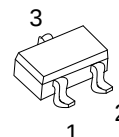


**2SA1977**

Preliminary

PNP EPITAXIAL SILICON TRANSISTOR**POWER AMPLIFIER
APPLICATIONS DRIVER
STAGE AMPLIFIER
APPLICATIONS****■ FEATURES**

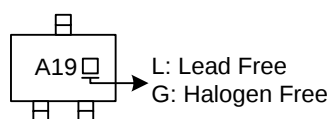
* Complementary to UTC 2SC3356

**SOT-23**
(JEDEC TO-236)**■ ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen-Free		1	2	3	
2SA1977L-AE3-R	2SA1977G-AE3-R	SOT-23	B	E	C	Tape Reel

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

2SA1977G-AE3-R (1) Packing Type (2) Package Type (3) Green Package	(1) R: Tape Reel (2) AE3: SOT-23 (3) G: Halogen Free and Lead Free, L: Lead Free
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■ MARKING

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

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage	V_{CBO}	-20	V
Collector-Emitter Voltage	V_{CEO}	-12	V
Emitter-Base Voltage	V_{EBO}	-3	V
Collector Current	I_C	-50	mA
Collector Power Dissipation	P_C	200	mW
Junction Temperature	T_J	+150	$^{\circ}\text{C}$
Storage Temperature Range	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}	$V_{CB}=-10\text{V}$, $I_E=0$			-0.1	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB}=-1\text{V}$, $I_C=0$			-0.1	μA
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=-25\text{mA}$, $I_B=-2.5\text{mA}$			0.2	V
DC Current Gain	h_{FE}	$V_{CE}=-8\text{V}$, $I_C=-20\text{mA}$	20		100	
Gain Bandwidth Product	f_T	$V_{CE}=-8\text{V}$, $I_C=-20\text{mA}$, $f=1\text{MHz}$	6.0	8.0		GHz
Collector Capacitance	C_{re}	$V_{CE}=-8\text{V}$, $I_C=-20\text{mA}$, $f=1\text{MHz}$		0.5	1.0	pF

Note: Measured by a 3-terminal bridge. Emitter and Case should be connected to the guard terminal.

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. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.