



## 2SA1013

## PNP EPITAXIAL SILICON TRANSISTOR

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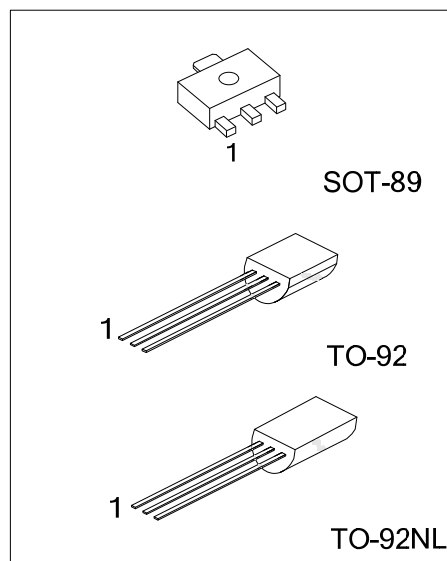
#### DESCRIPTION

The UTC **2SA1013** is a PNP epitaxial silicon transistor, it uses UTC's advanced technology to provide the customers with high  $BV_{CEO}$  and high DC current gain, etc.

The UTC **2SA1013** is suitable for power switching and color TV vertical deflection output, etc.

#### FEATURES

- \* High  $BV_{CEO}$
- \* High DC current gain
- \* Large continuous collector current capability



#### ORDERING INFORMATION

Ordering Number		Package	Pin assignment			Packing
Lead Free	Halogen Free		1	2	3	
-	2SA1013G-x-AB3-R	SOT-89	B	C	E	Tape Reel
2SA1013L-x-T92-B	2SA1013G-x-T92-B	TO-92	E	C	B	Tape Box
2SA1013L-x-T92-K	2SA1013G-x-T92-K	TO-92	E	C	B	Bulk
2SA1013L-x-T9N-B	2SA1013G-x-T9N-B	TO-92NL	E	C	B	Tape Box
2SA1013L-x-T9N-K	2SA1013G-x-T9N-K	TO-92NL	E	C	B	Bulk

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

<p>2SA1013L-x-AB3-R</p> <ul style="list-style-type: none"><li>(1) Packing Type</li><li>(2) Package Type</li><li>(3) Rank</li><li>(4) Green Package</li></ul>	<ul style="list-style-type: none"><li>(1) R: Tape Reel, B: Tape Box, K: Bulk</li><li>(2) AB3: SOT-89, T92: TO-92, T9N: TO-92NL</li><li>(3) refer to Classification of <math>h_{FE}</math></li><li>(4) G: Halogen Free and Lead Free, L: Lead Free</li></ul>
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#### MARKING

SOT-89	TO-92	TO-92NL
<p>1</p>	<p>1</p>	<p>1</p>

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

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		$V_{CBO}$	-160	V
Collector-Emitter Voltage		$V_{CEO}$	-160	V
Emitter-Base Voltage		$V_{EBO}$	-6	V
Collector Current		$I_C$	-1	A
Base Current		$I_B$	-0.5	A
Collector Power Dissipation	SOT-89	$P_C$	500	W
	TO-92/TO-92NL		900	W
Junction Temperature		$T_J$	150	$^\circ\text{C}$
Storage Temperature		$T_{STG}$	-55 ~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.

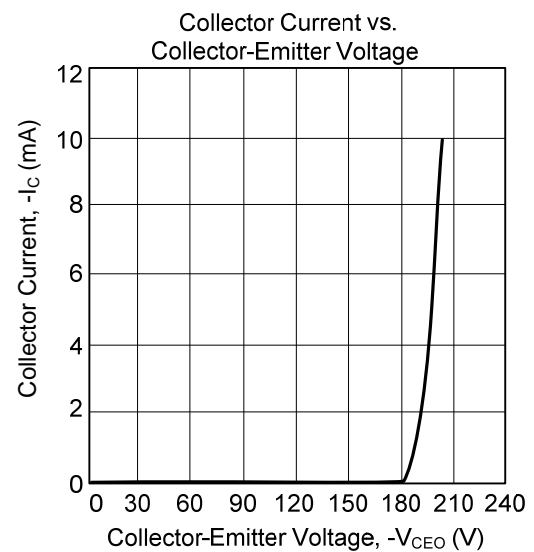
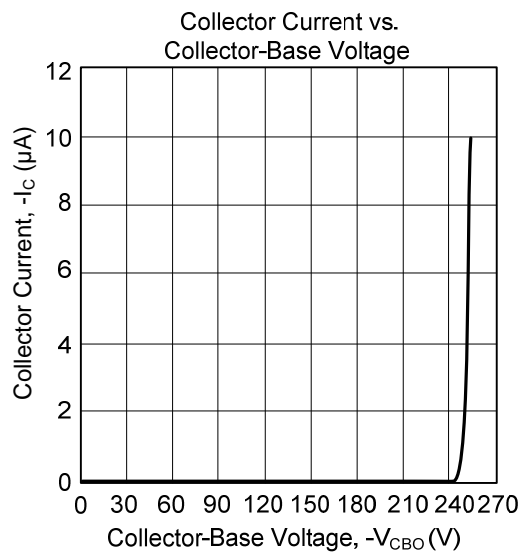
■ ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=-150\text{V}, I_E=0$			-1.0	$\mu\text{A}$
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB}=-6\text{V}, I_C=0$			-1.0	$\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=-10\text{mA}, I_B=0$	-160			V
DC Current Gain	$h_{FE}$	$V_{CE}=-5\text{V}, I_C=-200\text{mA}$	60		320	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-500\text{mA}, I_B=-50\text{mA}$			-1.5	V
Base-Emitter Voltage	$V_{BE}$	$V_{CE}=-5\text{V}, I_C=-5\text{mA}$	-0.45		-0.75	V
Transition Frequency	$f_T$	$V_{CE}=-5\text{V}, I_C=-200\text{mA}$	15	50		MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB}=-10\text{V}, f=1\text{MHz}, I_E=0$			35	pF

■ CLASSIFICATION OF  $h_{FE}$

RANK	R	O	P
RANGE	60~120	100~200	160~320

## ■ TYPICAL CHARACTERISTICS



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