



## 2SD1581

## NPN SILICON TRANSISTOR

### NPN SILICON EPITAXIAL TRANSISTOR FOR LOW-FREQUENCY POWER AMPLIFIERS

#### DESCRIPTION

The UTC **2SD1581** is a single type super high  $h_{FE}$  transistor and low collector saturation voltage and low power loss. This transistor is ideal for use in high current drives such as mortars, relays, and ramps.

#### FEATURES

- \* Ultra high  $h_{FE}$   
 $h_{FE} = 800$  to  $3200$  (@  $V_{CE}=5.0V$ ,  $I_C=500mA$ )
- \* Low collector saturation voltage  
 $V_{CE(SAT)}=0.18V$  Typ. (@  $I_C=1.0A$ ,  $I_B=10mA$ )

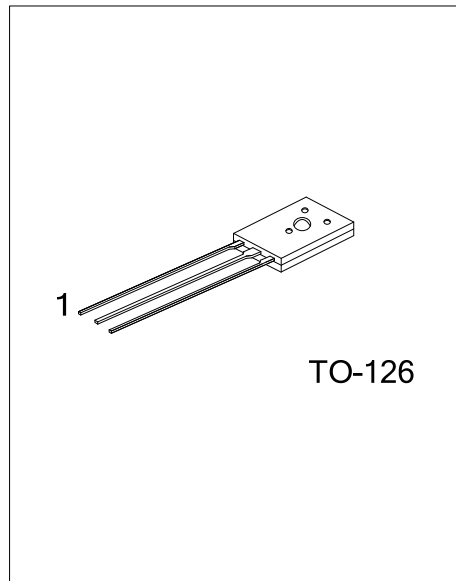
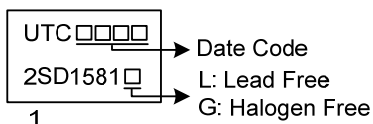
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
2SD1581L-x-T60-K	2SD1581G-x-T60-K	TO-126	E	C	B	Bulk

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

<p>2SD1581G-x-T60-K</p>	<p>(1) Packing Type (2) Package Type (3) Rank (4) Green Package</p>	<p>(1) K: Bulk (2) T60: TO-126 (3) x: refer to Classification of <math>h_{FE1}</math> (4) G: Halogen Free and Lead Free, L: Lead Free</p>
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#### MARKING



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

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage	$B_{V_{CB0}}$	30	V
Collector-emitter voltage	$B_{V_{CE0}}$	25	V
Emitter-Base Voltage	$B_{V_{EB0}}$	15	V
Collector Current	DC	2	A
	Pulse	3 (Note 2)	A
Collector Dissipation	$P_C$	1	W
Junction Temperature	$T_J$	+150	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-50 ~ +150	$^{\circ}\text{C}$

Notes: 1. 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.

