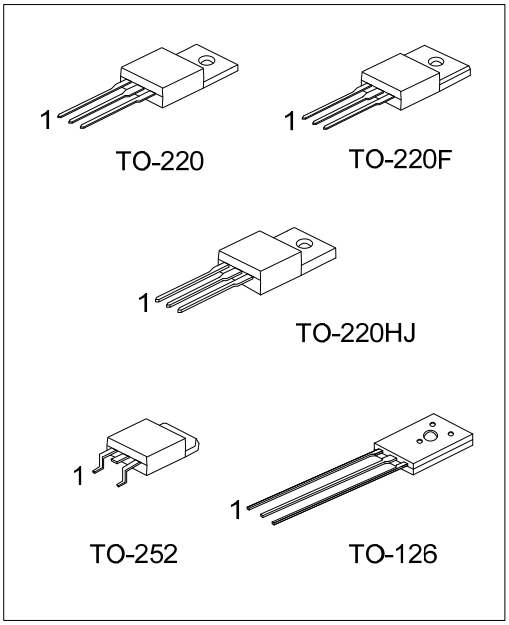
TIP122

NPN SILICON TRANSISTOR

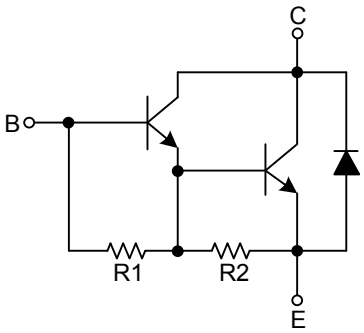
NPN EPITAXIAL TRANSISTOR



■ DESCRIPTION

The UTC **TIP122** is a NPN epitaxial transistor, designed for use in general purpose amplifier low-speed switching applications.

■ EQUIVALENT TEST

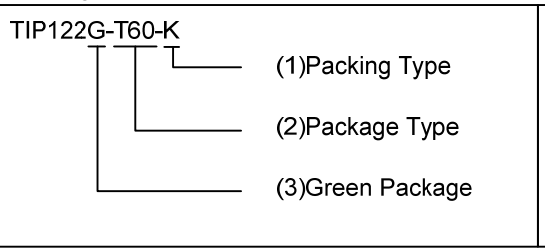


($R_1 \approx 7k\Omega$, $R_2 \approx 0.2k\Omega$)

■ ORDERING INFORMATION

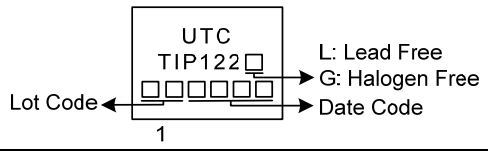
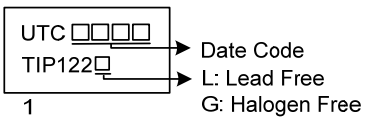
Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
TIP122L-T60-K	TIP122G-T60-K	TO-126	E	C	B	Bulk
TIP122L-TA3-T	TIP122G-TA3-T	TO-220	B	C	E	Tube
TIP122L-TF3-T	TIP122G-TF3-T	TO-220F	B	C	E	Tube
TIP122L-T80-T	TIP122G-T80-T	TO-220HJ	B	C	E	Tube
TIP122L-TN3-R	TIP122G-TN3-R	TO-252	B	C	E	Tape Reel

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



(1) K: Bulk, T: Tube, R: Tape Reel
(2) T60: TO-126, TA3: TO-220, TF3: TO-220F
T80: TO-220HJ, TN3: TO-252
(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING

TO-220 / TO-220F / TO-220HJ / TO-252	TO-126
	

■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector to Base Voltage		V_{CBO}	100	V
Collector to Emitter Voltage		V_{CEO}	100	V
Emitter to Base Voltage		V_{EBO}	5	V
IC Collector Current		I_C	5	A
Power Dissipation (T_C=25°C)	TO-126	P_D	10	W
	TO-220 TO-220HJ		65	W
	TO-220F		30	W
	TO-252		38	W
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-55 ~ +150	°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.

