



UN1596

Preliminary

NPN SILICON TRANSISTOR

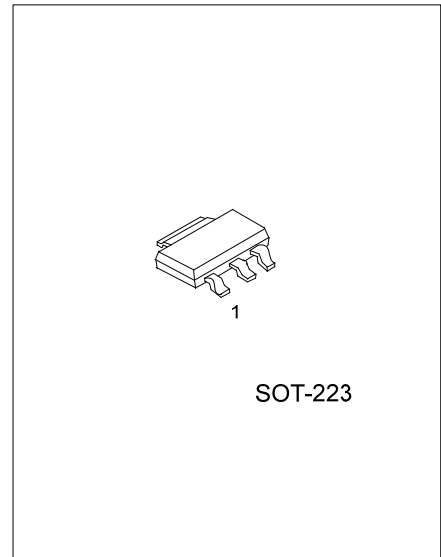
NPN SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

DESCRIPTION

The UTC **UN1596** are series of NPN silicon planar transistor, which has gain of 500 at $I_C=100\text{mA}$. It can be used in such applications: battery powered circuit and darlington replacement.

FEATURES

- * Gain :500 @ $I_C=100\text{mA}$
- * Low saturation voltage



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UN1596L-AA3-R	UN1596G-AA3-R	SOT-223	B	C	E	Tape Reel

<p>UN1596L-AA3-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Free</p>	<p>(1) R: Tape Reel, T: Tube</p> <p>(2) AA3: SOT-223</p> <p>(3) G: Halogen Free, L: Lead Free</p>
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■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage	V_{CBO}	180	V
Collector-Emitter Voltage	V_{CEO}	180	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	0.5	A
Peak Pulse Current	I_{CM}	1	A
Collector Power dissipation	$T_A=25^\circ\text{C}$ P_C	2	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-Base Breakdown Voltage	BV_{CBO}	$I_C=100\mu\text{A}$	180			V
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C=10\text{mA}$	180			V
Emitter-Base Breakdown Voltage	BV_{EBO}	$I_E=100\mu\text{A}$	5			V
Base-Emitter Turn-On Voltage	$V_{BE(ON)}$	$I_C=200\text{mA}$, $V_{CE}=5\text{V}$			0.9	V
Collector Cutoff Current	I_{CBO}	$V_{CB}=140\text{V}$			100	nA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=4\text{V}$			100	nA

ON CHARACTERISTICS

Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=50\text{mA}$, $I_B=0.5\text{mA}$		0.2		V
		$I_C=100\text{mA}$, $I_B=2\text{mA}$		0.2		
		$I_C=250\text{mA}$, $I_B=5\text{mA}$		0.25		
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C=20\text{mA}$, $I_B=5\text{mA}$			0.9	V
DC Current Transfer Ratio	h_{FE}	$I_C=100\text{mA}$, $V_{CE}=5\text{V}$	500			
		$I_C=200\text{mA}$, $V_{CE}=5\text{V}$	150			

SMALL-SIGNAL CHARACTERISTICS

Transition Frequency	f_T	$I_C=50\text{mA}$, $V_{CE}=5\text{V}$, $f=50\text{MHz}$	70			MHz
Input Capacitance	C_i	$V_{EB}=0.5\text{V}$, $f=1\text{MHz}$			200	pF
Output Capacitance	C_o	$V_{CB}=10\text{V}$, $f=1\text{MHz}$			6	pF
Switching Times	t_{ON}	$I_C=100\text{mA}$, $I_{B1}=10\text{mA}$		80		ns
	t_{OFF}	$I_{B2}=10\text{mA}$, $V_{CC}=50\text{V}$		4400		

Note: Pulse width=300 μs . Duty cycle $\leq 2\%$

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