2. Pulse Test : Pulse width  $\leq 10\text{ms}$ , Duty cycle  $\leq 50\%$ .

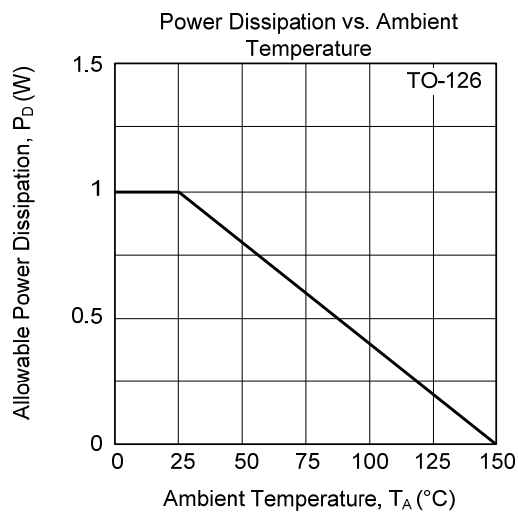
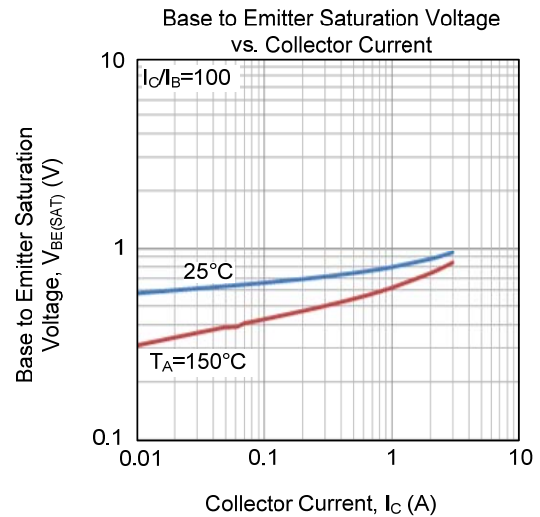
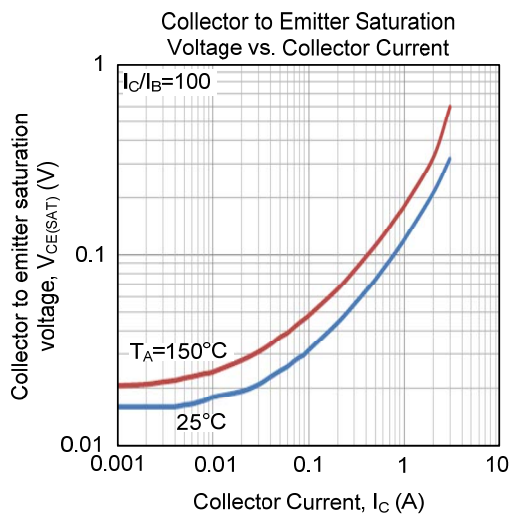
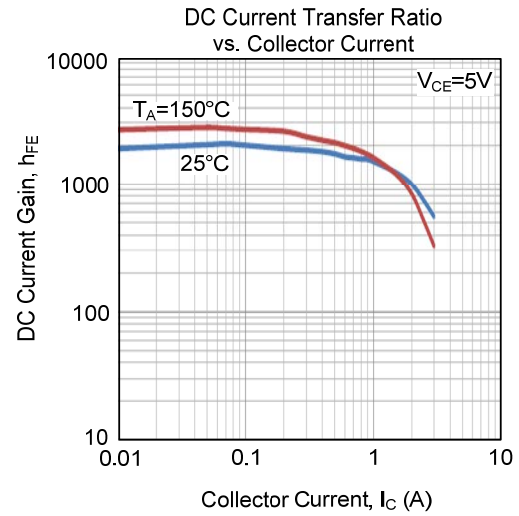
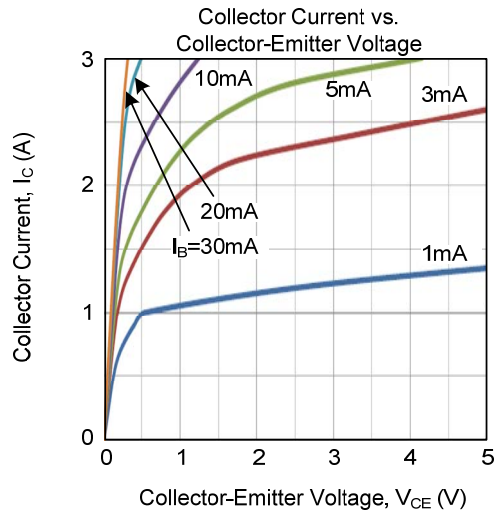
■ ELECTRICAL CHARACTERISTICS ( $T_A=25^{\circ}\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=30\text{V}$ , $I_E=0\text{A}$			100	nA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=10\text{V}$ , $I_C=0\text{A}$			100	nA
DC Current Gain	$h_{FE1}$	$V_{CE}=5\text{V}$ , $I_C=500\text{mA}$	800	1500	3200	
	$h_{FE2}$	$V_{CE}=5\text{V}$ , $I_C=2\text{A}$	400			
Collector Saturation Voltage	$V_{CE(SAT)}$	$I_C=1\text{A}$ , $I_B=10\text{mA}$		0.18	0.3	V
Base Saturation Voltage	$V_{BE(SAT)}$	$I_C=1\text{A}$ , $I_B=10\text{mA}$		0.83	1.2	V
Output Capacitance	$C_{OB}$	$V_{CB}=10\text{V}$ , $I_E=0\text{A}$ , $f=1\text{MHz}$		26	35	pF
Current Gain Bandwidth Product	$f_T$	$V_{CE}=10\text{V}$ , $I_E=-500\text{mA}$	150	350		MHz

■ CLASSIFICATION OF  $h_{FE1}$

RANK	M	L	K
RANGE	800 ~ 1600	1200 ~ 2400	2000 ~ 3200

## TYPICAL CHARACTERISTICS



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.