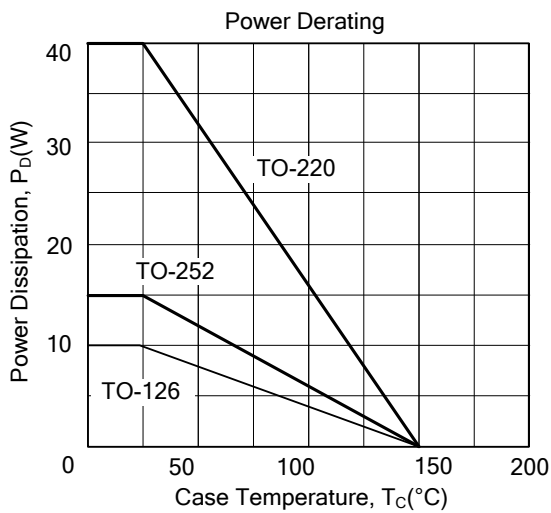
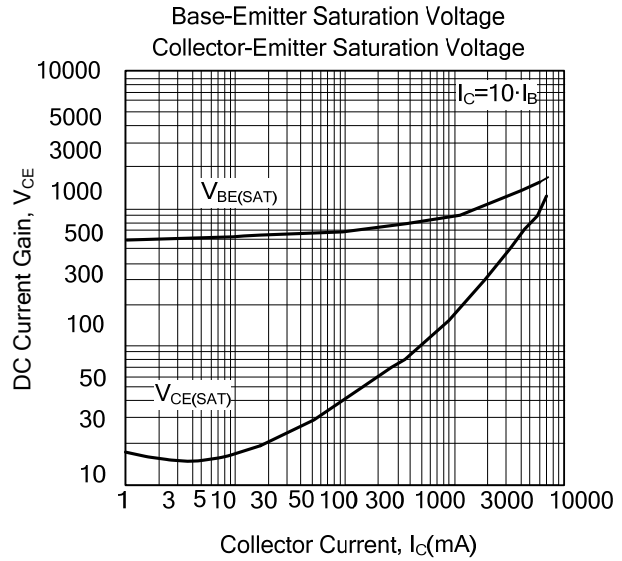
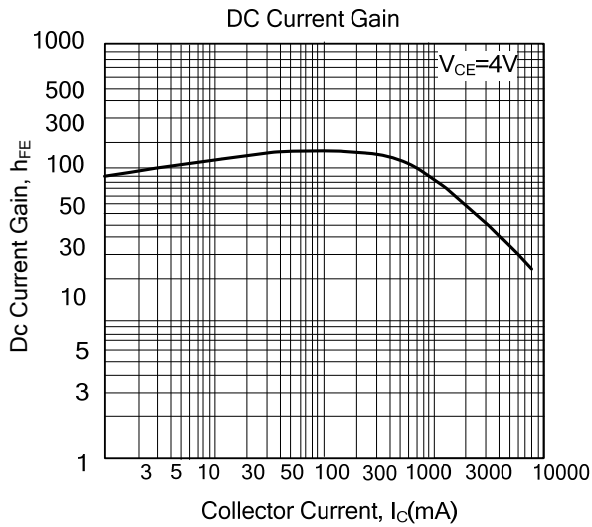
Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

### ■ 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



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