■ THERMAL DATA

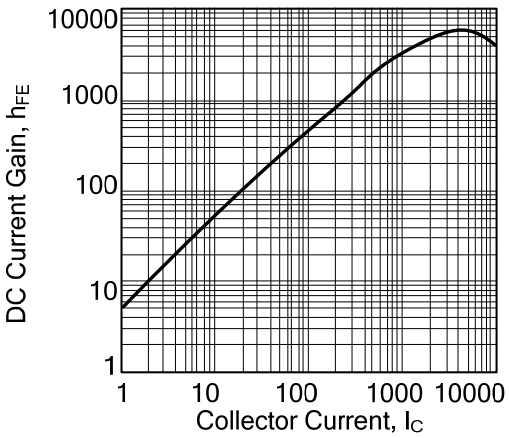
PARAMETER		SYMBOL	RATING	UNIT
Junction to Ambient	TO-126	θ_{JA}	89	°C/W
	TO-220 TO-220F TO-220HJ		62.5	°C/W
	TO-252		80	°C/W
Junction to Case	TO-126	θ_{JC}	12.5	°C/W
	TO-220 TO-220HJ		1.92	°C/W
	TO-220F		4.17	°C/W
	TO-252		3.29	°C/W

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

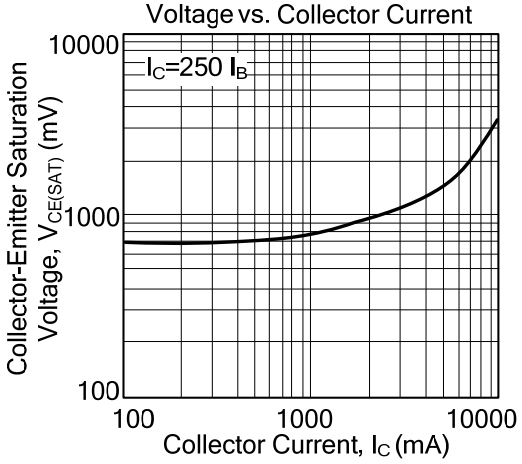
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C=100mA	100			V
Collector-Emitter Saturation Voltage	$V_{CE(SAT)1}$	I_C=3A, I_B=12mA			2	V
Collector-Emitter Saturation Voltage	$V_{CE(SAT)2}$	I_C=5A, I_B=20mA			4	V
Base-Emitter Saturation Voltage	$V_{BE(ON)}$	V_{CE}=3V, I_C=3A			2.5	V
DC Current Gain	h_{FE}	I_C=500mA, V_{CE}=3V	1000			
		I_C=3A, V_{CE}=3V	1000			
Collector Cut-Off Current	I_{CBO}	V_{CB}=100V			200	uA
Collector-Cut-Off Current	I_{CEO}	V_{CE}=50V			500	uA
Emitter Cut-Off Current	I_{EBO}	V_{EB}=5V			2	mA

■ TYPICAL CHARACTERISTICS

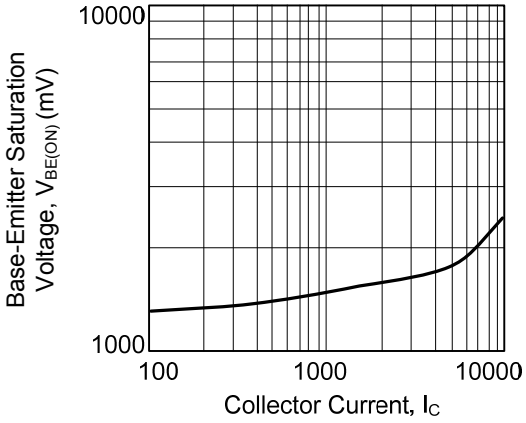
DC Current Gain vs. Collector Current



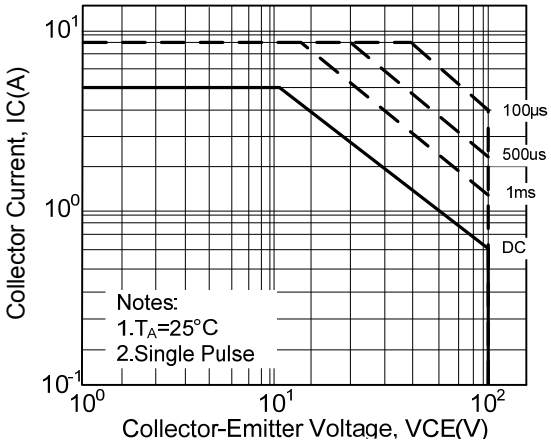
Collector-Emitter Saturation Voltage vs. Collector Current



Base-Emitter Saturation Voltage vs. Collector Current



Safe Operating Area



P_D vs. T_A